5-2013

Battle Mound: Exploring Space, Place, and History of a Red River Caddo Community in Southwest Arkansas

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BATTLE MOUND: EXPLORING SPACE, PLACE, AND HISTORY OF A RED RIVER CADDO COMMUNITY IN SOUTHWEST ARKANSAS

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A dissertation submitted in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy in Anthropology

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ABSTRACT

This research is a synthesis of archaeogeophysical and archaeohistorical data collected from the Battle Mound site (3LA1). Using these data, this research seeks to understand how the site is organized in terms of architectural variability and how differential use areas, such as domestic or community space, can be compared to ethnographic and archaeological data concerning Caddo community structure and landscape use. The research is formulated around three research questions related to spatial organization and settlement patterning, intrasite behavioral practices, and Caddo culture history. Results show that an examination at multiple scales of resolution can inform about the spatial organization and settlement patterning of Caddo communities and how these underlying principles that define space have endured or been modified over time. It also proposes a new intrasite model that can be productively tested with geophysical methods and the mapping of the distribution of features within large village areas.

This dissertation is approved for recommendation

to the Graduate Council.

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ACKNOWLEDEGMENTS

This PhD was not possible without the support of numerous individuals. Over the course of the last ten years, the various levels of support from so many people are boundless. As such, it is difficult to remember all the events and interactions that have aided me in my journey to this point in my life. The list of individuals over these years is exhaustive and I am sure that I have inadvertently left someone off this list.

First and foremost, Sharon McKinnon is to thank for everything she has done throughout this process. With my first thoughts of going back to school, the departure from the high-paying world of high-tech sales, and my pursuit of a graduate degree, Sharon has always supported me 100 percent in these endeavors. She has spent endless hours listening to me discuss ("ramble on") my research thoughts and problems aloud and consoled with me during times when I questioned my ability and desire to finish what I started. For that, I am truly grateful and happy that we met so many years ago. Without her support, I am not sure I would be where I am today.

My parents are also to thank for instilling in me at a very young age a perspective of looking at and analyzing the world spatially. As a family, we grew up traveling, camping, and becoming exposed to the diversity of the human experience. From these experiences, I have always been focused on examining my surroundings in geospatial terms. From a young age, souvenirs from these travels were maps – maps of campgrounds, maps of amusement parks, maps of states, maps of public transportation, etc. – and these maps dominated my walls and served as tangible reminders of past experiences and the variability of the organization of space.

Thanks go to my undergraduate advisor, Dr. F. Kent Reilly, III. Academically, this all started with him. His dynamic and engaging instruction and passion for student advancement pulled me in to the amazing world of southeastern archaeology. He saw my interest develop and supported me by including me in field trips and introducing me to people and ideas throughout the southeast. I will always remember the special invitations to participate in the Muscogee (Creek) ceremonies in Oklahoma and Florida and the personal experiences gained from those events.

Thanks go to my graduate advisor, Dr. Kenneth L. Kvamme who provided the instruction and experience to develop my spatial thinking into a formalized academic framework. His instruction enabled me to understand the benefits of archaeogeophysics and the importance of spatial analysis toward an understanding of past cultures. The numerous extensive fieldwork journeys throughout the mountainous west and the vast open plains will always be remembered and retold.

Thanks go to the members of my committee, Drs. George Sabo, III, Jami J. Lockhart, and Jamie C. Brandon. Dr. Sabo was my first introduction to the University of Arkansas when I was originally accepted as a Masters student. He has always been an inspiration in his work with engaging Native Americans in archaeological research. Dr. Lockhart frequently included me in various Survey research projects, which allowed for the development of different perspectives on collecting and analyzing spatial data at a variety of different types of sites. Dr. Brandon provided much needed assistance in the field by graciously providing a place to stay at his house and his ability to "rally the troops" for field assistance. His encouragement through this process helped tremendously and his hospitality is a characteristic to aspire to.

Additional thanks go to the numerous people in Caddo archaeology that have provided comments and ideas throughout my graduate studies. Those people include (in no particular order): Dr. Timothy K. Perttula, Dr. Chester P. Walker, Bobby Gonzalez, Robert Cast, Dr. T. Clay Shultz, Dr. Ann M. Early, Dr. Elsbeth Dowd, Dr. Scott Hammersteadt, Dr. Amanda

Regnier, Dr. Shawn Marceaux, Dr. Mary Beth Trubitt, Pritam Chowdhury, Leslie Walker, Hester A. Davis, Dr. Thomas J. Green, Dr. Frank F. Schambach, Tony Chapa, John Miller, Dr. David B. Kelley, Bo Nelson, Mark Walters, and Dr. Tom Middlebrook. I am sure I inadvertently left people off this list. In particular, thanks go to Drs. Tim Perttula, Chet Walker, Clay Shultz, and Shawn Marceaux and the many invitations in the beginning of my academic career to the "Caddo Lunches" at the Clay Pit and El Mercado in Austin. It was during those afternoon discussions, ten years ago, that I decided that I wanted to research Caddo groups generally and Battle Mound specifically.

Additional thanks go to those people who helped me with data collection, analysis, and presentation. Data collection is not a singular event and so many people are to thank for their help in the field and in the lab. I have met new people and made new friends throughout my graduate experience and all of these friends were always ready to help at moments notice. Thanks to the Caddo people for allowing me to learn about a site that is so important to them. Thanks also to the Brent family for allowing access to the Battle Mound site and their flexibility with this research project.

Finally, I must thank a person who, in a very odd way, changed my life. This person to whom I am referencing is the woman who ran a red light on May 12, 2003, broadsided my jeep at high speed, ejected me several meters from the accident, and sent me to the hospital unconscious. I don't remember any of it. The entire event is a complete blackout and from the reports I have read, death was certainly an option. It was her who made me reflect on what I was doing at that time and was the impetus to pursue my interest in all things history. It is interesting to think where I would be today if it were not for that specific split-second life-changing event.

DEDICATION

This dissertation is dedicated to my late grandmother, Emma Tenney DuBois. She inspired me to always pursue my desires and affectionately supported all of her grandchildren in our endeavors to be the best we can possibly be.

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CHAPTER 1: INTRODUCTION TO STUDY

> *"It may be ominous that both PhD students who tackled Battle Mound dissertations failed. Good luck."*
> *– Michael P. Hoffman 2010*

The research outlined in this dissertation is a synthesis of archaeogeophysical and archaeohistorical data collected from the Battle Mound site (3LA1) - generally considered to date to the Middle and Late Caddo (ca. A.D. 1200 – A.D. 1600) time periods (Hoffman 1970:163-164; McKinnon 2010a, 2011a, 2012a; Perttula 1992:118; Schambach 1982a; Valastro et al. 1972). Using these data, this research seeks to understand how the site is organized in terms of architectural variability and how differential use areas, such as domestic or community space, can be compared to ethnographic and archaeological data concerning Caddo community structure and landscape use. In short, the goal of this research is to explore space, place, and history at this important Red River site.

"Archaeogeophysical data" refers to the use of terrestrial-based remote sensing and interpretation of archaeological features across space (Banning 2002; Clark 1996; Johnson 2006; Kvamme 2003; Linford 2006; Witten 2006). "Archaeohistorical data" refers to the analysis of material culture collected from earlier excavations and surface surveys in order to refine the current temporal framework (see Perttula et al. 2009). Archaeohistorical data also refers to the importance of documenting and incorporating earlier and largely undocumented archaeological collections into contemporary research questions (Bawaya 2007; Christenson 1979; Marquardt et al. 1982). With these data, it is the goal of this research to define and understand Caddo culture generally and the behaviors or practices (see Pauketat 2001) of the occupants at the Battle Mound site specifically.

Over the last 100 years, numerous excavations and subsequent data collection (some systematic and some "looted") have been conducted from mound top platforms and surrounding village areas. Unfortunately, none of these disparate data sources have been analyzed, interpreted, and synthesized into a comprehensive format that allow for considerations of site spatial organization and settlement patterning, integrated intrasite behavioral practices, and occupational culture history. This dissertation research is a remedy to this issue as well as a "guide to future [investigations]" (Hoffman 1970:164) at this important multi-platform mound site located in the Great Bend Region of the Red River in southwest Arkansas.

Research Questions

This research intends to define how the Battle Mound cultural landscape is organized in terms of architectural variability and how differential use areas can be compared to ethnographic and archaeological data concerning Caddo community structure and landscape use. The following questions serve to provide a framework for such a synthesis and as a basis to apply these data to address anthropological questions related to spatial organization and settlement patterning, integrated intrasite behavioral practices, and Caddo culture history at the site:

1. How does Battle Mound compare to what is currently known about the ***spatial organization and settlement patterning*** of Caddo communities and farmstead clusters? What are the architectural characteristics and intrasite orientations that define these features and how do they correspond to what has been documented at other sites throughout the Caddo Homeland of southwest Arkansas, northwest Louisiana, northeast Texas, and southeast Oklahoma? Can the distribution of architectural features be defined

as a settlement pattern of dispersed farmsteads that is "as old as Caddo culture itself in the Great Bend region" (Schambach 1982a:7)?

2. Are there differential use areas or ***intrasite behavioral practices*** that influenced settlement patterning and the use of space? What areas represent domestic ("farmstead") and community ("ceremonial") space, as defined by architectural variation and associated material culture?
3. What is the Caddo ***culture history*** at the site and how does this history fit into what is known about settlement patterning, architectural features, and associated behavioral processes within established geo-temporal classifications or archaeological phases that define the Great Bend region?

Theoretical Framework

The theoretical framework guiding this research is centered on archaeogeophysical and landscape theories relevant to an understanding of the dynamic nature of a cultural landscape and associated features. This approach is made possible through the use of broad scale archaeogeophysical data which make it feasible to visualize buried landscape features across a large area for the first time. These data are examined and interpreted using a framework of theoretical characteristics and traits that define the history of Caddo culture as documented in studies on Caddo ethnography, cosmology, architecture, and material culture (e.g. Bolton 1987; Dorsey 1905; Douglas 1932; Fletcher 1907; Griffith 1954; Mooney 1896; Sibley 1832; Swanton 1942; Zavala 1916).

Archaeogeophysical Theory

The use of geophysics to address archaeological questions (archaeogeophysics) has early roots in terrestrial-based remote sensing applications in Europe with the mapping of archaeological sites that are very different from than those in North America (see Clark 1986; Linington 1961, 1963). The use of geophysics as part of archaeological investigations in Europe is now standard operating practice and has afforded researchers a comprehensive examination of the composition of landscapes well beyond traditional archaeological methods. For example, a 30-year project of unprecedented scale has mapped over 10 sq km of magnetic gradiometry data within the Vale of Pickering, North Yorkshire, England (Powlesland et al. 2006). More recently, the Stonehenge Hidden Landscapes Project (Gaffney et al. 2012) has collected a total of 633 ha of remote sensing data with an initial projected survey area of 820 ha. Such projects permit visualization of buried and hidden features of the cultural landscape over wide areas allowing for revolutionary new insights about past uses of space and landscape through time.

In North America (and elsewhere), large-scale excavations employing methods that involve the moving of hundreds or thousands of cubic meters of dirt in order to expose large areas are typically not employed today for a variety of methodological, economical, and ethical reasons (Knight 2007; Kvamme 2003; Perttula et al. 2008). This is especially true in situations where preservation of particular sites is the long-term archaeological conservation goal. Consequently, the use of non-invasive remote sensing methods employed in archaeogeophysical surveys allow for a preservation-oriented and economically feasible approach to pursue the large-scale exploration of settlement patterning and distribution of architectural features across large areas (Johnson and Haley 2006; Perttula et al. 2008).

The use of archaeogeophysics in North America began in the late 1970s (see Lyons and Avery 1977) as a tool for exploring site structure and composition of known and defined sites (Weymouth 1986). Since that time, there has been tremendous development in instrument capabilities (most notably resolution), ease of use, affordability of equipment, as well as the creation of software tailored specifically for archaeogeophysical specialists (Kvamme 2003). As a result, North American archaeologists are increasingly incorporating a variety of geophysical instruments into their "tool kit of today" (Watters 2001).

Recently, there has been a call for action in North American geophysics toward the examination of archaeogeophysical data beyond the application of simple prospection (finding things) that is not tied into larger research programs about the cultural past (Aspinall et al. 2008; Kvamme 2003; Kvamme and Alher 2007; Thompson et al. 2011). This action encourages the use of archaeogeophysical data as a tool directly involved in interpreting factors related to change and continuity of culturally constructed environments as "a departure point to discuss broader implications related to social and cultural meaning" (Thompson et al. 2011). Stated differently, "prospection alone need not be the ultimate goal… even more exciting is the use of [geophysical] results to help explain aspects of ancient cultures that can be known in no other way" (Aspinall et al. 2008:45).

Thus, recent archaeogeophysical explorations have continued to investigate space and place in terms of the traditional larger social and environmental processes, but also with a newfound attempt at understanding individual contributions to the spatial make-up of "persistent places" over time (Schlanger 1992:92; for examples see King et al. 2011; Aspinall et al. 2008:245; Benech, 2007). Specific to Caddo archaeology, the increased use of archaeogeophysics has been dubbed a "revolution" that, when incorporated with traditional archaeological investigations, is producing "unprecedented characterizations of the internal spatial structure and organization of Caddo villages and mound centers" (Perttula et al. 2008). These new landscape-level characterizations of the spatial components of Caddo villages and mound centers are allowing archaeologists the advantage of a more informed understanding of the social and cultural factors related to architectural change over time, demarcations and definitions that constitute the use of space, and continuities of architectural and related cultural traditions across space and time.

Archaeogeophysical data collected in this research has been examined using a combination of inductive and deductive theoretical approaches. An inductive approach has roots in satellite and aerial image interpretation with the recognition that geometric shapes, relative dimensions, and systematic repetitions of objects can form interpretable patterns (Avery and Berlin 1992; Bradford 1957; Wilson 2000). Similarly, archaeogeophysical data collected over a large area can identify patterning of geometric shapes, often the result of anthropogenic influences (for Caddo examples see Creel et al. 2008; Lockhart 2010; McKinnon 2008, 2009, 2010b; Osburn et al. 2008; Walker and Perttula 2007, 2008; Walker and McKinnon 2012). Furthermore, when anomalies in an archaeogeophysical dataset resemble patterns of regular geometric shapes, it can be induced that they are of probable cultural origin, although some natural features do possess distinctive shapes (Avery and Berlin 1992:52).

A deductive approach utilizes known physical properties of the subsurface matrix (artifacts, features, sediments, and soils) to explain how archaeogeophysical instrument sensors might respond (Clark 1996; Witten 2006). For example, thermoremanent magnetism is the result of highly heated burning events, which can produce an anomaly composed of stronger magnetic values (see Kvamme 2006a, 2008a). As such, anomalies of medium to high magnetic value may be deduced as being generated as a result of a continuously used hearth or the ritualized burning of a structure (see Trubitt 2009). A soil matrix that has been magnetically enriched through pedogenesis (induced magnetism and magnetic susceptibility) can also produce anomalies containing stronger magnetic values than those in the surrounding matrix (see Dalan 2008; Kvamme 2006a, 2008a). Thus, several low to medium magnetic signatures identified within or around a structure may be deduced as being constructed pits. Highest magnetic values are typically related to ferrous metal debris buried close to the surface, which can generate anomalies of extreme magnitude.

Landscape Theory

The study of culture across a landscape is filled with various terms, each specific to a variety of research and theoretical agendas. Terms such as landscape archaeology (Anschuetz 2001; Layton and Ucko 1999), anthropology of place (Binford 1982; Bowser 2004; Tilley 1994), sacred and ideational landscapes (Brady and Ashmore 1999; Shaw 2000), ecological landscapes (Delcourt and Delcourt 2004; Krech 1999), cosmological landscapes (Bailey 1995; Knight 1998; Lepper 2004; Sabo 2012), political landscapes (King 2003; Smith 2003), and socialized landscapes (Ashmore 2002; Ashmore and Knapp 1999) are given to those approaches that analyze landscapes to achieve an understanding of culture as it is manifested across space.

These terms can be conflated into two complementary approaches toward the study of cultural landscapes. One approach is through an analysis of the distributional characteristics of "tangible" components that make up the landscape (be they cultural or natural) to understand processes such as economic, political, and social. The second is rooted in phenomenology or the ideational processes (the "intangible") of how concepts of memory, identity, and conception shape and change the landscape over time (Tilley 1995; Alcock 2002; Ashmore and Knapp 1999).

In a tangible approach, one might examine quantifiable dimensions of the archaeological record, such as viewshed (Vogel 2012), distance (Binford 1982; McKinnon 2011b), or settlement cluster analyses (Vogel 2004). These can then be examined in terms of economic or socio-political systems and subsequent relationships as manifested across a landscape.

In an intangible approach, archaeologists are often more interested in the qualitative dimensions of the human psychological relationship with an environment and how those dimensions are shaped and reshaped by memory and identity (Alcock 2002; McKinnon 2013; Sheets and Sever 2007; Tilley 1994). These qualitative attributes can then be examined in terms of constructed landscapes that were deliberately arranged, organized, executed, and modified based upon a particular suite of highly integrated political, social, economic, and ideological rules and aspirations about space (see Feld and Basso 1996; Hirch and O'Hanlon 1995; Low and Lawrence-Zúñiga 2003; Sabo 2012).

The application of quantitative and qualitative approaches in landscape theory need not be independent of each other. In fact, the complementary use of both approaches allows for an examination of both functional and symbolic components (Blitz 2010; Knight 1998; McKinnon 2013; Sabo 2012; Thompson et al. 2011). Using this combined approach, cultural landscapes can be considered as "ritual objects" - holistic in nature and integrated into the daily lives and functions of its occupants that is embedded with social or cosmological meaning, purpose, and vision (Anschuetz et al. 2001; Cobb 2003; Freidel and Schele 1988; Kornfeld and Osborn 2003; Matthews 2004; McKinnon 2013; Robb 1988; Sabo 2012). These integrated functional and symbolic components are often manifested at a multitude of spatial resolutions and relationships, including regional level relationships to natural and culturally constructed features and other village locales (Binford 1982; Blitz and Lorenz 2006; Girard 2012; Lockhart 2012; Marrinan and White 2007; McKinnon 2013; Perttula 2009; Pollack 2004; Rafferty and Peacock 2008; Rees and Livingood 2007; Sabo 2008; Vogel 2012), an intra-site or intra-organizational scale reflected as the deliberate spatial orientation of special use structures, activity areas, and delineated spaces (Bailey 1995; Brown 2012; Henry 2011; King et al. 2011; Knight 1998; Lockhart 2007; McKinnon 2008; Perttula and Rogers 2007, 2012; Sabo 2012; Walker and McKinnon 2012; Walker 2009), and large-scale resolutions examining use and spatial organization within specific areas, such as on mound summits or within individual households and the use of interior space (Deetz 1982; Gasco 1992; Hagstrum 2001; Jackson et al. 2012; King et al. 2011; Pluckhahn 2010; Schambach 1996; Trubitt 2009; Wilk and Rathje 1982).

The use of spatial data can provide insight into humanistic concepts of landscape and ritual meaning. One way to approach this is through an examination of settlement patterning to "search for land use patterns and strive to find driving forces behind land use differences to come up with land use classifications that are meaningful in socio-economic and cultural terms" (Moran 2008:100). More so, the examination of patterns in land use and associated "spatial ordering at comparable levels of resolution may thus reveal new insights concerning the use of cosmological principles in pre-contact times and the manner in which these principles persisted or changed over time" (Sabo 2012:446).

Caddo Culture Theory

Theoretical principles that have defined the study of Caddo culture, most notably with Alex Krieger's (1946) synthesis and creation of Caddo area Gibson and Fulton Aspects using the Midwestern Taxamonic Method (McKern 1939), are primarily rooted in a culture-historical approach that have relied heavily on the use of ethnographic records to make direct-historical connections (Perttula 1992, 1996, 2012a). This type of analysis was critical in first demonstrating the correlations between historically documented Caddo groups and the archaeological record. This direct-historical approach is a process that is still used today in many studies given the history of European interactions (and associated historical documents) with Caddo groups (Early 1993 ed.; LaVere 1998; Rogers and Sabo 2004; Sabo 1995, 1998; Schambach 1989, 1993; Smith 1994, 1995). Building upon these initial Aspects, Caddo archaeologists continue to refine material typologies (Bell 1958, 1960; Suhm et al. 1954; Suhm and Jelks 1962), regional cultural chronologies (Bell 1972, 1984; Brown 1984; Early 2002a, 2002b, 2002c, 2002d; Hoffman 1971; Kelley 2012; Perttula 1996; Rohrbaugh 1982, 1984; Schambach 1982a; Schambach and Miller 1984; Webb 1948, 1949), and the delineation of Caddo cultural groups (Perttula 1992, 2012b) using a type-variety classification system (Willey and Phillips 1958). More recent typologies have focused on the classification of stylistic attributes that focus on "different decorative techniques on the rim and body of the same vessel" (Schambach and Miller 1984:113). This descriptive system is an attempt to describe and classify ceramic sherds that cannot be classified into the standard type-variety classification system (Early 1993b; Kelly 1997; Schambach and Miller 1984; Schambach 1981). This descriptive classification system is known at the Collegiate System.

Recent work continues to explore the spatial-temporal framework established by culture-historical approaches in addition to the implementation of concomitant theoretical or methodological approaches. For example, Kay and Sabo (2006) use a seemingly structural approach toward the understanding of mortuary ritual at a Harlan style charnel house. Trubitt (2009) uses what might be considered a functional approach in looking at the architecture as an "artifact" that can provide information about ritual process and symbolism. Landscape studies have also recently become more apparent in Caddo archaeological research (Brooks 2012; Perttula and Rogers 2007, 2012; Vogel 2012), including the use of geophysical methods to elucidate intrasite distributions across the landscape (Creel et al. 2008; Lockhart 2010; McKinnon 2008, 2009, 2010b; Perttula et al. 2008, Walker and Perttula 2007, 2008).

The study of architecture has also provided insights into Caddo culture and questions related to continuity or change (variation) over time (Trubitt 2009; Schultz 2010; Webb 1940). For example, the Belcher (Webb 1959) and Tom Jones sites (Lockhart 2010) are excellent examples of cultural continuity as manifested in architecture. At the Belcher (16CD13) site, Webb (1959) uncovered early Haley phase (ca. A.D. 1200 – 1400) rectangular structures at the base of the mound that were below later Belcher phase (ca. A.D. 1400 – 1600) circular structures, some of them even sharing the same central hearth. Excavations at the Tom Jones (3HE40) site revealed superimposed rectangular and circular structures "aligned so similarly that they could have used the same entranceway, support posts, and central hearth" (Lockhart 2010:244). At Battle Mound, the 1948 mound excavations (see Chapter 4) document two superimposed circular structures found on the southern platform that likely shared the same central hearth (Krieger 1949; McKinnon 2010a). The importance of a shared central hearth or sacred fire over time has ties to cultural symbolism and cosmology and affords the opportunity to utilize both the qualitative (archaeological data) and quantitative (ethnographic data) as complimentary datasets in the elucidation of intertwined functional and symbolic components that define Caddo culture (Hultkrantz 1979:146; Lankford 1987:66-69; Sabo 2012:445).

A second architectural feature that has provided insights into Caddo culture is the examination of extended entranceways. For example, Perttula (2009) has evaluated extended entranceway orientation in terms of identifying isolated regional architectural traditions within the larger Caddo area. Additionally, Kay and Sabo (2006) have examined the orientation of structures and entranceways toward broader connections of cosmological symbolism within Caddo traditions. At the Oak Hill Village (41RK214) site a large area was excavated revealing numerous structures (Perttula and Rogers 2007, 2012). Only the later dated circular structures contain extended entranceways, leading the authors to conclude that extended entranceways are late in the Caddo cultural sequence. However, at the McLelland (16BO236; Kelley 1997 ed.) and Cedar Grove (3LA97; Trubowitz 1984 ed.) sites (both Late Caddo Red River sites) there are no indications of extended entranceways attached to the circular structures.

This dissertation continues to build upon the established culture history theoretical program common in Caddo archaeology through the use of historically (or ethnographically) based models to guide archaeological and geophysical interpretations and to allow for spatial-cultural comparisons through time.

Methodological Framework

Archaeogeophysics

Recent investigations at the Battle Mound site have concentrated on the collection of archaeogephysical data to explore the spatial arrangement of culturally generated geophysical features and identify areas of cultural occupation (McKinnon 2008, 2009, 2010b). In this recent research, magnetic gradiometry has been the primary method of data collection and subsequent identification of architectural features using data collection and processing methods typically employed in North American archaeogeophysics (see Kvamme 2006a; Kvamme et al. 2006). Complementary archaeogeophysical instrumentation (see Clay 2001; Kvamme 2006b, 2007;

Kvamme et al. 2006) has also been utilized, including resistivity (see Somers 2006), ground-penetrating radar (see Conyers 2004, 2006), conductivity (see Clay 2006), and magnetic susceptibility (see Dalan 2006a, 2008) in target areas to corroborate (or refute) inductive interpretations of geophysical anomalies identified in magnetic gradiometry data (McKinnon 2008).

Archaeohistorical

Archaeohistorical data refers to the analysis of available material culture collected from earlier systematic excavations and controlled surface surveys in both on- and off-mound contexts in order to refine the current temporal framework.

The mound at the Battle Mound site is the largest extant mound in the Caddo Homeland (Muller 1978:321). Thus, it is easy to understand why archaeological investigations (especially those known and documented) have been conducted at the site since Clarence B. Moore in 1911. Moore docked his intrepid steamship *Gopher* (see Person et al. 2000) on the shores of the Red River and excavated on the large mound and around the site. Since that time there have been both amateur collecting and controlled excavations. Unfortunately, apart from a short mention in Moore's publication (1912) and a few unpublished manuscripts, nothing has been formally published regarding an analysis of archaeologically gathered data from the site over the last 100 years (see Perttula et al. 2009 as an exception). In this research, artifacts from two important and undocumented archaeohistorical datasets are used as material indicators of spatial organization and settlement patterning, integrated intrasite behavioral practices, and Caddo culture history at the site. Those datasets are mound top excavations conducted in 1948 (see Chapter 4) and artifacts collected during controlled surface collections from 1979-1991 (see Chapter 5).

Red River Caddo Settlement Patterning

The Battle Mound site presents a unique opportunity to determine at what level this important mound site resembles spatial organization and settlement patterning similar to those originally documented in ethnohistorical accounts and later explored archaeologically throughout the Red River Caddo region.

Domingo Terán de los Ríos Map & William S. Soule Photographs

The most often-cited ethnohistorical account of Caddo settlement patterning, specifically of a Caddo community at a landscape scale, is the Domingo Terán de los Ríos map (Swanton 1942:pl. 1). Known colloquially as the Terán map, it was recorded by an anonymous scribe of the Domingo Terán de los Rios expedition in 1691 (Hatcher 1932). The Terán map displays a large Upper Nasoni (a group part of the larger Kadohadacho confederacy – see Swanton 1942) community of "25 clusters of buildings, of which 23 appear to be farmsteads, dispersed along both sides of the Red River and around two oxbow lakes for a distance of *no less than 4 km and possible 9 km or more*" (Schambach 1982a:7, *emphasis added*). Each partitioned farmstead consists of one or more large circular thatched-covered dwellings with open-air storage structures and ramadas as documented in 1691. The map does not contain a scale.

The map is one of the few ethnohistorical sources documenting a synchronic view of a spatial layout of a Caddo community and provides a historically based model of a Caddo community and constituent farmsteads (Schambach 1982a). The community is presumed to be the Hatchel-Mitchell-Moores site complex in Bowie County, Texas (Perttula 2005; Wedel 1978). Specifically, the platform mound at the Hatchel site (41BW3) is considered the temple mound depicted in the Terán map (Perttula 2005; Wedel 1978). In addition to the large mound situated on the western edge of the community, a few of the dispersed farmsteads have been archaeologically identified and recorded along this portion of the Red River (see Perttula et al. 1995; Perttula 2005; Walker and McKinnon 2012; Walker and Perttula 2008).

The large temple mound contains only three constructed components in the immediate vicinity – the mound itself, a solitary *templo* or temple on the mound summit, and an open-air structure at the mound base. Two delineated farmsteads, each separated by a vegetation boundary or fence, are situated directly northeast and east of the mound. Further to the east of the Hatchel mound, and centrally located in the community, is the home of the *Caddi* or community leader (Bolton 1987; Griffith 1954; Swanton 1942).

Sabo (2012) has explored the spatial orientation of the Upper Nasoni community as a representation of a cosmogram embedded in a deliberate layout and organization. In his analysis, Sabo (2012) suggests that the mound and temple on the western fringes of the community functioned as both a physical and symbolic "gateway" through which visitors entered the community and were welcomed with various eating, smoking, and cleansing ceremonies and rituals (see Sabo 1995). These rituals served to communicate and connect individuals with both the human realm (This World or Middle World) and the spirit realm (Upper World; see Reilly 2004). In terms of spatial patterning, Sabo suggests that the Nasoni community layout represents a "hierarchically-ordered community" with the temple mound, home to the priestly *Xinesi* and serving as the central point for the maintenance of social relationships with the Upper World, and the *Caddi* residence centrally located within the community and serving as the central point for the maintenance of social relationships with members of the This World community. These two centers, and the symbolic constituents they support, were "connected" through the kindling of a sacred fire or "axis mundi" that was continually reaffirmed through ritual. This sacred fire was subsequently "shared" with the individual fires (that is, spiritual and symbolic decedents of the sacred fire) within the community farmsteads, thus maintaining symbolic and community cohesion within a framework of overarching cosmological beliefs and spiritual and community relationships.

A second piece of ethnohistorical data concerning settlement patterning and associated architectural structures are photographs taken by William S. Soule of the Smithsonian Institution between 1868 and 1872 that show the farmstead of Chief Long Hat near Binger, Oklahoma. The Soule photographs document a group of Caddo individuals sitting under an outdoor arbor in front of a group of thatch roof structures and associated buildings (Schambach 1982a:11; Swanton 1942:pl.14). The combination of farmstead structures and architectural elements in the Soule photographs is similar to structures in the Terán map despite the lapse of almost two hundred years between the two sources. As a result, Schambach (1982a:7) has suggested that these sources represent "historically based models of a Caddo farmstead and of a complete Caddo settlement to take to the field and test for accuracy and time depth." Generally, the use of these two ethnographic sources is referred to in the literature at the Terán-Soule model.

Testing the Terán-Soule Model

Some preliminary testing of this settlement model (also erroneously referred to as the Vacant Mound or Vacant Ceremonial Center model – see Gibson 2001:24-25 on interesting Harvard origins of theoretical considerations for the application of a vacant ceremonial center) has been conducted at a few sites, such as Cedar Grove (Trubowitz 1984), Tom Jones (Lockhart 2007, 2010), Hill Farm (Perttula et al. 2008), Battle Mound (McKinnon 2009, 2010b), and Hardman (Early 1993 ed.) sites. Consensus in research demonstrates architectural similarities in style and form of construction as those on the Terán map with disparities in the distribution of structures as related to a "vacant" ceremonial center.

At the Cedar Grove (3LA97) site, a single circular structure (Structure 1, Feature 3) was confidently identified. Based on using common architectural attributes archaeologically found throughout the Caddo area – that is a "circular shape and the presence of the quantities of daub in both features and midden" - Trubowitz (1984:93) states that Structure 1 "fits the ethnographic model of a round walled house with a thatched roof." Additionally, with the presence of adolescent burials and other domestic features, Structure 1 is posited as being a domicile (Trubowitz 1984:94). With the identification of an increase in high status material objects over time (conch shell beads, pendants, a shell cup, and bald eagle offering), Trubowitz (1984:270) suggests that Cedar Grove might have been "the residence of a lower level Caddo official and his family retainers between 1670-1730" and perhaps "acquired more access to status goods over time." In terms of testing the Terán-Soule community settlement model, much of the architectural information gained from the Cedar Grove excavation is fairly ambiguous owing to the destruction of portions of the site by the meandering river and research areas limited to those directly impacted by the levee revetment and a small area adjacent to the impacted area (Trubowitz 1984:266-271). Furthermore, the minimal landscape exposure prevents a true analysis and comparison to the Terán-Soule model.

At the Tom Jones (3HE40) site, located in the environmentally dissimilar Blackland Prairie highlands, geophysical grids were oriented in areas that structures were anticipated as well as in areas where they were not expected in order to compare results "to the conventionally accepted pattern as depicted in the Teran Map" (Lockhart 2007:82). Based on the proximity of seven rectangular structures to the large mound and their architectural difference (rectangular vs. circular), Lockhart (2007:103) concludes that the "data suggest an intrasite pattern that differs markedly from the largely vacant mound center with sparse construction depicted on the seventeenth century Teran map." Excavations of these deliberately burned and buried structures at the Tom Jones site produced several large ceramic cooking vessels and a substantial amount of fauna and flora remains, suggesting that the structures were used for specialized cooking and directly associated with events linked to the large mound (Lockhart 2007, 2010).

At the Hill Farm (41BW169) site, the Terán-Soule model was applied not necessarily to test for structures in close proximity to a large mound but instead was used to identify a specific farmstead group depicted on the Terán map (Perttula et al. 2008; Walker and McKinnon 2012). Based on shovel testing that identified two distinct areas of ceramic and faunal material, geophysical surveys were conducted (Sundermeyer et al. 2006). Results reveal at least ten Caddo circular structures containing central hearths, a possible granary structure, and possible compound fence (Perttula et al. 2008). Using an abandoned channel of the Red River and the relationship of that channel to the known Hatchel Mound, it is suggested that the geophysical and archaeological data at the Hill Farm Site correspond to "two household compounds on the Teran map" (Perttula et al. 2008:103; Figure 14b).

At the Battle Mound site, initial research established a framework of exploration on a landscape scale that identified at least three clusters composed of circular anomalies interpreted as circular structures, a possible large cemetery area, and the possibility of a compound fence. Based on the initial archaeogeophysical results, McKinnon (2008:91) concludes that the intrasite settlement patterning at the site "does not resemble a pattern of settlement similar to the vacant mound center patterning depicted in the Domingo Terán de los Ríos map."

At the Hardman (3CL418) site, situated within the Ouachita River drainage, complex postmold patterning at the site indicates that a large variety of structures and supporting architecture was present (Early 1993a). The range of architectural features indicate the presence of circular domestic structures and the possibility of outdoor work platforms that defines a "complete compound occupied by people engaged in numerous domestic activities in addition to the manufacture of salt" (Early 1993a:227). Furthermore, a large arc of postmolds is interpreted as a "fence of some type encircling a large portion of the midden area" (Williams 1993:43). These characteristics are very similar to those defined in the Domingo Terán de los Ríos map, although situated not in the Red River basin (the location of the Terán map) but in the Ouachita River basin further to the northeast.

Other sites throughout the Caddo area, located in a variety of environmental locales, demonstrate that a vacant mound settlement model is inconsistent across space and time. For example, at the Belcher site, Webb (1959) documents the presence of surface artifacts within 30 m of conjoined Mounds A and B, although no indication of a large village was discernable. This led him to propose that the Belcher site was a "small ceremonial center for a group who lived in scattered habitations" (Webb 1959:12). The Adair (3GA1) site contains a single flat-topped mound with one or two supporting low mounds, evidence of off-mound structures, midden areas, and cemeteries (Dellinger and Dickinson 1939). The site is not located within a primary alluvial valley, but is instead located upstream and some distance "from the principal drainage and the greatest density of known Caddoan sites [along the Ouachita River]" (Early 1982:228). At the Standridge (3MN53) site, regional settlement models of the Ouachita River basin (see Early 1982) classify the site as part of a group of low mound clusters situated on hilltops that overlook the river valley below and are a "subsidiary to higher echelon sites in the social hierarchy" (Early 1988:164).

The Terán Map and the Question of Scale

In terms of the size of the Nasoni community depicted on the Terán map, the question of scale should be explored if the Terán-Soule model is to be properly evaluated. As of current, sites tested against the model do not conform to the "vacant mound center" settlement patterning as drawn on the Terán map. Does this mean the map is inaccurate? Does this mean that the intrasite settlement patterning at the Nasoni community is unique with its apparent lack of structures around the mound? It means that the question of scale remains unresolved. Certainly, there are stylistic attributes associated with the map that prohibit real-world actualities of the distribution of structures and features. However, it is argued that there are stylistic consistencies that can be examined in an attempt to better estimate the scale of the map and the proposed distances of structures and farmsteads from the large mound. In other words, does the area around the temple mound depicted on the Terán map represent a vacant space, or does it simply "seem" that way because the scale of the map is not fully understood?

If the Hatchel-Mitchell-Moores community is spread out over "a distance of no less than 4 km and possible 9 km or more" (Schambach 1982a:7), a rough "top down" estimate of the distance between the structures within the closest farmstead groups and the large mound is 300 m (using the 4 km community size) and 700 m (using the 9 km community size). At these scales, the demarcated areas that define each farmstead compound range between approximately 6 ha and 25 ha in area (using the 4 km community size) and between approximately 125 ha and 156 ha in area (using the 9 km community size).

If considerations of community size and scale of the Domingo Terán de los Ríos map are alternatively evaluated using a "bottom up" approach and the average dimensions of specific and fairly stylistically consistent map features, such as house diameter, the overall size of the portion of the dispersed community is potentially *much smaller and much more dense* in occupational distribution. This is important to emphasize, since the distributional size of the Upper Nasoni community is typically discussed in terms of the entire community, rather than possible distances between farmsteads and potential size of architectural features drawn on the map.

For example, if a scale of "no less than 4 km and a possible 9 km or more" is applied to the map features, the approximate sizes of the circular structures are 60 m in diameter (using the 4 km community size) and 156 m in diameter (using the 9 km community size). These dimensions clearly differ from archaeological evidence documented during 1938-39 Works Progress Administration (WPA) work conducted at the Hatchel Mound site. The WPA work documents evidence of two superimposed structures (F-1) with the more consistent diameters of 9.5 m and 7.5 m (Perttula 2005). The diameters of the WPA excavated structures at the Hatchel site are well within the size range of diameters for Caddo circular structures excavated elsewhere along the Red River.

For example, Kelley (1997 ed.) documents three non-mound circular structures at the McLelland (16BO236) and Joe Clark (16BO237) sites. Structure 1 from McLelland and Structure 1 from Joe Clark were both 11 m in diameter and Structure 2 from McLelland is recorded at 12 m in diameter. Webb (1940,1959) documents a total of seven sub-mound circular structures at the Belcher site with an average diameter of 9.88 m. At the Cedar Grove site, one nearly complete and two potential non-mound circular structures were documented as part of a levee revetment project (Trubowitz 1984). Structure 1 (Feature 3) has a diameter of 9.6 m and Structure 2 (Feature 21) has a diameter of approximately 10 m. Recent excavations at the Foster (3LA27) site document evidence for eight complete or nearly complete non-mound circular structures that are much smaller at 5.1 m in diameter (Buchner et al. 2012).

At several sites beyond the Red River region, diameters for circular houses are fairly similar in dimension with those documented at Red River sites. At the Hardman site located along Saline Bayou in the Ouachita River Valley, at least two structures are identified with diameters from 6-8 m (Williams 1993). At the Standridge site, a single circular structure (Feature 12) was excavated with a diameter of 8 m (Early 1988:55). Lastly, Schultz (2010) summarizes 185 non-mound circular structures at sites throughout east Texas with an average of 9.46 m diameters.

Using the average diameter of structures as defined in the archaeological record and applying that diameter to the size of the structures drawn on the Terán map, extrapolations about the intrasite scale are proposed. For example, if the dimensions of the circular structures on the map are estimated at 10 m in diameter, the portion of the dispersed Upper Nasoni community drawn on the map is closer to <1 km (approximately 650 m) in size from east to west. Using this refined scale, the structures within the farmstead groups situated northeast and east of the large mound are roughly 40-60 m from the large mound. Continuing with this spatial logic, the area of each individual farmstead ranges from approximately 0.09 ha to 0.64 ha.

This might sound like a small parcel of land necessary to support a family occupying a delineated farmstead group. It is important to highlight that, especially in the fertile Red River valley, the Caddo were highly efficient and proficient in food production with an “adoption of a lifestyle centered around the successful raising of crops” with a “very sophisticated knowledge of plant rearing” (Smith 1995:11; Newkumet and Meredith 1988). Interestingly, the possible Terán map farmstead sizes fall within what the Food and Agriculture Organization of the United Nation states today as applicable arable land for agricultural purposes:

> "It is realistic to suppose that the absolute minimum of arable land to support one person is a mere 0.07 of a hectare–and this assumes a largely vegetarian diet, no land degradation or water shortages, virtually no post-harvest waste, and farmers who know precisely when and how to plant, fertilize, irrigate, etc. [FAO, 1993]"

The possible dense spatial arrangement of the community depicted on the Terán map is contrary to what has been discussed previously regarding size estimations of the Upper Nasoni community (Schambach 1982a). However, it should be specifically noted that while WPA archaeologists concentrated on large-scale excavations at the Hatchel site some 300-350 m from the large mound, they also recorded village deposits that began about 60 m (200 ft) from the mound itself (Perttula 2005:185).

Furthermore, the density of architectural features offered here is not undocumented. Excavations at the Oak Hill Village (41RK214) site, demonstrate dense nucleated village areas of multiple structures ranging from 0.36 ha to 0.9 ha in size with no more than a 50-meter distance between village areas over time (Perttula and Rogers 2007, 2012). At the School Land I (34DL64) site, rectangular structures are situated no more than 17 m (55 ft) apart (Duffield 1969). At the Tom Jones (3HE40) site, at least seven rectangular structures were identified on the west side and immediately adjacent (within 20 m) to the large Mound A (Lockhart 2010). Lastly, at the George C. Davis (41CE19) site in east Texas, a long history of excavations and recent archaeogeophysical surveys have identified 144 structures within an 18.37 ha area (Walker 2009).

Finally, one last examination should be presented as it relates to the consideration of the intrasite scale of the Terán map and a "bottom up" approach using size of architectural features to propose scale. During the 1938-39 WPA excavations at the Hatchel site, the large platform mound was measured at “30.4 feet [9.27 m] in height, 190 feet [58 m] east-west, and 145 feet [44 m] north-south” (Jackson 2003, 2004; Perttula 2005). If the scale derived using the average dimension of farmstead circular structures is applied to the mound, the platform mound drawn on the Terán map is roughly 60 m east-west. This corresponds within approximately a two-meter difference in measurement to what was recorded about the mound archaeologically.

The Battle Mound Landscape and Constituent Farmsteads

There is little question that the organizational structure of Middle and Late Caddo groups that made their home along the Red River floodplain was a dispersed settlement patterning of farmsteads spread out throughout the river valley bottoms similar to that depicted on the Terán map (Schambach 1982a:11). For example, ethnographic records associated with the Hernando de Soto *entrada* and their excursions along the Red River between present day Texarkana and Garland City, Arkansas record a journey “all of which lay through an inhabited region” of Caddo farmsteads (Quinn 1979:143; Schambach 1993:87). Furthermore, dispersed farmstead groups have been identified archaeologically as temporally and spatially related to the Hatchel mound and the surrounding Upper Nasoni community (Perttula et al. 1995; Perttula 2005; Walker & Perttula 2007). What is in question is the intra-spatial nature of structures and farmsteads to each other and to large mounds. In fact, a true “vacant ceremonial center” has yet to be identified archaeologically and, based on the alternate “bottom up” perspective, the Upper Nasoni community was not a vacant ceremonial center.

Further downstream in the Great Bend region of southwest Arkansas (see Chapter 2), the large multi-platform mound at the Battle Mound site has spatial relationships with several identified Caddo farmsteads (Figure 1.1). These related sites are constituents of a large dispersed, yet socially integrated, Caddo community that occupied this area of the Red River. The general organization is likely similar to the dispersed Upper Nasoni community defined on the Terán map. Sites such as Cedar Grove (3LA97; Trubowitz 1984), Friday (3LA28; Moore 1912), Foster (3LA27; Buchner et al. 2012), and Spirit Lake (3LA83; Hemmings 1982) represent individual farmsteads that contain Middle and Late Caddo components that are contemporaneous with the Battle Mound site (Perttula et al. 2009; McKinnon 2010a, 2011a, 2012). This group of sites is known archaeologically as the Spirit Lake Complex (Schambach 1982a, 1993) and was part of a larger Kadohadacho Confederacy political organization. The Sprit Lake Complex is also the likely location of the occupants of the Province of Naguatex, encountered by the Hernando de Soto expedition in late summer 1542 as they moved eastward along the Red River from present day Texarkana (Schambach 1993). Without a

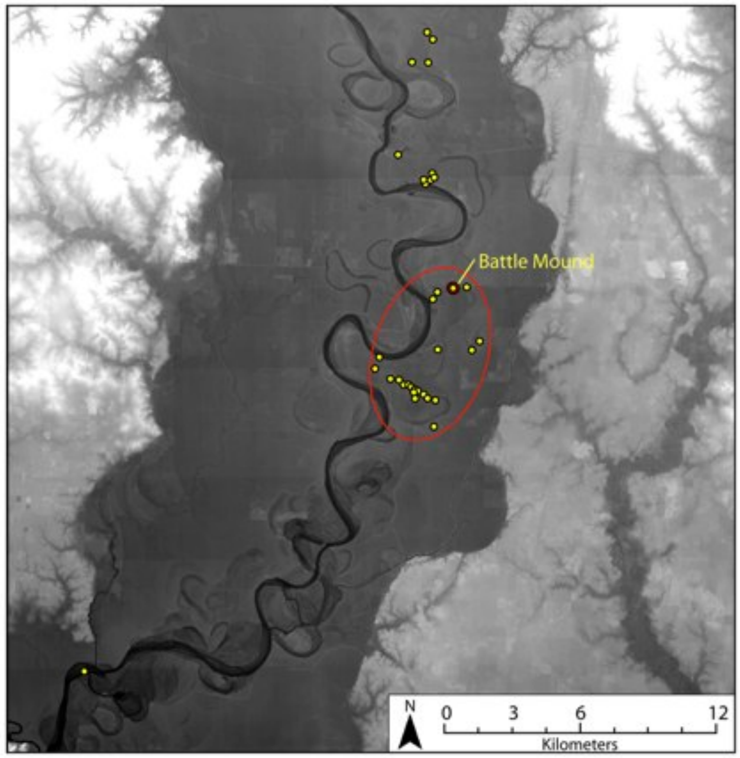

Figure 1.1. Distribution of Middle and Late Caddo archaeological sites recorded along the Red River. Oval polygon outlines a cluster of constituent sites to Battle Mound (2006 Five Meter Resolution Digital Elevation Model Raster, Arkansas State Land Information Board).

doubt, Battle Mound certainly served as a center of population and social organization in the Great Bend region during the Middle to Late Caddo period.

If the "top down" scale and spatial distribution of the temple mound, architectural features and farmstead delineations of the Upper Nasoni community is extrapolated to the Battle Mound vicinity, we should expect to find farmsteads distributed in this region over several kilometers. This is exactly what is recorded in the Arkansas Archeological Survey Automated Management of Archeological Site Data in Arkansas (AMASDA) database. Sites (n = 22) classified in the AMASDA database with a Middle to Late Caddo temporal affiliation (cultural affiliation search criteria = "Caddo, Middle"; "Caddo-Late"; "Caddo II"; "Caddo III"; "Caddo IV"; "Haley Phase"; "Belcher Complex") are distributed over approximately 6 km with Battle Mound located on the northern extent of the immediate community organization (see Figure 1.1). Thus, if the "top-down" scale approach of the distribution of farmsteads in the Terán-Soule model is applied to the Battle Mound site, we should expect little or no architectural features to be present in the immediate vicinity (< 300 m) of the large multi-platform mound. As already documented (McKinnon 2008, 2009a, 2010b), this is not the case.

At the Battle mound site, geophysical anomalies and surface collection artifacts indicate the former location of structures within a few meters of the mound and clusters of structures or possible farmstead groupings about 60 m from the mound (McKinnon 2008, 2009, 2010b). This organization is more similar to the foregoing "bottom-up" scale approach of the Terán-Soule model and a more dense organization of structures at the site. So then, it is suggested that the Battle Mound landscape and constituent farmsteads represent a combination of two settlement pattern models. On a community scale, the Spirit Lake Complex represents a settlement pattern of farmsteads distributed several kilometers along the Red River with a large supporting mound, similar to the dispersed settlement exemplified in the Terán-Soule model. However, on an intrasite scale, the distribution of architectural features at the Battle Mound site differs from the Terán-Soule model or "vacant ceremonial center" with the presence of structure groups only a few meters from the mound and from each other.

As such, this research uses archaeogeophysical and archaeohistorical data to examine the organization of architectural features at the Battle Mound site as it relates to an intrasite scale of Caddo community structure and landscape use over time. It seeks to define the architectural characteristics and arrangements of identified features and propose delineated areas that represent domestic ("farmstead") and community ("ceremonial") space. Furthermore, it presents a temporal framework to understand how the intrasite settlement patterning at the site fits into what is known about settlement patterning, architectural features, and associated behavioral processes with contemporary archaeological phases that define the Middle to Late Caddo occupations in the Great Bend region.

The research outlined here begins with an orientation and general presentation of the geology and culture history of the Great Bend Region (Chapter 2) followed by a brief overview of the history of explorations at the Battle Mound site (Chapter 3). Archaeological data are presented in chronological order arranged according to the timeframe in which they were collected. Material culture is selectively analyzed as it directly relates to the questions that guide this research.

The first data analysis is the mound top excavations conducted in 1948 (Chapter 4). These excavations provide an opportunity to examine the nature of mound top architecture, associated construction sequences, and differential use areas on the mound. The second data analysis is the examination of material collected from the surface from 1979-1991 (Chapter 5).

The surface collection data is important in that it is the only set of material data about off-mound occupational areas that contains spatial control. The third data analysis is broad area geophysical data that have been collected around the mound (Chapter 6). The geophysical data offer the ability to define the types of architectural components and their spatial distribution that can then be correlated to material culture from surface collections. Following the data analyses is a synthesis of these datasets and a concluding discussion on how they address the research questions of this study with interpretations about landscape use and organization at this important Caddo site in the Red River Great Bend region (Chapter 7).

CHAPTER 2: THE GREAT BEND REGION

"… the Great Bend locality of the Red River, one of the foremost sociopolitical centers of Caddoan life ca. 1540"

– Timothy K. Perttula 1992:24

The Red River (of the south)

Originating from the headwaters of the Palo Duro and Tierra Blanca Creeks in the southern plains of the Texas Panhandle, the mighty Red River (of the south) flows east, increasing in sinuosity. The river delineates the border between Texas and Oklahoma and continues into southwest Arkansas where it turns abruptly south forming a distinctive ecological and archaeological landscape known as the Great Bend region. South of the Great Bend and into northwest Louisiana, the meandering river turns to flow southeast cutting across central Louisiana to a confluence with the Mississippi River in the south-central portion of the state. The Red River meander belt drainage is one of the largest drainage basins of the western Mississippi sub basins (Guccione 2008). The physical landscape is a dynamic mixture of natural levees, scroll bars, oxbow lakes, abandoned channels, and upland terraces (Saucier 1994).

The Red River meander belt has been subdivided into a series of three temporal phases of geomorphology based on a comparative analysis using cross-cutting relationships, degree of channel fill, distance from modern river channel, clarity of landform features, and the locations of archaeological sites (Pearson 1982; Albertson et al. 1996; Guccione 2008). The youngest phase is less than 400 years old (0.4 kya) with dates from current natural levee and overbank deposits recorded to that time. The intermediate phase dates from 400 to 3,000 years ago (0.4 to 3.0 kya) and includes abandoned meanders distant from the current river channel. The oldest temporal phase dates from 3,000 to 6,000 years ago (3.0 to 6.0 kya) and contains the most distant meanders isolated within the backswamp and close to terrace formations (Guccione 2008).

The intermediate phase (0.4 to 3.0 kya) contains the majority of extant prehistoric archaeological sites, most of which are situated on natural levees and overbank deposits (Pearson 1982; Kelly and Coxe 1998). In the Great Bend Region, the intermediate phase is host to a large number of Fourche Maline period (500 B.C. – A.D. 900) and Caddo period archaeological sites (A.D. 900 – A.D. 1800). The oldest phase (3.0 to 6.0 kya) is confined to a scattering of Archaic period (8000 B.C. – 500 B.C.) sites that are often difficult to locate being either destroyed by river migration or deeply buried by aggradation. Even fewer in number are Paleoindian period (before 8000 B.C.) sites, likely deeply buried by aggradation.

The Great Bend Region

The Great Bend region of the Red River is ecologically diverse and rich in cultural heritage. It is a region that has changed dramatically throughout time owing to various dynamic and destructive river processes (Figure 2.1), along with the advent of mechanized agriculture during Euro-American settlement. The dynamic and destructive nature of the Red River is exempflied when comparing the number of mound sites documented by Moore (*n* = 49; Moore 1912) to the number identifed during surveys in the early 1980s (*n* = 26; Weinstein et al. 2003).

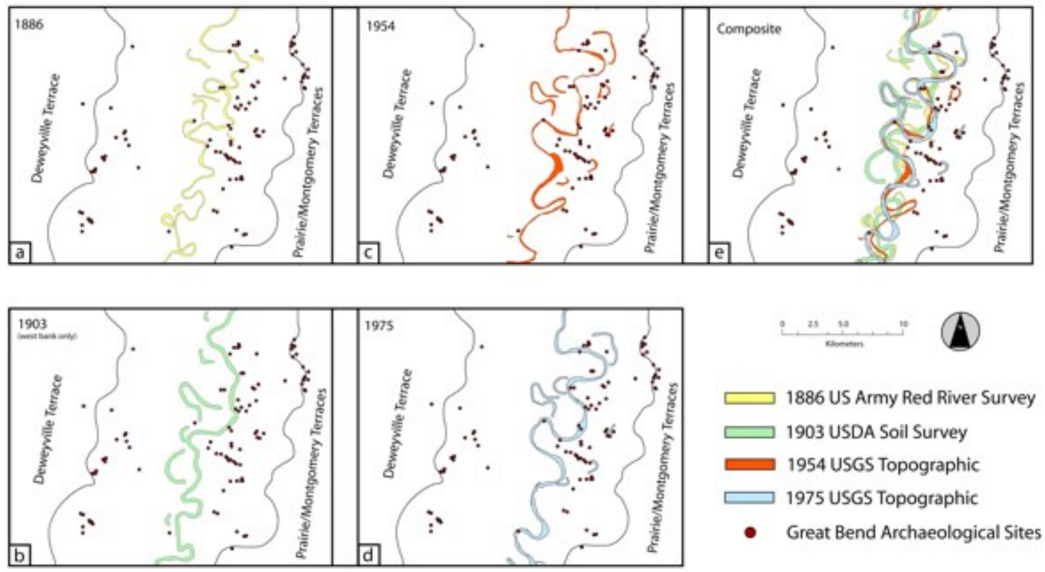

Figure 2.1. The dynamic nature of the Red River over the course of 89 years: (a) 1886 (after Chief of Engineers, US Army Red River Survey). (b) 1903 (after USDA Miller County Soil Survey map). (c) 1954 (after USGS 7.5 minute Garland Quadrangle). (d) 1975 (after 7.5 minute photo revised Garland Quadrangle). (e) Composite map

High river activity and sediment deposition are characteristic of this part of the Red River valley, which is composed of numerous channel scars, oxbow lakes, and back swamps (Figure 2.2). With agriculturally productive red-clay soil deposits, diverse ecology and navigable waterways, the Great Bend region is host to numerous prehistoric and historic archaeological sites (see Guccionie 2008). Principal among them are the many sites left by the ancestors of the Caddo Indian peoples that lived in this area from at least as early as ca. A.D. 900 and as late as the early 19th century (see Schambach 1982a; Perttula 1992, 2012a).

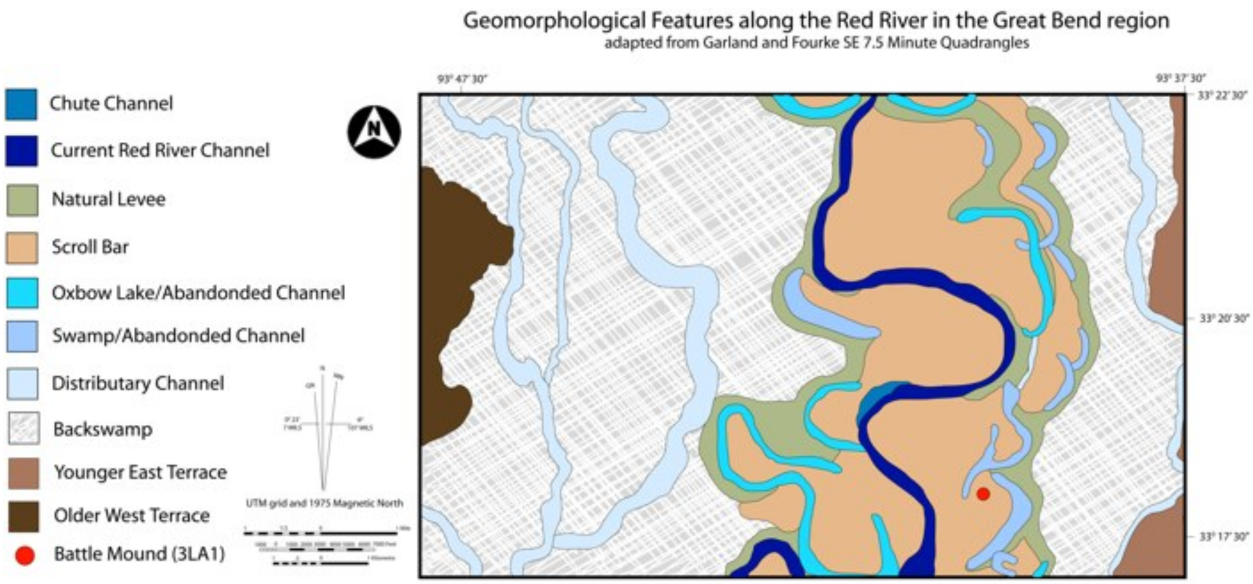

Figure 2.2. A stylized schematic of geomorphological features within the Red River in the Great Bend region Battle Mound vicinity (after Garland and Fourke SE 7.5 Minute Quads)

The Great Bend region cuts across the biogeographical area defined as the Trans-Mississippi South (Schambach 1998:xi-xii). The Trans-Mississippi South is a large area bordered by the Missouri River to the north and stretches southwest across the Ozark Plateau and Ouachita Mountains. The Trans-Mississippi South continues southwest until it reaches its southern border along the western edges of the West Gulf Coastal Plain and the foothills of the Edwards Plateau at the Lower Colorado River (Schambach 1998:8). This biogeographical area is characterized by a combination of forest cover, fauna, climate, and terrain very similar to the eastern Woodlands environment located east of the Mississippi River (Schambach 1998:8). Furthermore, the Trans-Mississippi South contains various environmental zones or micro-niches that would have offered easy access to a variety of faunal and floral resources to be exploited.

As the Red River turns and flows south at the the city of Fulton, Arkansas, the geologically oldest landform features in the Great Bend region are the two terraces along the margins of the Red River valley (see Figure 2.2). Differences in elevation indicate that the terraces are unlikely to be of the same geological age. The west terrace (portions of the Deweyville Terrace) is more highly eroded and presumably the older of the two. The terraces on the east side of the basin (Prairie/Montgomery Terraces) are of relatively low elevation, not highly dissected, and presumably the younger of the two (Guccione 2008:Figure 7).

In the floodplain, numerous abandoned channels in varying states of development are visible on the landscape today. They include recently abandoned channels close to the current river channel occupied by large oxbow lakes (a recreational haven for local boaters and fishermen), smaller oxbow lakes further from the current channel that are gradually becoming filled with overbank alluvium, former oxbow lakes that now form vast swampy areas, and dried up marshes that are visible as minor depressions in the topography. Oxbow lakes that are closer to the current channel and contain abundant water are generally younger than those that have been infilled to form swamps and shallow topographic depressions. Older abandoned channels seem to be concentrated on the east side of the current channel that have developed into swamp areas (see Figure 2.2).

This undulating landscape is also known as "ridge and swale" topography and dominates the Great Bend region. The topography is a result of the formation of ridges (natural levees and point-bars) along the banks of swales and depressions that define former river channels. Satellite imagery throughout the Great Bend region clearly shows a series of alternating point-bar ridges and associated swales as vegetation changes based on differential moisture content (Figure 2.3).

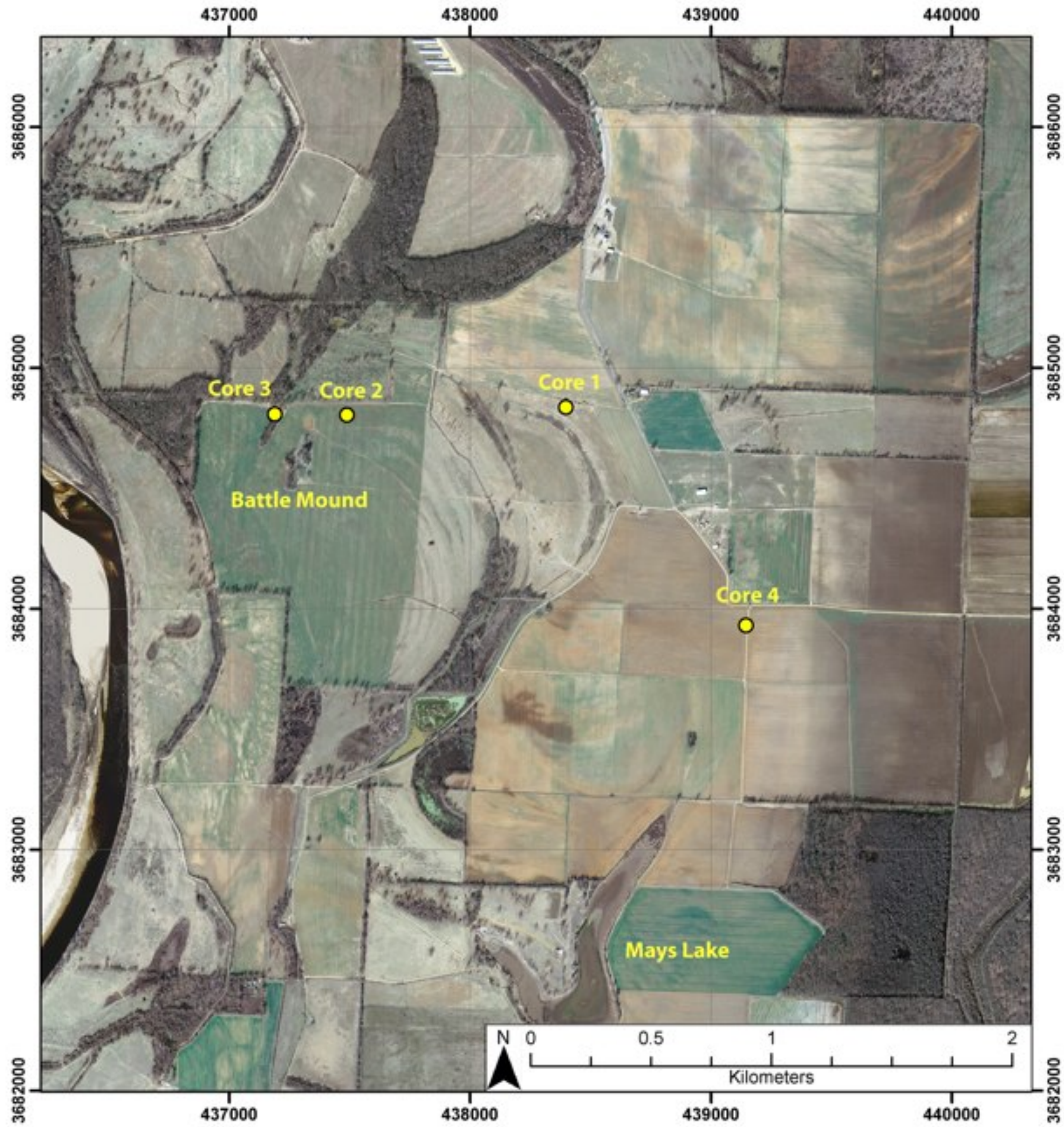

Figure 2.3. Natural color ortho image of Battle Mound vicinity showing location of sediment cores, the Battle Mound site, and Mays Lake (2006, Arkansas Land Information Board).

Sediment Cores

While not specifically germane to the research questions that frame this study, a series of sediment cores were taken (as part of Dr. Margaret Guccione's Geomorphology course) that document the undulating nature of the Great Bend landscape formation and shed light on the geomorphic processes that define the region. A short discussion is included to provide some initial insight into the complex geomorphology that defines the Great Bend region. These depositional processes are important to consider when analyzing geophysical data (Chapter 6) and associated landscape formations that influence pedogenic development related to the visibility (or lack of visibility) of geophysical anomalies. Additionally, insights into subsurface depositional layers are important to realize in terms of surface collection data (Chapter 5) and factors related to differential preservation of artifacts (tied to varying porosity in the soil), potential data collection and artifact distribution biases associated with the presence of artifact concentrations situated on the tops of natural levee and point-bar sand ridges, and the possibility of contemporaneous artifacts more deeply buried within topographic swales.

Four sediment cores were collected at the Battle Mound site and immediate vicinity. Core locations were chosen to sample sediment associated with a variety of different geomorphic positions, including natural levee, point-bar, abandoned channel, and backswamp. Coring was done with a Giddings hydraulic soil probe that retrieved 5 cm (2 in) diameter cores in 120 cm (4 ft) long plastic liners. Where possible, coring was extended to maximum possible depth although Core 3 terminated because recovery was determined to be excessively poor based on high moisture content.

Core 1 was taken from the outside bank of a long abandoned channel and represents a natural levee deposition over deep (358 cm) point-bar sand (see Figure 2.3). The finest grained sediments (clay) that compose the natural levee are located about 200 cm deep and are interpreted as overbank sediment that was deposited as the meandering channel migrated west and coarser sediment was deposited over the less coarse overbank sediment (Figure 2.4). The natural levee deposit in Core 1 is primarily silt loam and the buried point-bar a mix of sandy loam and fine sand with very little clay. The existence of a natural levee likely represents the termination of the eastward migration of this meander bend when the abandoned channel was active at this location at a time prior to the Battle Mound occupation. United States Department of Agriculture (USDA) soil survey maps document the Core 1 area as primarily composed of Rilla silt loam, a deep, well-drained, level soil found on natural levees of former channels (Laurent 1984), which is consistent with the soil analyzed from Core 1 (see Appendix A and B).

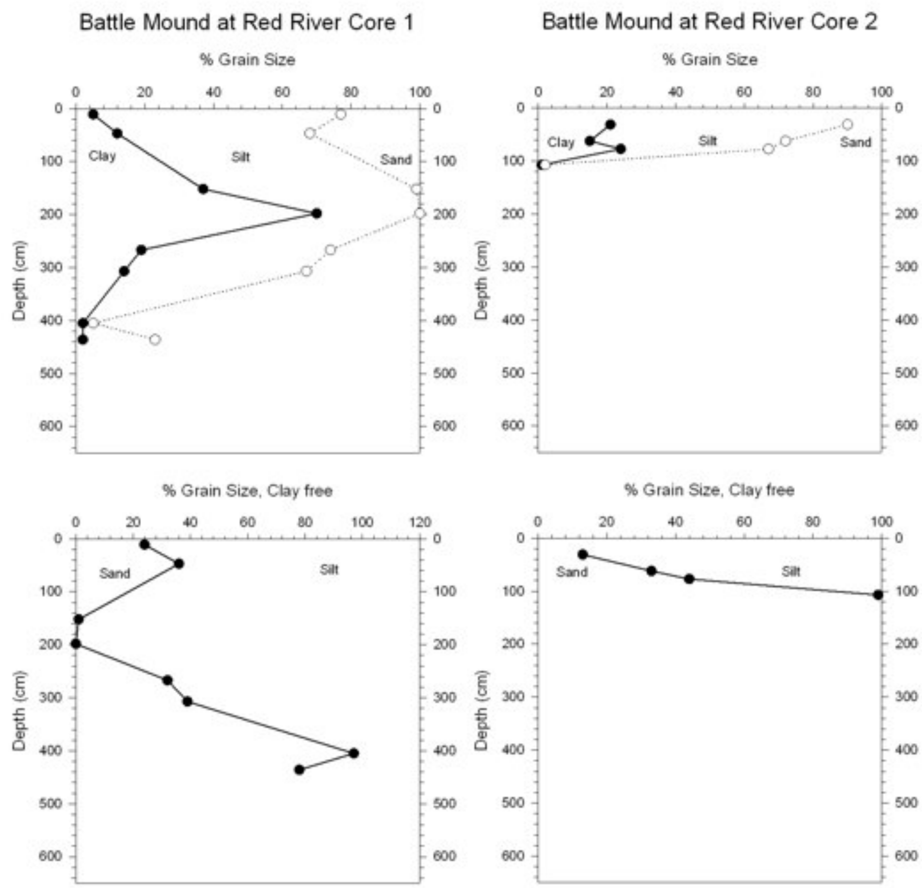

Figure 2.4. Grain size analysis for Core 1 and Core 2.

Core 2 was taken 200 m east of the large mound on a point-bar deposition buried by a thick layer of overbank deposit (see Figure 2.3). Sandy-point bar deposition was recorded at 82 cm and is at least 700 years old, since its location must also predate the construction of the large mound at the site at least A.D. 1300, if certainly not earlier. The depth of the sandy point-bar at

200 m from the large mound suggests a history of significant annual flooding episodes that have inundated the base of the mound with close to one-meter of overbank sediment (see Figure 2.4). Given the relatively close proximity of Core 2 to the current river channel and possible age of the point-bar deposition (> 700 years) the accumulation of a thick overbank is not unlikely. Furthermore, results from Core 2 are consistent with archaeological reports of one-meter thick flood deposits around the base of the mound (Howard 1948; Krieger 1949; McKinnon 2010a). The deep level of overbank sediment is important to consider with regard to surface collection material and visibility of geophysical anomalies. In the point-bar landform, the buried sand horizon is overlain by overbank sediment that is primarily silt loam. Soil survey maps created by the USDA document the Core 2 area as composed of Caspiana silt loam (although the sediment in Core 2 more resembles Latanier clay). Latanier clay is a poorly drained soil found on alluvial plains (scroll bars) with a deep silt loam over a very fine sandy loam and loamy very fine sand (Laurent 1984). The Latanier clay description is consistent with the soil analyzed from Core 2 (see Appendix A and B).

Core 3 was taken 200 m west of the large mound on the point-bar (west) side of an abandoned channel (see Figure 2.3). The cut bank (east) of the abandoned channel is approximately 2 m higher in elevation than the point-bar (west) side. A clay horizon in Core 3 was recorded at approximately 150 cm below the surface and interpreted as channel fill deposited in the shallow portion of the channel as the width reduced in size (Figure 2.5). Below the channel fill is gradational silt to clay horizon that is interpreted as overbank sediment. Below the overbank sediment is point-bar sand. The overbank likely defines a flood event deposited over the developing point-bar. The abandoned channel landform is mostly composed of silt loam overlain by overbank sediment that is mostly clay. Soil survey maps compiled by the USDA document the Core 3 area as composed of Perry clay, a deep, poorly drained soil on flood plains and in slack-water areas (Laurent 1984). Soil description of Core 3 is deep clay well suited to woodland areas with frequent flooding. Descriptions of Perry clay are consistent with the deep clay overbank sediment found in Core 3 (see Appendix A and B).

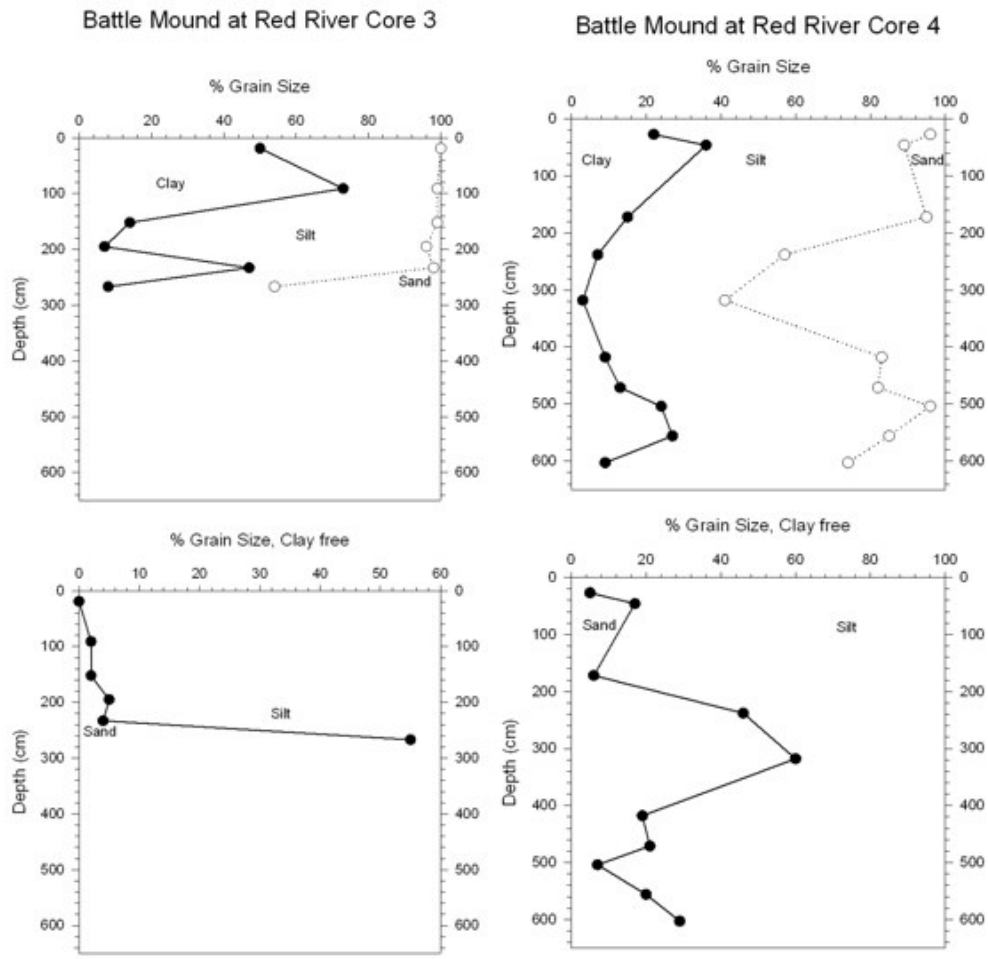

Figure 2.5. Grain size analysis for Core 3 and Core 4.

Core 4 was taken 1.9 km southeast of the large mound on a backswamp area (see Figure 2.3). Results reveal a buried natural levee at 270 cm on top of a deep overbank deposit (see Figure 2.5). Satellite imagery shows a faint discoloration that extends northward from Mays Lake (an oxbow lake just south of the Core 4 location) and likely represents an abandoned channel scar related to Mays Lake (see Figure 2.3). Considering the discoloration is the result of coarser sediment deposition and natural levee build-up, it is interpreted that Core 4 is located on the natural levee of this abandoned channel (and the general location of additional Middle to Late Caddo period sites). The channel and natural levee are quite old relative to Cores 1, 2 and 3 with a total of 270 cm of overbank deposition. The possible natural levee is composed of fine sandy loam overlain by overbank sediment that alternates between silt loam and silt clay loam. Soil survey maps document the Core 4 area as composed of Rilla silt loam, a well-drained on natural levees along former channels (Laurent 1984). The USDA soil description of Rilla silt loam on natural levees is consistent with the soil analyzed from Core 4 (see Appendix A and B).

Great Bend Region Culture History

The culture history of the Great Bend region spans several thousand years (Figure 2.6). Evidence of the earliest Paleoindian and Archaic occupations are often difficult to identify given their ephemeral nature, the dynamic and destructive character of the Red River, and their deep stratagraphic positioning buried below think overbank deposits (see Figure 2.5; Core 4). Later Fourche Maline (500 B.C. – A.D. 900) and Caddo (A.D. 900 – 1800) periods are more easily identifiable as a result of concentrated remains tied to a move toward a more sedentary and nucleated settlement patterning and the adoption of intensive agriculture. In later Caddo periods, settlement changes to a pattern of mound centers with population communities dispersed in small residential farmsteads that are spread throughout the Great Bend region. Protohistoric Caddo culture periods are integrated with Spanish and French interactions and the establishment of Spanish missions and presidios and French forts and trading posts along European settlement borders west of the Great Bend region in what is now east Texas. These European outposts hosted an active trade economy with the Caddo people facilitating a change in settlement patterning as Caddo groups settled close to European trade depots (Smith 1994, 1995; Tiller and Gong 2012).

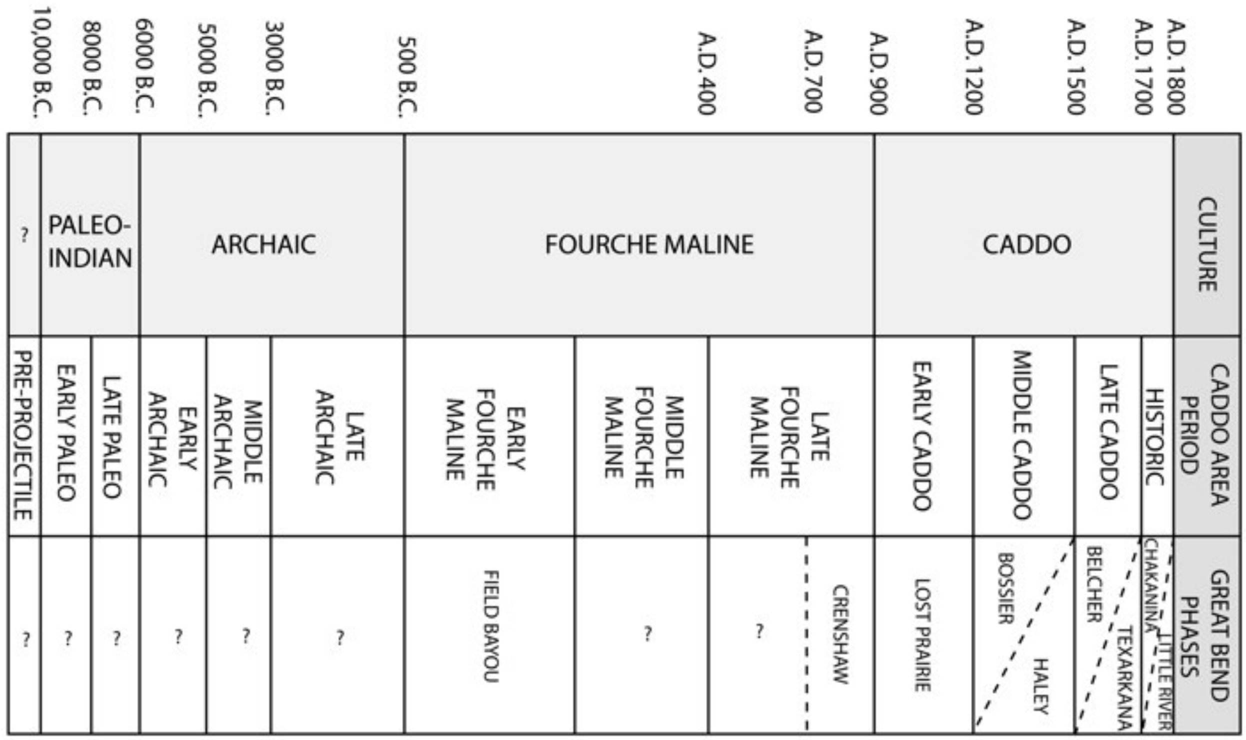

Figure 2.6. Culture history within the Great Bend region (after Weinstein et al. 2003).

Paleoindian (before 8000 B.C.)

The earliest documented human occupation in the Great Bend region consisted of small, highly mobile groups with 25 to 50 members within each group. These small nomadic groups were dependent on an economy of hunting large megafuana, such as mastodon (*Mammut americanum*) and bison (*Bison bison antiquus*) and the gathering of a variety of plant foods. Paleoindians arrived in the Great Bend area by moving down the Mississippi River from the northern Great Plains into the Gulf Coastal Plain (Sabo 1992). Owing to heavy alluviation and the destructive nature of the constantly changing Red River meander belt, Paleoindian evidence in the Great Bend region is sparse and has primarily consisted of individual finds of stone tools and late Pleistocene vertebrate remains (Hemmings 1982). Characteristic Paleoindian diagnostic fluted lanceolate points have only been documented in a few locations in the Great Bend region. For example, two Clovis points in Miller County, a single untyped fluted point in Lafayette County, and a single Clovis point and one Gainey/Sedgwick point from Hempstead County are the only documented finds (Morrow 2006; Schambach 1982a).

Paleoindian faunal assemblages are equally minimal in record. A few isolated finds in Texas and Louisiana (Hay 1924; Slaughter & Hoover 1963) reveal indications of the Paleoindian faunal record as it existed within the larger ecological area. In the Red River Great Bend region, Fay (1959) discusses remnants of mastodon (*Mammut americanum)* teeth and Hemmings (1982) evaluates the preserved cranial fragment of a giant sloth (*Megalonyx sp*.), both discovered in the Red River channel.

Later Paleoindian occupations in the Great Bend region are defined by the Dalton period. The Dalton period is a transitional period from Paleoindian to Archaic that is characteristic of a change in subsistence strategies tied to the hunting of smaller fauna and the use of the diagnostic fluted Dalton point (Bell 1958:18-19).

Archaic Period (8000 B.C. – 500 B.C.)

As with Paleoindian, evidences of Archaic period occupations are reduced as a result of the destructive Red River and associated alluvial depositional processes. In many cases, these processes have either destroyed Archaic period sites (especially earlier periods) or buried them under many meters of riverine silt. As a result, information on earlier Archaic periods is often extrapolated from collections and sites not within the Red River valley but with those in the surrounding upland regions.

As climates changed during the Pleistocene to Holocene transition (see Delcourt and Delcourt 2004), Archaic groups in the Great Bend region began settling in small communities in concordance with a change in subsistence strategies to a more diversified strategy of extracting local resources, such as white-trailed dear (*Oedocoilus virginianus*), nuts, fruits, berries and numerous small faunal species (Caldwell 1958; Delcourt and Delcourt 2004; Sabo 1992; Stoltman and Baerreis 1983). Schambach (1982a) posits that during the altithermal (5000 B.C. – 2500 B.C.), plains-adapted people moved eastward when the hot and dry environmental conditions of the plains shifted into the Great Bend region. With these environmental changes, newcomers to the Great Bend region developed subsistence strategies similar to those that have been defined archaeologically within the Gulf Coastal Plain.

Archaic occupations in the Great Bend have been divided into four separate archaeological periods: Early (8000 B.C. – 6000 B.C.), Middle (6000 B.C. – 4000 B.C.), Late (4000 – 1000 B.C.), and Terminal (1000 B.C. – 500 B.C.; Hemmings 1982). The Early Archaic has been further subdivided into the Early Archaic (7500 B.C. – 6000 B.C.) and the Scottsbluff Intrusion (7000 B.C. – 6000 B.C.). The Scottsbluff subdivision is posited as representing an intrusion of Scottsbluff points "from the Great Plains into Western Arkansas" (Jeter and Early 1999:41) as a possible response to an expansion of prairie ecologies tied to increased warmth and aridity during the Holocene Climate Optimum (7000 B.C. – 3000 B.C.; Dean et al. 1996). The Middle Archaic in the Great Bend is predominately manifest as the Tom's Brook culture (5000 B.C. – 4000 B.C.) – a group adapted to a more riverine ecology and sustained novaculite utilization as warming in the Holocene Climate Optimum reached a maximum (Bartlett 1963, 2001; Coleman 2003; Schambach 1998, 2003; Trubitt et al. 2004). The Late Archaic represents an increase in sedentary settlement patterning as evidenced by an increase in sites and the potential of developing horticulture, more widespread trade with proximate groups, and an overall cultural elaboration as manifest in the production of earthworks (Morse and Morse 1983). The Terminal period represents a transitional Late Archaic to Fourche Maline boundary demonstrated by an increase in cultural development related to subsistence strategies, mortuary practices, ceramic usage, and mound building.

Although the total number of Archaic period excavations are few, archaeological evidence in later Archaic periods is more robust with several important components identified (Schambach 1982a). In northeastern Louisiana and southeastern Arkansas, the Poverty Point culture (2200 B.C. – 700 B.C.) began to flourish with the establishment of extensive trade networks of exotic objects throughout the Lower Mississippi Valley and beyond, such as cicada effigy beads, decorated steatite bowls, and Ouachita novaculite (Gibson 2001; Sabo 1992; Scarr 2008; Schambach and Newell 1990; Trubitt 2007). Indications of Great Bend region connections to this extensive Poverty Point culture trade network have been identified at the Johnny Ford (3LA5) and Byrd (3LA5) sites. Excavations at the Johnny Ford site produced several ground stone objects and a quartz locust effigy bead (Webb 1968). The Byrd site is a small deeply buried midden where a collection of stone tools and a steatite vessel fragment has been collected (Schambach 1970).

Fourche Maline (500 B.C. – A.D. 900)

The Woodland period in southwestern Arkansas, eastern Oklahoma, northwestern Louisiana, and eastern Texas is often referred to as the Fourche Maline culture and is generally considered the progenitor of the Caddo culture (Schambach 1982b, 2001, 2002). Characteristics that define Fourche Maline include a ceramic assemblage of mostly plain, flat-bottomed, flower pot shaped jars, modified platform pipes made of clay, a lithic assemblage of Gary points, arrow points, double-bitted axes, and boatstones, a settlement pattern of semi-permanent to permanent small villages, deep black middens rich in cultural debris, a horticultural subsistence economy based on the eastern North American starchy and oily seed complex (sunflower, maygrass, sumpweed, goosefoot), and a distinctive burial mound tradition (Hemmings 1982; Sabo 1992; Schambach 1996, 2002).

Characteristics absent from Fourche Maline sites, but found at Woodland sites further east in the Central and Lower Mississippi Valley (see Kidder 2002; Rolingson and Mainfort 2002), is a tradition of flat-topped mounds, the presence of stone celts for wood cutting and processing, and the use of storage pits (Schambach 2001). Additionally, while houses were certainly present during Fourche Maline, their identification in the archaeological record has been difficult suggesting that they were "light framed" structures constructed with small diameter posts (2 cm – 8 cm) and set at shallow depths (Schambach 1982a:185).

The concept of a Fourche Maline "focus" was first identified using material collected by WPA excavations at Archaic and Woodland period sites situated in the Wister Valley in east-central Oklahoma (Bell and Baerreis 1951). The term originates from the deep, rich, black midden sites that were discovered along Fourche Maline Creek, a tributary of the Poteau River. Today, the term is associated with an archaeologically defined Fourche Maline culture at sites throughout southwestern Arkansas, southeastern Oklahoma, northwestern Louisiana, and northeastern Texas.

The first to identify materials as belonging to a Fourche Maline focus outside Oklahoma and the Wister Valley is Dr. W. Raymond Wood at the Poole (3GA3) site in Arkansas (Wood 1981). In his analysis of the Poole site (and the Wheatley (3CL8) site on the Caddo River in Arkansas), he was able to affirm that in Arkansas "the basic Fourche Maline assemblage [is] comprised [of] flat-bottomed, grog tempered pots, Gary projectile points, double-bitted chipped stone axes, modified platform pipes made of clay, and boatstones" (Schambach 2001:24).

Building upon the work of Wood, Dr. Frank F. Schambach began an analysis of components at the Cooper (3HS1) and Means (3HS3) sites in the Ouachita River drainage. In this analysis, he identified Fourche Maline materials similar to those found at the Poole and Wheatley sites and at Fourche Maline sites in the Wister Valley in Oklahoma (Schambach 1970, 1998). On the basis of a comparative study from many sites in southwest Arkansas, eastern Oklahoma, northwest Louisiana, and northeast Texas, Schambach reformulated the original Fourche Maline focus into "an important 'new' Woodland period culture in the Southeast with many regional and temporal phases" (Schambach 2001:25). Fourche Maline culture has been chronologically "sorted" into Early (800 B.C. – A.D. 100), Middle (A.D. 100 – A.D. 500), and Late (A.D. 500 – A.D. 800) periods.

During Early and Middle Fourche Maline, the adoption of low conical mounds housing cremations or flexed burials have been identified at a few sites within the Great Bend region (see Fulton and Webb 1953; Hoffman 1970). Occupations during Late Fourche Maline began a dramatic change in cultural practices that set the stage for complex cultural developments in the following Caddo culture periods. During this time, nucleated village settlements developed, preceding early Caddo Culture mound occupations. These nucleated settlements incorporated both pyramidal mound and burial mound building into rules tied to settlement patterning and community organization. Elements related to ceramic form, projectile point types, and deer ceremonialism also developed during this period. For example, at the Crenshaw (3MI6) site, a large cache of deer antlers was excavated demonstrating the importance of deer ceremonialism beginning during the Late Fourche Maline period (Schambach 1971, 2011; recent unpublished radiocarbon dates suggest this ceremonialism at Crenshaw continues into the Early and Middle Caddo periods). Flat-topped mounds with large temple structures also developed during Late Fourche Maline and expanded to become a host of centralized ritual activity (Schambach 1990).

The cultural transition from Fourche Maline to Caddo is between A.D. 800 – A.D. 900 and is evidenced in a change in settlement patterning of nucleated settlement to a pattern of dispersed settlements situated along river valleys. The Fourche Maline to Caddo transition also demonstrates increasing complexities as it relates to social, economic, and political processes, and an intensification and move toward monocrop agriculture – mostly notably maize.

Caddo (A.D. 900 – A.D. 1800)

The Caddo cultural tradition evolved out of earlier Woodland period (Fourche Maline) cultures in the Trans-Mississippi South (Pearson and DuCote 1979; Schambach 1970). Perttula (1992), using a combination of cultural criteria and the borders of the Trans-Mississippi South biogeographical area, delineates a 200,000 square kilometer region as the Caddo Archaeological Area and divides it into three subareas: Northern Caddo (Arkansas River basin, South Canadian basin, Western Ozark Highlands), Western Caddo (Western Gulf Coastal Plain, Ouachita Mountains) and Central Caddo (Red and Ouachita River valleys). Caddo archaeological sites have been identified throughout southwestern Arkansas, eastern Oklahoma, northwestern Louisiana, and eastern Texas. The research discussed herein is primarily focused on the Central Caddo area in the Great Bend region of the Red River in southwest Arkansas.

General characteristics of the Caddo archaeological tradition include a sedentary settlement pattern of dispersed farmsteads, a subsistence economy of horticultural and agricultural pursuits based on domesticated plants, a complex socio-political system manifest primarily as heterarchical networks of mound centers, and a mortuary program centered around the differential treatment of the dead (Perttula 1992). Geographically, Caddo groups were situated on the western periphery of contemporaneous Mississippian period groups generally defined as "late prehistoric societies of the Southeast and Midwest that were organized as chiefdoms and whose members practiced maize agriculture and constructed earthen platform mounds" (King and Meyers 2002:113). When compared to Mississippian period groups characterized by a "sociopolitical organization that entailed hereditary ranking and centralized leadership" (Steponaitis 1986:388), the maintenance of distinctive social and religious institutions (Knight 1986), and differential status "clearly expressed in mortuary ritual" (Steponaitis 1986:389), the broad attributes of Caddo sedentary settlement patterning, socio-political organization, and mortuary programs are similar to those of Mississippian period traditions situated east of the Caddo homeland (Smith 1990).

The broad definitions of socio-political, economic, and ideological systems that define the Caddo archaeological tradition constitute a relatively independent evolution of cultural continuity and change from Mississippian traditions (Perttula 1992; Smith 1990). The examination of Caddo culture and archaeology as a "paradigm of the periphery" (Bolfing 2010; Reilly 2012) offers some important insights into the overall study of southeastern groups and "as a means of more clearly understanding the development of Mississippian social forms and the Mississippian world as an interconnected [economic, social, and political] system" (King and Meyers 2002:115).

Foremost is the consideration of historical continuity of cultural traditions (see Carter 1995). While many contemporary tribal groups "actively maintain forms of belief and ceremonial life stemming directly from the old traditions" (Townsend 2004:19), the Caddo, along with Natchez groups along the Mississippi River (Barnett 2007; Galloway and Jackson

2004), are groups that maintained components of continuity into the historic period in various cultural traditions tied to monumental earthwork construction, social and political hierarchical organization, architectural practice, and ceramic production that broadly characterize the Mississippian cultural tradition. However, unlike the Natchez who were forcibly dispersed and merged into other groups (Barnett 2007; Swanton 1911), the Caddo represent the primary Mississippian group with historical continuities from pre-Columbian times to the present Caddo Nation members (Bolton 1987; Griffith 1954; Rogers and Sabo 2004; Sabo 1998; Smith 1994, 1995; Swanton 1942).

Some of the earliest recorded archaeological investigations of Caddo groups in Arkansas were by Clarence B. Moore of the Philadelphia Academy of Science (Moore 1909, 1912, 1913) and Mark R. Harrington of the Museum of the American Indian (1920, 1924). The investigations of Moore are important in that his work is primary in demonstrating that the Caddo area is "distinctive in terms of such elements as mound construction, mortuary practices, and ceramic styles" (Perttula 1992:47). His elaborate full size monographs containing site descriptions and color images of the elegantly crafted ceramic vessels excavated from the Caddo sites he investigated is an invaluable reference today. In many cases Moore's descriptions are the only record of the many Caddo mound sites that have since been destroyed by the dynamic Red River (Schambach 1982a:11; Weinstein et al. 2003).

Along with Moore, Harrington is known for his pioneering archaeological investigations throughout river drainages in southwestern Arkansas (Harrington 1920) in addition to his work at bluff shelters in the Ozarks (Harrington 1924). His association of archaeological artifacts excavated in southwestern Arkansas to ethnographically documented Caddo groups, namely the

Kadohadacho, led to the continued utilization of ethnographic and ethnohistoric sources by Caddo researchers (Harrington 1920; Perttula 1992).

After these initial investigations, serious momentum in systematic Caddo archaeological studies began in the 1930s with numerous WPA projects conducted at sites in Arkansas and throughout the Caddo area in Oklahoma and Texas (see Bell and Baerreis 1951; Davis 1970; Dickinson 1936; Dickinson and Lemley 1939; Perttula 2005; Wedel 1978; Wood 1981). With this initial influx of archaeological data associated with Caddo ceramic and lithic material culture assemblages, the composition of residential and ceremonial structures, differential mound construction, use, and abandonment, and distinctive mortuary programs led to an elucidation of spatial-temporal organization and the development of the first systematic syntheses of the cultural history in the Caddo area (Krieger 1946). Using the Midwestern Taxonomic System (McKern 1939), Caddo chronology was organized into the Gibson Aspect (early Caddo) and the Fulton Aspect (late Caddo) (Davis 1961; Krieger 1946).

The complex cultural foundations initially formed during the Late Fourche Maline period evolved at a rapid pace into a period that is both chronologically and geographically diverse. This happened to such an extent that Perttula (1996:301) argues, “There is not one overarching chronological scheme that can be uniformly applied across the Caddoan area.” To account for this, Perttula (1996) proposes adopting a broader framework (see Story 1990) that corresponds with regional and local cultural sequences (see Schambach 1982a; Rogers 1995; Early 1993 ed.; Story and Creel 1982). Some scholars contend that the development of a distinctive Caddo culture tradition is composed of regional variations of the rich and complex culture located further east, as expressed in Mississippian domestic, political and religious ideals and strategies (see Bense 1994; Fagan 1991; Kelley 1991). As such, Caddo archaeology is often examined as regional “manifestations of broadly held concepts that were shared by members of Caddo societies as a whole” and may reflect “other aspects of material culture or social behaviors” between Caddo communities throughout the Caddo Homeland (Early 2012:45).

One of the major early developments from Fourche Maline into the Caddo culture periods was a focus toward a more centralized authority reflected in the construction of multiple mound centers (Hemmings 1982:67). A later development during Caddo culture periods is a switch from a nucleated settlement pattern to a pattern of dispersed communities composed of small residential hamlets or farmsteads spread out over several kilometers and often flanked by a prominent temple mound. The most influential example of this dispersed settlement pattern is depicted in the Domingo Terán de los Ríos map of 1691 (Swanton 1942:pl.1). Additionally, Smith (1978) explains that this dispersed settlement patterning developed as a result of an efficient strategy to exploit resources along the Red River linear meander belt zone.

The Caddo period is also host to a development in complex yet disparate burial practices between those interred within mounds, within houses, and those interred in local farmstead cemeteries (Hemmings 1982:68). Early ethnographic research (Moore 1912; Webb and Gregory 1978) attributes these disparities to the establishment of ranked social organization - specifically those of chiefdom level societies in the Great Bend region.

During the Historic Caddo culture period, Caddo groups maintained sustained interaction with early French and Spanish outposts scattered throughout the Great Bend region. Trade with these European outposts flourished and the Kadohadacho tribe of the Great Bend region developed into the most prominent member of a confederacy of Red River tribes (Swanton 1942; Williams 1964). Osage raiding from the north along with smallpox and measles epidemics rampant throughout Red River settlements drastically reduced populations until Kadohadacho tribes in the Great Bend region moved south. In the Nicholas King map of 1806, deserted "Old Caddo Villages" are marked along the Great Bend illustrating the extent of the Kadohadacho tribe and the once occupied Caddo settlements (Swanton 1942:pl. 2; Williams 1964).

Since the 1930s, researchers in Caddo archaeology have concentrated on developing local and regional Caddo sequences throughout Arkansas and the adjoining states (Perttula 1996:Table 11), including the Red River in Arkansas and Louisiana (Kelley 2012; Schambach 1982a; Webb 1948, 1959, 1983), the Ouachita River drainages in Arkansas (Early 2002a, 2002b, 2002c), the Little River in Arkansas (Hoffman 1971), the Arkansas River Valley in Arkansas and Oklahoma (Dickson 1960; Orr 1952; Bell 1984; Brown 1984; Rohrbaugh 1982), and throughout several tributaries in east Texas (Suhm et al. 1954; Story 1990). Caddo scholars continue to develop archaeological and historical research programs aimed at systematically investigating topics such as socio-political structure (see Brown 1996; Early 2000 ed., 2004; Kay and Sabo 2006), iconographic representations (see Brown 2007; Lankford 2010a, 2010b), trade and interaction (see Early 1978; Emerson and Girard 2004; Lankford 2006, 2010b), economic and subsistence strategies (see Fritz 1989; Perttula 2008), biological adaptation and efficiency (see Burnett 1993; Rose et al. 1998), and settlement patterning and distribution (Creel et al. 2008; Hammerstedt et al. 2010; Lockhart 2010; Maki and Fields 2010; McKinnon 2009, 2010b; Osburn et al. 2008; Perttula et al. 2008;Vogel 2005; Walker and Perttula 2010).

More than these impressive research programs, Caddo archaeologists continue to appreciate the cultural complexity and diversity that underscores the importance of heritage to the Caddo people (see Carter 1995; 2008; Perttula et al. 2008; Sabo 2005). Scholars of Caddo heritage (students, professional, and amateur) continue to move forward in an attempt to more fully understand and document the fascinating history of the Caddo people. Through this research, and with the advent of various forms of radiocarbon dating and other empirical dating methods, it is known that the Caddo archaeological tradition developed about A.D. 800 – A.D. 900. This archaeological tradition continued until the mid-19th century when Caddo groups, some having already ceded lands and moved into east Texas in 1835 (the Kadohadacho), and later into central Texas in the 1840s, were forcibly removed to what is now Oklahoma (formally Indian Territory) in 1859 (Perttula 1992; Smith 1994, 1995).

Euro-American (after A.D. 1800)

With the Louisiana Purchase in 1803 enabling the United States to acquire an extensive area of the Caddo homeland, the Euro-American period began in earnest. Factory systems were set up and trading houses built along the Red River. These trading houses were established to control and regulate Indian trade (see also Ethridge and Hudson 2002; Ethridge and Shuck-Hall 2009; Pluckhahn and Ethridge 2006). For example, the Sulphur Fork Factory was established in 1818 and later became the location of a small military detachment of the Caddo Indian Agency in the Great Bend (Hemmings 1982:69). Throughout this period, land exploration and surveys were conducted throughout the Red River valley as white settlement increased. In 1835, the Kadohadacho ceded land west of the Red River to the United States and were forced to relocate into what is now eastern Texas (Perttula 1992).

Great Bend Caddo Culture Archaeological Phases

Throughout the Caddo archaeological area, numerous archaeological phases have been developed in order to examine spatial and temporal relational dynamics associated with community interactions and regional material manifestations (Early 2012; Perttula 1992, 2012a; Schambach 1982a). Within the Great Bend region, all four Caddo area periods (Early, Middle, Late, Historic) are represented and are spatially and temporally organized into several phases (see Figure 2.6). Within the Spirit Lake Complex, sites during the Middle and Late Caddo periods have been organized into the Haley (ca. A.D. 1200 – 1500) and Belcher (ca. A.D. 1500 – 1700) phases (Hoffman 1970, 1971; Schambach 1982a). While cultural characteristics that define archaeological phases situated throughout the Great Bend have been discussed elsewhere (Davis 1970; Hoffman 1971; Kelley 2012; Krieger 1946; Perttula 1992; Schambach 1982a; Schambach and Miller 1984; Suhm et al. 1954; Webb 1983), a short summary of Haley and Belcher phase characteristics provides a framework as it specifically relates to the culture history within this research and forthcoming conclusions about where the Battle Mound site fits into what is known about settlement patterning, architectural features, and associated behavioral processes within Caddo culture archaeological phases in the Great Bend region.

Haley phase (ca. A.D. 1200 – 1500)

The Haley phase is part of the Middle Caddo period and originally associated with data collected from the Haley (3MI1) site – the type-site located in Miller County, Arkansas (Hoffman 1970, 1971; Krieger 1946; Moore 1912; Suhm et al. 1954; Taylor & Krieger 1949). Moore first excavated at the Haley site during his Red River explorations where he documents the presence of a temple mound, a burial mound containing single burials with an abundance of grave goods, and several supporting mounds of unknown use (Hoffman 1970, 1971; Moore 1912). Avocational excavations at the site in the late 1960s discovered the presence of two cemeteries, each containing distinctive characteristics regarding burial depth, interment type, and type or style of grave goods included (Hoffman 1970, 1971). Over the years, the site has been heavily damaged as a result of both historic occupations (houses on mound summits), mounds being destroyed by agricultural leveling, the use of mound fill for levee construction, and natural riverine processes.

Krieger (1946) first defined the Haley focus (now phase) based on similarities of characteristics in components that have been discovered at other Red River sites, such as the Crenshaw (3MI6) and Hatchel (41BW3) mound sites. At the Bowman (3LR50) site, Hoffman (1971:809) states that a few burials were found with pottery types that are consistent with Haley phase occupations. In 1948, mound excavations conducted at Battle Mound (see Chapter 4) also identified the presence of Haley phase material within a lower component of the mound (Howard 1948; Krieger 1949; McKinnon 2010a). Additionally, a recent analysis of whole vessels excavated throughout the early 20th century from off-mound cemeteries at the Battle Mound site identify that 42 percent of analyzed vessels are associated with a prominent Haley phase occupation at the site (Perttula et al. 2009). Recent work at the Foster (3LA27) site documents the presence of ceramic types that indicate a Haley phase component at that site, most notably a Belcher Engraved carinated bowl from Burial 1 "that is thought to date ca. A.D. 1420 – 1500" (Buchner et al. 2012:174). Lastly, two additional sites are documented in the AMASDA database as containing Haley phase components. Shovel tests at the J.B. Davis (3LR60) site document the presence of Haley phase ceramics and at the Johnson Farm (3MI128) site cultural resource surveys document the possibility of Haley phase characteristics (Spears et al. 1994), although little more is known about the sites.

Haley phase sites are located in direct association with floodplain environments within ridge and swale topography and situated on well-drained natural levees (Hoffman 1971:810). Sites typically contain one or more temple and burial mounds with later period mound construction covering the earlier Haley phase burned structures (Webb 1959). Sites usually contain an off-mound or village area directly associated with the mounds. The distance between Haley phase sites has been suggested to represent that each of these sites had some level of social and political control over large geographic areas (Suhm et al. 1954).

Although several sites have been identified in the Red River area that indicate Haley phase characteristics, the geographical extent of the Haley phase is seemingly small, yet disperse, with components identified at the Mineral Springs (3HO1; Bohannon 1973) site, Washington (3HE35) and Ozan (3HE37, 3HE38, 3HE57, 3HE59, 3HE60, 3HE61) sites along the Ozan drainage (Harrington 1920; Hoffman 1971), at the Belcher Mound (16CD13) site located further south along the Red River in Caddo Parish, Louisiana (Webb 1959), and at the East (3CL21) site in Clark County, Arkansas (Suhm et al. 1954).

Most of what is known about Haley phase characteristics comes from information gathered from excavated burials. As such, little is known about non-mortuary contexts apart from the use of maize based subsistence strategies that are subsidized with hunting and fishing (Suhm et al. 1954). Haley phase burials are typically single interments dug into parallel rows of large pits and containing an abundance of finely crafted grave goods (mostly whole ceramic vessels) piled against the pit walls (Krieger 1946:214), although Haley phase multiple interments have been identified (see Perino 1967). Houses are circular in construction and range from about 5 m to 17 m in diameter with a central fire pit prepared with a layer of clay lining the pit and a raised berm around the pit wall (Krieger 1946; Suhm et al. 1954). It is also noted that structures do not often contain definite examples of entranceways and interior posts are often lacking (Krieger 1946; Suhm et al. 1954).

Ceramic types identified with Haley phase sites and discussed in this research include Crockett Curvilinear Incised (Suhm et al. 1954:262-265; Suhm and Jelks 1962:30-31), Haley

Complicated-Incised (Suhm et al. 1954:286-287; Suhm and Jelks 1962:58-59), Haley Engraved (Suhm et al. 1954:284-285; Suhm and Jelks 1962:60-61), Handy Engraved (Suhm et al. 1954 284-285; Suhm and Jelks 1962:62-63), Hempstead Engraved (Suhm et al. 1954:292-293; Suhm and Jelks 1962:68-69), Moore Noded (Webb 1959:120; Wood 1963a, 1981:39), Pease Brushed-Incised (Suhm et al. 1954:338-339; Suhm and Jelks 1962:118-119), and Sinner Linear Punctated (Suhm et al. 1954:356-357; Suhm and Jelks 142-143).

Belcher phase (A.D. 1500 – 1700)

The Belcher phase is part of the Late Caddo period and originally associated with data collected from the Belcher (16CD13) site – the type-site located in Caddo Parish, Louisiana (Kelley 2012; Webb 1959). At the Belcher site, a set of conjoined mounds (Mounds A and B) and an associated low mound platform or "plateau" situated on the sandy ridge of a natural levee were utilized during the Belcher phase (Kelley 2012; Webb 1959). Over time, each of the conjoined mounds simultaneously contained structures that might represent differential use areas where "one may have served as a specialized religious structure, while the other was the residence of the *caddi*" (Kelley 2012:412). During the Belcher phase, the construction of primary mounds was essentially discontinued with mound construction associated with mound accretion as mound platform structures were burned, buried with clean sand, and a new building constructed over the previous structure (Perttula 1992; Schambach 1996; Suhm et al. 1954). This characteristic sequence of building, burning, and burying has been identified as part of the Belcher phase component at the Battle Mound site (see Chapter 4; Krieger 1949; Howard 1948; McKinnon 2010a).

Belcher phase components have been identified at large village sites primarily located within the Red River floodplain or associated tributaries. The Belcher phase borders the contemporaneous (yet distinctive? – see Krieger 1946:205-212; Hoffman 1970:175) Texarkana phase at the western edge and extends south at the Great Bend from about Fulton, Arkansas to Shreveport, Louisiana along the Red River (Kelley 2012). In addition to the Belcher (16CD13) site in Louisiana, sites such as Cabinas (3LA83), Cedar Grove (3LA97), Crenshaw (3MI6), Egypt (3LA23), Foster (3LA27), Friday (3LA28), Gum Springs (3LA87), Joe Clark (16BO237), Lester (3LA38), McLelland (16BO236), McClure (3MI29), Red Cox (3LA18), and Russell (3LA85) all contain Belcher phase components, although many of them remain unstudied or unpublished (Hoffman 1970; Kelley 2012; Webb 1959). Clarence B. Moore visited many of these sites during his explorations along the Red River (Moore 1912). Additionally, the 1948 mound excavations conducted at Battle Mound (see Chapter 4) document a later Belcher phase construction stage over an existing primary construction during a Haley phase occupation (Howard 1948; Krieger 1949; McKinnon 2010a). Recent work at the Foster (3LA27) site documents the presence of ceramic types that indicate a Belcher phase component present at that site, most notably a Keno Trailed bottle and an Avery Engraved bowl found with Burial 3 “that is thought to date ca. A.D. 1630 – 1670” (Buchner et al. 2012:174).

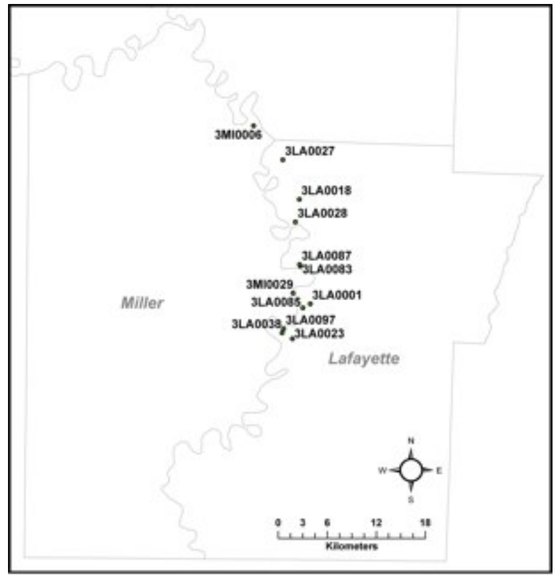

Figure 2.7. Distribution of Belcher phase sites in Miller and Lafayette counties in Arkansas.

Settlement patterning during the Belcher phase is associated with the organization of a few mound centers with supporting farmsteads dispersed throughout the floodplain over several kilometers (Schambach 1982a). This pattern of settlement organization is similar to that documented on the Domingo Terán de los Rios map community spread out along the Red River (a community that is geographically within the contemporaneous Texarkana phase). Characteristics that define the Belcher phase are primarily taken from mound excavations at the Belcher site (Webb 1959), rather than excavations from supporting farmstead groups. The exception to this is at the Cedar Grove (3LA97), McLelland (16BO236), and Joe Clark (16BO237) sites, where circular structures and associated architectural farmstead features were documented (Trubowitz 1984; Kelley 1997). Houses are often large circular structures averaging about 10 m in diameter and constructed using wattle and daub walls with a grass thatch roof (Kelly 2012: Webb 1959). The large circular structures were utilized as either domestic dwellings or as ritual temples. Architectural differences include the presence or absence of extended entranceways, suggesting functional distinctions based on the use of extended entranceways (Perttula 2009; Perttula and Rogers 2007, 2012).

Mortuary patterns are both single and multiple interments typically associated with community cemeteries and with an increase throughout the Belcher phase of a high abundance of grave goods, including elaborate ceramic vessels and personal adornments (Perttula 1992; Suhm et al. 1954; Trubowitz 1984). Caddo community cemeteries have been noted to contain numerous individuals, the size depending on settlement densities of the surrounding populations (Brown 1984:54; Perttula 1992:83; Story 1990:338-339). At the Cedar Grove site, Trubowitz (1984:108) defines a series of "grave groups" containing Belcher phase interments. The identification of burial subgroups and their associated organization at the Cedar Grove farmstead "reveals perspectives on Caddoan attention to the interment of the dead" as it relates to the lack of overlapping of graves, the burial of subadults in house floors instead of in cemeteries located outside the structure and reserved for adults, and the likely protection of cemetery areas from post-interment disturbances (Trubowitz 1984:108).

Ceramic types identified with Belcher phase sites and discussed in this research include Avery Engraved (Suhm et al. 1954: 236-237; Suhm and Jelks 1962:1), Belcher Engraved (Suhm et al. 1954:244-245; Suhm and Jelks 1962:8-9), Belcher Ridged (Suhm et al. 1954:246-247; Suhm and Jelks 1962:10-11), Cowhide Stamped (Suhm et al. 1954:260-261; Suhm and Jelks 1962:28-29), Foster Trailed-Incised (Suhm et al. 1954:272-273; Suhm and Jelks 1962:42-43), Glassell Engraved (Suhm et al. 1954:282-283; Suhm and Jelks 1962:52-53), Hodges Engraved (Suhm et al. 1954:296-297; Suhm and Jelks 1962:72-73), Karnack Brushed-Incised (Suhm et al. 1954:308-309; Suhm and Jelks 1962:84-85), Keno Trailed (Suhm et al. 1954:310-311; Suhm and Jelks 1962:86-87),), and Taylor Engaved (Suhm et al. 1954:360-362; Suhm and Jelks 1962:149-151).

In summary, the Great Bend region in southwest Arkansas is rich in cultural heritage and has changed dramatically throughout time owing to various dynamic and destructive river processes along with the advent of mechanized agriculture. As a result, many Paleoindian and Archaic period sites are few in number, likely buried under meters of alluvial deposition or destroyed over time by the meandering river. Remains of Fourche Maline and Caddo period occupations are more easily identifiable as settlement and subsistence practices during these times transitioned toward a more sedentary and nucleated settlement patterning and the adoption of intensive agriculture. In later Great Bend Caddo periods (Haley and Belcher phases), settlements are defined primarily as mound centers with supporting communities organized in small residential farmsteads and spread throughout the Great Bend region. It is during these later Caddo periods that the most intensive occupation at the Battle Mound (3LA1) site takes place.

CHAPTER 3: THE BATTLE MOUND SITE

"Mounds offered a new way of relating old cosmology. They manifested one of the strongest emotions shared by individuals and small communities – a sense of place, or home. Mounds turned meadows and woods, lakes and bayous, houses and hunting grounds into centers of the cosmos… Mounds established, at least, a perception of having common roots, kinship…. Mounds narrated the old teachings. They were testaments to the time when all people were one big family"

– Jon L. Gibson 2001:64-65

The Battle Mound (3LA1) site is located in Lafayette County, Arkansas in the Great Bend region of the Red River. The site and the surrounding area is a place that is significant to the Caddo people, who were removed from this area in the nineteenth century, and to archaeologists, both of whom are interested in documenting and developing a broader understanding of the occupational history of the Caddo Indians in the Great Bend region (Figure 3.1). To the Caddo people the Battle Mound site represents a tangible piece of the landscape that serves to reconnect them with their past (Perttula et al. 2008:99–101). To archaeologists, the site represents the largest extant mound in the entire Caddo area and one of the largest in the Southeast United States (Muller 1978; Perttula 1992:118; Schambach 1982a:7).

Figure 3.1.
The large mound at the Battle Mound site dominates the landscape. Located in the foreground is the large field containing numerous geophysical anomalies associated with Caddo occupations.
Photo taken by the author.

The site is centrally located within the Caddo Archaeological Area (Perttula 1992:8) and situated about one mile east of the Red River channel, although the 1949 report mentions that the site was only "one-half mile from the east bank" (Krieger 1949:1). The site is situated on an area of high sediment deposition (natural levee or point bar) where numerous channel scars, oxbow lakes, and back swamps characterize the landscape. This environment is characteristic of Haley and Belcher phase sites that have been identified in direct association with floodplain environments within ridge and swale topography and situated on well-drained natural levees (Hoffman 1971:810). The occupational span of the site is generally considered to be circa A.D. 1200 – A.D. 1700 (Hoffman 1970:163-164; McKinnon 2010b:13; Perttula 1992:118; Schambach 1982a:4), although material collected from the surface demonstrates that the landscape had been utilized much earlier (see Chapter 5).

The most prominent feature at the site is a tree and brush covered multilevel platform mound that looms over the current landscape. Two very low rises (0.5–1 m in height) are subtly discernible directly east of the mound in an open field. They probably represent two of the "four low humps and rises of the ground that long cultivation evidently had considerably spread," an observation documented in 1912 by Moore (1912:566-567). The large mound is composed of at least three large multilevel platforms and a possible slope or ramp on its eastern side - a construction that is fairly unique among Caddo mound sites. The mound is oriented north-south with the southern platform representing a broad open area of low elevation. The shape of the mound is interesting, so much so that local lore has offered a suggestion that it is possibly an effigy mound: either a turtle with a humped back or a beaver with the south platform representing the large flat tail. It is unlikely that the mound is a zoomorphic representation, however. Effigy mounds are not documented in the Caddo area and, in fact, there are only a few documented in the eastern Woodlands during early Mississippian period – but it does make for interesting lore. A plane table map created by Mr. Glen L. Evans of the Texas Memorial Museum in 1948 measured and recorded the mound at 672 ft (205 m) in length by 320 ft (98 m) in width, with a maximum height of 34 ft (10.4 m) (Krieger 1949:3; Figure 3.2).

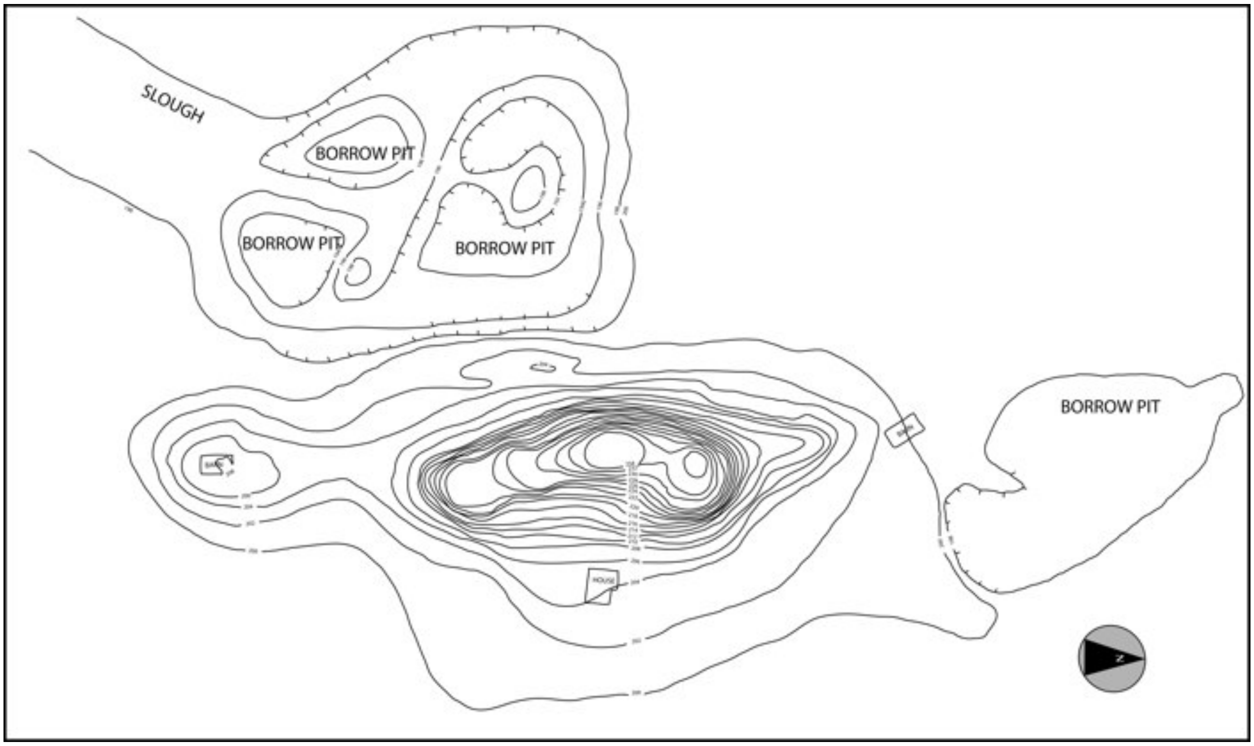

Figure 3.2. Elevation map created from topographic data collected in 1948 (after Krieger 1949 and AAS 480033).

Recent elevation data collected on the mound and in the surrounding area indicate that its current dimensions are fairly similar to those measured by Evans in 1948. Minor differences (less than three percent) in dimensions are likely associated with variables inherent in recording technologies, mound erosion during the past 65 years, and how the mound basal height and limits are defined (much of it is buried below alluvial deposits). The current dimensions of the mound are 200 m in length by 90 m in width, with a maximum height of 9.6 m (Figure 3.3).

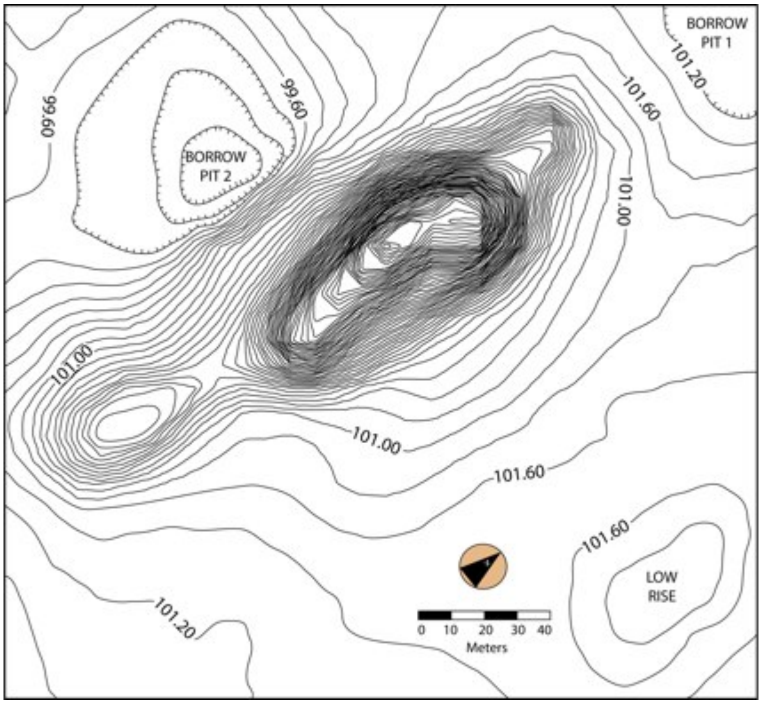

Figure 3.3. Elevation map created from topographic data collected between 2006-2012. Data collected by Dr. Jamie C. Brandon and Anthony Clay Newton.

Two distinctive borrow pits are also clearly visible on the landscape. A large borrow pit (BP1) is located just beyond the north end of the mound, with a second and smaller borrow pit (BP2) on the western periphery of the mound. In the 1948 topographic map there are two separate borrow pits recorded on the west side of the mound (see Figure 3.2). Today, there is only a single borrow pit on that side, likely a result of historic landscape modification. A third borrow pit (BP3), no longer visible on the surface owing to recent filling, was located approximately 300 m east of the mound (see Chapter 6). The location of a borrow pit some distance from the large mound is interesting and suggests the former presence of constructed mounds to the east – possibly related to the four low rises that Moore documents, two of which are still visible today. The western borrow pit is currently surrounded by trees and brush (a haven for venomous water snakes). The northern borrow pit is in the open field and often visited by grazing cattle. During a severe drought in October 2011, the area of the northern borrow pit dried-up (only the second time the landowner remembers it drying over the last 40 years), and so it was included in geophysical surveys. Results demonstrate that the northern borrow pit has also doubled as a trash pit for metallic farm debris (see Chapter 6).

Battle Mound also has a long history of historic occupation and use. In 1948, landscape photographs of the mound and site show evidence of numerous buildings and enclosures on its eastern side (Figure 3.4). At that time access to the mound was via a dirt road that ran perpendicular to the mound and through the east pasture. This road led to a cattle stockyard situated on the southern end of the mound that was constructed in the mid-1950s. The stockyard is no longer in use today, but remains the last visible evidence of historic ranching activities at the site. Access to the site is no longer via the old dirt road, but is now gained through gates on the far northeast corner of the property. In the late fall, the site is usually subject to shallow depth discing and planting of winter wheat for the cattle to graze. The cattle seemingly do little damage to the buried archaeological remains, unless they gain access to the mound.

Figure 3.4. The Battle Mound site as it looked in 1948. Several historic period structures are located along the east side of the mound. A single building is located on the southern platform. Photo taken by Lynn Howard (AAS 480096; used with permission from UAM Collections).

History of Excavations

Although large in size and considered significant in several archaeological and cultural aspects, this Middle and Late Caddo mound center has seen few systematic archaeological investigations. The earliest recorded work is by Moore during his five months on the Red River between 1911 and 1912 (Moore 1912:484; Weinstein et al. 2003:59). During this time, Moore navigated his now famous steamship, *The Gopher*, up and down the Red River to record and excavate several mound sites located within the Caddo homeland. Although George Beyer (1896, 1898) reported the recording and excavation of mounds in northwest Louisiana in the late 19th century, the Moore investigations and his subsequent eloquent publications provide the first synthesized account of major finds from Caddo mound sites of the Red River Caddo (Moore 1912:484; Weinstein et al. 2003:59).

Upon landing his steamship on the banks of the Red River at Battle Mound, Moore and his crew went straightaway to the large mound. There they dug what are described as numerous "trial holes" in the top of the mound "without return." Knight (1996:7) notes that the trial holes that Moore describes in his work at Moundville (1TU500) were essentially test excavations that were rather uniform in area and about four feet in depth. It is important to emphasize that Moore, although quite experienced in locating burials and burial remains and having dug numerous test units in the mound, was unsucessful in his attempt at locating burials and associated ceramic vessels within the mound. His results hint at evidence of a distinguishing type of later Belcher phase characteristic related to mortuary and architectural programs. During the earlier Caddo periods, there were programs of high ceremonialism (such as the interpreted deer ceremonialism at Crenshaw) and a veneration of certain individuals and with the burial of those individuals into mounds along with elaborate items. Toward the Middle Caddo (Haley phase) period it has been suggested that a change in mortuary ceremonialism from the veneration of individuals to a veneration of structures or buildings occurred, where adult individuals were typically no longer ceremonially buried within mounds but were buried in cemeteries off mounds (Schambach 1996:41). After this change in mortuary ceremonialism, mounds are mostly used as platforms for structures that are ceremonially burned and buried as part of a communal rather than individual mortuary program (see Trubitt 2009).

With little success exploring in the mound, Moore and his digging crew then moved their efforts to four low rises in the cultivated field to the east of the mound, a low elevation to the southwest of the mound, and to an area north of the mound. The area north of the mound is mentioned as having considerable "dwelling debris" on the surface and "unusually black" in soil appearance (Moore 1912:573). In the north area, fifteen "trial-holes" were dug which resulted in only one burial with no artifact associations. The general assumption that Moore provides is that in this area many of the burials were removed during earlier cultivation (Moore 1912:573). This assumption is incorrect since, as mentioned below, the north area (the Handy Place) is known for the existence of numerous burials and associated artifacts. Apparently, Moore's north area and the subsequent digging in the north area Handy Place "cemetery" are two different locales.

In one of the eastern low rises Moore excavated five human burials that were interred with 35 ceramic vessels (classified as Late Caddo, Belcher phase) that are all symmetrical with most having incised decoration and red pigment added to the line-work (Moore 1912:567-568). Moore describes the dimensions of the large mound as 33 ft (10 m) high, 592 ft (180 m) long and 157 ft (48 m) wide with three levels or plateaus and a "roadway" ascending the eastern slope (Figure 3.5; Moore 1911:65; 1912:566). Although the exact locations where Moore excavated may never be precisely known (although see Chapter 6: Figure 6.47c), subsequent amateur collectors have dug numerous burials in a "cemetery" north of the mound (Area H – Chapter 5). Many of the artifacts gathered from those digs are housed at the Arkansas Archeological Survey (AAS) in Fayetteville, Arkansas and the Gilcrease Museum in Tulsa, Oklahoma. Additionally, two very low rises are still apparent at the site today and archaeogeophysical results demonstrate that cultural features are present on these rises (see Chapter 6; McKinnon 2008; 2009; 2010b).

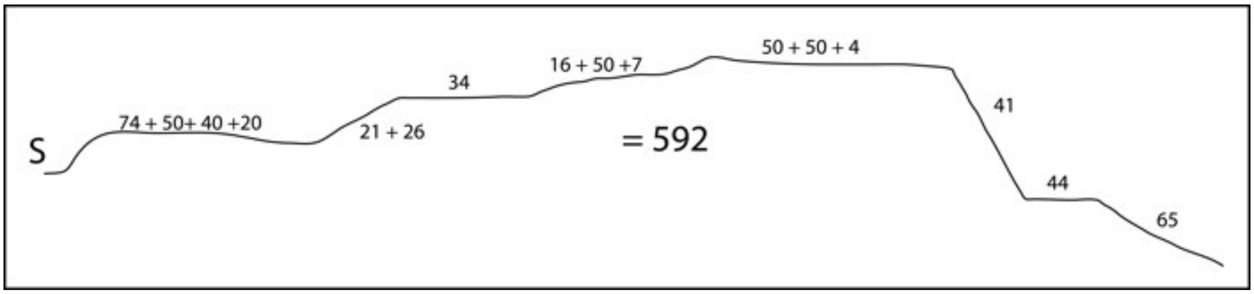

Figure 3.5. Profile sketch of the large mound at the Battle site created by Clarence B. Moore (after Moore 1911:65).

After the Moore investigations, sporadic but intense amateur collecting at and around the site and adjoining Handy Place has taken place since the 1930s (Weinstein et al. 2003:67). The hundreds of ceramic vessels and other artifacts removed during these collection efforts enhanced numerous private collections distributed throughout North America. For example, in the late 1930s Glenn Martin excavated a large collection of ceramic vessels with several burials 100 yards northwest of the large mound (the "cemetery" area). Those vessels became part of the Judge Harry J. Lemley collection and are now housed at the Gilcrease Museum in Tulsa, Oklahoma (Lemley Collection Notes; Dickinson 1991; Perttula et al. 2009). In fact, over the course of several years, Judge Lemley excavated or hired individuals to excavate more than 170 ceramic vessels from the Battle Mound site and adjoining Handy Place (Perttula et al. 2009).

Another large collection of ceramic vessels was excavated in the 1930s that was associated with several additional burials from the north "cemetery" by Horace McLendon of Lewisville, Arkansas and M. Pete Miroir of Texarkana, Texas. The McLendon vessels were in his possession until his death when they were then sold to willing buyers. Sadly, the location of the McClendon vessels are unknown today. Thankfully, many of them were photographed by AAS faculity in the late 1970s (Figure 3.6). The photographs are now housed in the AAS photo archives. The ceramic vessels and artifacts excavated by M. Pete Miroir between 1939 and 1940 at the adjoining Handy Place are now housed at the University of Arkansas Museum (Weinstein et al. 2003:67). Interestingly, Miroir was owner of Texarkana Glass and Mirror and Glenn Martin (a former archaeologist during the WPA era – see Perttula 2005) was a sales representative for the same company (Taylor and Krieger 1949). Clearly, excavations at the northern cemetery area throughout the 1930s and 1940s was a "boys club" affair conducted between close associates.

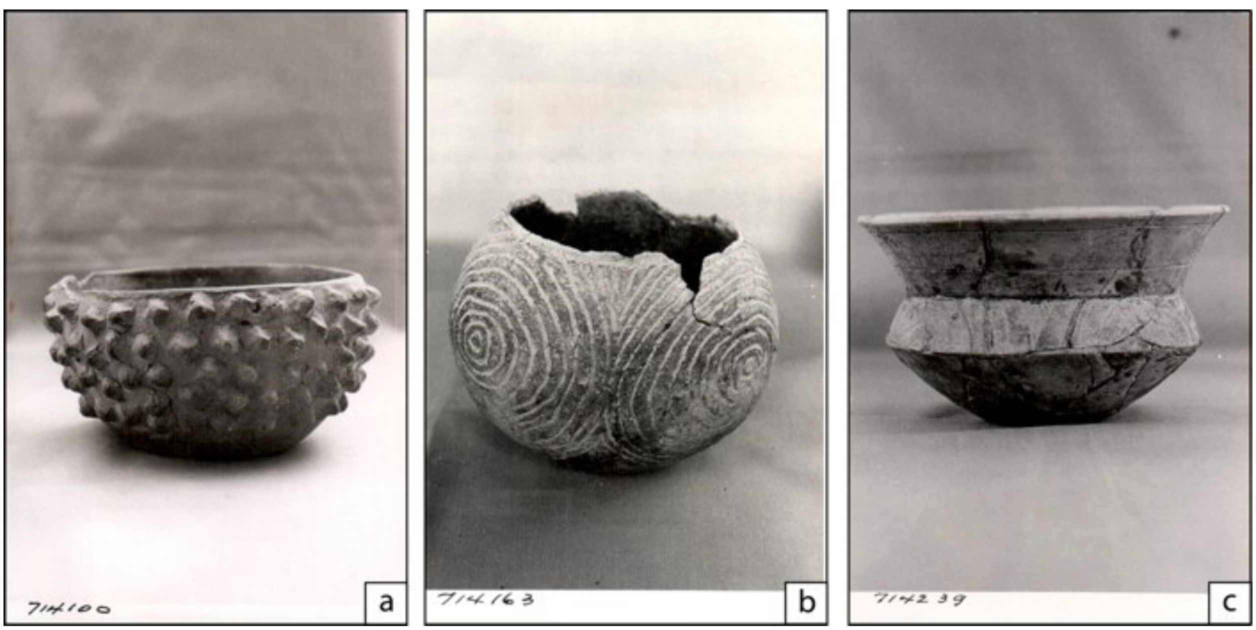

Figure 3.6. Three of the vessels from the McClendon collection that were photographed in the late 1970s: (a) Moore Noded (AAS 714100). (b) Foster Trailed-Incised (AAS 714163). (c) Avery Engraved (AAS 714239). Used with permission from the Arkansas Archeological Survey.

In the summer of 1948 investigations to study the construction of the large mound were headed by Dr. Alex D. Krieger of the University of Texas and supervised by Lynn E. Howard from the University of Michigan (see Chapter 4). At that time Mr. Howard was a graduate student at the University of Michigan and an active participant in the burgeoning scholarly discussions of Caddo archaeology – which later led to the formalization of the annual Caddo Conference (see Davis and Davis 2009). During that summer Howard received help in the field from several notable scholars and avocationalists of the time, such as Glenn Evans, Clarence Webb, Bill Newcomb, Pete Miroir, R. King Harris, and R. L. Stephenson, along with the much-needed laborers from surrounding farms.

The study resulted in several excavations, mostly confined to the southern end of the large mound. The Krieger and Howard investigations constitute the only systematic excavations performed to date at the site. As initially described in the brief report presented to the Viking Fund grant agency (Krieger 1949:2), a two-foot contour map of the large mound was created that included proximate borrow pits and the immediate surrounding area (see Figure 3.2). Krieger, as with Moore, also makes mention of an inclined roadway or ramp on the eastern side of the mound. While the height of the mound summit is consistent with the Moore dimensions, both the recorded length and width are considerably different. Although unknown as to the reasons, the dimensions recorded in 1948 are almost double the width recorded by Moore.

After completion of the contour map, five trenches were dug around the southern platform and one trench in the northern platform where at least three circular houses were uncovered (Kreiger 1949:3-4; see Chapter 4). Krieger (1949:4) also notes that the original base of the mound was about three feet (one-meter) lower than the level of the field owing to alluviation since mound construction.

In January1967, Herschel and Dot Kitchens continued the excavation of burials and associated ceramic vessels from the Handy Place cemetery area. In their field notes they make mention that the excavated burials were "in and around house patterns" (Kitchens & Kitchens 1968). Apart from Moore's mention of "dwelling debris", this is the first specific mention of the potential for off-mound structures in the numerous field notes from earlier excavations. Unfortunately, indications of house patterns were not mapped or recorded beyond the simple mention of them and precise provenience of the burial locations is difficult to determine.

Beginning in 1979 and continuing intermittently until 1991, the AAS station in Magnolia began a program of artifact surface collection in several areas at the Battle site (see Chapter 5). Areas were delineated based on the presence of topographic features, knowledge of previous archaeological finds, and locations immediately proximate to the large mound. Several of the areas produced high quantities of ceramic sherds, lithic tools, and fired clay or daub. The collection represents the first systematic recording of off-mound occupations at the site (Schambach et al. 1980). The analysis and interpretation of surface collected artifacts and their association in areas containing culturally generated geophysical anomalies has proved to be valuable in this research (see Chapter 7). The surface artifacts allow for a crucial material spatial dataset in the investigation of off-mound activities and site organization. Today, visible artifacts at the site are rare, likely owing to changes in agricultural practices over time from deep cotton furrows (when the 1980 surface collections were made) to lower impact discing and the planting of winter wheat as a cattle crop today. The scarcity of surface artifacts today make an analysis of the surface collection that much more important to include in this research.

In 1980, the AAS station in Magnolia conducted a salvage recording and repair of a drainage ditch excavated by a power shovel at the foot of the south end of the mound

(Schambach et al. 1980). A single burial was recovered and evidence of at least one structure was identified. Inspection of the ditch showed intact features in the profile and associated backdirt piles contained intact vessels, bits of human bone, several large sherds, and numerous lithics (see Chapter 4). With this work, a profile of the ditch was created that further demonstrates the depth (up to one meter) of alluvial deposition around the site as previously recorded (see Krieger 1949).

Over the course of several years a large-scale magnetic gradiometry geophysical survey of an area (14.24 ha) surrounding the large mound was conducted at the site (see Chapter 6; McKinnon 2008, 2009, 2010b; McKinnon and Brandon 2009). In addition to the magnetic survey, additional instruments were utilized in select areas to more accurately define geophysical anomalies as archaeological features. Anomalies identified within the 14.24-ha area include those of recent cultural origin, those of prehistoric cultural origin, and those originating from natural processes.

Recent ceramic analysis has documented a detailed inventory and analysis of a selection of the over 1,400 complete Caddo ceramic vessels from the Lemley Collection at the Gilcrease Museum in Tulsa, Oklahoma. Over the course of a week in August 2008, 241 ceramic vessels from eight different Caddo sites were analyzed. Of the number examined, 176 are Caddo vessels excavated from mortuary contexts (the Handy Place cemetery to the north of the mound) during the 1930s, 40s, and 50s at the Battle Mound site. The analysis identifies that a majority of the vessels are associated with an "intensive" Haley phase (A.D. 1200 – 1500) occupation and a number of vessels correspond to a Belcher phase (A.D. 1500 – 1700) occupation (Perttula et al. 2009:10-22).

History of Land Ownership

It is worthwhile to note, as Moore mentions about the Lafayette County Battle Mound site (Moore 1912:566), that the name assigned to this site does not represent the location of some conflict or conflagration, but is rather named after the Battle family, early owners of the properties that Moore and Harrington (a grandson owned a Hempstead county Battle Mound – see McKinnon 2012b) visited during their 19th century explorations.

The Battle family first arrived in the Americas in 1654 and secured land in both Virginia and North Carolina. The family has a long history as landowners and farmers in southeast Virginia and northeast North Carolina (Southwest Arkansas Regional Archives, Washington, Arkansas [SARA], Descendants of John and Elizabeth Battle, Vertical File [VF] 1378). James J. Battle, born on July 12, 1811, in Wake County, North Carolina, married Nancy Strickland in 1836, and the two of them slowly moved westward through Mississippi finally settling in Lafayette County, Arkansas in 1844.

By the 1850s James Battle is listed on the tax rolls as the owner of land in Township 17S, Range 25W in Lafayette County. This is the location of the large mound associated with the Battle Mound site and the reason Clarence Moore refers to the site as "The Battle Place, Lafayette County, Ark." Moore adds, "the plantation does not border the river but lies about one mile back from it, near Battle Lake, a former course of [the] Red River, no doubt, which was itself the river when the aborigines occupied the site" (Moore 1912:566). Interestingly, James Battle was not the owner of the property when Moore visited the site in 1911. Instead, Mr. Henry Moore, Jr., of Texarkana, Arkansas owned the property. Nonetheless, Moore associates the presumably well-known and respected Battle family name to the site, a circumstance that will last in perpetuity, rather than the actual landowner at the time of his visit. Could it have been to avoided confusion calling it Moore Mound? We'll never know.

In summary, the enormous multi-platform mound at the Battle site represents the largest extant mound in the entire Caddo area. The site is named after the Battle family, earlier settlers along the Red River who owned the land until selling it to Henry Moore sometime prior to 1911. The mound and surrounding village area is situated on a landform that is defined by ridge and swale topography, similar to the geomorphic location of contemporaneous Haley and Belcher phase sites in the Great Bend region. The site has a long history of excavations with hundreds of Haley and Belcher phase ceramic vessels exhumed from numerous burials primarily located to the north of the large mound in an area known as the Handy Place cemetery. Prior to this research, little was known about architectural variation and the distribution of structures and artifacts situated within the village area. The only systematic excavations at the site are from mound top exploration conducted in 1948. Until their examination as part of this research, the data from the 1948 collections had gone virtually untouched for the last 65 years.

CHAPTER 4: MOUND EXCAVATIONS AND ARCHITECTURE

"In view of the above factors, we believe it best to postpone a full published report until after the summer of 1949."

– Alex D. Krieger 1949:6

In April 1948, Dr. Alex D. Krieger of the University of Texas at Austin obtained a research grant from the Viking Fund (now a part of the Wenner-Gren Foundation) to conduct mound-top excavations at the Battle Mound site. Upon award of this grant, Dr. Krieger was forced to locate an experienced field crew director, since his summer schedule was already allocated to archaeological projects in Texas. After determining that Mr. M. Pete Miroir (a well-known and respected avocationalist quite familiar with Caddo archaeology) of Texarkana was unavailable, Krieger offered the position to Mr. Lynn E. Howard, then a graduate student at the University of Michigan. The goals of the fieldwork were to: (1) make a contour map of the mound and surrounding features; (2) dig several trenches "in a number of places around the mound to find the slope of the original mound;" and (3) "find the village level before the mound was constructed" (Howard 1948:1). The fieldwork began on June 25th and continued through September 11th during what must have been very hot and humid weather. At the time of the 1948 excavations, Mrs. Henry Moore Jr. of Texarkana still owned the Battle Mound property (sometimes referred to as the Moore plantation) and gave permission for Lynn Howard to direct a crew of excavators on the mound (Figure 4.1).

Researchers of Caddo archaeology (academic scholars, avocationalists, and the Caddo themselves) often lament the lack of available knowledge regarding the 1948 mound top excavations at this important and influential Caddo site along the Red River. Hence, it is unfortunate that in the more than 60 years since Howard conducted the Viking Fund fieldwork, excavation results are only now being examined. Howard had intended to use the excavation results for a Ph.D. dissertation, but that outcome never materialized.

Figure 4.1. Lynn Howard (on knees) marks a charcoal deposit as local laborers excavate down to the wattle layer of Structure 1 (photo by R. L. Stephenson; UAM 480069). Used with permission from the University of Arkansas Museum Collections.

The majority of discussions about the mound excavations have been limited to what were believed to be the only two surviving documents: Howard's typed and edited version of his field logbook of excavations and a fairly terse 1949 summary report of activities and associated expenditures written by Krieger (Howard 1949; Krieger 1949; McKinnon 2010a). Recently, an abundance of original field notes, excavation and landscape photographs, and several museum boxes were located within the University of Arkansas Museum collections. Surprisingly, the museum boxes contain just about all the excavated materials removed by Howard and his team - organized somewhat sporadically, yet systematically, in the field bags in which they were collected 65 years ago. As a component of this dissertation, material items were sorted and counted, historic photographs and documents were scanned, and photographs were taken of diagnostic objects.

In addition to the mound excavations, data were also gathered in 1980 associated with a salvage recording and repair of a drainage ditch dug by a power shovel at the south end of the mound (Schambach et al. 1980). As part of this salvage work, a profile of the ditch was drawn and material collected that allow for a comparative dataset to be examined against the 1948 excavation units that were dug on the south platform.

Discussions of excavation results and documented ceramic, lithic, fauna, and flora material are presented in this chapter as they specifically relate to the research questions directly associated with this dissertation (see Chapter 1). This chapter begins with historical background information followed by an examination of the data from each excavated trench. A short discussion of features and material documented during the 1980 drainage ditch salvage follows. The chapter closes with a summary of excavated architectural features of the mound structures and interpretations of chronology and use.

Contributing Personnel

Over the course of the excavations, personnel from several adjoining states were involved in various capacities. Although Dr. Krieger is often referred to as the lead excavator of this project, he only visited the site once. Instead, Howard maintained the role of on-site field director and conducted the actual excavations. Howard received help in the field from several notable scholars and avocationalists of the time, such as Glen L. Evans (Texas), Clarence H. Webb

(Louisiana), Bill W. Newcomb (Texas), M. Pete Miroir (Arkansas), R. King Harris (Texas), and R. L. Stephenson (Texas) along with the much-needed laborers from surrounding farms.

Howard's pay was $250.00 per month (approximately $2,300.00 today) with travel expenses paid. During the project, Howard managed the hired labor (local farm hands) and also facilitated interaction with guests to the site. Mr. Glen Evans of the Texas Memorial Museum, in exchange for traveling and living expenses, contributed his time and survey equipment to create a two-foot contour map of the mound and proximate areas (see Figure 3.2). The map was completed during the first few days of fieldwork. After completion, Evans returned to Austin. From July 11th to August 10th, Dr. Bill Newcomb, with the Department of Anthropology at the University of Texas, participated and was paid a sum of $200.00 per month (approximately $1,850.00 today). The well-known Dr. Clarence Webb from Shreveport, Louisiana (see Gregory 1980) also donated his time. Unfortunately, field notes that might (certainly) have been taken by the well experienced Newcomb or Webb have not been discovered.

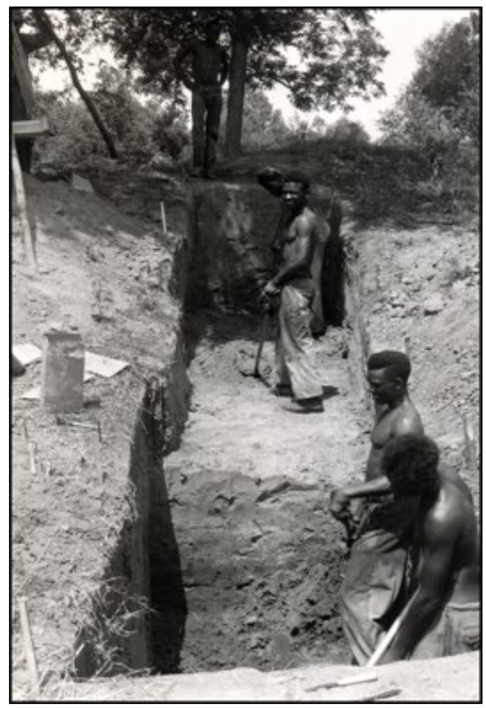

Figure 4.2. Local labors excavating in TR2 through the orange mound fill and into the occupation layer (photo by Lynn Howard; UAM 480060). Used by permission from the University of Arkansas Museum Collections.

Although they receive little credit, plantation workers living at the Moore plantation conducted most of the digging (Figure 4.2). One to 15 laborers worked during any single day, depending on other plantation responsibilities. They were all paid by the hour, although the wage is not recorded in Howard's field book. During the first few days, Howard logged the names of the plantation workers. As the work progressed and the pace of excavations increased, he unfortunately abandoned this practice. The only names that have been identified in his records include: Richard Marshall (who lived in the house on the east side of the mound), George Valentine, and Ruben James. The laborers were hired for the duration of the project until they were needed in the cotton fields:

> In August a good supply of labor was available most of the time, but on September 1st, all hands were suddenly put in the cotton fields until the cotton-picking ended, usually in December [Krieger 1949:2].

Mapping the Mound and Historic Occupations

During the first few days of the investigations (Tuesday, June 29th to Friday, July 2nd), efforts were focused on creating the contour map of the mound, borrow pits, and surrounding terrain before digging was to commence.

The mapping effort began on the south end of the mound and moved to the east as laborers cleared the heavy brush to create "lanes" for lines of sight:

> The mound was cleared and mapped before excavation began…This was a considerable job in itself because of the great size of the mound, 672 feet long at the base, 320 feet wide, 34 feet high with a crest 200 feet long, and large platforms on all sides. An inclined roadway or ramp also runs up the eastern side, paralleling the summit crest, and is quite apparent to the eye although not well shown on the contour map because of washing down of the mound sides [Krieger 1949:3].

In 1948, three structures related to the contemporary occupation and associated farming activities stood on parts of the mound. A single abandoned house located on the south mound platform was used to store hay (Figure 4.3; see also Figure 3.4). The house was noted as being "like all the other houses in the area, the foundation is several large logs and the rest of the area under the house open to hogs, chickens and dogs" (Howard 1948:3). A mention in the field notes indicates that the house on the south platform protected a level area that was considered to be the original mound surface (this was verified during the excavations; see Trench 2 discussion below). Owing to erosion caused by foot and hoof traffic around the house, the house was on an elevated bank of burnt clay “a foot to a foot and a half above the unprotected area” (Howard 1948:3). Today, the structure is no longer standing. A fairly level area on top of the south platform and an abundance of cucurbit vines is the only surface evidence of either the prehistoric or historic occupation.

Figure 4.3. Looking northwest toward the old house perched on the south platform with the more elevated central portion of the mound hidden in the overgrowth in the background (photo by Lynn Howard; UAM 480047). Used with permission from the University of Arkansas Museum Collections.

A second farming related structure was located north of the mound. Little is discussed in the Howard field notes regarding this structure, although it is documented on the 1948 contour map as a barn (see Figure 3.2). The structure is no longer standing and an abundance of historical artifacts have been surface collected in this area (Chapter 5, Area B).

A third structure, occupied by Richard Marshall, was located on a leveled area directly east of the large mound. Photographs from 1948 document outbuildings and hog pens related to the farming occupation (see Figure 3.4). Mr. Marshall had lived in the house at the base of the mound for 25 years (prior to 1948) and was an active digger at the site (Lemley Collection Notes). Howard mentions the existence of "collector pits" located on the east side and south end of the mound. Presumably, these pits are the product of Marshall's digging during his residency. Howard also mentions that Marshall cut a three-foot deep trench across the north platform (see Trench 5 discussion below). The current location of any ceramic or other artifacts that Marshall might have collected is not known, although it is likely some of them might have made their way into Judge Lemley's collection at the Gilcrease Museum in Tulsa, Oklahoma. The house is also no longer standing. All that remains on the surface are numerous bricks that have been pushed up the side of the mound and an abundance of subsurface metal scatters (see Chapter 6). An abundance of historic artifacts have also been collected from the surface of this area (Chapter 5, Area A).

Excavation Trenches

A total of six trenches were excavated on the mound during the 1948 work. Five of the trenches (T1 through T4, and T6) were located on the platform on the south end of the mound. A single trench (T5) was located on the platform on the north end of the mound (Figure 4.4). A single test pit was put into the top of the mound, although the location was not documented on the original contour map.

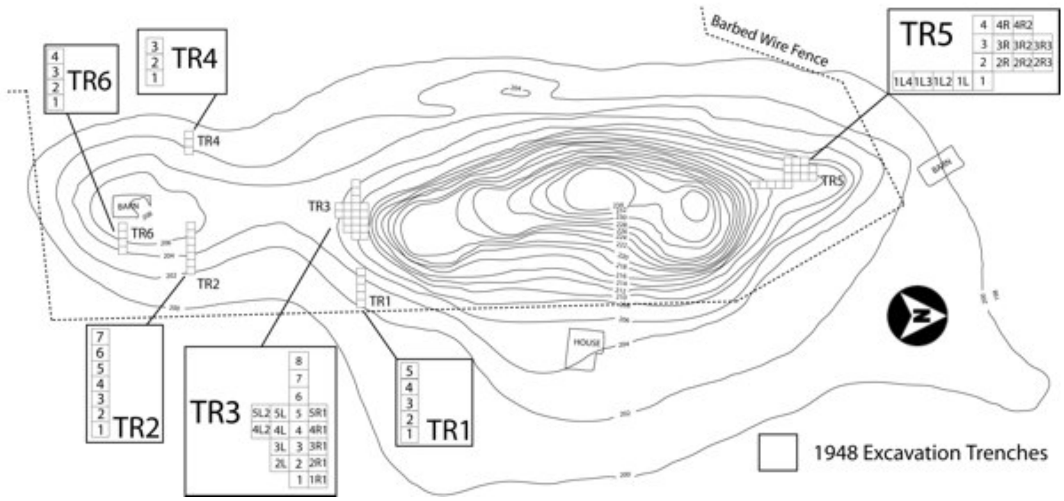

Figure 4.4. The topographic map created by Glen Evans. The map shows the location of numbered excavation trenches (after Krieger 1949).

Despite having a map that documents the location of the trenches, it is difficult to identify their exact locations using the map alone. The trench locations were referenced to a datum recorded on the contour map and marked on the southern side of the fence surrounding the mound. This datum is gone since the fence was replaced several years ago. At present, there has been no effort to attempt to locate the exact positioning of the trenches, although remote sensing could be productive.

Howard organized the trenches into a series of trench squares and numbered them sequentially as the field crew excavated east to west within each trench. Each trench square measured 5 x 5 feet and was excavated in vertical six-inch levels, unless otherwise specified. Information regarding activities and findings are fairly detailed for the first couple of trenches. As the excavations continued and several trenches were open at one time, Howard's field notes became much more generalized and less informative.

Field notes mention profiles drawn for all sides within each trench, although the location of some of the profile drawings is currently unknown. At least one profile drawing has been found (with varying resolutions and detail) for each trench. While some of the profile drawings are graphically adequate, a few of the drawings are unfinished, fairly terse in description, and lacking labels identifying the soil and stratigraphic layers. Some have been derived from roughly sketched field notes that contain no metric data and relative information only.

In terms of the locational information of the material excavated from the trenches, there is no specific (i.e. point plot) vertical or horizontal provenience beyond the documentation of the six-inch level that material was removed. As such, it is impossible to fully understand the horizontal placement within each square and differential vertical placement based on stratigraphic layers documented in the profiles. As a result, material discussed in this chapter is presented in relation to the trench in which it was found with notations on feature associations as appropriate. The focus of this analysis of the mound excavation data is on a summary of material (mostly ceramic) data that provide insight into temporal information about the architectural features documented on the mound platforms.

Over the course of several months throughout 2011 and 2012, the boxes of material excavated by Howard and his team were sorted and counted (Appendix C). Ceramic sherds were sorted by design and temper ($n = 6{,}013$). Ceramic sherds less than one-inch diameter (size of a quarter) were sorted as “sherdlets” ($n = 7{,}040$) and are not included in the sherd analysis. While most material was organized so that it could be associated with some level of trench provenience, a few items over the years have been removed from their appropriate boxes and re-deposited into general boxes with no recorded provenience or are missing from the collection (likely for use in long lost teaching collections). Material objects without provenience have been sorted as “unknown” and are not included in the artifact totals.

Trench 1

Trench 1 (TR1) was located on the east side of the mound perpendicular to the elevated rise that leads up to the central platform (see Figure 4.4). The trench consisted of five trench squares allowing for a north to south profile 25 ft in length. It was located 35 feet north and three feet west of the site datum at the eastern edge of the mound. Four squares were originally excavated, with a fifth square added later. Although not the largest of the trenches excavated, TR1 contained the most ceramic material, mostly ceramic sherdlets (Appendix C). Since TR1 was the first trench opened, the high number of sherds could be the result of an initial program of meticulous artifact collecting (accounting for the high number of sherdlets) that evolved into more selective collecting as excavations continued in other trenches.

Continuation of TR1 across the mound was stopped as a result of a large pecan tree and at the request of the owner, Mrs. Moore, to not remove the tree or any other large trees growing on the mound. According to Howard's field notes, the first several inches in TR1 were very hard and difficult to excavate:

> The first level in the trench was from 0 to six inches and included a plow zone in square # one. There were five squares in trench #1 but at first only four were worked. The first layer was a very hard brown soil. Lack of rain and hot sunshine had dried out the top of the ground for a depth of four to six inches. At a depth of 6-8 inches the soil became more sandy and at 10-12 inches became much easier to dig…Work was begun on square #2 still in trench #1. The first level, 1-6 inches was as before, a plow line with very small sherds, few chips and a few fragments of bone [Howard 1948:6-7].

Photographs of the trench profiles were taken (Figure 4.5) and trench profiles were drawn. Trench profiles for TR1 are available only for the first four squares, but nonetheless provide insight into the mound stratigraphy (Figure 4.6).

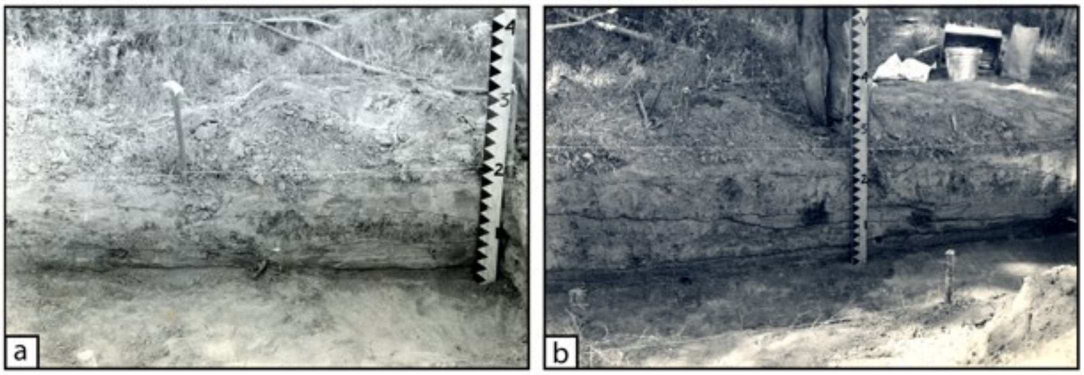

Figure 4.5. Photographs of the TR1 north profile (a) The northeast corner of TR1 showing the occupational level at the base. UAM 480052 (b) A second profile of the north wall of TR1 and the occupational level. UAM 480054. Used with permission from the University of Arkansas Museum Collections.

Two thick water deposited silting episodes are documented as "sand fill" in the north profile with reddish clay fill separating the two sandy fills. Below the lower sand fill (SF2), was a level that extended the length of the trench and is documented by a darker brown-black soil mixed with charcoal and ash. Howard describes this level as an occupational layer that contained a burned structure or an outdoor cooking area. Five random postholes were discovered in the occupational layer along with several higher concentrations of ash that might represent cooking areas, although these features are not documented in the trench profiles. A structure outline was unable to be identified:

> I have been working in square #1, and am down below the second sand line and have struck a black sandy soil well mixed with charcoal and sherds. This black [occupational] layer was sealed off by a layer of sterile [water-lain] sand…[with] thickened areas of ash, or areas that showed more burning than others. All of these ash areas were on the black layer... The material on this "floor" or level of black sand is all one cultural level and time [period] and will be sacked together [Howard 1948:8-9].
>
> The [occupational] layer is full of small sherds, bits of bone and shell. The black mixture contains areas of almost pure ash but not [*sic*] signs of intense heat that would be expected with so much pure wood ash. The ash in square #1 was eight inches thick, measured at the wall. It is such a level mixture, it was either a house floor or an outdoor cooking area. In square #2 after the ash and charcoal layer was taken off a post hole with a bath tub outline was found. Post Hole #1 square #2

was located at a depth of 36” below the surface, just below the black mixture. There [are] perhaps two more large holes. The pottery from this level has been uniform [with] some engraving [and] also the use of red or white pigment in the engraving. One water bottle neck was found [Figure 4.7]. Trench #1 was cleaned out to the hard brown clay and five postholes found. They were almost all in square #2. No good outline is given but a semi-circular outline is suggested. Either a round house or round center post pattern [Howard 1948:11-12, 15].

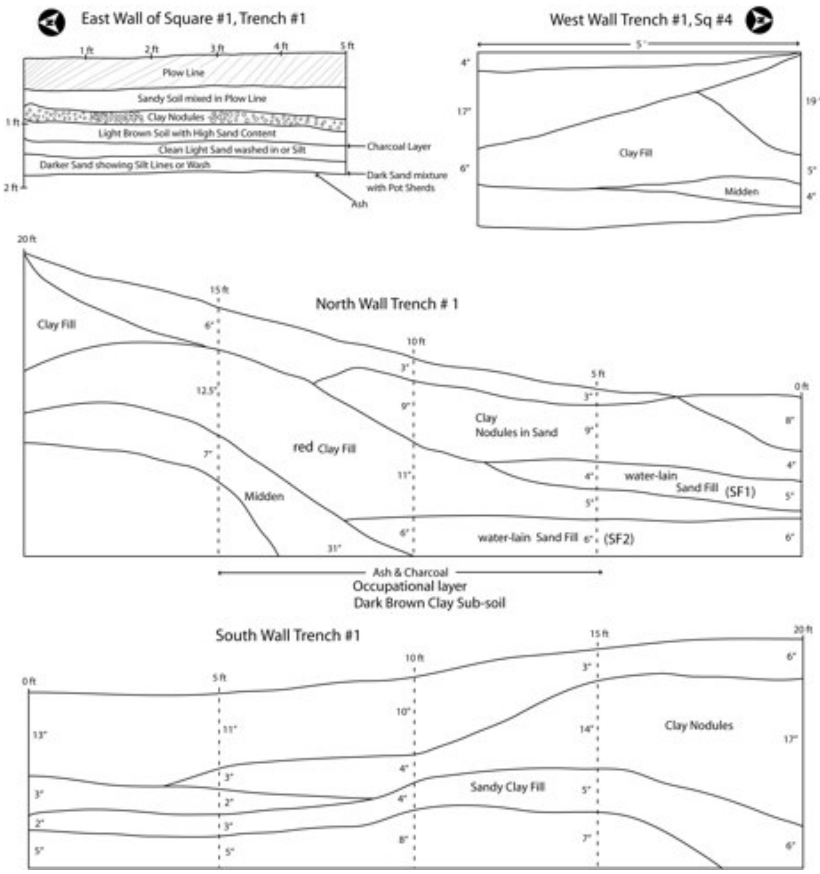

Figure 4.6. Profiles of TR1 showing occupational layer with water-lain fills, a midden, and mound fill. A profile of Square #5 was not drawn (after Howard 1948).

The occupational layer contained numerous sherds (*n* = 1,147 sherds; *n* = 852 sherdlets) and a small amount of “squeezed” daub (*n* = 17, 19.2g) in an ash pit (Figure 4.8). This layer would appear to mark a transitional period between a Haley phase and Belcher phase house or outdoor cooking area, given the mix of Hempstead Engraved (Suhm et al. 1954:292; Suhm and Jelks 1962:69), Belcher Ridged, Belcher Engraved (Suhm et al. 1954:244; Suhm and Jelks 1962:9), and Pease Brushed-Incised sherds (Suhm et al. 1954:338; Suhm and Jelks 1962:119; see

Figure 4.7). Below the occupational layer was a dark brown clay sub-soil layer that contained a few sherds in the uppermost two-centimeters and represents the pre-occupation surface.

Figure 4.7. Ceramic sherds from TR1: (a) Hempstead Engraved (b) Belcher Engraved (c) Engraved with white pigment (d) Plain bottle rim (e) Engraved with white pigment (f, g) Belcher Ridged (h, i) Pease Brushed-Incised. Photo taken by author.

A variety of faunal remains were found immediately above and within the occupational ash layer and in the postholes (*n* = 406, 833.1g). Faunal material is primarily fresh water mussel shells (see Appendix D) and bone of deer, fish, bird, and turtle. Three of the bone objects look to have been worked or cut in some fashion, although micro-wear analysis has not been completed. A fourth object, a deer antler, is offered as a possible tool punch (Figure 4.9).

Floral remains in TR1 are few (*n* = 17, 4.9g), likely owing to 1948 screening methodology. A few seeds and wood material were discovered in the heavy ash areas on the

Figure 4.8. "Squeezed" daub from TR1. Photo taken by author.

occupational area "floor" and within the postholes.

Lithic debris is fairly non-existent in TR1 (*n* = 14, 30.6g) and no lithic debris was collected from the occupational area. A single "arrowhead" is recorded within the 1-12" layer, although it is currently missing from the collection. A single cylindrical object - a possible drill – was collected between 18-24" within Square 4.

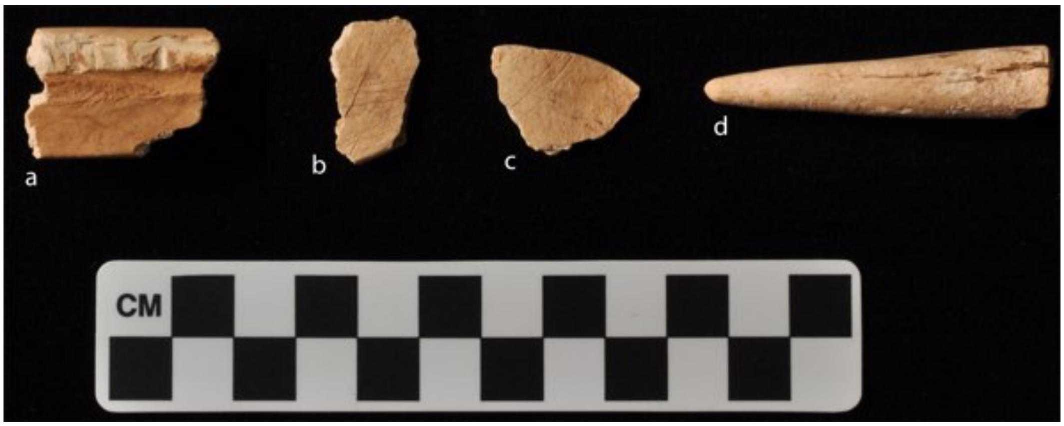

Figure 4.9. Faunal material from TR1: (a, b, c) Three pieces of possible worked bone and (d) a small deer antler as a possible tool punch. Photo taken by author.

Some minor bits of historic material (*n* = 11, 30.3g), likely related to the structure on top of the south platform, were collected from the first level (1-6") in the first square.

The presence of only a few small bits of unusually shaped daub, an absence of large amounts of structural daub, a diverse variety of faunal remains, a set of randomly spaced postholes, and a thick layer of ash suggest that the occupational area documented in TR1 represents an outdoor cooking area rather than the remains of a burned structure. Based on the presence of both Haley and Belcher phase ceramics, the occupational structure might represent two temporally distinct uses of this area or a single continuous use during a transitional late Haley phase and into an earlier Belcher phase. Unfortunately, the vertical resolution of artifact location does not permit much more elaboration. It is suggested that the five postholes might represent the locations of cooking tripods or drying racks, similar to the type of outdoor drying racks documented in the Terán map.

Trench 2

Trench 2 (TR2) was located on the east side of the mound beginning on the edge of the mound and extending west into the south platform. The southeast corner of TR 2 was located 95 feet north of the southeast corner of the fence and 30 feet west of the fence (see Figure 4.4). A total of seven squares were excavated in TR2 with the last square terminating in an area "located just north of the present [tenant] house on the south end of the mound" (Howard 1948:11). The location of this trench was chosen to determine if there had been a small primary mound built prior to the construction of the south platform. The seven squares allow for north to south profiles of a distance of 35 feet, although the only profile map that has been located very generally documents the north wall stratigraphy at a distance of only 20 feet (Figure 4.10). A variety of different types of artifact material were collected from TR2 (see Appendix C).

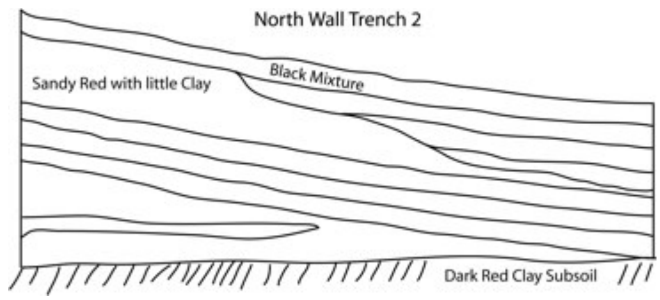

Figure 4.10. The digitized sketch of the north wall profile in TR2 mentions only a couple features (after Howard 1948).

In the first six inches, a few diagnostic sherds were found within a thin plow zone as well as an interesting historic porcelain marble (Figure 4.11). The diagnostic sherds include Belcher phase types, such as Cowhide Stamped (Suhm et al. 1954:260; Suhm and Jelks 1962:29), Foster Trailed-Incised (Suhm et al. 1954:272; Suhm and Jelks 1962:43) or Keno Trailed (Suhm et al. 1954:310; Suhm and Jelks 1962:87), and Glassell Engraved (Suhm et al. 1954:282-283; Suhm and Jelks 1962:52-53).

Figure 4.11. Ceramic sherds from TR2 include (a, b) Foster Trailed-Incised or Keno Trailed (c) Glassell Engraved (d, e) Cowhide Stamped. (f) An historic porcelain marble was also collected. Photo taken by author.

The material collected within the first levels of TR2 was likely washed down from the top of the southern platform as a result of historic erosion associated with the farming structure. Below the historic structure on the south platform (see Figure 4.4), a clay soil layer approximately 18 inches thicker than the surrounding surface was documented that sheds light on the amount of erosion since the construction of the historic structure. Foot and hoof traffic and the subsequent scraping off the top portions of the south platform likely contributed to the high amount of eroded soil in the TR2 area.

As the trench was excavated deeper, evidence of mound fill was identified with an artifact midden mixture found above it (see Figure 4.10). The midden materials may have been thrown or washed off the sides of the original surface of the mound where they became concentrated at the edge of the mound fill:

> Square 3 of trench #2 after the first six inches turned into redish [*sic*] sand, with a small amount of clay. No material was found in the next three levels of this square. This material was fill dirt for the mound, and was not taken from a village area…The pattern of trench #2 is working out very well. The midden mixture that is found in the top levels, seems to have washed or have been thrown off the top of the mound [Howard 1948:11-12].

At the base of TR2 was a heavily compacted six-inch dark brown-black ash and soil layer that contained a mixture of pottery sherds and bone fragments that continued at the same vertical level throughout TR 2 and under the south platform. This layer is interpreted as an occupational area that is temporally related to the occupational area identified in TR1. It is not known if the area is contiguous with the occupational area in TR1 or separate activity areas. The soil composition of the bottom compact layer was similar to that documented as an occupation layer in TR1, although artifact densities are less.

Collected from the occupational ash layer were small amounts of lithic debris (n = 17, 50.2g), burned and unburned bone (n = 32, 44.3g), and unmodified mussel shell (n = 28; 21.5g). Ceramic sherds (n = 52, 413.3g) were also meager with a few possible Pease Brushed-Incised and Haley Complicated-Incised sherds (Figure 4.12). Also collected from the ash layer of TR2 were several chunks of daub (n = 52, 102.2g) and a very interesting and unique bird effigy bone pin (Figure 4.13).

Figure 4.12. Ceramic sherds from TR2: (a) Unknown brushed sherd (b, c) Possible Pease Brushed-Incised (d) Haley Complicated-Incised. Photo taken by author.

The extent of the occupational layer at the base of TR2 across a large portion of the southern platform documents that there is no evidence of a small primary mound. Instead, the construction of the southern platform over the occupational layer was likely a single event (or over a short period of time) using well-compacted sterile red-orange sandy soil and capped with an artifact midden. Ceramic evidence found associated with the occupational layer in TR2 is consistent with the Haley phase artifacts documented in TR1. Below the occupational level was the same pre-occupation dark brown clay sub-soil that was identified in TR1.

Contrary to the proposed outdoor occupational cooking area in TR1, the presence of larger daub fragments, less faunal material, and a single personal item (effigy bone pin) suggest that the occupational area might represent the general location of a pre-platform Haley phase structure associated with the TR1 outdoor cooking area, although no evidence of postholes are documented.

Figure 4.13. An interesting bone (bird?) effigy pin found on the occupational layer of TR2. Photo taken by author.

Trench 3

Trench 3 (TR3) was the largest contiguous area excavated and was composed of a total of 19 squares (see Figure 4.4). The southeast corner of the first square of the trench was situated 27 feet west of the end of TR1 on the northernmost section of the south platform. The trench was situated over a "saddle" in front of the abrupt rise that slopes up to the central mound platform. The original north wall of the trench (prior to expanding) was "six feet south of the sharpe [*sic*] rise of the main mound" (Howard 1948:15). Detailed profiles of the north and east walls were sketched for this trench (Figure 4.14).

Both the north and east wall profiles document a single structure (Structure 1) about two feet below the surface and with two distinct floors – an upper floor (Floor 1) and a lower floor (Floor 2). The lower floor (Floor 2) was covered in ash mixed with crushed small sherds and fragments of animal bone. Much of the small sherds from Floor 2 were seemingly not collected, since there are only a few (*n* = 5, 90.3g) large brushed sherds in the collection (Figure 4.15), although several fragments of shell (*n* = 112, 270.9g) and bone (Figure 4.16; *n* = 76, 217.8g) and a single side-notched arrow point (Figure 4.17) are included (see Appendix C). The point is similar in style to those found by Harrington (1920:Plates CXV and CXVI) at the Sumpter Farm (3GA39) site in Garland County along the Ouachita River and Bulverde points documented at the Hood (3HE54) site in Hempstead County (Schambach 1998:Figure 10a-b).

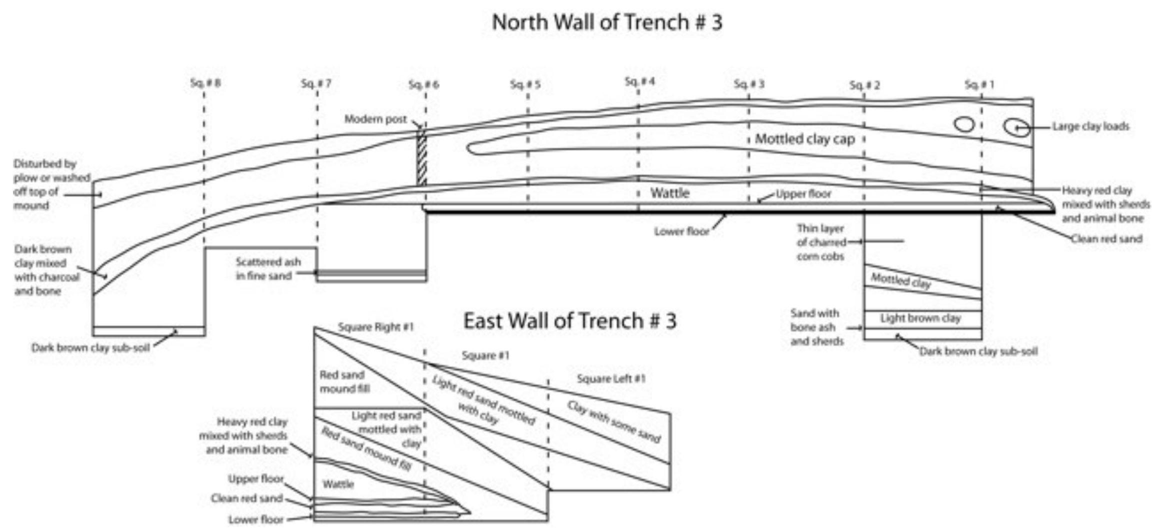

Figure 4.14. The digitized versions of the north and east wall of TR3 two-floor house with clay cap and thick layer of wattle (after Krieger 1949).

Understanding the provenience of artifacts in TR3 as recorded by Howard in his notes is somewhat challenging, since there is no depth data recorded on the profiles whereas artifact provenience in his notes is recorded as a depth. Additionally, in some instances objects are “lumped” together as “House Floor 1&2”. As such, distinguishing exact artifact counts and types of artifacts between house floors is not practical, except in the case where feature context is specifically stated as with the whole vessels found on the upper floor (see discussion below) or material found within “wattle layer” or “red sand top of floor 2”.

Figure 4.15. Large brushed ceramic sherds from Floor 2 of Structure 1. The sherds resemble possible Karnack Brushed-Incised varieties. Photo taken by author.

A four-inch layer of clean red sand separated each floor. Howard describes the red sand as “clean”, although numerous ceramic sherds (*n* = 133; 1,549g) were collected from the sand layer. While only three outer wall postholes were discovered, the thick layer of red sand allowed a floor outline to be demarcated. Given the absence of structural debris between the two floors, it is likely that the floors were part of a single structure that was “continuously occupied and that the sand level marked a period in which the floor was cleaned, so to speak, by putting down a clean level of sand” [Howard 1948:23]:

> I do not think that the sand between the floors mark any lapse of [*significant*] time…The [*bottom*] area of the house was used for cooking, as the lower floor was almost covered with ash and scattered bits of animal bones. There was a good deal of very fine wood ash that looked like lime and encrusted some of the bones and sherds. Well mixed in the ash was a number of small pot sherds and a lot of animal bone. There wasn’t the amount of ash on the upper floor. Also another point in favor of longer use of the lower floor was the fact that the sherds were all small as if well broken by walking and the sherds were well scattered. On the second [*upper*] floor there is reason to believe that the house was being used when it burned and collapsed. Several whole or almost whole pots were found on the upper floor. The sherds were larger and there wasn’t the amount of animal bone and ash as found on the lower floor (Howard 1948:23).

Over the upper floor (Floor 1) was a layer of wattle between 10-12 inches thick, demonstrating that the multi-floor structure was ultimately subjected to an episode of high heat burning. A four-inch layer of "heavy red clay with sherds [*n* = 164, 1415.6g] and animal bone [*n* = 81, 593.6]" over the wattle suggests that the burning structure was covered and left to smolder after burning.

Figure 4.16. A selection of faunal remains found on Floor 2 of Structure 1. Photo taken by author.

Deposited over the heavy red clay was a series of alternating differential fill. This is best documented in the east wall profile where there is a layer of red sand mound fill overlain by light red sand mottled with clay (see Figure 4.14). This soil alternation continues until it reaches a final layer of clay mixed with sand. Large clay loads were recorded on the north wall profile in the mound fill that probably represents individual basket loads:

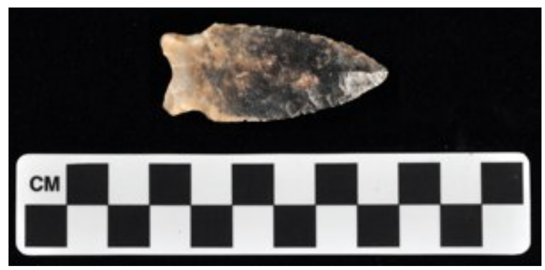

Figure 4.17. A possible Bulverde side notched arrow point found on Floor 2 of Structure 1. Photo taken by author.

> In Trench #3 a house has been found. The edge of the house is in the center of square #1 and the house lies to the west and to the north. There is a very thick deposit of wattle that is found at a depth of eight inches below a clay cap that seems to have been thrown over the collapsed house. Also it seems that clay was thrown right over the wattle as it burned or soon after, the wattle is not disturbed and there is no other material over the wattle except the clay. Material is found in the clay, and it seems as the clay must have come from a midden some where near the house…The main work has been in trench #3, where we cut through wattle a foot thick in spots and struck the floor of the house. The floor was of light red sand and the wattle rested directly on the floor. There was a thin layer of charcoal and ash on the top of the floor. As was mentioned before the house seems to have burned and clay thrown on it, also a mixed earth layer as if taken from the village level or from a midden, was mixed over the wattle…The whole area of the floor

of the house was covered with ash as if there had been a number of fire places [Howard 1948:16, 18].

In addition to the TR 3 profiles, a plan map of Structure 1 was also created (Figure 4.18). Structure 1 is approximately 6.8 m (22.5 ft) in diameter. A total of three separate fire pits are documented on the plan map – two fire pits are associated with the lower floor (Floor 2) and one is associated with the upper floor (Floor 1). Three large central postholes associated with the upper floor (Floor 1) likely represent roof supports.

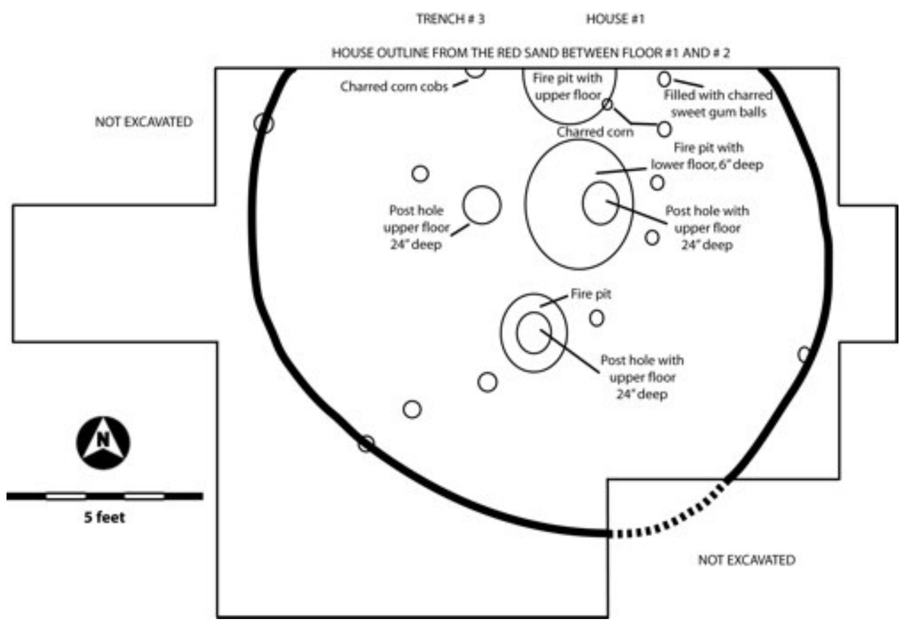

Figure 4.18. The plan view of Structure 1 showing fire pits and post holes (after Krieger 1949).

Based on the information from the plan and profile maps, the following construction sequence is proposed: (a) a lower floor (Floor 2) was constructed on sterile mound fill that contained two fire pits – a large central fire pit and a secondary fire pit southwest of center; (b) the lower floor (Floor 2) was cleaned and covered with a four-inch evenly spread layer of midden filled red sand; (c) with the red sand now defining the new upper floor (Floor 1), three central support posts were dug into the lower floor (Floor 2) at a depth of 24" – two of them in the same location as the lower floor (Floor 2) fire pits; (d) a new upper floor (Floor 1) fire pit was established north of center and at least six small postholes were dug that likely are associated with internal non-structural features (Figure 4.19).

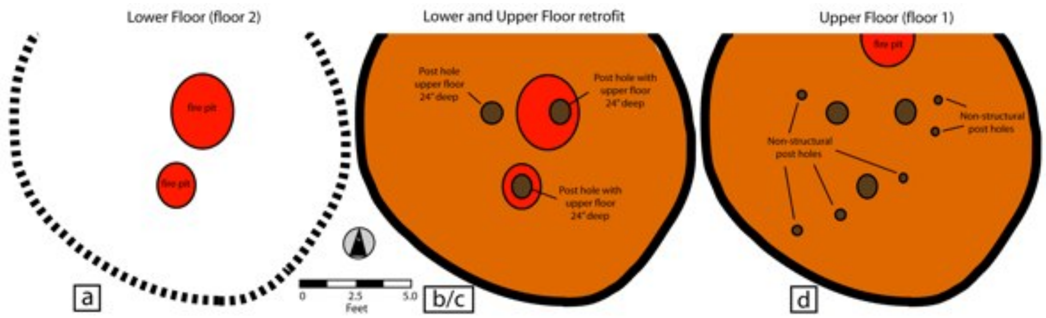

Figure 4.19. Proposed construction sequence for Structure 1: (a) Floor 2 (b/c) Floor 2 and Floor 1 retrofit (d) New Floor 1 with internal postholes and moved fire pit (after Krieger 1949).

This proposed construction sequence suggests that the roof of the structure was dismantled partially or fully during the lower floor (Floor 2) to upper floor (Floor 1) "retrofit" and a new roof was constructed at that time. The presence and use of the two large fire pits in the lower floor (Floor 2), presumably for communal cooking events, would likely have produced a significant amount of soot and ash that would have degraded the structural integrity of a thatched roof over time. With this frame of thought, a roof retrofit seems a very plausible interpretation of Structure 1 features and their construction sequence. At a later time, Structure 1 was set aflame, the walls pushed in, and a thick layer of red clay soil deposited over the burned remains.

On the upper floor (Floor 1), three caches of charred corncobs were collected in close proximity to the upper floor (Floor 1) fire pit (see Figure 4.18). In 1972, the Structure 1 charred corn cobs were submitted for radiocarbon dating to the Radiocarbon Laboratory at The University of Texas. Results produced a date, averaged from two separate preparations and counts, of A.D. 1740 +/- 50, which is uncorrected for isotropic fractionation (Valastro et al.

1972; see Bender 1968; Creel and Long 1986 for discussions on fractionation in corn samples). If one considers a 13C/12C median ratio of -10 o/oo to correct for isotopic fractionation, approximately 245 years would need to be subtracted from the A.D. 1740 +/- 50 date, producing an approximate date range of A.D. 1445 – A.D. 1545.

To corroborate the 1972 sample with more modern radiocarbon and calibration methods, a second charred cob sample was submitted to Beta Analytic, Inc. radiocarbon laboratory in Miami, Florida for an accelerator mass spectrometry (AMS) date (McKinnon 2012a). The date returned is 100 +/- 30 B.P., which calibrates to A.D. 1450–A.D. 1640 at 2-sigma (Table 4.1; Beta 316762, sample 1948-1-437-1). The results returned have three intercepts on the calibration curve with the most likely intercept of radiocarbon age with the calibration curve at A.D. 1490, which when calibrated provides a 1-sigma date range between A.D. 1460 – A.D.1520 (McKinnon 2012a). Thus, the upper floor (floor 1) of Structure 1 dates to a late Haley or possibly early Belcher transitional phase and is in-line with the ceramic evidence found in the occupational areas identified in TR1 and TR2.

Sample ID and Provenience	Measured Radiocarbon Age Before Present	13C/12C Ratio	Conventional Radiocarbon Age Before Present	Calibrated Age 1 sigma range (68% probability)	Calibrated Age 2-sigma range (95% probability)
Beta 316762 48-1-437-1, charred material	100 +/- 30 BP	-9.4 o/oo	360 +/- 30 BP	Cal AD 1460 - 1520 and Cal AD 1570 - 1590 and Cal AD 1590 - 1630	Cal AD 1450 - 1640

Table 4.1. AMS date result from 48-1-437-1 at Battle Mound.

Additional support of the chronology presented from the radiocarbon dates gathered from Structure 1 in TR3 can be obtained from nine mostly whole cooking vessels found on the upper floor (Floor 1). Six of the vessels are fairly large in size and likely represent cooking vessels. The remaining three are smaller and possibly represent scooping ladles or drinking cups related to cooking or feasting activities.

Figure 4.20. A large Pease Brushed-Incised (48-1-422) fragmented vessel was found on Floor 1 of Structure 1 (photo taken by author).

The largest vessel (48-1-422) is a large clay-tempered jar (Figure 4.20). The rim orifice is guessed (it is highly warped) at approximately 35 cm and the vessel height is around 55-60 cm. Design elements are of the Pease Brushed-Incised variety. The rim is defined by two rows of punctates – one just under the lip and a second at the base of the rim. The rim contains parallel-incised lines set diagonally in alternating directions. Similar diagonally incised lines are present on the body, but are oriented more vertically rather than the more horizontally oriented lines on the rim. The body lacks the often-found vertical applique fillets that divide design panels. Examples of Pease Brushed-Incised vessels that contain two rows of punctates but lack applique divided body design panels have been found at Battle Mound (Figure 4.21a) and contemporaneous sites located to the north and east, such as Ferguson (3HE63) in Hempstead County (Figure 4.21b), Calhoun (3OU167) in Ouachita County (Figure 4.21c), and Mineral Springs (3HO1) in Howard County (Bohannon 1973:49 and Figures 7m, 14f-g, 18m-n, 23f).

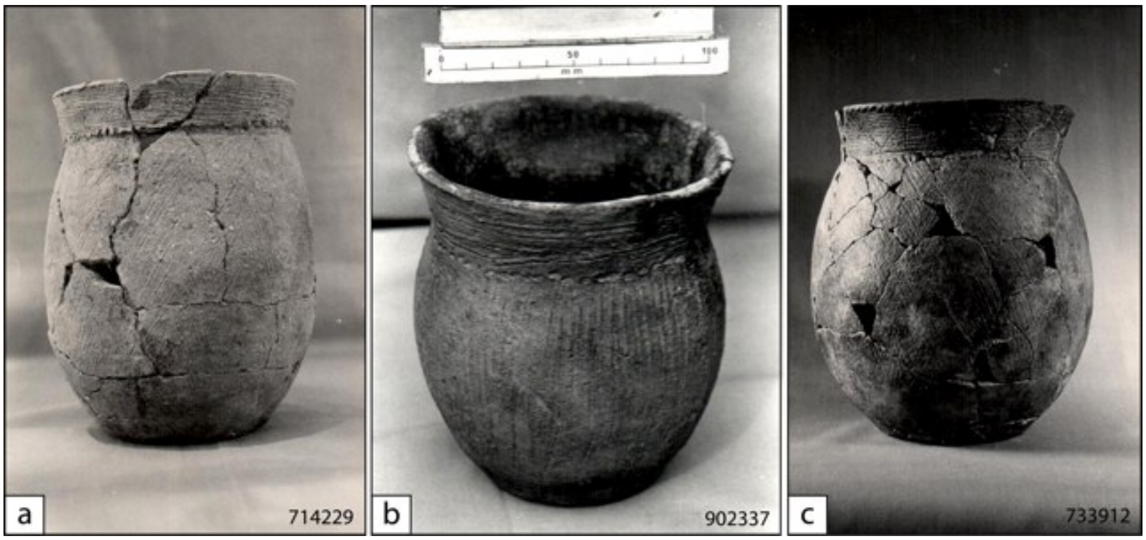

Figure 4.21. Examples of Pease Brushed-Incised vessels found at the (a) Ferguson (3HE63; AAS 714229) (b) Calhoun (3OU167; AAS 902337), and (c) Mineral Springs (3HO1; AAS 733912) sites. Used with permission from the Arkansas Archeological Survey.

Another fairly large vessel found on the upper floor (Floor 1) of Structure 1 is a clay-tempered carinated bowl (Figure 4.22). The height of the bowl is approximately 15-20 cm with an orifice at approximately 50 cm in diameter. The vessel (48-1-434) contains three rows of punctations and a minor flanged rim and contains design elements of the Handy Engraved variety (Suhm et al. 1954:284; Suhm and Jelks 1962:63). Three horizontal single lines are incised between the top and middle row of punctations. Between the middle and lower row of punctations are widely spaced lines oriented at a slanted angle. The lines alternate between single lines and lines with punctates. The vessel contains two opposing strap handles with central nodes. Alternate to the actual strap handles are the designs of strap handles with a central node. Similar examples of Handy Engraved vessels with opposing strap handles have been found at

Battle Mound (Perttula et al. 2009:103 and Figure A1-61) and the Haley Place (3MI1; Moore 1912:Plate XLI). A single vessel lacking opposing strap handles but containing central nodes was found at Flowers Mound (3HE37; Harrington 1920:Plate XLII) in Hempstead County.

Figure 4.22. A large Handy Engraved carinated bowl (48-1-434) was found on Floor 1 of Structure 1. Photo taken by author.

A large clay tempered bottle (48-1-445) was also found on the upper floor (Floor 1) of Structure 1 (Figure 4.23). The bottle is incomplete with the base missing, but with design elements on the body at the base are intact and is classified as Hempstead Engraved. The height of the bowl is approximately 27 cm with a body diameter of 23 cm at maximum. The bottle opening is 2.5 cm in diameter. Design elements are typical of the Hempstead Engraved type with a series of engraved triangles with cross-hatching organized in a circle around the base of the neck – a design element that resembles a sunburst motif. In the larger Mississippian ethos, the sun circle motif has been suggested as a design symbolically connected to "new fire" or green corn ceremonies. As part of these communal

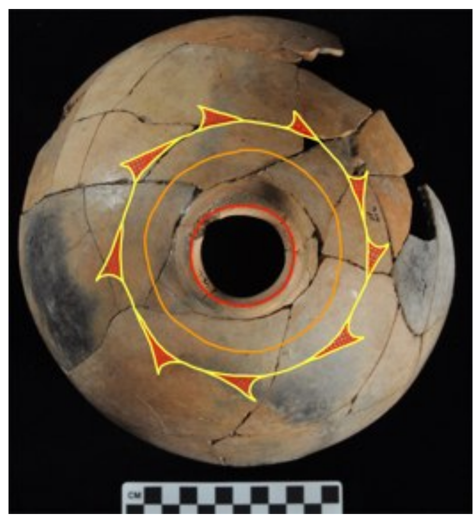

Figure 4.23. A Hempstead Engraved bottle (48-1-445) with a sunburst motif was found on Floor 1 of Structure 1. Photo taken by author.

feasting ceremonies, vessels containing the sun circle motif were reserved as ritual serving vessels (Hilgeman 1991). A single circular engraved line is between the neck base and outside border of the sunburst motif. The outline of the rim is included as part of the design since the sunburst motif was likely viewed from above (or while drinking) with the bottle opening an important central element of the motif. Numerous Hempstead Engraved bottles of similar design and form have been found at Battle Mound (Figure 4.24a-c) as well as Hays (3CL6) in Clark County (Figure 4.24d), Jim Keith (3CO3) in Columbia County (Figure 4.24e), and Flowers Mound (3HE37; Figure 4.24f; Harrington 1920:21-34) and Bois D'Arc Creek (3HE13) in Hempstead County (Figure 4.24g).

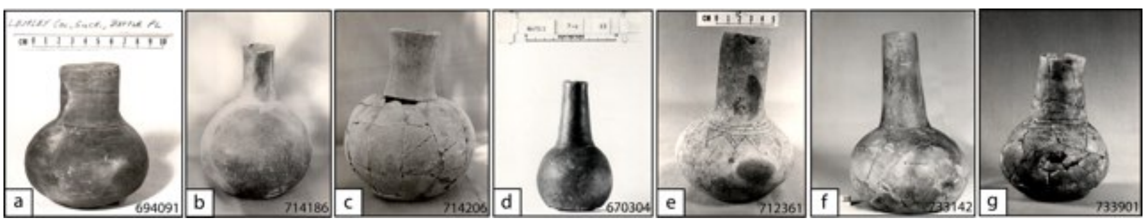

Figure 4.24. Examples of Hempstead Engraved bottles from Caddo sites: (a-c) Battle Mound (3LA1; AAS 694091, 714186, 714206) (d) Hayes (3CL6; AAS 670304) (e) Jim Keith (3CO3; AAS 712361) (f) Flowers Mound (3HE7; 733142) (g) Bois D'Arc Creek (3HE13; 733901). Used with permission from the Arkansas Archeological Survey.

Four large vessels of fragmentary nature are also part of the upper floor (Floor 1) ceramic vessel corpus. The first vessel (48-1-410) is a portion of a tall bone temper jar that is highly warped from the high heat burning of Structure 1 (Figure 4.25). The height of the jar is approximately 28 cm. Because of the fragmentary and warped nature, an orifice size cannot be determined. Decoration elements are applique fillets that separate design panels. Each design panel contains a few

Figure 4.25. A possible Karnack Brushed-Incised vessel (48-1-410) was found on Floor 1 of Structure 1. Photo taken by author.

widely spaced single incised vertical lines and the rim is undecorated. The decoration and design elements resemble the Karnack Brushed-Incised variety (Suhm et al. 1954:308; Suhm and Jelks 1962:85). A second large partial jar (48-1-432) is clay-bone tempered with vertical brushing on the body and horizontal brushing on the rim (Figure 4.26). The vessel and associated sherds are warped as a result of the burning of the structure. Estimation of the overall vessel height is about 30 cm with an out-flaring rim about six centimeters tall. Orifice diameter is approximately 25 cm. The vessel also resembles the Karnack Brushed-Incised variety (Suhm et al. 1954:308; Suhm and Jelks 1962:85). Vessels of similar design and form of the two possible Karnack Brushed-Incised vessels have been found at Battle Mound, Cedar Grove (Trubowitz 1984:123 and Figures 11-35a, 11-38b, 11-41b), Hardman (Early 1993b:93-94 and Figures 44c, 51b), and Belcher Mounds (Webb 1959:Figure 121). Additionally, a high frequency of Karnack-Brushed Incised sherds were documented at the McLelland and Joe Clark sites in Bossier Parish, Louisiana (Kelley 1997:51 and Figure 40c-e).

Figure 4.26. A possible Karnack Brushed-Incised vessel (48-1-432) was found on Floor 1 of Structure 1. Photo taken by author.

Figure 4.27. A Foster Trailed-Incised vessel (48-1-420) was found on the Floor 1 of Structure 1. Photo taken by author.

A third fragmentary vessel (48-1-420) is a crushed medium size thin shell tempered vessel. Design elements on the rim are three rows of incised lines set diagonally in alternating directions (Figure 4.27). The body contains sets of a curvilinear motif filled with incised lines. Design elements on the rim design are reminiscent of Foster Trailed-Incised variety (Suhm et al. 1954:272; Suhm and Jelks 1962:43) and the general curvilinear design on the body is reminiscent of the Cowhide Stamped variety (Suhm et al. 1954:260; Suhm and Jelks 1962:29). At the Cedar Grove (3LA97) site, Schambach and Miller (1984:121 and Figure 11-10) present an evolution of Foster Trailed-Incised vessels that are divided into seven varieties based on differences in design and decorative treatment. Those varieties are Foster, Dobson, Red Lake, Dixon, Moore, Shaw, and Finley. The Cedar Grove seriation begins with Foster Trailed-Incised *var. Foster*, which contains a concentric circle motif on the body and multiple bands of zoned diagonal lines on a tall rim. The zoned diagonal lines on the rim that define the Foster Trailed Incised *var. Foster* at the Cedar Grove site are similar to the vessel (48-1-420) found on the upper floor of Structure 1, although the diagonal lines alternate in different directions between zones. The body design and alternating diagonal lines on the rim of the upper floor vessel are more similar to Cowhide Stamped vessels that have been found at the Hays (3CL6) site in Clark County (Figure 4.28a) and the Morten site in Louisiana (Figure 4.28b).

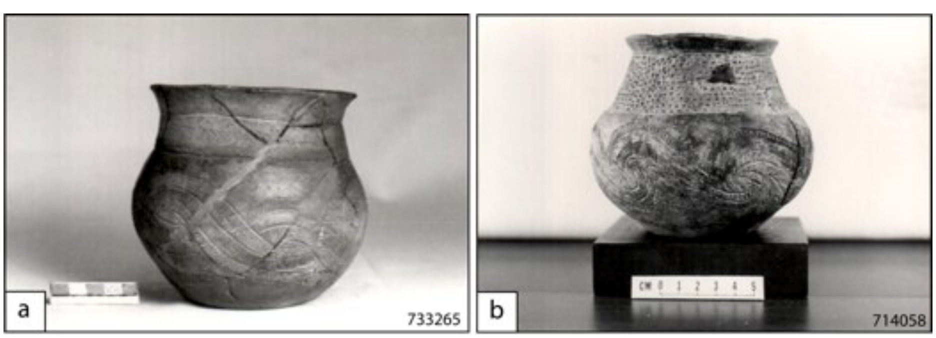

Figure 4.28. Examples of Cowhide Stamped vessels from Caddo sites: (a) Hayes (3CL6; AAS 733265) in Clark County and (b) Morten in Louisiana; AAS 714058. Used with permission from the Arkansas Archeological Survey.

The fourth partial vessel (48-1-465) is a large clay temper bowl with a tapered rim (Figure 4.29). The vessel body is undecorated with a smooth and polished finish. The rim has a thick band with punctated notches along the top. The base of the bowl is about 9.5 cm in diameter and is flat. The diameter across the rim is approximately 30 cm. A vessel of similar design and form was found at Flowers Mound (3HE37) in Hempstead County (Harrington 1920: Plate XXIV). The Flowers Mound vessel contains punctates along the top of the rim similar to the Structure 1 vessel, but does not contain a thick band that forms the rim.

Figure 4.29. A large fragmented bowl (48-1-465) was found on Floor 1 of Structure 2. Photo taken by author.

Two smaller vessels were also collected from the upper floor (Floor 1). Those include a Moore Noded vessel (48-1-415) and a possible Killough Pinched or modified Foster Trailed-Incised vessel (48-1-433-1). The Moore Noded vessel is a clay tempered small bowl with a flat base and vertical sites (Figure 4.30). The height of the vessel is approximately four centimeters with a diameter about 13 cm. Decoration consists of applique nodes throughout the body. The vessel is similar in design and overall form to other Moore Noded vessels documented from Battle Mound (Figure 4.31) and at several sites, such as Haley Place (Moore 1912:556 and Figure 46), the Foster site (Moore 1912:603 and Figure 99; Buchner et al. 2012:86 and Figure 7-12f), Mineral Springs (Bohannon 1973:47 and Figure 14h), the Poole (3GA3) site (Wood 1981:39 and Figure 11c,n), and the Washington Mounds (3HE37) site (Harrington 1920:Plate XXIIIb).

Figure 4.30. A small Moore Noded vessel (48-1-415) was found on Floor 1 of Structure 1. Photo taken by author.

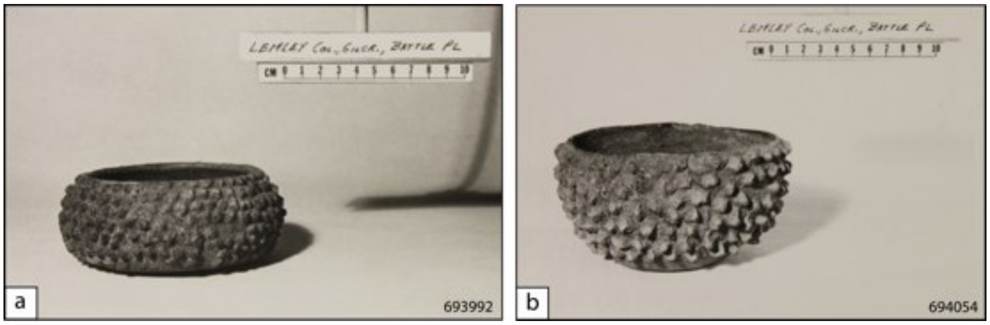

Figure 4.31. Examples of Moore Noded vessels from Battle Mound: (a) AAS 693992 (b) 694054. Used with permission by the Arkansas Archeological Survey.

A recent discussion by Lankford (2012) suggests the noded design elements on Moore Noded vessels might represent Datura pod effigies and used as insulated incense burners or *incensarios* associated with a far-reaching ritual Datura complex. His study presents a testable hypothesis that suggests, based on design attributes and proposed use of Datura in the southwest (Litzinger 1981; VanPool 2009), that a Datura complex originated with Mesoamerican and Southwestern groups and diffused eastward through the Caddo Homeland and into the Central Mississippi River Valley (CMV) where evidence of Datura seeds have been documented (Emerson 1989). If such a hypothesis is proved valid, the presence of a Moore Noded vessel on the upper floor (Floor 1) structure could shed additional light on the ritual significance of Structure 1 and by extension the entire southern platform as an area reserved for specific ritualized communal cooking or feasting activities.

Figure 4.32. A small Killough Pinched or Foster Trailed-Incised vessel (48-1-433-1) was found on the Floor 1 of Structure 1. Photo taken by author.

The second small vessel is a possible Killough Pinched (Suhm et al. 1954:314; Suhm and Jelks 1962:91) or modified Foster Trailed-Incised small bowl with concentric circles of applique ridges in three separated design panels (Figure 4.32). Central to each set of concentric circles is an applique node. Design elements are very similar to those found on Foster Trailed-Incised, although decoration is applique rather than concentric circle incising. The rim is broken and approximate dimensions are 8.5 cm in height and 14 cm in diameter at the widest part. The rim would have curved inward and produced a slightly smaller diameter orifice. Killough Pinched vessels containing concentric circle designs are largely documented from east Texas sites (see Suhm and Jelks 1962:91 and Plate 46a-c, j).

The presence of the vessels on the upper floor (Floor 1) suggests that the upper floor was not cleaned:

> Found in House #1 (as this house is called) in square #2, a whole pot, it was broken but had been resting on the floor of the house…Square #4 was cleaned off to the wattle and as the wattle was being removed it became apparent that there were several vessels lying on the house floor. The house was called House #1 and pots were numbers [*sic*]. All of these pots were found in square #4 and were from wall to wall. On the north side of the square, was about half of a large jar that was burnt a bright red [48-1-432; Figure 4.26]. This jar had been lightly brushed. It was called pot #1 and ran into the bank…Pot # 2 was in the south west corner of the square and was a large bowl with flaring sides [48-1-465; see Figure 4.29]. Lying on part of the bowl was pot #3, a large shouldered bowl with an engraved design and one large strap handle [48-1-434; see Figure 4.22]. All vessels looked as if they had been crushed in place by the falling roof, and were burnt red with secondary firing. Another pot was found running into the south wall of the trench and was crushed into very small fragments. It was called pot #4 and had a herringbone incising on the rim as on some of the Foster trailed vessels [48-1-420; Figure 4.27; Howard 1948:16-20].

A small single human bone (48-1-440-1) and three shell beads (48-1-440-2) are listed in the artifact collection as associated with a burial in TR3. However, their specific provenience is not documented and there is no mention of the excavation of any burials in TR3 in Howard's field notes or summary of excavations.

Trench 4

Trench 4 (TR4) was located due west of TR2 on the western edge of the south platform (see Figure 4.4). The trench was small and consisted of only three trench squares that created a north and south profile of 15 ft (see Figure 4.4). Little is discussed regarding excavations in TR4 apart from the lack of many artifacts collected (see Appendix C).

Figure 4.33. Some of the diagnostic ceramics found in TR4 include: (a) Crockett Curvilinear or Cowhide Stamped (b) Belcher Ridged. Photo taken by author.

Most of the material that was collected in TR4 was within a mixed soil layer that had washed down from the top of the mound midden surface, similar to what was documented in TR2. While not mentioned in the field notes, the washed down artifacts where likely the result of historic erosion associated with the historic structure on the south platform. Diagnostic materials in this mixed matrix include Crockett Curvilinear (Suhm et al. 1954:262; Suhm and Jelks 1962:31) or Cowhide Stamped varieties and Belcher Ridged types (Figure 4.33). North and west profiles of TR4 were drawn but are incomplete and very generalized (Figure 4.34).

The primary information gained from this trench was a confirmation of the mound surface midden and similar sterile red-orange sandy soil mound fill on the western side of the south platform:

> Trench #4 is in the fourth levels and very little material has been found there…Trench #4 is still producing pottery and square #1 seems to be running into red dirt at level #5, this may be the mound…Trench #4 in square #1 is now in the red sand and this is the mound fill. No material is being found in square #1 of trench #4 [Howard 1948:15, 17].

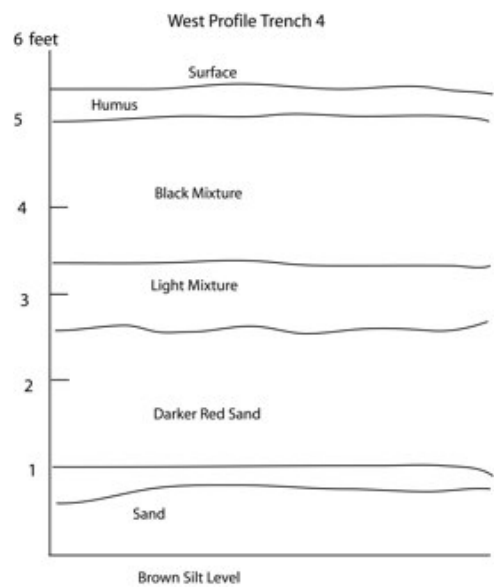

Figure 4.34. Highly generalized west wall profile of TR4 (after Howard 1948).

Below the sterile mound fill was a thick layer of water deposited sand covering the same dark brown clay sub-soil as documented in TR1 and TR2. There was no evidence of the continuation of the dark brown-black ash Haley phase occupational level documented in TR1 and TR2.

Trench 5

Trench 5 (TR5) was the only trench located on the platform at the north end of the main mound (see Figure 4.4). The exact location of the trench is not known apart from Howard's mention of it being on a section of the north platform. A profile of the west wall was sketched very roughly in the field notes. The scale is difficult to discern but shows the strata associated with two Caddo structures (Figure 4.35).

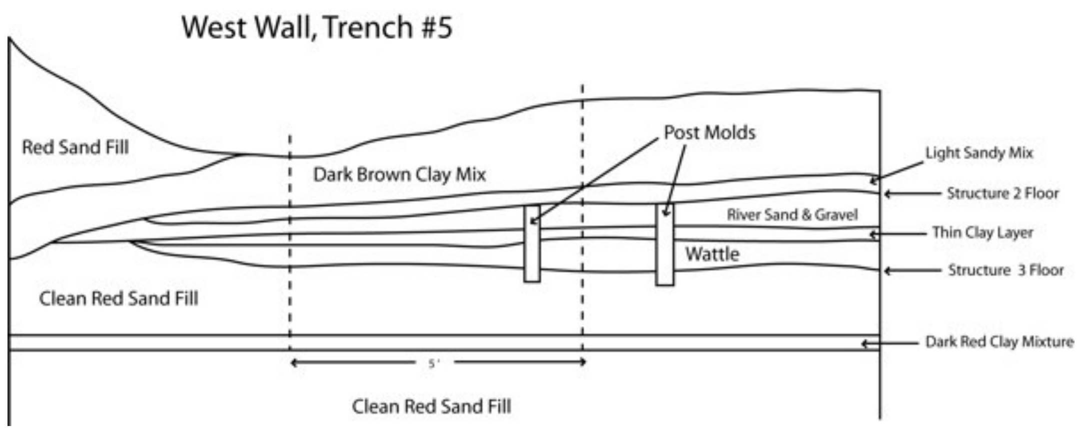

Figure 4.35. The west wall profile of TR5 documents both structure floors with two post-molds from Structure 2 floor (after Krieger 1949).

A possible upper third house was identified in the plow zone defined by traces of postholes in the excavation profile. Unfortunately, these ephemeral postholes are not documented in the profile sketch (and no House number provided in the notes) so their relationship to the underlying structures is not known. The middle structure (Structure 2) was located below a light sandy mix and was marked by two associated postholes. The bottom structure (Structure 3) had a well-defined floor level that had an outline diameter of 30 ft. Photographs of the trench show an easily identified floor level in the soil strata at the base of the excavated wall profile (Figure 4.36):

> The work progressed on the north side until an area forty feet north and south, and twenty feet east and west was uncovered to the level of [structure] #3. There seems to be two houses, the upper one is very indistinct and can only be picked up in the profile where the post holes of this house cut the wattle of the lower house. The lower [structure], #3 is round in outline and about 30 feet in diameter [Howard 1948:21].

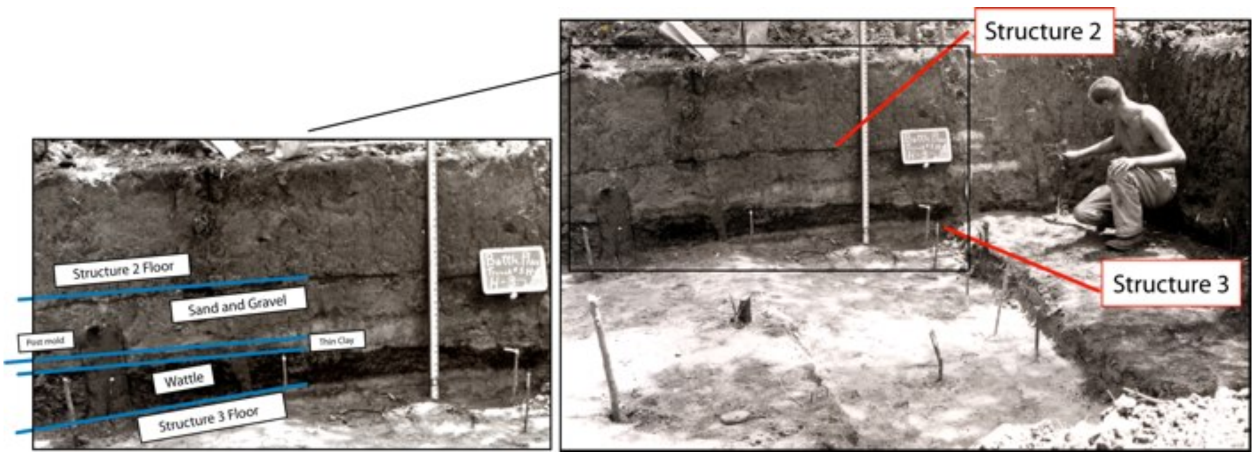

Figure 4.36. A photograph of TR5 shows the presence of two structures separated by a wattle layer and a thin clay cap (photo taken by R. L. Stephenson; UAM 480039). Used with permission from the University of Arkansas Museum Collections.

As stated, the only map created of trench five is a profile of the west wall that was sketched very roughly in the field notes. Unfortunately, there is no plan map. The west profile does provide enough information to propose a construction sequence: (1) a lower structure, Structure 3, was constructed over clean red mound fill and had a well-defined floor with a diameter of about six meters. Very little debris was found on the floor (see Appendix C) suggesting the structure was purposely cleaned and objects removed prior to being burned; (2) A thick wattle layer over Structure 3 documents the burning event; (3) a thin layer of clay was deposited over the wattle and a layer of sand and gravel was deposited above the thin clay layer;

(4) over the sand and gravel layer, Structure 2 was constructed with post holes dug down into and through the buried Structure 3 burned remains and floor. There is no evidence that the upper Structure 2 was burned.

Figure 4.37. An infant burial (Burial 2) was found in TR5. UAM 480037. Used with permission from the University of Arkansas Museum Collections.

Owing to lack of other datable material collected from TR5, charred wood from the thick wattle layer over Structure 3 was submitted to Beta Analytic, Inc. for radiocarbon (AMS) dating (Table 4.2). The date returned is 560 +/- 30 BP, which calibrates to A.D. 1310 – A.D. 1360 and A.D. 1390 – A.D. 1430 at 2-sigma (Beta 331828, sample 48-1-317-2). The results returned have an intercept on the calibration curve of A.D. 1400, which when calibrated provides a 1-sigma data range between A.D. 1320 – A.D. 1340 and A.D. 1390 – A.D. 1410. Thus, the lower structure, and activities associated with it, date to midway in the Haley phase and earlier than Structure 1 on the south platform.

Sample ID and Provenience	Measured Radiocarbon Age Before Present	13C/12C Ratio	Conventional Radiocarbon Age Before Present	Calibrated Age 1-sigma range (68% probability)	Calibrated Age 2-sigma range (95% probability)
Beta 331828 48-1-317-2, charred material	540 +/- 30 BP	-23.8 o/oo	560 +/- 30 BP	Cal AD 1320 - 1340 and Cal AD 1390 - 1410	Cal AD 1310 - 1360 and Cal AD 1390 - 1430

Table 4.2. AMS date result from 48-1-317-2 at Battle Mound.

Additionally, an infant estimated at less than six months of age burial (Burial 2) was found in a small pit in TR5 (Figure 4.37). No grave offerings were found with this burial. Little detail is provided regarding this burial and its association (both vertically and horizontally) with the sequence of houses identified in TR5:

> In trench #5 we have found a burial in the wall near the cedar tree. It seems to be an infant and as the whole square can not be taken out without damage to the tree, we will only take a small section to get the burial and any material that might be with it…Worked out Burial # 2 and found no grave goods at all. The body was that of a very young child in fact a very young infant. We are now working in the southeast corner of trench # 5 to see the relationship between the mound and the northern platform [Howard 1948:25].

Missing from the TR5 structures is evidence of multiple floors and large cooking vessels. No plan view is provided of TR5, but large fire pits are not specifically noted in the profiles or notes. A fragment of a ceramic pipe was found at a depth of 30-36” in a layer over the thick wattle and thus probably related to Structure 2 (Figure 4.38). The pipe fragment is a portion of an elbow pipe – a pipe variety that has been proposed as a type that evolved from earlier long-stemmed pipes documented in the Red River (Hoffman 1967).

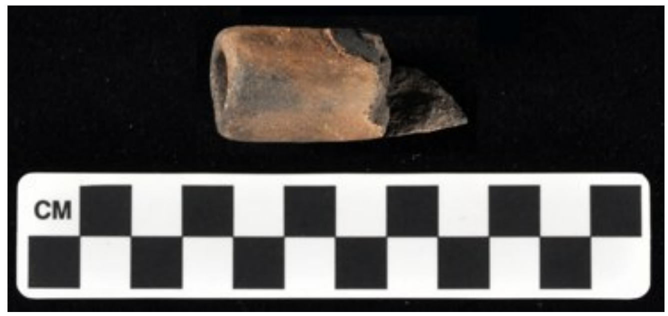

Figure 4.38. A pipe fragment was found in the wattle layer over Structure 2 in TR5. Photo taken by author.

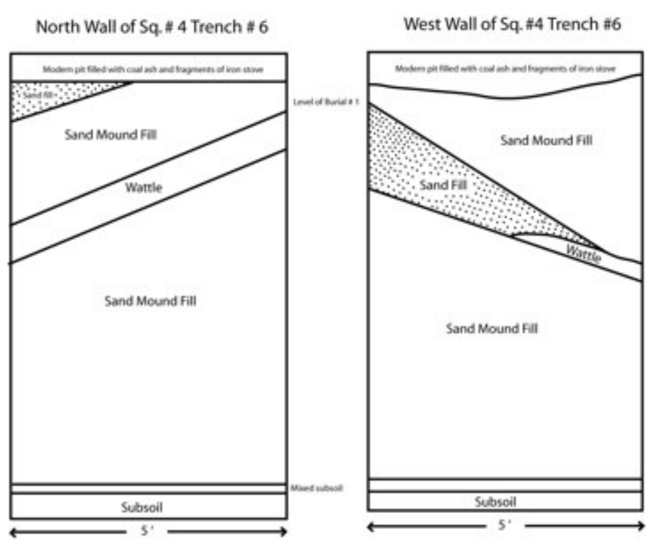

Figure 4.39. Profiles of the north and west wall of Square #4 in TR6 document a sloping layer of wattle between two layers of mound fill (after Krieger 1949).

Trench 6

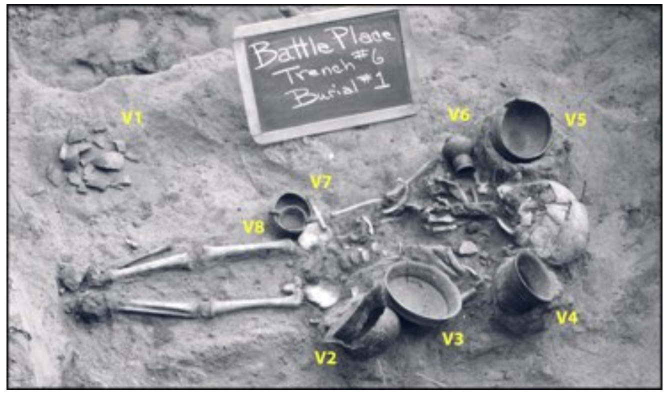

Figure 4.40. An adolescent burial (Burial 1) was found in TR6 with eight miniature ceramic vessels. UAM 480036. Used with permission from the University of Arkansas Museum Collections.

Trench 6 (TR6), the last trench opened during the excavations, was located south of TR2 on the south platform (see Figure 4.4). The exact location of the trench is not known but had four trench squares, oriented east to west allowing for a north and south profile of 20 feet. However, only two five-foot profiles documenting the north and west walls of Square 4 have been located (Figure 4.39). The primary goal of TR6 was to determine if the Haley phase occupation level located in TR1 and TR2 continued to the south. Excavations detected the same sterile orange sandy mound fill with a sub-soil of dark brown clay as recorded in TR1, TR2, and TR4. The Haley phase occupation level was not documented in TR6 and thus did not extend over the entire area subsequently covered by the south platform:

> In trench #6 the sub-soil has almost reached in the east end of the trench. No occupation level was found at the base of trench #6 as was in trench #1 and #2 [Howard 1948:24].

Figure 4.41. A miniature avian effigy bowl (V8) was found with Burial 1. Photo taken by author.

In Square 4, an extended burial (Burial 1) of a child less than six years old was discovered only a few inches below the surface that was slightly disturbed by a historic pit containing parts of an old wood burning stove (Figure 4.40; see also Figure

4.39). The body was lying supine with the head originally resting on an elevated platform. A charred corncob was resting in the mouth, although the cob is not in the collection today. Six shell beads and eight miniature vessels constitute the grave goods. The stratigraphic positioning of the burial (dug into the mound fill) and the ceramic corpus demonstrate the placement after the accumulation of the southern platform, sometime during the earlier Belcher phase.

Figure 4.42. A Taylor Engraved miniature bottle (V6) was found with Burial 1. Photo taken by author.

Of the eight miniature vessels associated with Burial 1, only two are currently in the collection – an avian effigy bowl and a small bottle (see Appendix C). The effigy vessel (V8) is about 4.5 cm in diameter at the rim and 2.5 cm in height (Figure 4.41). A "neck" and "tail" are attached to the rim and extend out approximately two centimeters. The vessel was located adjacent to the right pelvis of the burial and resting within a small carinated bowl (see Figure 4.40). A larger vessel of similar shape was found at the contemporaneous Cedar Grove farmstead site (Trubowitz 1984:123 and Figure 11-12). The second vessel (V6) in the collection is a small bottle with a bulging neck and outflaring rim (Figure 4.42). Dimensions recorded on the photograph list a height of 7.5 cm and a diameter of 6 cm. Design elements are a series of tight incised scrolls on the body that are reminiscent of the type Taylor Engraved (Suhm et al. 1954:360-362; Suhm and Jelks 1962:149-151).

The remaining six vessels are missing from the collection and information about them is derived from photographs (of varying quality) and notes on file (Figure 4.43). The first vessel

(V1) was located a short distance from the base of the burial and might not actually be part of the burial corpus (see Figure 4.40). From images, the vessel likely represents either Belcher Ridged or Karnack Brushed-Incised types (Figure 4.43c). The second vessel (V2) is a small jar with a maximum height of about 8 cm with a rim diameter of about 12 cm (Figure 4.43b). The body contains engraved scrolls centered within the body. The rim contains engraved concentric half circles. The vessel was located adjacent to the left pelvis (see Figure 4.40). The third vessel (V3) is a small carinated bowl (Figure 4.43c). The bowl was situated close to the left pelvis and located proximate and above V2 (see Figure 4.40). Design elements resemble Handy Engraved with two rows of punctations and a minor flanged rim. The fourth vessel (V4) is a small Foster Trailed-Incised vessel (Figure 4.43d). The design attributes are a concentric half circle motif on the body and multiple bands of zoned diagonal lines on the rim. The vessel was located adjacent to the left shoulder (see Figure 4.40). The fifth vessel (V5) is a small carinated bowl that is possibly shell tempered (Figure 4.43e). The vessel was located above the right shoulder at head level (see Figure 4.40). Design elements are confined to the rim with curved diagonal lines that surround unfilled interlocking scrolls. The body is not decorated. Design elements classify V5 as either Glassell Engraved (Suhm et al. 1954:282; Suhm and Jelks 1962:53) or Hodges Engraved (Suhm et al. 1954:296; Suhm and Jelks 1962:73). The vessel is similar in design to a full size vessel found at the Hardman site that is assigned to the Glassell Engraved type (Early 1993:91 and Figures 44b). The final vessel (V7) is a carinated bowl that was located adjacent to the right pelvis with a bird effigy bowl (V8) resting inside the bowl. There are no photographs of the bowl and additional information is unavailable.

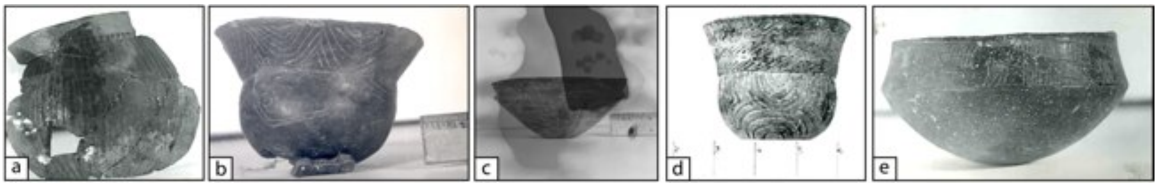

Figure 4.43. Images of missing vessels from Burial 1: (a) Belcher Ridged or Karnack Brushed-Incised (V1; UAM 660043) (b) Vessel with scroll motif on rim (V2; UAM 000202) (c) Carinated bowl (V3; UAM no print #) (d) Foster Trailed-Incised (V4; UAM 000197) (e) Glassell Engraved or Hodges Engraved (V5; UAM 660039). Used with permission from the University of Arkansas Museum Collections.

Below the burial was a layer of wattle that sloped up and under the existing tenant house on the surface. This layer of sloping wattle could not be fully excavated since this would have required removal of the tenant house. Profiles of the north and east wall of Square 4 in the trench showed the sloping wattle layer, which could represent the collapsed portions of another structure (see Figure 6.39).

The excavation of the burial and examination of the nine burial vessels was conducted primarily by Dr. Webb:

> The child burial in square #4 of trench #6 was cleaned off and photographed. It was an infant, some three to four years and in fair condition. The child was lying on its back with the head to the south. The body was in an extended position. From the placement of the vertebrae the head had been slightly raised and a charred corn cob placed in the mouth… Work in the square after the body was removed did not show a pit. Disturbances of the soil directly over the body was of a recent nature as the excavation of the top six inches showed the soil had been removed and coal ashes, along with metal parts of a coal stove had been thrown there from the negro's house that is located almost over the burial. In the same square, a foot or so below the burial was found a sloping area of wattle. The wattle slopes down in an abrupt manner and runs under the present house on the mound [Howard 1948:22].

Test Pit 1

On August 26th, all the hired labor was to be taken to the fields to harvest cotton and Howard decided to backfill the trenches and put a small 2 x 2 foot square test pit (TP1) in the top of the mound. The exact location of the pit is not known and is not recorded on the topographic map. It is simply referenced in the field notes as being “on top of the main mound at the north end” (Howard 1948:27). Based on the initial results, Howard suggested that a Caddo structure had been built on the top of the mound and was then capped in a similar manner as the other structures identified in TR3 and TR5:

> Below the foot of clay cap on the top of the mound was the red sand mound fill as found elsewhere, except this was very hard. At a depth of one foot and eight inches some mixture was found of charcoal and pits of burnt clay; two sherds were found here. There was the fragment of a flat disk shaped base sherd. The mixture grew fainter and then only clean red sand mound fill and the hole was stopped at a depth of almost three feet. This suggests that there was a structure on top of the mound and then it had been capped with clay as had the other houses on the mound [Howard 1948: 27].

Drainage Ditch

In June 1980, personnel of the AAS Research Station in Magnolia, Arkansas and accompanying guests visiting the Battle Mound site discovered a series of “U” shaped irrigation ditches that the landowner had dug using a power shovel (Figure 4.44). One particular trench was cut from east to west to the south of the mound truncating the buried southern portion of the large multi-platform mound (Schambach et al. 1980). Initial inspection showed that the shovel operator had dug a fairly long ditch revealing several archaeological features in profile.

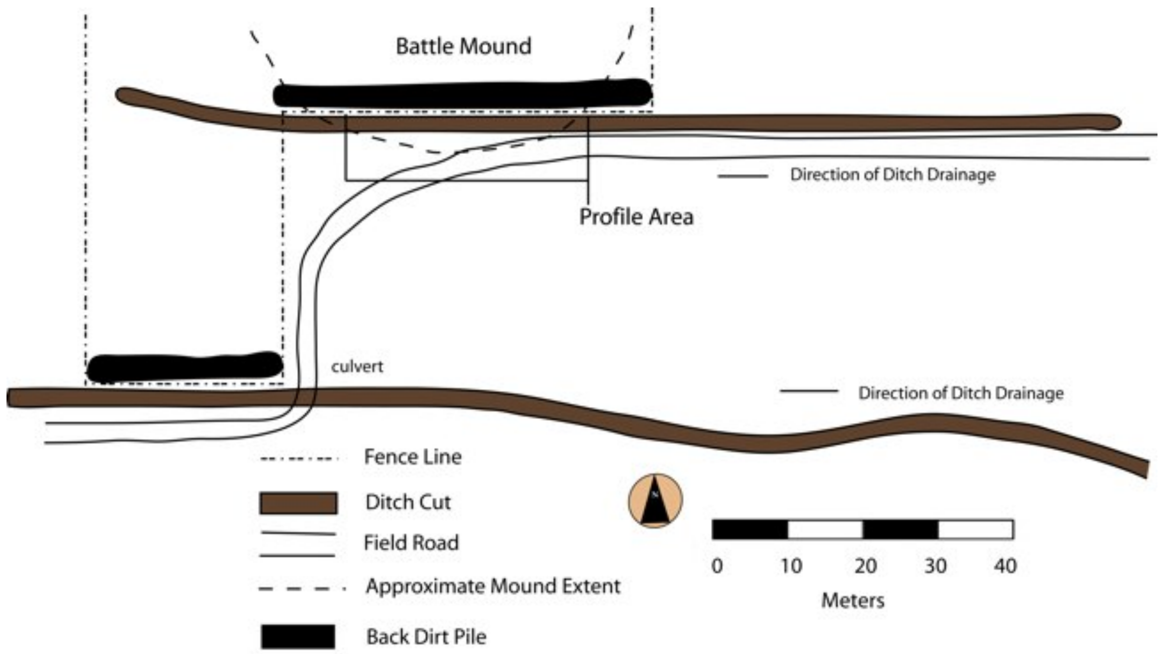

Figure 4.44. The plan view shows the two drainage ditches that were dug across the Battle Mound site (after Schambach et al. 1980).

Advantageously, the method in which the power shovel dug into the ditch inadvertently allowed whole chunks of earth to be removed where they were then deposited as backdirt on the north side of the trench and in roughly the same horizontal location from where each chunk was originally removed. As such, it was determined that some level of horizontal context could be associated with artifacts found within the backdirt pile and correlated to features documented in the ditch profile. The ditch wall and associated backdirt were divided into five-meter collection areas starting at the southeast corner of the barbed wire fence and moving west.

AAS employees Dr. Schambach and John Miller, along with several volunteers and Arkansas Archeological Society members including Dr. Clarence Webb, Anne Jeane, David Jeane, and David Perry worked to salvage and document archaeological materials unearthed by the ditch work from both the backdirt (80-621-15) and the profile wall (80-621-16). Inspection of the ditch showed intact features in the profile. Associated backdirt piles contained intact vessels, bits of human bone, several large sherds, and numerous lithics.

Backdirt (80-621-15)

Artifacts collected from the backdirt (*n* = 222, 1,969.2g) were given a separate accession number for each segment (see Appendix E). A Belcher Engraved bottle with the neck broken, two Foster Trailed-Incised jars, one plain beaker, and fragments of an engraved carinated bowl were all found in the backdirt (Figure 4.45). Along with the whole vessels, scattered bits of human bone, and several sherds and lithics were found, including two small red-on-buff painted sherds (Figure 4.46). The presence of several Belcher phase whole vessels with human remains suggests the vessels and other artifacts are grave goods associated with a Belcher phase burial (Zone IV) that was cut into during the ditch excavation.

Figure 4.45. Vessels found within ditch backdirt: (a) Belcher Engraved (b-c) Foster Trailed-Incised (d) Plain beaker. Photo taken by author.

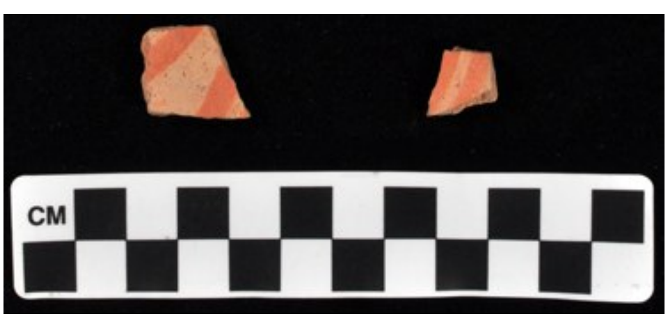

Figure 4.46. Two red-on-buff sherds were found in ditch backdirt. Photo taken by

Ditch Profile (80-621-16)

As part of the salvage operation, a detailed profile map was created of the ditch wall that defines similar stratigraphic features as those documented in the 1948 trench excavations on the south platform (Figure 4.47). A total of ten zones are mapped that reveal the locations of a burned structure over an occupational zone (Zone V), a deep ash deposit associated with the occupational zone (Zone IX), and portions of a burial pit with possible clay cap (Zone VI). Numerous artifacts were collected from the ditch profile (*n* = 255, 1,526.3g), although most are small and not diagnostic. A brief description of each zone follows.

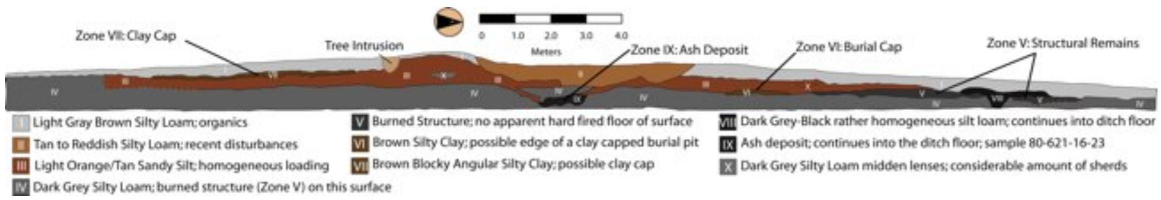

Figure 4.47. The digitized profile documents the north wall of the 80-meter irrigation ditch cut across the southern portion of the mound (after Schambach et al. 1980). The charcoal sample (80-621-16-23) was collected from Zone IX.

Zone I. Zone I is the upper most strata and composed of light gray brown silty loam mixed with roots and organic material (see Figure 4.47). Artifacts include glass, metal, and brick debris likely related to the historic structure that once stood on top of the south platform (see Figure 4.3).

Zone II. Zone II is a tan to red silty loam with an abundance of wash lenses and is associated with recent disturbances to the top of the mound platform (see Figure 4.47). Initial interpretations are a possible looter hole, cow trail, or old road. However, based on information obtained in TR2 excavations, it is likely that Zone II represents a continuation of the eroded layer associated with the former historic structure on the south platform where a clay soil layer approximately 18 inches thicker than the surrounding surface was documented under the house and "protected" from foot and hoof traffic. A single incised rim sherd was found within Zone II along with several pieces of historic glass.

Zone III. Zone III is a homogenous, mostly sterile orange to tan sandy silt layer that likely represents the same sterile red-orange sandy soil mound fill documented in TR1, TR2, TR4, and TR6 (see Figure 4.47). Notes associated with the original profile sketch document that this layer was basked loaded (as opposed to water lain), which further supports the assertion that the orange to tan sandy silt layer represents deliberately deposited mound fill. Artifacts documented include a few plain and brushed sherds and two deer bones.

Zone IV. Zone IV is below the sterile mound fill (Zone III) and is a dark brown clay sub-soil that is likely a similar Haley phase occupational surface as documented in TR1 and TR2 (see Figure 4.47). The dark brown clay soil in Zone IV likely represents a separate "occupational surface" discontinuous and distinct (yet probably contemporaneous) from the occupational surface identified in TR1 and TR2. On this secondary surface are the remains of a burned structure (Zone V), the edge of a burial pit with possible clay cap (Zone VI), and a deep ash deposit (Zone IX). Artifacts within Zone IV include plain and decorated (brushed and incised) sherds with clay, bone, and shell temper and a few animal bones.

Figure 4.48. Assorted sherds found in Zone V are (a, d) incised (b, c) brushed and (e) plain. Photo taken by author.

Zone V. Zone V is the remains of a possible burned structure (see Figure 4.47). Several bits of daub with grass impressions were identified, although there was no direct evidence of a fired floor surface or charcoal layer. This could indicate a structure that had been cleaned prior to burning (and it could very well have been) but it seems more likely that the power shovel cut through the very edge of a structure just beyond a defined interior floor, internal fire pits, and associated structural debris. Artifacts recovered from the burned structure remains include brushed and incised sherds (Figure 4.48).

Zone VI. Zone VI is composed of a small hump of blocky and angular brown silty clay (see Figure 4.47). The zone is adjacent to a backdirt segment that contained several fragments of human bone. No direct evidence of a burial pit was documented in proximate zones, which suggests that the clay hump and associated bone remains might represent the very edge of a clay-capped burial, with most of the burial still intact in the profile wall. Additionally, the Belcher Engraved bottle and two Foster Trailed-Incised jars found within the same segment as Zone VI were probably situated on the outer walls of the burial pit – a mortuary trait consistent with the deposition of late Haley and early Belcher phase burial grave goods (see Chapter 2).

Zone VII. Zone VII is a silty clay layer situated over the orange and tan sterile mound fill (Zone III). It is a very thin layer and might represent a small clay cap (see Figure 4.47). Artifacts found within the clay zone include a handful of plain sherds with clay temper. A single historic brick was also found suggesting disturbances related to bioturbation.

Zone VIII. Zone VIII is a dark grey to black silt loam that is cut into the Zone V structure remains and Zone IV occupational layer (see Figure 4.47). Some spreading of Zone VIII is present over Zone V and the depth continues below the excavated ditch. It is unknown what this zone might represent, although the centralized horizontal positioning within the Zone V structure remains might indicate an abandoned post or pit dug into the house floor. There were no artifacts identified.

Zone IX. Zone IX is an ash deposit that is directly below (dug into?) the Zone IV occupational layer (see Figure 4.47). The ash deposit is located about six meters west of the Zone V structure remains. The depth is not known, since it continues below the excavated ditch. A large sample of charcoal (80-621-16-23) was collected from Zone IX and submitted to the Beta Analytic, Inc. radiocarbon laboratory in Miami, Florida for an AMS date (McKinnon 2011a). The date returned is 460 +/- 40 B.P., which calibrates to A.D. 1410 – A.D.1470 at 2-sigma (Table 4.3; Beta 288925, sample 80-621-16-23). The results returned have an intercept on the calibration curve of A.D. 1440, which when calibrated provides a 1-sigma data range between A.D. 1430 – A.D. 1450. Thus, the ash concentration and associated occupational level date to the end of the Haley phase and likely related to the Haley phase occupational layer found in TR1 and TR2.

Sample ID and Provenience	Measured Radiocarbon Age Before Present	13C/12C Ratio	Conventional Radiocarbon Age Before Present	Calibrated Age 1-sigma range (68% probability)	Calibrated Age 2-sigma range (95% probability)
Beta 288925 80-621-16-23, charcoal material	470 +/- 40 BP	-25.7 o/oo	460 +/- 40 BP	Cal AD 1430 - 1450 BP	Cal AD 1410 - 1470 BP

Table 4.3. AMS date result from 80-621-16-23 at Battle Mound.

Zone X. Zone X is a dark grey silty loam midden that is likely differential fill related to the Zone III mound fill. Artifacts found in Zone X were several plain sherds and animal bone.

The excavation and subsequent documentation of features identified with the ditch salvage work allows for additional insights related to the mound construction sequence. The ditch work documented the presence of an additional Haley to Belcher phase occupational layer (Zone IV), seemingly at the same stratigraphic level as the occupational layer found in TR1, TR2, and TR3. The occupational layer contained at least one structure (Zone V) and ash pit

(Zone IX). Above the occupational layer were a sample of Belcher phase burial goods pulled from the edge of a burial pit that was probably dug into the occupational layer during the Haley phase time period and might represent an outdoor cooking pit associated with the Zone V structure remains.

Mound Architecture and Organization

At least three structures were confidently identified in TR3 and TR5 during the mound excavations. Results from both the 1948 excavations and 1980 ditch salvage hint at the possibility of an additional four structures – a sub-platform Haley phase structure in TR2, a likely structure (Haley phase) discovered in the drainage ditch at the edge of the mound, a possible Belcher phase buried structure in TR6, and a buried structure (likely Belcher phase) identified in TP1 on the mound summit (Figure 4.49). Since results in TR1, TR2, TP6, and the drainage ditch do not permit any level of confidence, much less the identification of substantial structural features, the following comparison of mound architecture is reserved for the structures found in TR3 and TR5 where it is suggested that these structures represent architectural components of differential use areas on the mound.

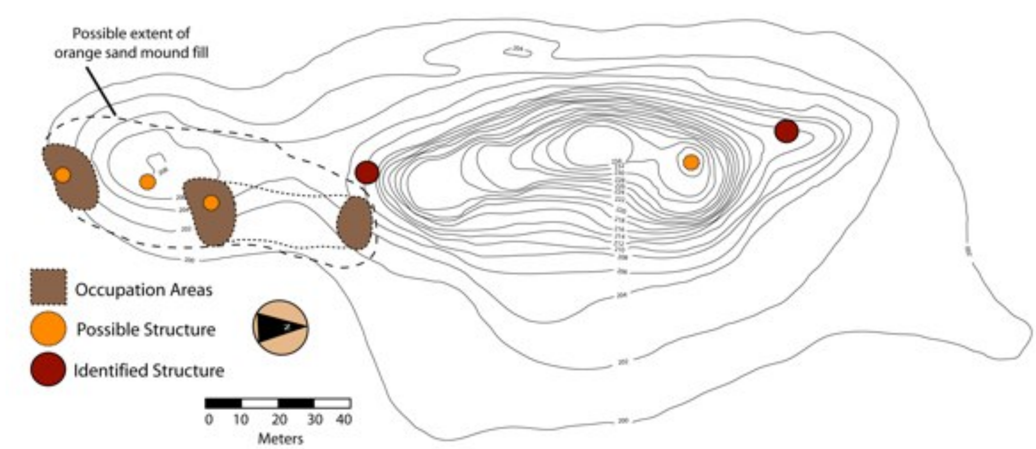

Figure 4.49. The features identified in the 1948 mound excavation and the 1980 ditch salvage work show three possible Haley phase outdoor cooking areas with associated structures, a Haley phase cookhouse situated north of the outdoor cooking areas, a Haley phase structure on the north platform, and a possible structure on the mound summit (after Krieger 1949).

Structure 1 found within TR3 on the south platform contained several large fire pits, several large ceramic vessels, remains of corncobs, and an abundance of faunal remains. These attributes suggest activities related to preparing and cooking food beyond domestic needs. Architecturally, Structure 1 had a construction sequence that consisted of a structural retrofit, which may have been directly related to the frequency and proposed magnitude of cooking activities in the structure. Specifically, two large fire pits in the lower floor (Floor 2) would likely have produced a significant amount of soot and ash that would have degraded the structural integrity of a thatched roof over time. As such, it is proposed that Structure 1, and possibly the south platform area as a whole, was associated with cooking activities tied to communal events such as feasting.

Conversely, the superimposed Structures 2 and 3 found within TR5 on the north platform contained different architectural attributes suggesting an area of more domesticity. First, there is no mention in the notes or profiles of the existence of large fire pits. This suggests that smaller fire pits were characteristic of Structures 2 and 3 and thus not noticed during excavation (in other words, they "blew" right through them). Second, there are no large cooking vessels documented in Structures 2 and 3 and there are significantly less (85 percent less than Structure 1) faunal remains. Lastly, in a small pit directly below the floor of Structure 2 was an infant burial.

Architecturally, Structures 2 and 3 had a different construction sequence than Structure 1. Rather than retrofitting the floor of the lower Structure 3 on the north platform, the lower Structure 3 was burned and only a thin layer of clay followed by a layer of sand and gravel were deposited over the burned remains. Structure 2 was then built as a separate and distinct structure with posts dug into Structure 3. There is no evidence of burning of Structure 2. As such, it is proposed that the two superimposed structures found within TR5, and possibly the entire north platform area, were reserved for private or domestic activities. Furthermore, it has been suggested that the process of burning of a structure and covering it with earth was tied to the death of a high status individual within the community (Webb 1959:110). The structures were essentially buried along with the burial of the high status individual.

At present, the temporal difference in radiocarbon dates between structures on the north and south platforms limit interpretations toward considerations of continuity of proposed differential use over time. Nonetheless, a model that examines mound structures tied to specific and possibly restricted differential use areas *over considerable time* has been proposed elsewhere. For example, at the Ferguson (3HE63) site, large-scale salvage excavations of Mound A produced evidence that supports continuity of differential use areas over several decades (Schambach 1972, 1996). Radiocarbon dates from the site reveal that intensive construction and use of Mound A occurred during the Haley phase. These dates are contemporaneous with radiocarbon dates gathered from the structures on the north and south platforms at Battle (Schambach 1996:41).

Schambach's model of differential use at the Ferguson site proposes that the north and south platform of the large two-platform Mound A were bilateral locations, each reserved for different social functions throughout the duration of the mound use and occupation (Schambach 1996:41). The northern platform contained the remains of ten buildings filled with domestic debris. Each construction episode contained two sets of buildings – one wattle and daub rectangular structure insulated for winter use and a paired circular thatched structure properly ventilated for summer use (Schambach 1996:41). The structures were burned without fanfare or associated with any specialized ritual or ceremony.

Alternatively, the elevated south platform contained the superimposed remains of five square structures or "temples". Each of these temples were all burned and subsequently buried similarly where sand was piled up around the outside walls, the roof was dismantled, and the building was set aflame. After a structure was engulfed in flames, the walls were toppled inward and the entire burning structure was covered with sand and left to smolder for several days (Schambach 1996:41). As previously discussed, the large (in this case circular) structure on the south platform at the Battle Mound site (Structure 1) documents a final construction sequence where the structure was deliberately set aflame, the walls pushed in, and soil deposited over the burned remains and left to smolder.

Similar interpretations of bilateral differential use are also proposed at the Hays (3CL6) and Standridge (3MN53) sites. At the Hays site, two circular structures that had been cleaned of debris, burned, and subsequently buried with a layer of soil and left to smolder were located on the east side of the large mound. On the west side, three circular structures contained a variety of debris on the structure floors (i.e. they were not cleaned) and were not burned and buried as those on the east side. As such, Weber (1971, 1972, 1973) proposes differential use with the east site reserved for communal functions and the west reserved for domestic functions. At the Standrige site, a series of rectangular and circular structures where excavated. Unburned circular and rectangular structures (F-12 and F-18) with varying interior features and architecture are interpreted as contemporaneous structures of differing domestic and special use. Rectangular structures (F-8, F-17, and F-1) revealed evidence of the similar sequence of burning and subsequently burying them with a layer of soil and are interpreted as special use structures (Early 1988).

This ritual process associated with mounds where structures, both rectangular and circular, are deliberately burned and then covered with a layer of soil has been documented at other sites, such as at Belcher site situated along the Red River (Webb 1959), the Caddo Valley (3CL593) site situated along the Ouachita River (Trubitt 2009), the Denham (3HS15) site situated along the Ouachita (Wood 1963b), and the Hughes (3SA11) site situated along the Saline River (Trubitt 2009). In all of these cases (and others – see Trubitt 2009), a pile of earth covered the remains of a smoldering burned structure such that a "great plume of smoke and steam must have emanated from each burned and buried building for days or even weeks" (Schambach 1996:41). The burning and burying of the communal Structure 1 on the south platform at Battle Mound would likely have presented a similar "great plume of smoke" possibly associated with a mortuary ritual directly linked to the ascension of souls to the realm of the dead via an "axis mundi" of smoke emanating from an important communal or social structure (Carter 1995; Kay and Sabo 2006; Trubitt 2009).

As shown, the multiple layers of sand, wattle, and clay that define the burned and buried structures within the large mound at Battle are similar in construction sequence to other buried Caddo structures that have been excavated and recorded in northwest Louisiana and southwest Arkansas. More so, characteristic construction sequences, differential artifact concentrations, and the presence of a subfloor infant burial within the north platform (see Trubowitz 1984:270) suggest the structures on the north and south platforms maintained different socio-functionality, where the north platform was reserved for domestic dwellings and activities and the south platform reserved for communal or "temple" structures and activities.

In terms of overall mound construction, excavations demonstrate that the southern platform was constructed sometime during the early portions of the Belcher phase as a single event. Prior to the construction of the southern platform, three areas immediately proximate and at the base of a mound were utilized as outdoor Haley phase cooking areas. The cooking areas contained at least two possible structures (see Figure 4.49). At a later time, the occupational areas were no longer utilized and buried. Basket loads of sterile red-orange sandy soil were collected, deposited, and compacted over the ash filled occupational areas. The mound fill was then capped with an artifact midden and the resultant south platform.

An interesting further consideration is the north-south orientation of the mound on the landscape. Perttula (2009), in his analysis of Caddo extended entranceway structures, discusses the connections between the cardinal orientation of extended entranceway structures and "a diverse set of Caddo beliefs on mortuary rituals and cosmological symbolism that were linked to the directions of life and death" (Perttula 2009:27). Although extended entranceway features were not documented (or perhaps not identified) during the mound excavations, the north-south orientation of the large, fairly linear, and certainly unique multi-platform mound might represent a cosmological alignment expressed in the landscape of a set of Caddo beliefs that were socially and symbolically linked to the construction of the mound and the proposed multi-functional structures situated on the north and south platforms.

Closing Discussion

The mound excavations conducted by Lynn Howard were successful in the tasks they proposed: (1) make a contour map of the mound and surrounding features; (2) dig several trenches "in a number of places around the mound to find the slope of the original mound;" and (3) "find the village level before the mound was constructed" (Howard 1948:1). Additionally, the salvage work on the south end of the mound provides a second set of data that can be appended to the Howard mound excavations. In fact, coincidently, the ditch salvage addresses almost all of the questions that were outlined as part of the earlier mound excavations.

The data presented in this chapter are important in that they provide the first glimpse, perhaps our only excavated glimpse (remote sensing can offer additional visibilities), into the composition and construction of the largest mound in the Caddo area. Such a preliminary glimpse is critical toward understanding not only the social purpose of the mound in terms of differential architectural styles and associated specialized activities but also to provide a temporal and cultural framework when examining the village population, the distribution and organization of space off the mound, and how these (now archaeological) features are linked to activities that permeated Caddo lifeways (Chapters 4 and 5).

For example, it is already known from early excavations north of the mound that during the Haley and Belcher phases, numerous people were buried in the large (Handy Place) cemetery area (Perttula et al. 2009). With the mound excavations, the identification of architectural features, their associated diagnostic ceramic assemblage, and a series of radiocarbon dates, we now know that during the same time that individuals were being interred into the Handy Place cemetery, the mound itself was full of activity with large outdoor "occupational" or cooking areas to the south, cooking structures situated on what would later become part of the south platform (located on the edge of an original mound?), and domestic structures located on the north (and possibly on top).

Such an observation is certainly appropriate (and obvious) when examined ethnographically as it relates to ritual feasting tied to mortuary practices. Funerals of important personages were associated with a variety of mortuary customs and rituals related to the production of "great quantities of *pinole*, corn, and other eatables" (as quoted in Swanton 1942:204). As part of the burial proceedings, "some of the choicest food [the community] possessed was taken and, together with tobacco, fire, and a pot of water, placed on the grave" (Griffith 1954:95). The offerings continued as "food was frequently carried for some days" (Bolton 1987:154) and where a specific individual remained at the burial and prayed that the "dead be permitted to eat in order to have strength to reach the House of the Dead" (Griffith 1954:95). After burial, "the whole ceremony is crowned by a feast which is divided among all those present" (as quoted in Swanton 1942:205). Although these mortuary ceremonies are described with the death of principal religious and political individuals, "when a private individuals passes on [the ceremonies] are the same, only there is less pomp" (as quoted in Bolton 1987:154).

In short, mortuary customs necessitated the production, cooking, and distribution of large quantities of food. At the Battle Mound site, the large number of Haley and Belcher phase burials interred in the Handy Place cemetery would very likely have been involved in similar feasting ceremonies. As such, the multi-floor cooking structure (Structure 1) identified on the south platform (and the proposed Haley phase outdoor cooking areas?), with the numerous large fire pits and oversize cooking vessels, probably contributed to the production and cooking of large quantities of food that was distributed as part of these mortuary (and other) ceremonies during the Haley phase and continuing into the Belcher phase.

A second contribution of the analysis of the mound excavations and architecture is the further consideration of the validity of a model of bilateral differential use of structures and associated activities on mound summits. As already discussed, differential use areas on mound summits have been interpreted at other Caddo contemporaneous sites. With the interpretations offered herein, the mound structures at Battle can now be added to that comparative corpus. Could the differential organization be related to a possible switch in mound use during the Haley phase, where it has been suggested that during this time there was a change in mortuary ceremonialism from the veneration of individuals to a veneration of structures or buildings (Schambach 1996:41)? Could it be related to an accretion of two separate mounds that ultimately joined, similar to those documented at the Belcher site where "one [mound] may have served as a specialized religious structure, while the other [mound] was the residence of the caddi" (Kelley 2012:412)?

At the Battle Mound site, information is still lacking regarding the overall construction sequence and establishing confidence related to its evolution from a single mound or from multiple conjoined mounds. Even Krieger vacillates on this question. He first suggests that "the mound was originally one enormous low platform, perhaps as much as 650 feet long but only some six feet high" but then offers that "there may have been two or three mounds in a row running north and south, later covered by vast amounts of clay that joined them together"

(Krieger 1949:5). The data collected from the mound excavations, particularly on the south end, suggests that the south platform was added and joined to the central main portion of the mound during the Belcher phase. Either way, the evolution, function and meaning behind bilateral differential use is beyond the scope of this study and will require additional excavation (unlikely) or a program of deep remote sensing prospection to gain additional data. Nonetheless, the data presented in this chapter offer another example of this type of mound structure organization that can be tested and compared with other examples.

Finally, the identification of Haley phase occupational or cooking areas and possible structures initially utilized prior to the construction of the southern platform is important to consider as it relates to the distribution (or lack thereof) of structures proximate to the mound on the Terán map. The identification of possible structures presumably constructed at the base (if one considers the possibility of three originally separate mounds) of what is now the large central platform continues to question the universality of the organization of structures within a Red River mound community, at least during at Haley and Belcher phase sites. The Terán map does not contain cookhouses and associated architecture around the mound. Furthermore, the mound only contains a single structure with a single platform, as opposed to the multi-structure and multi-platform mound documented at Battle.

CHAPTER 5: SURFACE EXPLORATIONS IN THE VILLAGE AREA

"We believe that rigorous specification of the relationship between the surface and subsurface of an archaeological site is practically useful and theoretically significant.
– Charles L. Redman and Patty Jo Watson 1970:279

Occurring sporadically over the course of many years, various individuals have collected surface artifacts from several areas at the Battle Mound site. While not documented, it is highly likely that visible artifacts were collected from the surface during investigations as far back as Moore in 1911 (see Chapter 2; Moore 1912). The first documented efforts of surface collections on file is with the AAS site files and a surface collection done by Ed Sanders of Bossier City, Louisiana in 1962 (AAS 3LA1 site files). Mr. Sanders collected a variety of undecorated and decorated sherds (n = 26), daub (n = 2), bone (n = 6), and a single projectile point. Apart from a mention of a couple pieces of fired daub with leaf casts from extreme the elevation of the mound (also suggesting a structure on top of the mound – see Figure 4.49), there is no information on the specific location of the collected artifacts. Additionally, the current whereabouts of the artifacts collected by Sanders is unknown.

In 1963, Dr. Bob McGimsey, then Director of the University of Arkansas Museum and later Director of the Arkansas Archeological Survey (see McGimsey and Davis 1992), collected a few sherds (n = 7) and a single piece of daub from the surface (Appendix E), although where on the surface is unknown. There is no locational control documented with the collection.

In 1973, surface collections resumed along with the implementation of a valid attempt at some sort of spatial control. Numerous ceramic sherds (*n* = 88), daub (*n* = 3), bone (*n* = 7), and lithic (*n* = 7) artifacts around the "south and east faces of mound" are documented (Appendix E). Some diagnostic artifacts are present in the 1973 surface collection, such as Haley Complicated Incised, Keno Trailed, and Belcher Engraved sherds (Figure 5.1). However, the lack of good spatial control of artifact locations limits distributional interpretations beyond artifact identification and simple presence at the site. For example, lumping of artifacts collected from the "south and east faces of the mound" does not allow for the use of these artifacts in the investigation of possible differential intrasite usage areas and the associated material remains within proposed usage areas.

Figure 5.1. The 1973 collection contains sherds from (a) Haley Complicated-Incised, (b) Keno Trailed, and (c) Belcher Engraved types. Photo taken by author.

Beginning in 1979 and continuing intermittently until 1991, the surface collection of artifacts directly associated with a set of systematically delineated areas was implemented - likely in response to academic discussions on surface collection theories and methodologies published in the 1970s (see Redman and Watson 1970; Flannery 1976). The 1979 surface collection efforts began as a subset to a larger levee revetment project conducted by Coastal Environments, Inc. (Pearson and DuCote 1979).

In 1980, the spatially controlled surface collection continued under the direction of Dr. Schambach, the AAS station archaeologist at Southern Arkansas University (SAU) in Magnolia, Arkansas. At that time, artifacts collected from the surface were given the catalog number designation SAU17. Earlier investigations by amateur and avocational "archaeologists" focused on the exhumation of burials and associated mortuary items (mostly only the items) with vague sketches of only the organization of each burial and accompanying mortuary corpus of goods with little regard for defining and recording precise spatial relationships across the site (Figure 5.2).

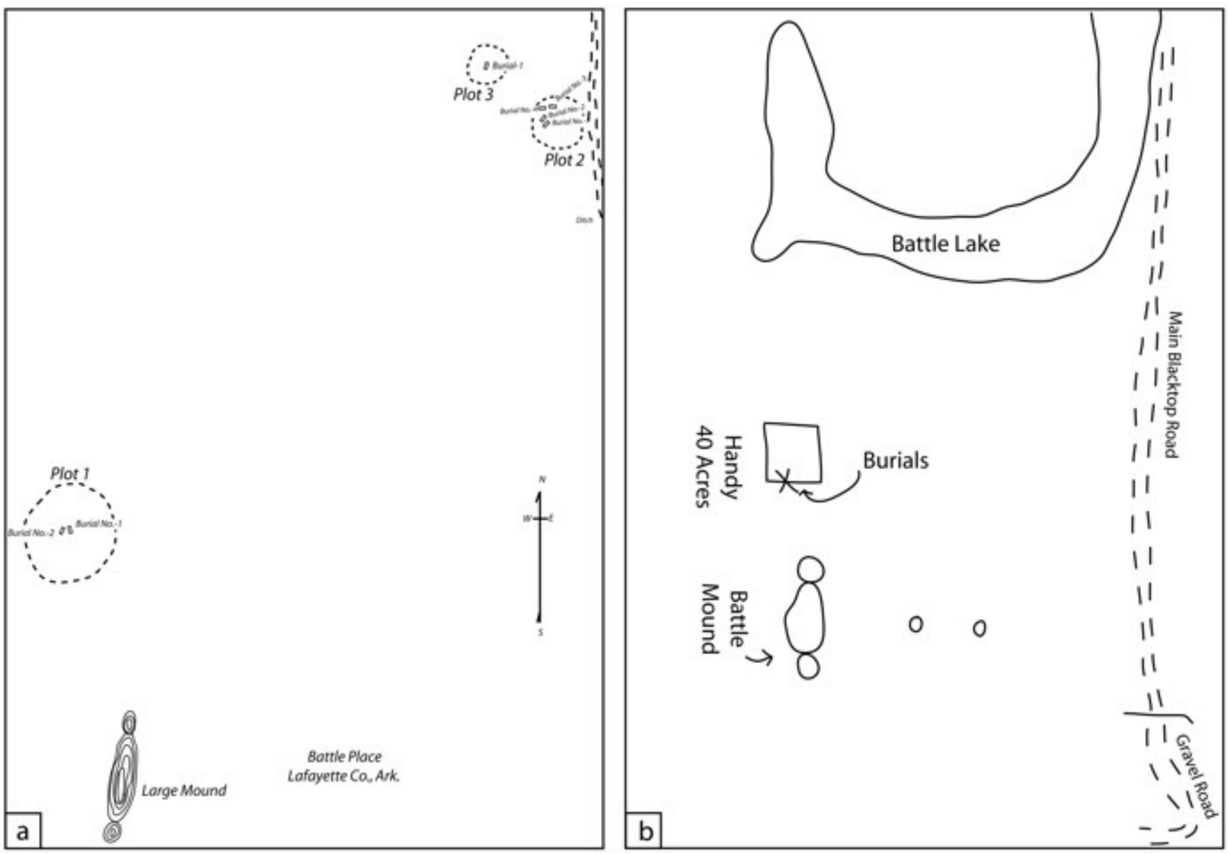

Figure 5.2. Early maps of the Battle Mound site lack enough spatial detail beyond general location (a) after Lemley 1939, (b) after Kitchens 1968.

As such, the surface collecting that began in 1979 represents the first systematic recording of the spatial arrangement of off-mound activity areas and associated artifacts at the site. Collection areas were delineated based on the presence of topographic features, knowledge of previous archaeological finds, and proximity to the large mound. Today, surface artifacts at the site are meager, likely owing to changes in agricultural practices from deep cotton furrows (when the 1979 surface collections were begun) to lower impact discing and the planting of winter wheat as a cattle crop (the present land use).

Surface artifacts were collected by a host of Society members and Survey employees, including Dr. Schambach, (the now) Dr. David B. Kelly, John Miller, III, Ann and David Jeane, Dr. McGimsey, Larry and Judy Head (owners of a portion of the Crenshaw site), Clarence Webb, Charles Pearson, Claude McClocklin, and Steve Loring. Throughout the years, these individuals have amassed quite a large surface collection of prehistoric ceramic sherds, bone from many faunal species, chunks of daub, chipped and granular lithic debris, and a variety of historic period artifacts (*n* = 9,398 items, totaling 65,499.8 g). Although the entire surface collection is greater than nine thousand objects, the location of many of the artifacts in the collection are unfortunately recorded as recovered from "general surface" or grouped as "north and east" or "south and east" of the mound (see Appendix E). These general and lumped surface artifacts are not included in the following discussion since they are not assigned to a specific collection area and thus lack the ability to establish spatial control. Removing these from the analysis, the number of artifacts directly associated with the controlled collection areas is reduced by 18.5 percent (*n* = 7,659, 52,377.1 g). Furthermore, of the total number of prehistoric ceramics directly associated with collection areas, 56 percent (*n* = 3,218, 7962.6 g) are less than one inch in diameter (classified as "sherdlets") and are not included in this analysis (see Appendix E). Even with these reductions, the total number of spatially associated artifacts collected from 1979-1991 included in this analysis is well over four thousand objects and over 44 kg in weight (*n* = 4,441, 44,414.5 g).

The systematic nature of the 1979-1991 surface collection and the scarcity of surface artifacts today make a distributional analysis of the collection attributes that much more important to examine as it relates to the spatial arrangement of off-mound occupations and proposed differential use areas. This is especially important in light of the current landowner's request to not conduct excavations at the site. The surface artifacts collected allow for a crucial, and at present the only, material spatial dataset in the investigation of off-mound activities and site organization.

Overall, the surface collection contains artifacts that represent a significant period of occupation at the Battle Mound site ranging from at least the Archaic period, through Woodland Fourche Maline, and into the Middle and Late Caddo period as demonstrated by a large variety of Haley and Belcher phase ceramic sherds, many of which contain similar designs from whole vessels excavated from the adjoining Handy Place cemetery throughout the 20th century. Many of these vessels are currently housed at the Gilcrease Museum in Tulsa, Oklahoma (see Perttula et al. 2009).

In what follows, each collection area is first described and counts and weights of different types of artifacts are presented. Representative samples of diagnostic artifacts are illustrated for each area, where appropriate, and ceramic and lithic types proposed. The chapter concludes with a summary of artifacts found, their spatial distribution, and proposed differential use areas.

Surface Collection Areas

In 1979, David Kelly, then a station assistant at the AAS Magnolia Research Station, mapped out ten distinct collection areas (Areas A-J) based on surface topography and likelihood of recovering cultural material (Figure 5.3). Eight areas are situated immediately proximate to the mound on the east (Area A), north (Area B), and west (Area C) sides. Two areas (Area F and Area G) are situated some distance, more or less northeast of the mound on low elevated landforms.

Collection methods included pedestrian walking in a series of transect lines and picking up artifacts as found. There was no "piece plotting" or accurate mapping of finds within each area. As such, distributional information is confined to the scale of each collection area. When feasible, surface collections were conducted after heavy rains or shortly after the site was plowed for cotton and beans. All areas produced a variety of artifacts associated with prehistoric and historic period occupations (see Appendix E). Areas with denser and more numerous artifact concentrations include those situated directly around the mound, especially Areas A east of the mound (*n* = 1,824) and Area B north of the mound (*n* = 888). Area G, located along the south edge of Battle Lake about 700 m northeast of the large mound, also produced a large number of prehistoric ceramic and lithic artifacts (*n* = 795). Area H, about 100 m northwest of the mound, produced the greatest quantities of Caddo related artifacts overall (*n* = 2,819).

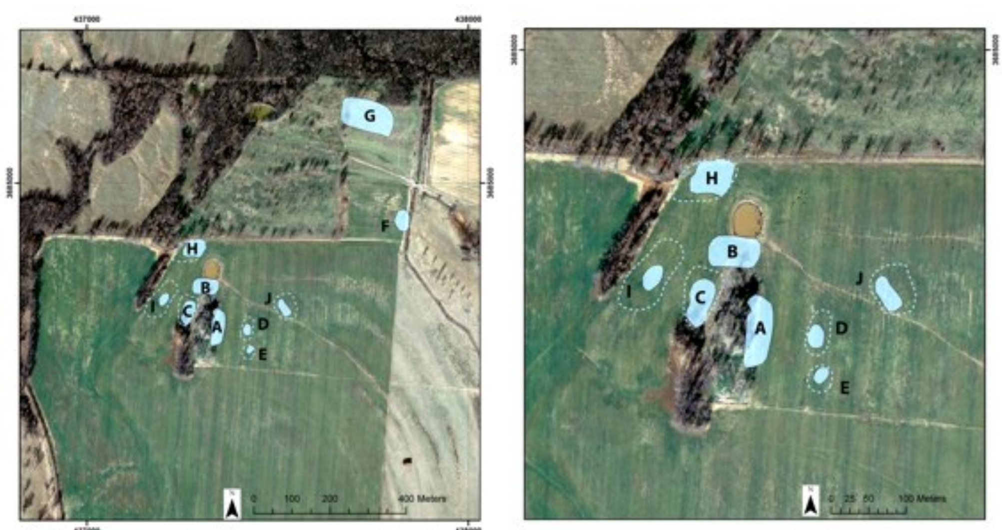

Figure 5.3. The ten surface collection areas are primarily around the mound. Dotted lines represent the likely extent of the collection areas (after Schambach et al. 1980; Statewide Natural Color Ortho DOQQ 2006, NAD83, Arkansas State Land Board).

Area A

Area A is located on the eastern edge of the large mound at approximately 100 m north-south and 45 m east-west in size (see Figure 5.3). The area is situated over a broad and slightly elevated area that may represent remnants of a former ramp on the east side of the mound, an accumulation of eroded soil washed down from the mound slope, or a combination of both. Surface artifacts were the densest in this area and numerous artifacts from both prehistoric and historic occupations were collected (*n* = 1,824, 13,082.0g; see Appendix E). Several types of late 19th century and early 20th century historic artifacts are well represented (*n* = 66, 1,386.9 g). In fact, 66 percent of all historic artifacts collected from the ten delineated collection areas are from Area A. This is consistent with historic farming occupations and associated structures situated on the east side of the mound (see Figure 4.2). Artifacts include various bottles and glass fragments (Figure 5.4), whiteware and earthenware sherds (Figure 5.5), metal and iron debris, and house debris (Figure 5.6). An interesting object collected from Area A is the remains of a reed stem pipe (Figure 5.7). The pipe is a Shaker style pipe ca. late 19th century as illustrated in the 1895 Akron Smoking Pipe Company Catalogue (Sudbury 1986:26). Bone (*n* = 40, 166.5g) of domesticated faunae, such as cow and hog, was collected in Area A that

Figure 5.4. Bottle fragments found in Area A include (a) aqua glass with applied lip (b) patent medicine bottle (c) glass handle (d) hand turned glass lip (d) medicine bottle (e) hand turned glass lip (f) aqua glass with applied lip (g) dark green glass wine bottle (h) hand blown glass lip. Photo taken by author.

is associated with historic period livestock. Two small pieces of shell (*n* = 2, 0.2g) were collected, although it is undeterminable if the pieces are from prehistoric or historic occupations.

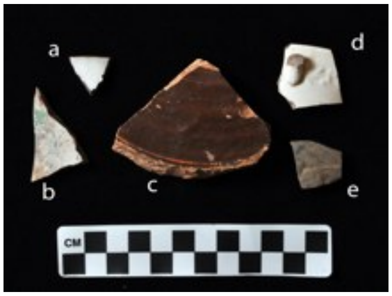

Figure 5.5 (a) whiteware (b) handpainted sprig design (c) earthenware (d) hollowear whiteware (e) Rockingham ware. Photo taken by author.

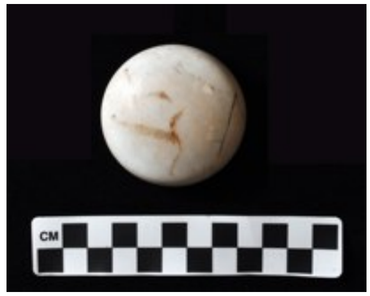

Figure 5.6. A marble doorknob from Area A. Photo taken by author.

Figure 5.7. A Shaker style reed stem pipe from Area A. Photo taken by author.

Prehistoric artifacts include ceramic (*n* = 1,324, 5,226.7 g) and lithic (*n* = 377, 6,172.1 g) material and a few small chunks of daub (*n* = 15; 129.6g). The presence of daub in Area A suggests the remains of burned wattle-daub structures east of the mound. Of the ceramic material collected, 54 percent (*n* = 720) are classified as sherdlets at less than one-inch in diameter and not included in the decoration and temper totals. Of the remaining ceramic sherds, appliqued (*n* = 2), brushed (*n* = 181), engraved (*n* = 13), incised (*n* = 76), red painted (*n* = 2), punctate-incised (*n* = 3), and punctated (*n* = 18) design elements are present (see Appendix E). Undecorated sherds (*n* = 309) are also present. Tempering agents identified in collected sherds include variations of clay (*n* = 475), bone (*n* = 93), and shell (*n*= 36; see Appendix E). Proposed ceramic types include a mix of Haley and Belcher phase sherds, such as Belcher Engraved, Belcher Ridged, Crockett Curvilinear Incised, Foster Trailed-Incised, Glassell Engraved, Karnack Brushed-Incised, Pease Brushed-Incised, and Sinner Linear Punctated (Figures 5.8 and 5.9). Two red painted plain sherds, unassigned to types, were also collected.

Figure 5.8. Haley and Belcher phase sherds found in Area A include: (a, b, c) Sinner Linear Punctated (d, e) Belcher Ridged (f) Karnack Brushed-Incised (g, h) Crockett Curvilinear Incised. Photo taken by author.

Figure 5.9. Haley and Belcher phase sherds found in Area A include: (a) Glassell Engraved or Friendship Engraved (b, c) Glassell Engraved (d, e) Untyped Plain red painted (f, g, h) Foster Trailed-Incised (i) Belcher Engraved (j) Pease Brushed-Incised. Photo taken by author.

Lithics in Area A consist of granular cobbles, cores, and worked flakes presumably procured from sand and gravel bars located only a short distance away within the Red River. A cache of points, including a novaculite Gary point and potential Bassett, Fresno, and Scallorn points (Suhm and Jelks 1962; Bell 1960; Bell 1958; Webb 1948) were collected (Figure 5.10). The presence of Bassett, Fresno, and Scallorn points are appropriate for the temporal framework suggested by the proposed ceramic types, whereas the presence of a single Gary point suggests a long period of occupation and use at the site, at minimal the preceding Fourche Maline period.

Figure 5.10. Lithic points found in Area A include: (a) Gary (b) Frenso (c) Scallorn (d) biface (e) Bassett (f) possible Fresno (g) possible Gary point. Photo taken by author.

Area B

Area B is located between the borrow pit on the north side of the mound and the northern extent of the large mound (see Figure 5.3). The size is approximately 40 m north-south and 60 m east-west. At the time of surface collection, the remains of an old gravel road were documented, although it is not visible on the surface today. Surface artifacts in Area B were the second most dense of all surface collection areas (see Appendix E) and numerous artifacts from both prehistoric and historic occupations were collected (n = 888, 6,070.4 g). Although less than the

Area A collection (78 percent less), a few types of late 19th century and early 20th century historic artifacts were present (*n* = 14, 78.2 g). These include broken glass bottles, pottery sherds, a garment button, and iron and metal debris (Figure 5.11). The presence of historic material is consistent with historic structures situated (in particular a documented barn) on the north side of the mound (see Figure 4.2). A few pieces of cow, hog, and deer bone (*n* = 13, 42.0 g) were also collected in Area B that are associated with historic period livestock and occupation.

Figure 5.11. Historic artifacts from Area B include whiteware sherds and a glass lip. Photo taken by author.

Prehistoric artifacts include ceramic (*n* = 704, 4,072.5 g) and lithic (*n* = 131, 1,587.4 g) material and a few chunks of daub (*n* = 26, 290.3 g). The presence of daub suggests that there are subsurface remains of burned structures north of the mound. Of the ceramic material collected, 33 percent (*n* = 235) are classified as sherdlets at less than one-inch in diameter and not included in the decoration and temper totals. Of the remaining ceramic sherds, appliqued (*n* = 4), brushed-appliqued (*n* = 6), brushed-puncate (*n* = 7), engraved (*n* = 11), incised-appliqued (*n* = 4), incised (*n* = 54), and punctate-incised (*n* = 3) design elements are present (see Appendix E). Undecorated sherds (*n* = 203) are also present. Tempering agents include variations of clay (*n* = 425), bone (*n* = 35), and shell (*n* = 9; see Appendix E). Proposed types include a mix of Haley and Belcher phase types, such as Foster Trailed-Incised, Glassell Engraved, Haley Complicated

Incised, Handy Engraved, Keno Trailed, Pease Brushed-Incised, and Sinner Linear Punctated (Figures 5.12 and 5.13).

Figure 5.12. Caddo sherds from Area B include Pease Brushed-Incised (top-row) and Foster Trailed-Incised (bottom-row). Photo taken by author.

Figure 5.13. Caddo sherds from Area B include (a, b) Handy Engraved (c) Possible Keno Incised (d) Haley Complicated Incised (e, f) Sinner Linear Punctated (g) Glassell Engraved. Photo taken by author.

Lithics in Area B consist of additional granular cobbles, cores, and worked flakes similar to those collected in Area A and procured from Red River sand and gravel bars. A single Bassett point and a large Gary point were collected in this area (Figure 5.14). As with the lithic points identified in Area A, the presence of a Bassett point is consistent with proposed ceramic types, whereas a Gary point hints at a Fourche Maline component present at the site.

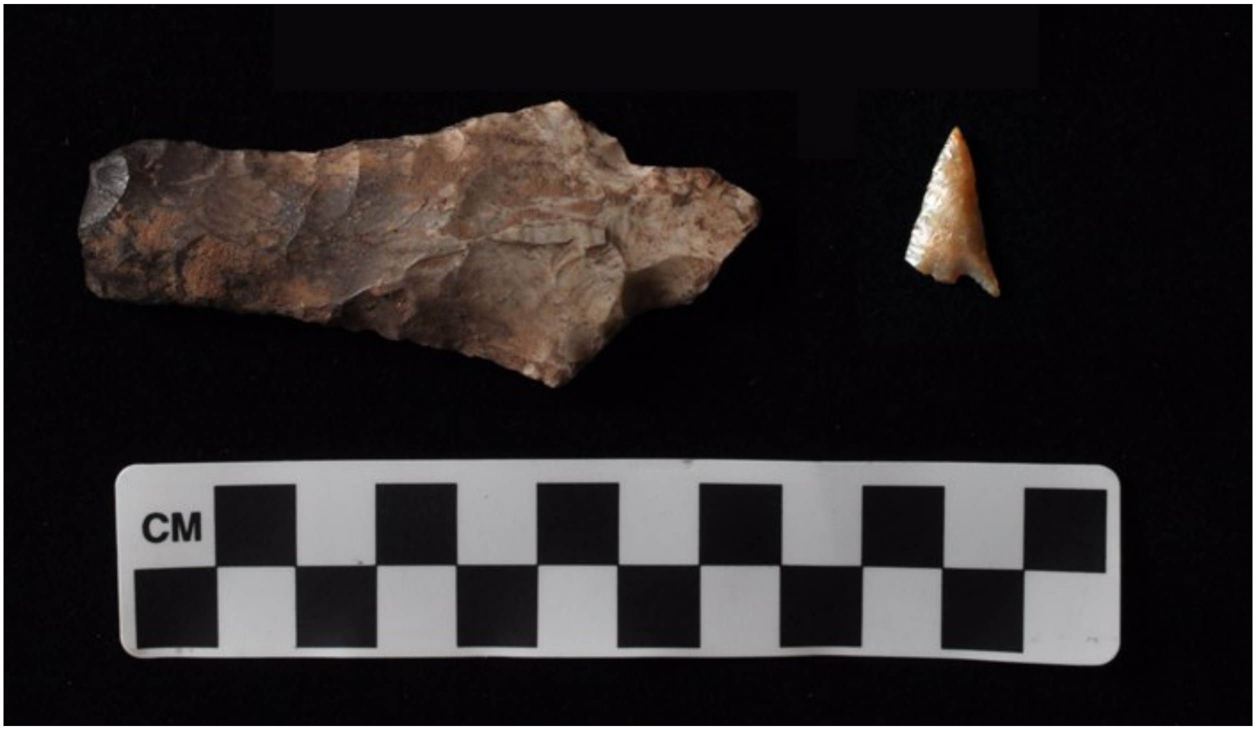

Figure 5.14. Lithic debris in Area B demonstrates several centuries of occupation with a single Gary point (left) and a Bassett point (right). Photo taken by author.

Area C

Area C is located immediately west of the large mound and is approximately 90 meters north-south and 30 meters east-west (see Figure 5.3). The area is adjacent to a topographic low that frequently floods. Contrary to Areas A and B that are proximate to the large mound, prehistoric and historic surface artifacts are minor (*n* = 162, 1,461.1 g). The low level of artifacts could be related to the location of a temporary flood channel or slough and the nearby borrow pit (see Figure 4.22). The area frequently floods (direct experience gathering data in the field). An area subjected to frequent flooding will have a higher rate of soil deposition and thus the possibility of debris buried deeper below deposited soil. This reasoning is consistent with soil maps that indicate this area is composed of a poorly drained Perry clay soil (see Laurent 1984). Only a couple late 19th century and early 20th century historic artifacts were collected in Area C (*n* = 4, 86.1 g). These include a broken bottle, a sherd with a rose design, a pewter button, and a metal comb (Figure 5.15). The small amount of historic artifacts found in Area C is consistent with there being no recorded historic structures on the immediate west side of the mound.

Figure 5.15. Historic artifacts in Area B include (a) hand turned lip (b) hand pained rose pattern (c) metal comb (d) pewter button. Photo taken by author.

Prehistoric artifacts include ceramic (*n* = 99, 473.2 g) and lithic (n = 28, 492.8 g) material and large pieces of daub (*n* = 28. 360.3 g). The presence of daub at areas proximate to the mound (Areas A, B, and C) suggest that the remains of burned structures are present in multiple areas around the base of the mound. Of the ceramic material collected, 30 percent (*n* = 48) are classified as sherdlets at less than one-inch in diameter and not discussed in the decoration and temper totals. Of the remaining ceramic sherds, appliqued (*n* = 1), brushed-puncate (*n* = 2), brushed (*n* = 12), engraved (*n* = 1), incised (*n* = 7), punctated-applique (*n* = 1), and punctated (*n* = 1) design elements are present (see Appendix E). Undecorated sherds (n = 26) are also present. Tempering agents are variations of clay (*n* = 43) and bone (*n* = 8; see Appendix E). Shell tempering was not identified in the ceramic sherds from Area C. Possible types include Haley Complicated Incised, Keno Trailed-Incised, and Pease Brushed-Incised (Figure 5.16). Lithics in Area C consist of granular cobbles, cores, worked flakes, and two untyped bifacial points similar to those in other areas proximate to the mound.

Figure 5.16. Caddo ceramics found in Area C include (a) possible Haley Complicated Incised (b) possible Keno Trailed-Incised (c, d) Pease Brushed-Incised. Photo taken by author.

Also collected from Area C is the end of a human femur, indicating the possible presence of burials immediately west of the mound. Historical accounts of explorations and subsequent excavations at the site do not mention the presence of burials on the west side of the mound. As such, there is a possibility that the human remains were secondarily deposited as part of slope erosion from the mound surface where the erosion of artifacts and the presence of burials have been documented (see Chapter 4; AAS 3LA1 Site Files).

Area D

Area D is a low rise (no more than 50 cm in height) approximately 130 m east of the large mound at approximately 400 sq m in area (see Figure 5.3). The low rise that defines Area D is likely a combination of deliberate accumulation of soil that was subsequently built upon a preexisting sandy elevation that had been created by natural riverine processes. This low rise is likely one of the "four low humps and rises off the ground the long cultivation evidently had considerably spread" as described by Moore (1912:566) during his investigations. In spite of Area D being on a low rise, a surprisingly small amount of artifacts from both prehistoric and historic occupations were collected in this area (*n* = 381, 2,396.1 g). The only two historic artifacts (*n* = 2, 8.7 g) found in Area D include the remains of a metal buckle and a mouth harp (Figure 5.17). Given the personal nature of a buckle and harp, located some distance from the documented historic structures directly east of the mound, it is suggested that these represent items inadvertently dropped (and lost) while tending to the fields.

Figure 5.17. An historic metal buckle and mouth harp were found in Area D. Photo taken by author.

Prehistoric artifacts include ceramic (*n* = 298, 1,012.4 g) and lithic (*n* = 73, 1,351.2 g) material and very small amounts of daub (*n* = 3, 9.4 g). Of the ceramic material collected, 71 percent (*n* = 212) are classified as sherdlets at less than one-inch in diameter and not included in the decoration and temper totals. The large number of sherdlets collected from an area away from the large mound is likely a result of many years of agricultural plowing. Of the remaining ceramic sherds, brushed-punctate (*n* = 1), brushed (*n* = 18), engraved (*n* = 1), and incised (*n* = 5) design elements are present (see Appendix E). Undecorated sherds (*n* = 61) are also present. Ceramic tempering contains variations of clay (*n* = 64), bone (*n* = 21), and shell (*n* = 1; see Appendix E). Possible types include Belcher Ridged and Haley Complicated Incised (Figure 5.18). Lithics in Area D consist of a variety of granular cobbles, cores, and worked flakes similar to those collected in Area A west of Area D.

Figure 5.18. Prehistoric sherds found in Area D include (a) clay tempered incised sherd (b) possible Haley Complicated Incised (c) possible Belcher Ridged. Photo taken by author.

Area E

Area E is a low rise (no more than 75 cm in height) located 20 m north of Area D and 130 m east of the large mound (see Figure 5.3). Dimensions of Area E are approximately 30 m north-south and 20 m east-west. As with the low rise in Area D, the low rise in Area E is likely a combination of deliberate constructions on natural riverine soil accumulations. This low rise is also likely one of the “four low humps and rises off the ground the long cultivation evidently had considerably spread” that Moore (1912:566) describes. Surface artifacts from both prehistoric and historic occupations were collected (*n* = 412, 2,227.4 g). The only historic artifacts collected from Area E are fragments of a broken brown glass bottle (*n* = 2, 74.8g).

Prehistoric artifacts include ceramic (*n* = 330, 1,110.1 g) and lithic (*n* = 75, 1,016.4 g) material and small amounts of daub (*n* = 3, 11.2 g). Of the ceramic material collected, 68 percent (*n* = 224) are classified as sherdlets at less than one-inch in diameter and not included in the decoration and temper totals. The large number of sherdlets in Area E, located some distance from the large mound, is also likely a result of many years of agricultural plowing. Of the remaining ceramic sherds, brushed (*n* = 28), incised (*n* = 21), red painted (*n* = 1), and puncated-incised (*n* = 1) are present (see Appendix E). Undecorated sherds (*n* = 55) are also present. Tempering agents include variations of clay (*n* = 90), bone (*n* = 13), and shell (*n* = 3; see Appendix E). Possible types include Karnack Brushed-Incised and Pease Brushed-Incised (Figure 5.19). An unclassified small plain red painted sherd was also found. Apart from a piece of quartz, lithics in Area E are similar to those found in other areas. Diagnostic lithic debris includes a single Maud point (Figure 5.20). There was no bone collected. Two pieces of petrified wood (*n* = 2; 14.9 g) were collected in Area E.

Figure 5.19. Prehistoric sherds found in Area E include (left-right): Plain untyped red painted, possible Karnack Brushed-Incised, possible Pease Brushed-Incised. Photo taken by author.

Figure 5.20. Lithics from Area E include (left-right) Maud point, untyped biface, and quartz piece. Photo taken by author.

Area F

Area F is a low rise (no more than one meter in height) approximately 600 m east-northeast of the large mound (see Figure 5.3). The area is approximately 100 m north-south and 60 m east-west in size. Area F is located adjacent to the current farm road. Unlike the low rises that are located to the east of the large mound (Areas D, E, and J), Area F is a natural rise rather than a deliberately constructed berm of earth. Very little prehistoric material was collected from Area F (*n* = 69, 320.8 g) and no historic artifacts were collected. Prehistoric artifacts include ceramic (*n* = 50, 138.6 g) and lithic (*n* = 19, 182.2 g) material. Of the ceramic material collected, 61 percent (*n* = 42) are classified as sherdlets at less than one-inch in diameter and not included in the decoration and temper totals. Of the remaining ceramic sherds, brushed (*n* = 3) is the only design element present (see Appendix E). Undecorated sherds (*n* = 5) are also present. Tempering agent are variations of clay (*n* = 7) and bone (*n* = 1; see Appendix E). No shell temper was identified, no ceramic types are proposed, and no diagnostic lithics where collected.

Area G

Area G is a large naturally occurring topographic rise (approximately two meters in height) located along the south edge of Battle Lake about 700 m northeast of the large mound (see Figure 5.3). The area is approximately 100 m north-south and 150 m east-west in size. The fence line of the former Handy Place pasture defines the western border. A slope that descends to the edge of Battle Lake defines the northern border and the southern border is defined by a slough that documents the location of a former river channel. A high amount of prehistoric surface artifacts were collected (*n* = 789, 5,684.5 g) in Area G. Historic artifacts (*n* = 6, 48.6 g) include two shotgun shells, two ceramic sherds, and two broken bottle stems (Figure 5.21). The low number of historic artifacts is expected given the distance to the former historic occupations located primarily around the large mound. Conversely, the high number of prehistoric artifacts suggests a dense location of cultural material and a specific area of more intensive use located some distance from the mound.

Figure 5.21. Historic glass stems were also found in Area G. Photo taken by author.

Prehistoric artifacts include ceramic (*n* = 562, 2,366.3 g) and lithic (*n* = 223, 3,282.9 g) material and small pieces of daub (*n* = 4, 35.3 g). Given the distance of this area from the mound, the presence of daub is important and suggests the possibility of the remains of burned structures. Of the ceramic material collected, 51 percent (*n* = 284) are classified as sherdlets at less than one-inch in diameter and not included in the decoration and temper totals. Of the remaining ceramic sherds, appliqued (*n* = 2), brushed-appliqued (*n* = 4), brushed (*n* = 63), engraved (*n* =

12), incised-punctated (*n* = 2), incised (*n* = 41), puncated-incised (*n* = 1), and puncated (*n* = 9) design elements are present (see Appendix E). Undecorated sherds (*n* = 144) are also present. Tempering agents are variations of clay (*n* = 249), bone (*n* = 27), and shell (*n* = 2; see Appendix E). Proposed types include Haley and Belcher phase Crockett Curvilinear Incised, Foster Trailed-Incised, Glassell Engraved, Karnack Brushed-Incised, and Sinner Linear Punctated (Figure 5.22). The presence of daub and Middle and Late Caddo ceramics suggests the location of a farmstead group.

Figure 5.22. Haley and Belcher phase sherds found in Area G include (a, b, c) possible Crockett Curvilinear Incised (d) Sinner Linear Punctated (d) engraved sherd (f) Foster Trailed-Incised (g, h) Glassell Engraved (i) possible Karnack Brushed-Incised. Photo taken by author.

Lithics in Area G consist of numerous granular cobbles, cores, and worked flakes likely procured from sand and gravel bars within the Red River or associated tributaries. A few quartz pieces are also present (Figure 5.23). The lithic assemblage is fairly diverse with several varieties of Gary points, Fresno, Scallorn, and thumbnail scrappers (Figure 5.24). The presence of several Gary points, documents a Woodland Fourche Maline component in this area. Additionally, Area G is situated about 200 m west of a site recorded by Claude McCrocklin in 1986 (3LA226). Site files for 3LA226 record the presence of a cache of scattered lithic debris recovered from the surface with denser amounts on the western extent of the site. Artifacts documented at 3LA226 include four Gary points, grinding stones, fire-cracked rock, and a variety of worked bifaces and flakes that also further demonstrates that this area was utilized prior to later Caddo component occupation. The proximity and similarity of collected lithic debris at 3LA226 and Area G suggest that these two locations are spatially and temporally related.

Figure 5.23. Quartz fragments were found in Area G. Photo taken by author.

Figure 5.24. Lithics in Area G are temporally mixed with (a,b,c) possible thumbnail scrapper (d,e,f) Gary (g) possible Fresno, (h) possible Scallorn. Photo taken by author.

Area H

Area H is located about 100 m north-northwest of the large mound and is adjacent to the current barbed wire fence that separates the Battle site from the old Handy Place pecan pasture. The size of Area H is approximately 50 m north-south and 60 m east-west. Immediately west of Area H is a slope that drops into a slough that represents a former river channel. Area H is well known in the literature as the general location of the "Handy Place" cemetery. Many burials and hundreds of ceramic vessels have been excavated from this area beginning with Moore in 1911 all the way through to the 1960s (Kitchens 1968; Moore 1911; Martin 1939; Perttula et al. 2009). As expected, given the history of uncovering numerous artifacts, Area H was the densest of all collection areas with a high amount of prehistoric surface artifacts (*n* = 2,814, 17,476.4 g). Thirty-seven percent of all prehistoric artifacts collected as part of the controlled surface collection are from Area H (see Appendix E). Historic artifacts (*n* = 5, 20.3 g) are meager and include pieces of broken glass.

Prehistoric artifacts include ceramic (*n* = 2,200, 9,388.7 g) and lithic (*n* = 420, 5,664.0 g) material and several large pieces of daub (*n* = 164, 2,068.5 g) with grass and cane impressions. The high density of daub clearly suggests that the remains of numerous burned structures dominate Area H. In fact, Area H contains 63 percent of the daub collected from the ten delineated surface collection areas. Of the ceramic material collected, 62 percent (*n* = 1,358) are classified as sherdlets at less than one-inch in diameter and not included in the decoration and temper totals. The remaining ceramic sherds are a highly diverse collection of appliqued (*n* = 5), brushed-appliqued (*n* = 13), brushed-puncated (*n* = 4), brushed (*n* = 247), engraved-punctated (*n* = 4), engraved (*n* = 53), incised-appliqued (*n* = 1), incised-punctated (*n* = 5), incised (*n* = 125), red painted (*n* = 2), punctated-appliqued (n = 1), punctated-incised (*n* = 4), punctated-incised-appliqued (*n* = 1), and puncated (*n* = 22) design elements (see Appendix E). Undecorated sherds (*n* = 355) are also present. Tempering agents are variations of clay (*n* = 748), bone (*n* = 76), and shell (*n* = 18; see Appendix E). Proposed types include Belcher Engraved, Foster Trailed-Incised, Friendship Engraved, Glassell Engraved, Haley Complicated Incised, Handy Engraved, Keno Trailed, Pease Brushed-Incised, and Sinner Linear Punctated (Figures 5.25, 5.26, and 5.27).

Figure 5.25. (a, b, c) Foster Trailed-Incised (d) puncated-incised sherd (e) Plain red painted (f) Keno Trailed-Incised (g, h) Handy Engraved. Photo taken by author.

Figure 5.26. (a) Friendship Engraved (b) Handy Engraved (c, d, e, f) Pease Brushed-Incised. Photo taken by author.

Figure 5.27. (a) possible Belcher Engraved (b) incised (c) Sinner Linear (d) Glassell (e,f) Haley Complicated Incised (g, h) Belcher Engraved. Photo taken by author.

Lithics in Area H are as equally diverse as the ceramic assemblage and include granular cobbles, cores, celt fragments, and bifacial and unifacial tools and flakes also procured from sand and gravel bars within the Red River. Proposed types include Bassett and possible Perdiz points, (Figure 5.28). A few pieces of quartz were also collected.

Figure 5.38. Bassett points and possible Perdiz point were found in Area H. Photo taken by author.

Bones are also abundant in Area H that include a variety of deer, bird, and turtle remains. Also identified in Area H are parts of human bone, such as the epiphyses off the femur of a child, a fragment of a human skull, and possibly some foot bones. The presence of human remains collected from the surface is consistent with a history of excavations of burials to the northwest of the mound and into the Handy Place (Kitchens 1968; Moore 1911; Martin 1939; Perttula et al. 2009). Two pieces of petrified wood (*n* = 2, 37.8 g) were also collected in Area H.

Area I

Area I is adjacent to Area C and is located about 80 m west of the large mound. The collection area is approximately 30 m north-south by 20 m east-west in dimension. It is a large slightly elevated area that is bordered on the west by a large slough that represents a former river channel and to the south a temporary flood channel (see Figure 5.3). Although fairly minor in quantity, surface artifacts represent a light scatter associated with prehistoric occupations west of the mound. The dominant artifact type collected in Area I was from prehistoric periods (*n* = 129, 1,497.8 g). The only historic artifact (*n* = 1, 31.1 g) is a loose bit bridle ring, likely from a snaffle bit (Figure 5.29).

Figure 5.29. Loose bit bridle ring. Photo taken by author.

Prehistoric artifacts include ceramic (*n* = 80, 292.2 g) and lithic (*n* = 38, 1,133.1 g) material and a few small pieces of daub (*n* = 4, 39.1 g). The low quantity of prehistoric artifacts may be related to that proposed in Area C – a soil matrix composed of poorly drained Perry clay (see Laurent 1984) and an increase in soil deposition. As a result, artifacts in Area I are more likely to be buried deep below deposited soil and less likely to be plowed up to the surface. Although only a few pieces, the presence of daub in Area I suggests the remains of burned structures. Of the ceramic material collected, 58 percent (*n* = 46) are classified as sherdlets at less than one-inch in diameter and not included in the decoration and temper totals. The remaining ceramic sherds include brushed (*n* = 3), incised-punctated (*n* = 2), incised (*n* = 3), and puncated (*n* = 1) design elements (see Appendix E). Undecorated sherds (*n* = 25) are also present. Tempering agents are variations of clay (*n* = 33) and bone (*n* = 1; see Appendix E). No shell temper was identified. Proposed types include Foster Trailed-Incised, Belcher Engraved, Handy Engraved, and Sinner Linear Punctated (Figure 5.30).

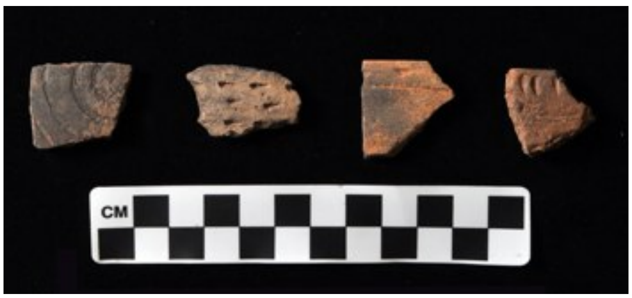

Figure 5.30. Area I sherds include (left-right) possible Foster Trailed-Incised, Sinner Linear Punctated, possible Belcher Engraved, possible Handy Engraved. Photo taken by author.

Figure 5.31. Lithics in Area I include: (a, b) possible Gary point fragments (c, d, e) untyped biface fragments. Photo taken by author.

Lithic debris includes several granular cobbles, cores, and flakes. A least two Gary point fragments and fragments of other points were collected in Area I (Figure 5.31). As with the Gary points identified in Areas B and G, their presence suggests an earlier Fourche Maline component represented in this area that is prior to the Caddo component. A few pieces of animal bone (*n* = 7, 33.4 g) were also found in this area.

Area J

Area J is a low rise (no more than 75 cm) about 200 m east of the large mound and about 50 m northeast of Area D. Dimensions of Area J are approximately 60 m northwest-southeast by 20 m northeast-southwest. The low rise that defines Area J is one of the more prominent and visible rises at the site. The formation of the rise is likely a combination of deliberate accumulation of soil that was built upon a naturally forming sand ridge in the same manner as the low rise in Area D and E. The Area J rise is likely one of the "four low humps and rises off the ground the long cultivation evidently had considerably spread" as described by Moore (1912:566). As with Area D, a surprisingly small number of artifacts from prehistoric occupations were collected (*n* = 179, 2,060.6 g). In fact, the artifacts collected from Area J represent only two percent of the corpus of artifacts from all the systematic collection areas. There were no historic period artifacts collected.

Figure 5.32. Lithics in Area H include large pieces of ground-stone. Photo taken by author.

Prehistoric artifacts include ceramic (*n* = 89, 307.6 g) and lithic (*n* = 76, 1,639.5 g) material and a few medium size pieces of daub (*n* = 14, 113.5 g). Of the ceramic material collected, 55 percent (*n* = 49) are classified as sherdlets at less than one-inch in diameter and not included in the decoration and temper totals. Of the remaining ceramic sherds, brushed (*n* = 9), engraved (*n* = 6), and punctated (*n* = 1) design elements are present (see Appendix E). Undecorated sherds (*n* = 24) are also present. Ceramic tempering are variations of clay (*n* = 34) and bone (*n* = 6; see Appendix E) No shell temper is identified. There are no proposed types. Lithics in Area J consist of granular cobbles, cores, celt fragments and a few worked flakes (Figure 5.32). No bone was collected in Area J.

Summary and Discussion

When the numbers of artifacts gathered at each surface collection area are examined comparatively, patterns can be discerned and interpretations suggested (Figure 5.33). Several areas close to the large mound (Areas A, B, and H) have a high number of prehistoric artifacts that have been collected. Specifically, Area H, northwest of the mound, contains the highest concentration of prehistoric artifacts at 34 percent (n = 1,456) of the entire surface collection including 63 percent (n = 164) of all daub collected from the surface. Much of the daub that was collected is in the form of large chunks demonstrating the existence of a dense area of burned structures. Ceramic (n = 842) and lithic (n = 420) were equally abundance in Area H. The types of ceramic sherds and lithic points collected from the Area H surface collection demonstrate that the area northwest of the mound was heavily utilized during the Haley and Belcher phases. This is consistent with an analysis of whole vessels collected from the Handy Place "cemetery" that show a majority of the vessels to be associated with a Haley phase occupation and others that correspond to a Belcher phase occupation (Perttula et al. 2009:10-22).

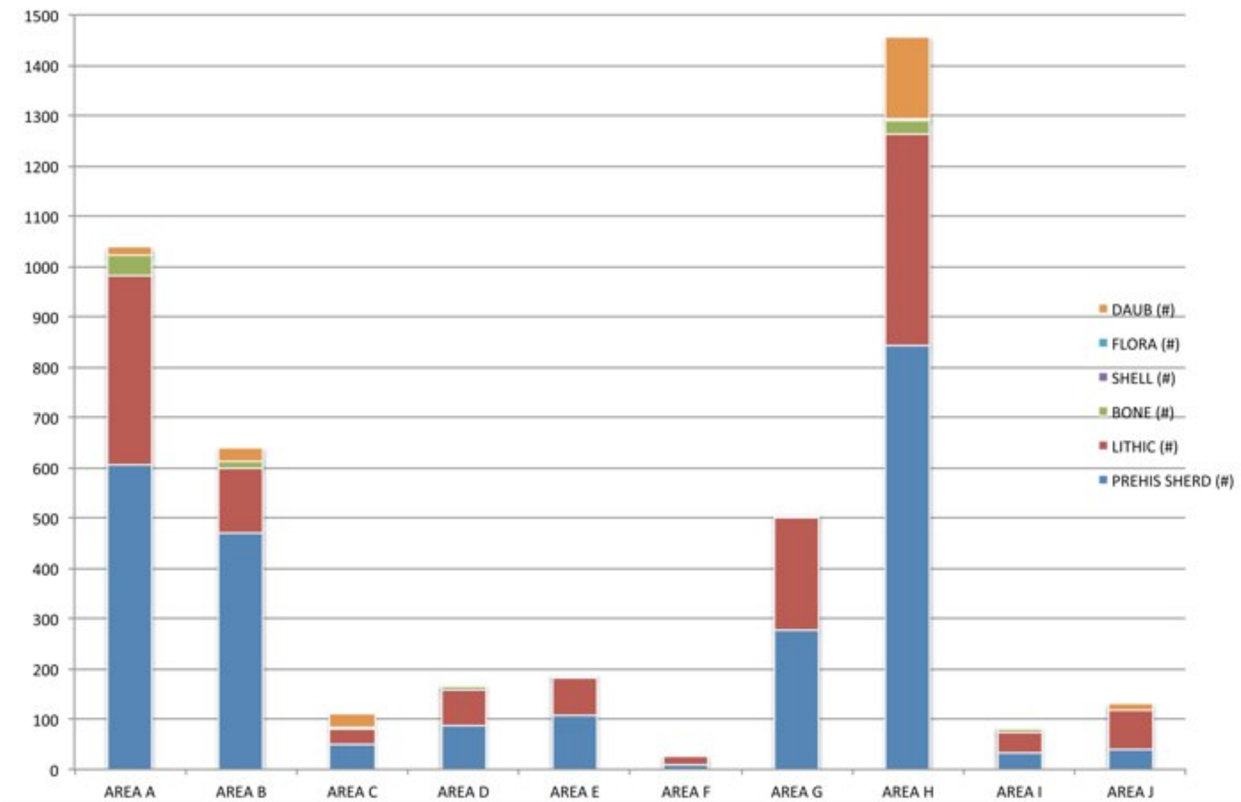

Figure 5.33. Each collection area contains a variety of prehistoric artifacts. Most of the surface collection material was collected from Areas A, B, and H.

Area A, on the eastern edge of the mound, is second in prehistoric concentrations with 24 percent (*n* = 1,038) of the prehistoric artifacts collected. Contrary to Area H, a fairly low number of daub pieces (*n* = 15) were found in the area immediately east of the mound. While the presence of daub suggests evidence of burned structures in this area, the historic period activity in this area is likely to have disturbed the integrity of prehistoric structural remains. Ceramics (*n* = 604) and lithics (*n* = 377) were abundant and demonstrates, at minimal, the utilization of the area east of the mound during Haley and Belcher phases (Figure 5.34). The use of this area during Haley and Belcher phases corresponds with mound top excavations that reveal mound building episodes during the later Haley and earlier Belcher time periods (see Chapter 4).

Additionally, the presence a Gary point and thick clay/grog sherds suggests the use of the area predates platform-building episodes.

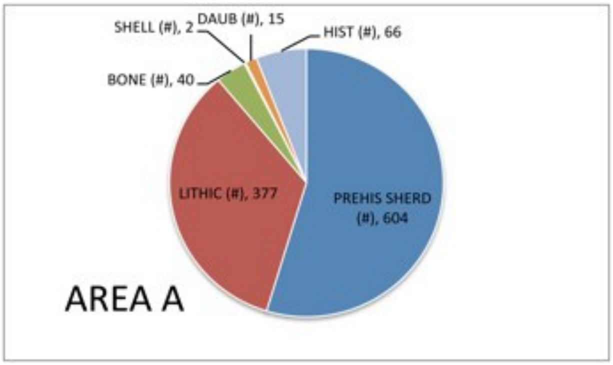

Figure 5.34. A pie chart of the artifact counts in Area A.

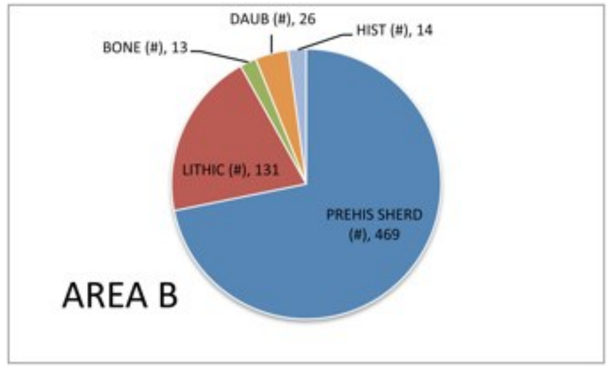

Figure 5.35. A pie chart of the artifact counts in Area B.

Area B, directly north of the mound, is third in concentration of prehistoric artifacts collected at 15 percent (*n* = 638) of all artifacts collected in the ten delineated areas (Figure 5.35). Daub is also present in a fair amount (*n* = 26). Ceramics (*n* = 469) and lithics (*n* = 131) were also abundant in Area B. The dominant ceramic and lithic types are those that correspond to Haley and Belcher phase utilization of the area and radiocarbon dates of Structure 3 on the north platform (see Chapter 4). As with Area A, several artifacts contain attributes that predate Haley and Belcher time period into the preceding Fourche Maline period.

Other surface collection areas proximate to the mound include Areas C and I (see Figure 4.4). Contrary to the abundance of artifacts found in areas north and east of the mound, only 0.02 percent (*n* = 114) of prehistoric artifacts in the surface collection are from Area C (Figure 5.36). Of the artifacts there, 25 percent (*n* = 28) are pieces of daub. Additionally, artifacts collected in the broad Area I situated directly west of Area C also only represent 0.02 percent (*n* = 84) of the total collection. Admittedly, the lesser amount of surface artifacts collected west of the mound could be related to higher rates of sediment deposition and the subsequent burying of artifacts. As such, a better understanding of landscape formation west of the mound is necessary. Nonetheless, artifacts that were collected west of the mound demonstrate that this area was utilized during Haley and Belcher phases, if not much earlier. The presence of daub east of the mound (mostly Area C) suggests the presence of burned structures. Why the lack of ceramic and lithic debris? As a possibility, the area west of the mound contains structures that were cleaned prior to burning and thus containing less artifact debris. Such reasoning also suggests that the area west of the mound was not an area associated with domesticity.

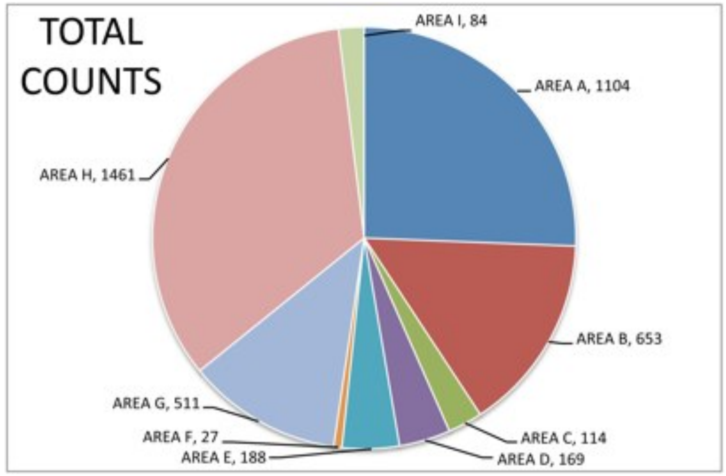

Figure 5.36. An analysis of the number of collected artifacts (minus sherdlets) in each area shows that Areas A, B, and H all contain high quantities of prehistoric and historic objects.

The higher concentrations of prehistoric artifacts in Areas A, B, and H is not unexpected, given the likelihood of an increase in activities associated with mound occupation, mound construction, and daily rituals and cooking ceremonies linked to the location of the mound and the Handy Place cemetery during the Haley and Belcher phases. More so, the higher concentration of surface artifacts in these three areas suggests that daily activities (domestic farmsteads?) are more spatially associated with the north and east sides of the mound and less domestic activities associated with the west side of the mound. Artifact densities of areas around the mound initially suggest differential use of each area with the north and east reserved for domestic functions and the west reserved for communal functions. As discussed in Chapter 4, differential use areas on mound platforms have been proposed. Most relevant to proposed off-mound east-west differential use areas is what has been interpreted at the Hays site where differential use areas are suggested with the east site reserved for communal functions and the west reserved for domestic functions (Weber 1971, 1972, 1973).

Further east and no more than 200 m from the mound are the remains of at least three low rises that are likely the same low rises documented by Moore over 100 years ago (1912). Areas D, E, and J are the collection areas associated with these rises. All three of these areas contain low amounts of ceramic and lithic material (Figure 5.37). While Area J contains a few pieces of daub ($n = 14$) overall daub concentrations are low in these areas. This suggests either the absence of structures in this area or that structures were not burned or minimally burned. Areas D and E contain proposed ceramic types that show a Haley and Belcher

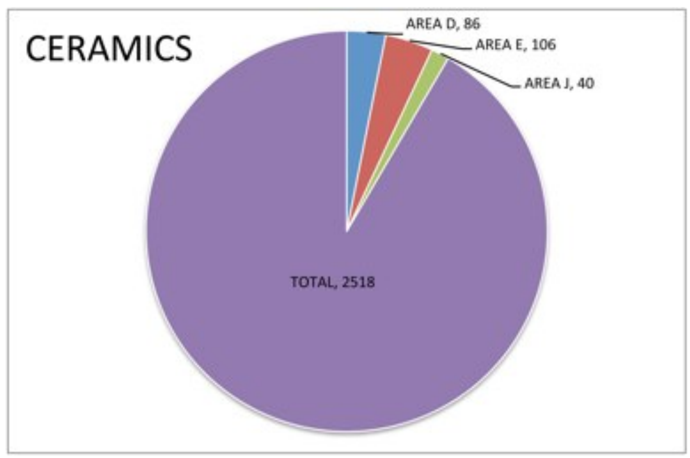

Figure 5.37. A comparison of the number of ceramics collected on the low rises east of the mound reveal the small number in those three areas.

phase occupation. As with inferences about the west side of the mound, the low number of artifacts on the rises to the east of the mound might also represent evidence of structures that were cleaned prior to burning and thus containing less artifact debris. Such reasoning also suggests that the area east of the mound was not an area associated with more permanent domesticity.

Moving further to the east are two areas (Areas F and G) located some distance from the mound. Area G, located more than 500 m from the mound, contains 12 percent (n = 505) of the prehistoric artifacts collected at all the areas. This is important, given the distance form the mound and the type of artifacts collected suggests a specific area of more intensive use located some distance from the mound. The presence of several Gary points in Area G suggests an earlier Archaic or Woodland Fourche Maline component. Furthermore, the presence of Archaic and Woodland period lithic debris from the neighboring site 3LA226 further points the use of this area over a long period of time. A later Caddo component is demonstrated in Area G by the existence of Haley and Belcher phase pottery types, similar to those found closer to the mound. Daub is present indicating that this area likely contained structures and might even represent the former location of a farmstead.

In sum, all areas show evidence of Caddo period use, whereas some demonstrate use over a longer period of time (Figure 5.38). The high number of sherdlets (less one-inch diameter) exemplifies the long history of agricultural production using mechanized methods. Daub is located in all areas proximate to the mound, which suggests the remains of burned structures. Areas directly north and east of the mound are proposed as more domestic in composition and tied to daily events and rituals. Areas west of the mound and further east on low rises are proposed to represent areas of different uses or activities possibly tied to communal rather than domestic activities. Finally, areas several meters from the mound might represent the remains of periphery farmstead groups set some distance from the mound and similar to those documented in the Terán map. Geophysical work at the site has expanded considerably on interpretations associated with differential use areas around the mound.

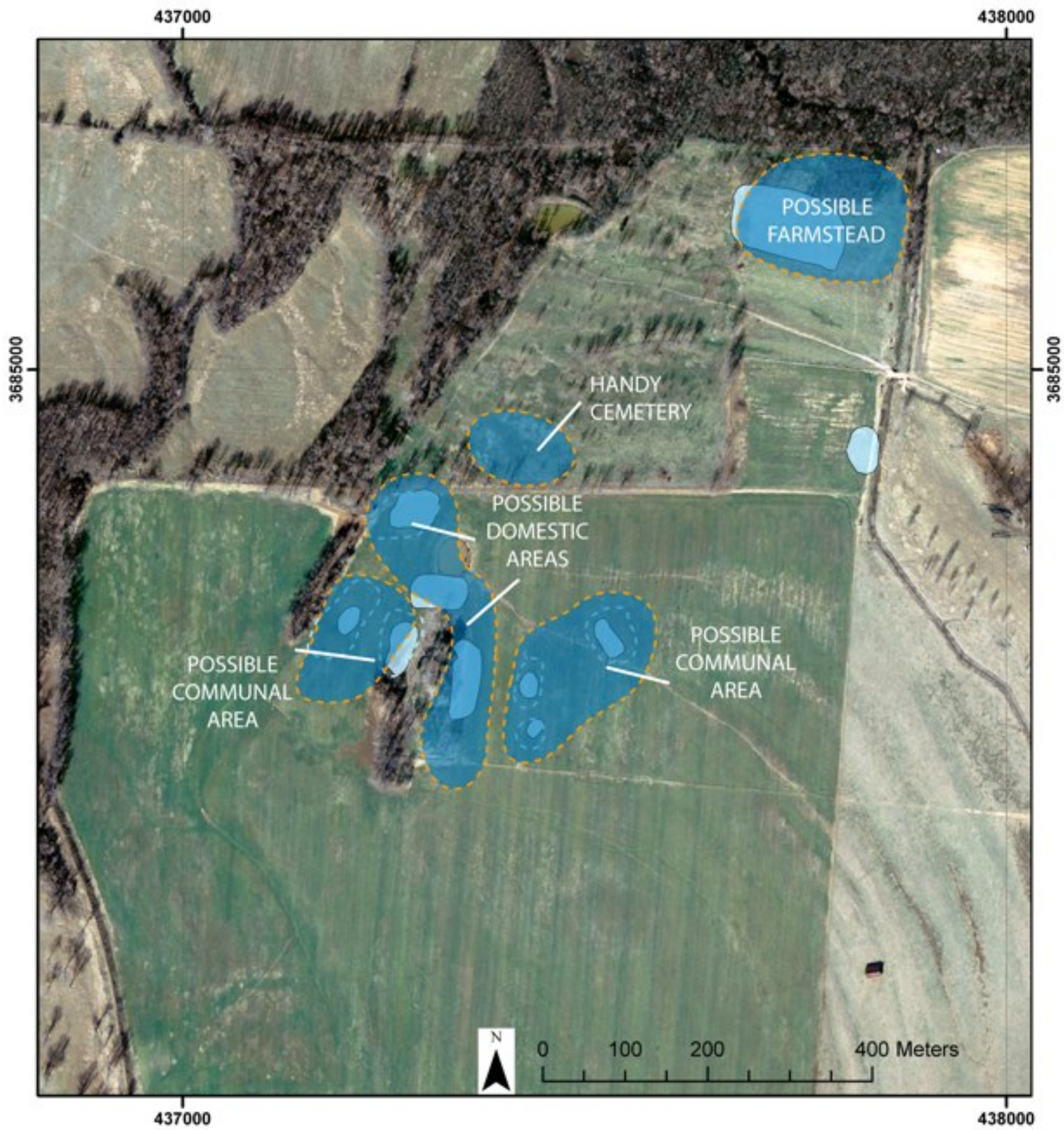

Figure 5.38. Surface collection hints at possible locations of communal and domestic organization of space at the site (after Schambach et al. 1980; Statewide Natural Color Ortho DOQQ 2006, NAD83, Arkansas State Land Board).

CHAPTER 6: MAPPING THE VILLAGE AREA

"It is almost as if nature designed the components of archaeological sites to be made visible by the magnetic variations they exhibit."
- Kenneth L. Kvamme 2007:9

Over the course of several years archaeogeophysical survey methods have been employed at the Battle Mound site to "map" subsurface anomalies (McKinnon 2008, 2009, 2010b; McKinnon and Brandon 2009). The goals of the multi-year geophysical surveys were to better understand the applicability of various geophysical methods at the site, to determine the composition of the site and its overall site integrity, to identify architectural components, and to define relationships of detectable geophysical anomalies across space.

In late 2007 and early 2008 a multi-instrument geophysical survey of several areas surrounding the large mound was begun and conducted over the course of three "long weekends" that, cumulatively, totaled 10 days of field time (McKinnon 2008, 2009; McKinnon and Brandon 2009). The most significant coverage during this initial survey was achieved using magnetic gradiometry methods (7.48 ha), although other geophysical survey techniques were used. In September 2009 a two-day magnetic gradiometry survey in the rain and mud over a low rise directly east of the mound (Area E – see Chapter 5) added an additional hectare of magnetic coverage (McKinnon 2010b). In October

Figure 6.1. Students from Dr. Kvamme's Archaeological Prospection class pose for a photograph after a day of work at Battle Mound. Photo taken by author.

2011 another session of geophysical survey was conducted, with the assistance of students from Dr. Ken Kvamme's University of Arkansas Archaeological Prospection Class (Figure 6.1), adding an additional 3.68 hectares of magnetic gradiometry coverage. As part of the October 2011 survey work, additional surveys in a variety of targeted areas were conducted with complementary instruments, including electrical resistivity, electromagnetic induction, and ground-penetrating radar. Lastly, in May 2012 a geophysical survey was conducted adding an additional 2.08 hectares of magnetic gradiometry data for an entire magnetic gradiometry survey coverage of 14.32 hectares. Also during the May 2012 fieldwork additional electrical resistivity data were collected in selected areas directly to the east of the mound. Coverage amounts of all geophysical methods employed are illustrated in Figure 6.2.

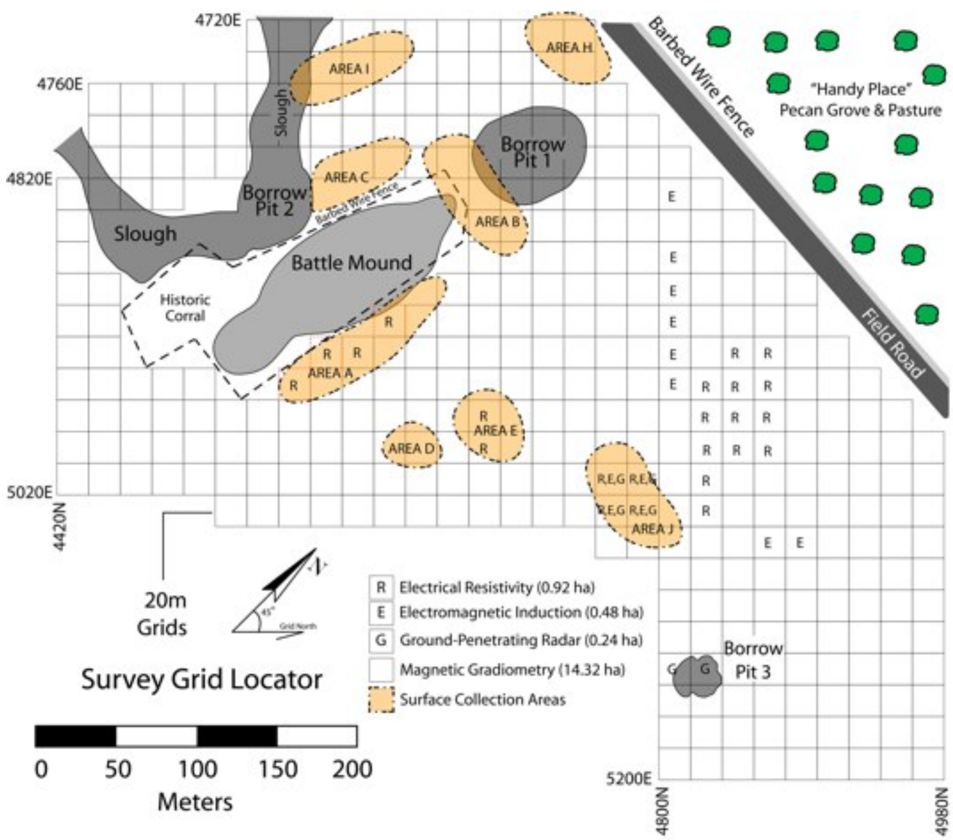

Figure 6.2. The location of remote sensing survey areas is concentrated around the mound.

The most productive and informative dataset of this endeavor has been the use of magnetic gradiometry. This is primarily because of the effective combination of rapid acquisition, high-density data sampling, and relatively low processing time (see Kvamme 2006a). This is not to say that additional geophysical methods were not productive. Resistivity, electromagnetic induction (magnetic susceptibility and conductivity), and ground-penetrating radar (GPR) have proved to be equally productive in targeted areas toward further defining the properties and extent of anomalies identified in the magnetic gradiometry survey. In short, the inclusion of additional geophysical methods has allowed for greater insights into subsurface features by employing complementary geophysical instruments with varying resolutions and responses (Clay 2001; Kvamme 2006b, 2007; Kvamme et al. 2006).

Archaeogeophysical Principles and Survey Methods

Principles that define the use of geophysical and archaeogeophysical methods have been thoroughly discussed and summarized in a variety of seminal and more recent publications (see Aitken 1961; Bevan 1998; Carr 1982; Clark 1996; Conyers 2004; Gaffney & Gater 2003; Hasek 1999; Heimmer and DeVore 1995; Johnson 2006; Linington 1963; Milsom 1989; Scollar et al. 1990; Spoerry 1992; Witten 2006). As a result, only a short summary of each geophysical principle and survey methods used in this research is discussed here.

Magnetic Gradiometry

Allowing for an effective combination of rapid data acquisition (1-2 ha/day), high-density spatial sampling (8/m), and low processing time, magnetic gradiometry was the most productive geophysical method in terms of understanding spatial relationships between anomalies across a large area (the biggest "bang for the buck," if you will). The use of magnetic gradiometry principles as a primary tool in the survey of archaeological sites has proven successful in locating a variety of culturally generated features, such as storage pits, house depressions, post-holes, central hearths and burned structures. Furthermore, several landscape based surveys utilizing magnetic gradiometry to define relationships between subsurface features have demonstrated the efficiency of magnetic gradiometry to identify culturally generated geometric patterns at a large scale (see Creel et al 2005, 2008; Gaffney et al. 2000; Kvamme 2008b; Kvamme and Ahler 2007; Kvamme and Ernenwein 2002; Kvamme et al. 2009; Powlesland et al. 2006; Summers et al. 1996; Walker et al. 2007; Walker et al. 2008; Walker and McKinnon 2012; Walker and Perttula 2007; 2008).

Magnetic gradiometry is measured as the net effect of magnetic variations in the shallow subsurface soil matrix (approximately 1-2 m). The measurement of magnetic gradiometry is conducted using a passive approach, in that the instrumentation measures the naturally occurring magnetic field without emitting a magnetic field, pulse, or current into the subsurface. While earlier instrumentation measured the total magnetic field (see Kvamme 1996), which required the manual differencing of diurnal changes measured by a remote sensor, magnetic gradiometers do not report the total magnetic field strength. Instead, magnetic gradiometers calculate the real-time difference of the two vertically separated sensors as the survey is conducted and measurements are simultaneously being recorded. This difference yields a vertical gradient measurement of the magnetic field free of diurnal variations. The vertical gradient is measured and reported in nanoteslas (nT; 10^{-9} Tesla).

The two primary types of magnetism relevant to archaeological magnetic gradiometry surveys are induced and remanent magnetism (Kvamme 2006a). The combinations of these sources of magnetism constitute the net effect of measured magnetic variations in the subsurface soil matrix. In other words, the combinations of sources are reflected in the range values associated with an image that is produced.

The minute magnetic variations that soils, sediments, and rocks have on Earth's magnetic field are known as induced magnetism. This is because they do not maintain their own magnetic field but exist within Earth's magnetic field. If the effects of induced magnetism are strong enough compared to the surrounding soil matrix, features can be identified in the geophysical data. Generally, the identification of induced magnetism features is a result of magnetically enriched topsoil being modified. For example, disturbances such as the digging of borrow pits, construction of mounds through the accumulation of soil, soil compaction and dissipation on house floors, soil dispersion and erosion on trails, and naturally occurring geologic modifications (such as meander scars or paleochannels) are cultural and natural processes that help identify induced magnetic contrasts.

Remanent magnetism is produced when an object maintains its own magnetic field independent from Earth's magnetic field. This occurs when objects have been thermally altered, thus creating a magnetic state called thermoremanent magnetism. Iron oxides in the soils, clays, and rocks contain magnetic domains that are randomly situated and thus annul the combined strength of their magnetic signature. When the iron oxides are heated to high temperatures (around 600° Celsius), the magnetic domains align to Earth's magnetic field and upon cooling remain "frozen" in that direction (Kvamme 2006a). The result is a concentrated state of magnetic domains pointing similarly and generating a higher magnetic field that can be measured and recorded. Generally, the identification of thermoremanent magnetism is the result of the firing of objects associated with human activities. For example, burning of a structure at high heat, a continually burning fire pit or hearth, and the disposal of pieces of fired clay in large amounts are activities that characterize thermoremanent magnetism (Figure 6.3).

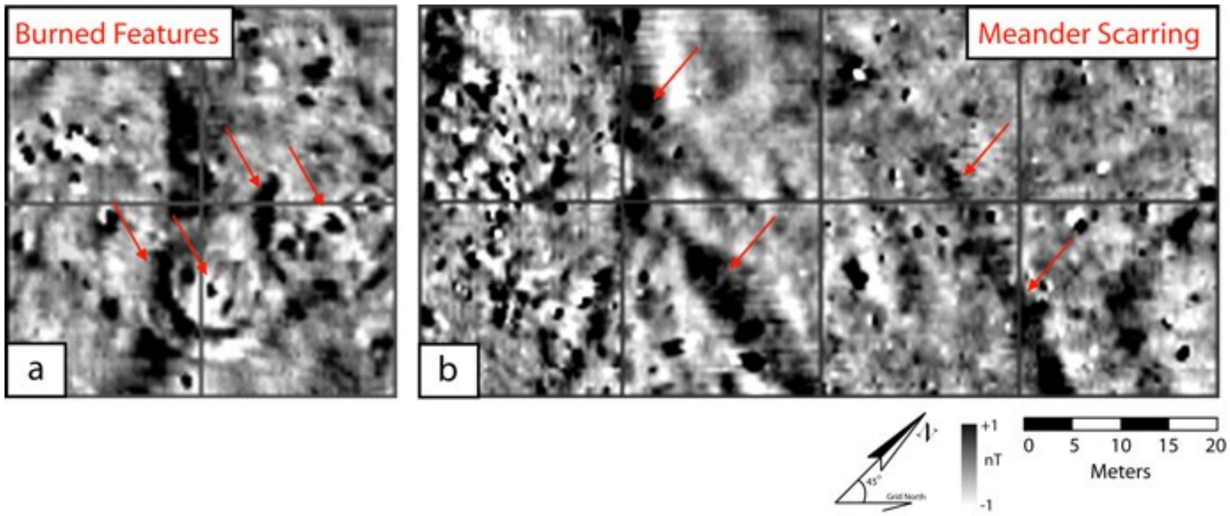

Figure 6.3. Magnetic gradiometry results likely caused by (a) thermoremanent magnetism, such as the burning of structures and the continued firing of hearths and (b) induced magnetism processes, such as linear meander scarring at Battle Mound.

The magnetic gradiometer used in this research is a Bartington Grad 601-2 Dual Sensor Gradiometer (see Bartington Instruments 2008; Bartington and Chapman 2004). The Grad 601-2 is a vertical component fluxgate gradiometer containing two cylindrical sensor assemblies. Each cylindrical sensor assembly contains two mounted sensors with a 1-meter vertical spatial separation that measure the vertical component of the magnetic field. Since magnetic strength decreases with the cube of distance ($1/d^3$), the lower sensor is more sensitive to subsurface readings whereas the opposite upper sensor is more sensitive to Earth's magnetic field (Clark 1996:78). Simple differencing of the two readings removes the effects of the latter. Given that the Bartington instrument offers a vertical sensor separation of 1-meter, the sensitivity of the instrument is greatly increased and subsurface magnetic features are more pronounced in the data compared with gradiometers with a shorter sensor separation (Bartington and Chapman 2004).

The magnetic gradiometry survey was conducted using a 20 x 20 meter survey grid system. The site grid was oriented at an angle of 45 degrees off magnetic north. The alignment of the grid 45 degrees off north allowed for a reduction in the potential of linear features being measured parallel to the grid transects and subsequently removed during data processing. Grid corners were established using a Topcon GTS 230W Total Station and were represented on the surface using PVC pipes hammered into the ground with a yellow non-metallic pin flag inserted in the top of the pipe. Local site coordinates were recorded on each PVC pipe. The use of PVC pipes and yellow non-metallic pin flags allowed for easy identification of grids as the survey area expanded and maintaining site orientation became increasing challenging. A 100-meter tape was pulled taut along each baseline and non-metallic pin flags were placed along baselines. Blue non-metallic pin flags were set at every odd meter with a white non-metallic pin flag set on every 5th meter (Figure 6.4). The established non-metallic pin flags were used as transect (Y) collection guidelines in order to maintain half-meter spacing along the each grid baseline (X). Collection spacing along each transect (Y) was set to 0.125-meter spacing (8 samples per meter) and regulated using a focused and practiced walking pace of 1.3 meters/second. Data were collected using a zigzag pattern.

Figure 6.4. Pin flag method using the Grad 601. Photo taken by Anthony Clay Newton.

Electrical Resistance

Subsurface materials vary in their ability to conduct electricity. Electrical resistance surveys measure the level of resistance (R) in the subsurface by injecting a current (I) into the ground using a low voltage (V) resistance meter. The ratio of current to voltage defines resistance and is expressed by Ohm's Law, mathematically stating that R=I/V (Somers 2006). While resistance is an electrical quality, resistivity is the actual specific property of the material. Its conversion allows for the "resistance of different materials to be compared in a standardized way" (Clark 1996:27). Electrical resistivity is measured and reported in ohm-meters.

Variations in resistance measurements are based on the principle that geological features hold different materials and different amounts of moisture. Both exhibit varying levels of resistance to an electrical current, and the latter has a particularly large effect in archaeological sites. These varying levels of resistance can be influenced through anthropogenic (and natural) processes that alter the compaction of the soil resulting in a change of soil moisture properties. A measurement of high resistance (low conductivity) might represent a shallow subsurface of compressed soil matrix such as a house floor where porosity is decreased and evaporation is elevated. In contrast, a measurement of low resistance (high conductivity) might represent a storage pit or house depression where moisture has accumulated into a more porous soil matrix and is less likely to evaporate (Figure 6.5). Certain materials, like stone or sand, are known to exhibit high electrical resistance.

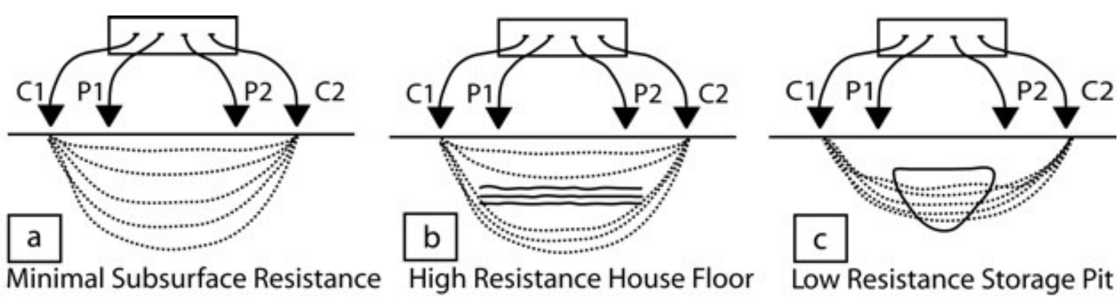

Figure 6.5. Schematic of Electrical Resistance: (a) little or no subsurface resistance (b) high resistance house floor (c) low resistance subsurface storage pit.

The Geoscan Research Advanced RM15 with MPX15 Multiplexer and the TR Systems TR/CIA Resistivity Meter were both used as part of the resistance surveys in this research. A twin-probe array configuration was utilized with both instruments. With a twin probe-array configuration, a minimum of two probes, one for current and one for potential (voltage), are mounted to a mobile frame and are connected by a cable to a current-potential pair of stationary remote probes that have been inserted into the ground at a distance of 30 times the spacing between the mounted mobile probes (Gaffney & Gater 2003:32; Geoscan Research 2007). At half-meter mobile probe spacing, this distance is about 15 meters from the collection area. Prospection depth is approximately dictated by the spacing between the mounted mobile probes where the wider the spacing, the deeper the prospection depth. For the resistance survey in this research, mobile probe spacing was set at 0.5 meters allowing for a maximum prospection range of depth to approximately 0.75 meters (Gaffney and Gater 2003:32). A single resistance measurement is taken at each placement of the remote probes into the ground. A data-logger is attached to the top of the frame for easy access and visibility and relative resistance values are collected. In some cases a two-meter boom was attached to the RM15 that allowed for four resistance measurements to be taken in parallel along each transect, although most of the time the ground surface was too dry for confident measurement accuracy

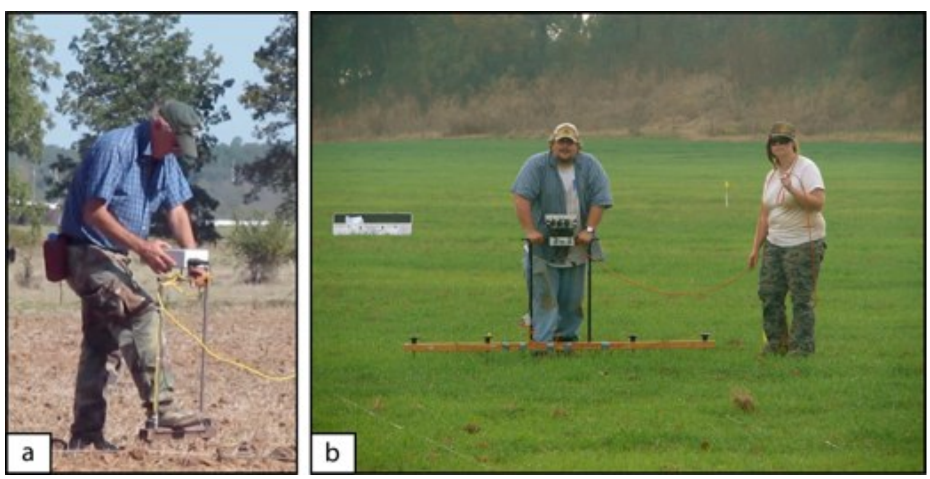

Figure 6.6. Electrical resistivity instruments: (a) TR/CIA meter with half-meter boom. (b) RM15 with MPX15 meter with two-meter boom. Photos taken by author.

using the larger boom (Figure 6.6).

The electrical resistance survey was conducted in 23 20 x 20 meter grids established within local site coordinates (see Figure 6.2). Electrical resistance survey areas were chosen based on results from magnetic gradiometry that suggested further analysis with complementary instrumentation. Fiberglass surveyor tapes with color marks at each meter were used to maintain spacing along transects. Collection spacing between transects (Y) and along the baselines (X) were each set to half-meter spacing. Current (I) ranges were set to 1 mA at an output voltage (V) of 40 V allowing for a resolution of 0.0005 ohms. Data were collected unidirectional with the RM15 with boom configuration and zigzag with the TR/CIA and RM15 with no boom.

Electromagnetic Induction

Electromagnetic (EM) induction instrumentation uses a near surface transmitter coil to emit radio frequency electromagnetic waves into the subsurface. Objects within the subsurface matrix respond by generating eddy currents that produce a secondary electromagnetic field (Figure 6.7). This secondary electromagnetic field is proportional to conductivity, which is detected by a receiver coil on the instrument and recorded by an attached data-logger (Bevan 1983; Clay 2006).

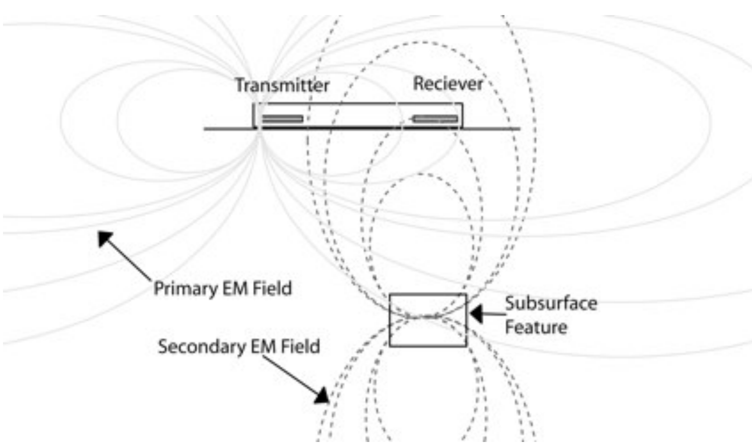

Figure 6.7. Schematic of electromagnetic induction showing the transmitted primary field and secondary induced electromagnetic field generated by a subsurface feature.

The Geonics Limited EM38B was used in this research. The EM38B allows for simultaneous collection of both quadrature-phase (electromagnetic conductivity) and in-phase (magnetic susceptibility) components. This allowed for rapid acquisition of two equally contributive data sets with only one instrument "pass" along each transect.

Electromagnetic conductivity measures the "ability of the soil to conduct an electric current" (Clay 2006:79) and is recorded in milliSiemens (mS/m). Theoretically, electromagnetic conductivity is the inverse of resistivity, although methods for recording each are completely different (voltage, sample spacing, soil, volume, sensitivity to metals) and results may not match entirely. The transmission of the quadrature-phase component of the induced electromagnetic field signal is related to the mineral and chemical composition of the soil. Soils high in clay or saline composition will produce higher conductivity measurements, whereas soils composed of sand or silt will produce a lower conductivity measurement (Clay 2006:83) As in resistance surveys, levels of soil moisture also have a dramatic impact on conductivity measurements where increased moisture will cause higher conductivity readings (Clay 2006:88).

Magnetic susceptibility measures "a material's ability to be magnetized" (Dalan 2006a:161). It is different from magnetic gradiometry in that susceptibility is an active measurement recorded in the presence of an inducing magnetic field. The transmission of the in-phase component of the induced electromagnetic field is based on the presence of a topsoil matrix with greater magnetism than the subsoil matrix or materials. The increase in magnetism in topsoil is the result of enhancement from hematite, magnetite and maghemite minerals in pedogenesis. Additionally, changes to the magnetic composition of the soil can be caused by human activity, such as fire or the movement of magnetically rich topsoil (Dalan 2006a:162-163; Kvamme 2008a).

The EM survey was conducted in 12 20 x 20 meter grids established within local site coordinates (see Figure 6.2). Electromagnetic induction survey areas were chosen based on results from magnetic gradiometry that suggested further analysis with complementary instrumentation. Fiberglass surveyor tapes with color marks at each meter were used to maintain spacing along and between transects. Collection spacing between transects (Y) was set to four samples per meter. Spacing along the baselines (X) was set at 0.5-meters. Data were collected in a unidirectional pattern.

Ground Penetrating Radar

Ground Penetrating Radar (GPR) collects large amounts of radar reflection data allowing for the generation of a true three-dimensional view of the subsurface. Housed in an insulated case, two antennas are dragged across the surface. The first antenna generates propagating radar waves that emit radar pulses below the surface in the shape of a cone (Conyers 2004:60; Gaffney & Gater 2003:51). The second antenna records the wave reflections caused by varying properties in the subsoil matrix or subsurface objects (Conyers 2004). Reflections can occur as a result of stratigraphic changes in the soil matrix, such as soil densities, large subsurface anomalies, and objects, or void spaces (burial or storage pits). Typically these reflections are represented in the data as hyperbolas (Figure 6.8).

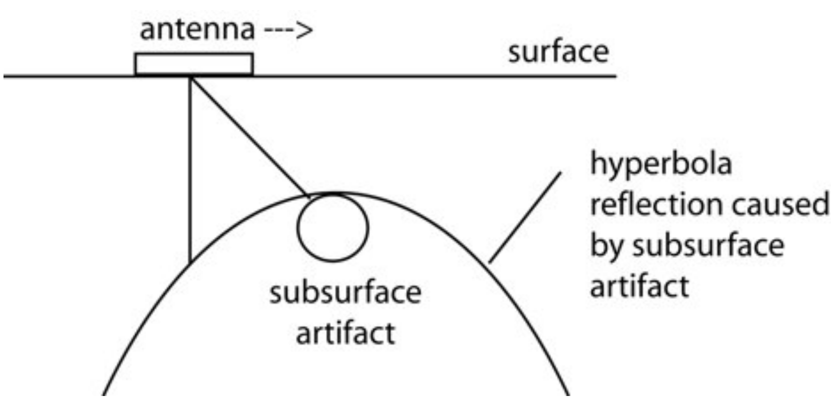

Figure 6.8. A schematic of the generation of a hyperbola during a GPR survey. As the radar antenna moves across the subsurface artifact, radar pulses are reflected in an oblique direction forming data hyperbolas (after Conyers 2004).

The GPR survey was conducted in six 20 x 20 meter grids established within local site coordinates (see Figure 6.2). Ground-penetrating radar survey areas were chosen based on results from magnetic gradiometry that suggested further analysis with complementary instrumentation. Two-dimensional profiles were collected and later combined in data processing to generate a three-dimensional cube of several "time-slices" of the subsurface. The creation of "time-slices" allows for the creation of maps that illustrate in three dimensions the locations of the radar reflection data, rather than data interpretation using the raw two-dimensional profiles (Conyers 2004:148).

A GSSI SIR 2000 with a 400 MHz antenna and a survey wheel for precise location control was utilized in this research. Transect spacing was set at half-meter with scan spacing at half-meter. A calibrated optical survey wheel controlled distance. Five hundred and twelve samples were recorded for each trace in a 50-nanosecond window (two-way travel time).

Data Processing

After survey data has been collected in the field, a series of computer data processing steps are conducted – often into the late night hours (Figure 6.9). Diligence and proper execution of a variety of these processing steps can produce archaeogeophysical imagery of cultural patterns to be visualized with enough clarity to allow for both archaeogeophysical specialists and non-specialists to understand and interpret the data (Kvamme 2006c). A

Figure 6.9. Late night data processing. Photo taken by Anthony Clay Newton.

variety of software programs exist that have been developed specifically for geophysical processing. Within these programs, many routine processing steps and algorithms are utilized to correct data defects (such as instrument and environmental noise, instrument drift, and operator error) and enhance cultural patterns that may be present within the data. With the proper use of data processing steps and algorithms one can increase data clarity and interpretability, yet caution must be employed to prevent the removal of significant cultural anomalies or the introduction of spurious anomalies that might be mistaken as cultural in origin.

Given that the majority of the data analyzed in this research are from the magnetic gradiometry survey, basic processing steps specific to this type of geophysical data acquisition are discussed. Many of the causes of noise and defects, data enhancement processing steps, and presentation guidelines specific to magnetic gradiometry data are fairly established and have already been thoroughly discussed in detail (see Kvamme 2006c). A discussion of the advanced "Oimoen" mean profile filter algorithm that was utilized on a small section of the dataset is also included (Oimoen 2000). Processing steps related to electrical resistance, electromagnetic induction and GPR are not included, owing to their low survey coverage and basic processing steps that were employed.

Magnetic Gradiometry

Magnetic gradiometry processing was conducted using a combination of two archaeogeophysical software programs. Because of high the number of grids collected (n=358), the easy to use grid composite generator in ArcheoSurveyor 2.5 (now TerraSurveyor 3.0) was used to create a total of ten processing grid composites and sub-composites (Figure 6.10). Each composite is composed of between eleven and eighty-nine grids. Survey grids within each composite were chosen based on the anticipation of minute differences in processing steps. For example, Processing Area 3 was delineated as a result of the large amount of metal debris associated with historic tenant farming activities and the need to "clip" the data to different levels. Processing Area 2 was delineated as a result of an error in calibrating the Bartington Grad 601 while in the field. This error in calibration produced bands of linear striations throughout the affected grids, which required the use of the "Oimoen" mean profile filter algorithm (Oimoen 2000; see below). The grid composite generator in ArcheoSurveyor 2.5 allowed for quick and easy creation and manipulation of grid composites.

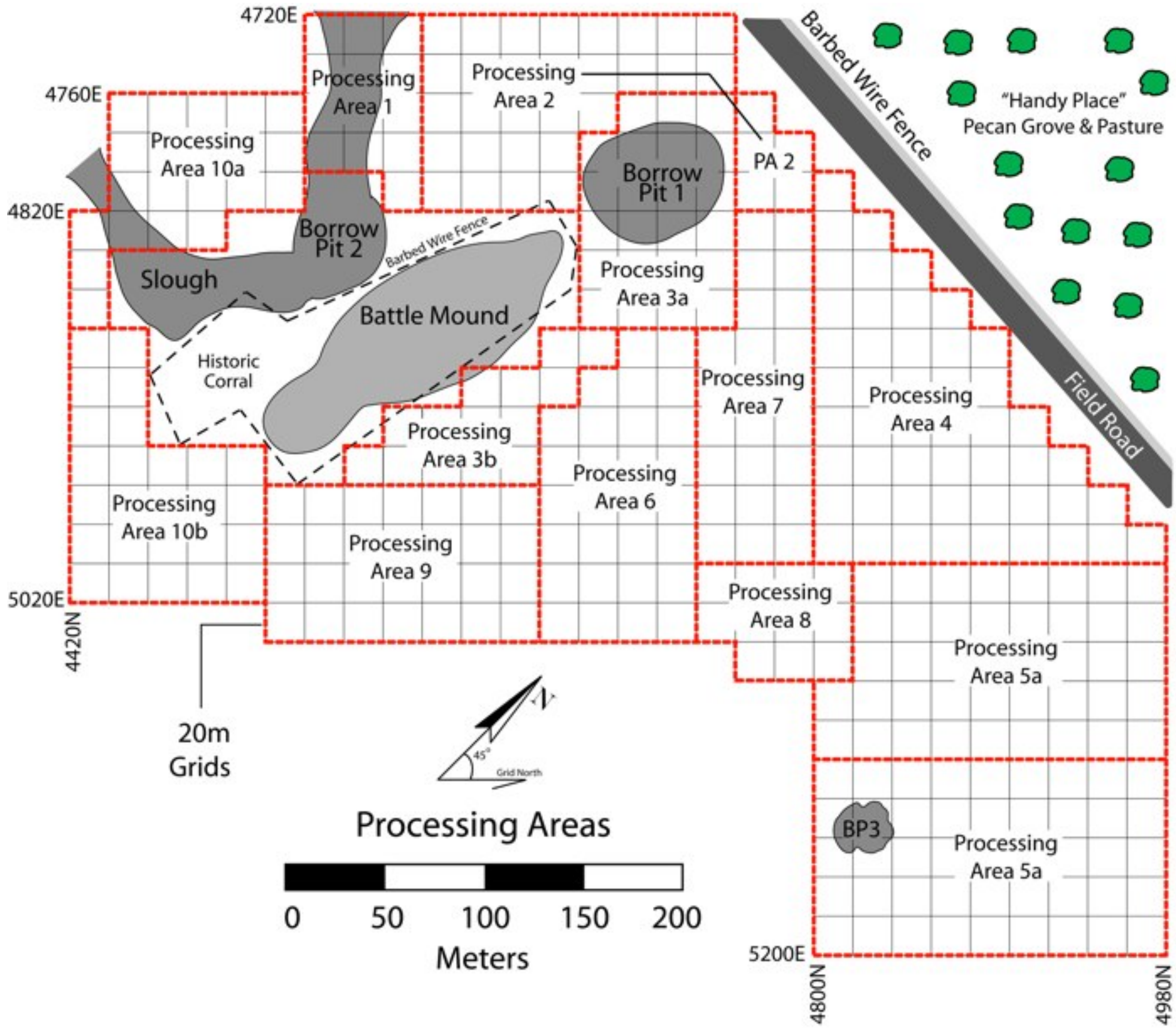

Figure 6.10. Processing areas outlined in dotted lines. Processing area 2 required the use of the "Oimoen" mean filter algorithm.

After concatenation of processing areas and subsequent grid composites created, data were imported into GeoPlot 3.0 for data processing. A series of basic, widely used steps were utilized in the processing of the magnetic gradimetry data (Figure 6.11). With the exception of some additional transect "destaggering" and the use of the "Oimoen" mean filter on Processing Area 2, all processing areas were processed similarly.

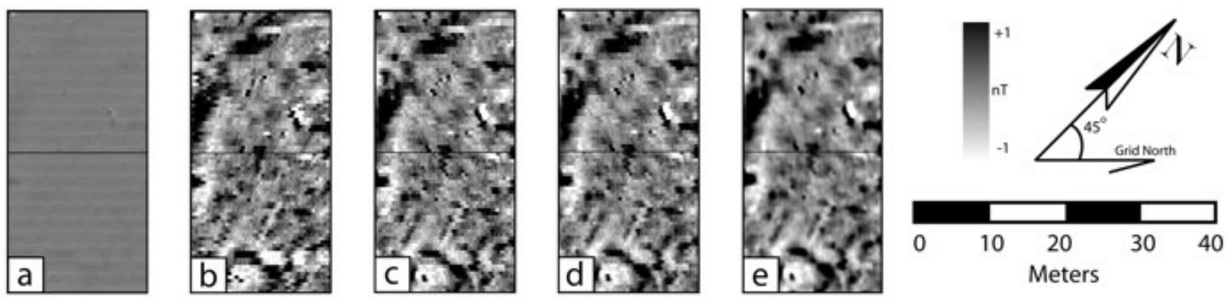

Figure 6.11. Processing steps: (a) Raw data with no processing (b) A ZMT is applied to balance the data (c) Destaggering aligns transects (d) A low-pass filter applies a mild smoothing effect to the data (e) Interpolation equalizes pixel size and generates a more continuous image.

A zero mean traverse (ZMT) algorithm was first used to adjust instrument balance between the two sensors mounted to the Bartington Grad 601 and between grid collections (Figure 6.11b). A ZMT is an algorithm that subtracts the mean of each transect from the values of the individual measurements, leaving only the variation about the mean, thus standardizing anomalous values. A ZMT forces each transect to have a mean of zero in order to remove stripes in the data.

A composite destagger algorithm was then used to correct any staggering issues between transects (Figure 6.11c). Staggering between transects are often a result of instrument timing inconsistencies between survey transects, especially when using a zigzag collection survey methodology. Minor changes in operator pace between transects can create a "herringbone" effect that is visible in linear and other anomalies (Kvamme 2006c:241).

After satisfactory destaggering of transects, a low-pass filter (LPF) was applied to decrease anomalous high-frequency components and "smooth" the data (Figure 6.11d). A low-pass filter allows low-frequency data to be "passed" while blocking high-frequency data that are often associated with instrument noise and random perturbations. A low-pass filter of data can decrease high-frequency data enough to provide a mild smoothing effect and allow for the low-frequency component of anomalies to be more visible (Kvamme 2006c:243).

Lastly, an interpolation was applied to each of the processing areas to eliminate rectangular pixels (caused by unequal sampling along X and Y axes) and create a more continuous raster image (Figure 6.11e). Since the magnetic gradiometry data were collected at 8 samples per meter (Y) with each transect spaced at one-half meter apart (X), raw data are organized in pixels that are rectangular in shape. Interpolation is an estimate of measurements between known points and generates a more continuous image by reducing pixel size and discontinuities visually associated with blocky, rectangular pixels (Kvamme 2006c:243).

"Oimoen" Mean Profile Filter Algorithm

A total of thirty-four magnetic gradiometry grids were erroneously collected after an incorrect instrument calibration in the field, which resulted in numerous linear striation defects throughout the data. Grids containing these linear striations were isolated as Processing Area 2 in order to attempt removal of defects using an advanced processing algorithm. The use of the "Oimoen" mean profile filter, developed by United States Geological Survey (USGS), was tested as a possible algorithm to help remove unwanted striations (Oimoen 2000).

The "Oimoen" filter was designed to remove stripping defects caused during digital elevation model (DEM) creation (Oimoen 2000). The "Oimoen" filter consists of a three-step process where a low-pass filter was first applied along the axis of the defects. The filter took an average of the neighboring columns about the same size as the striations within each row to obtain a mean profile. The generated mean profile of each row revealed low frequencies that were the product of the unwanted striation defects.

A high-pass filter was then applied to difference each column from adjacent ones in the low-pass filter results, which separated low frequency striation defects from the remaining data. The result is a raster image containing only the striation defects (Figure 6.12c). The raster image of the striation defects was saved as a temporary file and subtracted from the original dataset removing the striation defects (Figure 6.12d). After the successful use of the "Oimoen" mean profile filter, standard magnetic gradiometry steps were applied to produce the final processed image (Figure 6.12e-g).

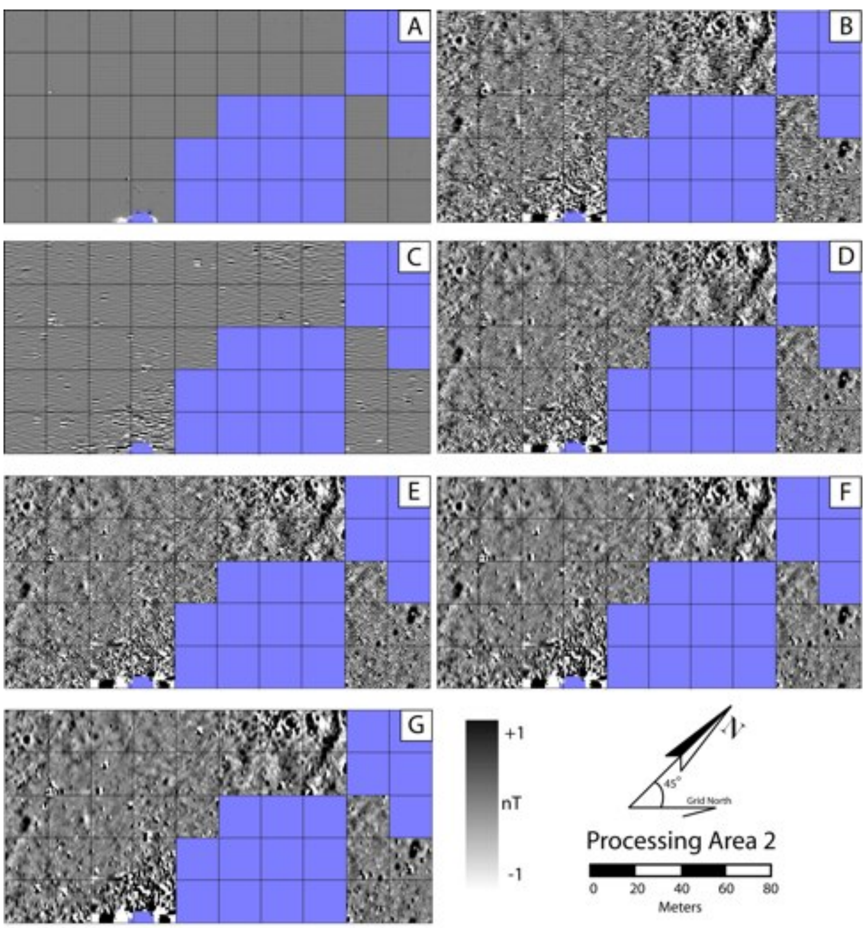

Figure 6.12. "Oimoen" mean profile filter used in Processing Area 2: (a) Raw data without any processing (b) ZMT applied reveals striation defects in the data caused by incorrect instrument calibration (c) Results of the "Oimoen" mean profile filter saved as a temporary file (d) Image after isolated striation defects have been subtracted and data corrected (e) Image after a composite destripping algorithm applied to corrected data (f) A low-pass filter applies a mild smoothing effect to the corrected data (g) Interpolation equalizes pixel size and generates a more continuous image.

Data Interpretations

A welcomed challenge with large landscape based geophysical surveys is the significant amount of anomalies detected and the need for an organized way to describe and interpret dimensions, possible function, temporal or cultural affiliation, and origin. As already mentioned, the majority of the data analyzed in this research are from the magnetic gradiometry survey (Figure 6.13). As such, interpretations are developed primarily from magnetic gradiometry data with complementary data from other instruments integrated into discussions of specific cultural and natural features. In this research, anomalies identified within the 14.32 ha area are grouped as (a) those of historic origin (i.e., scattered metallic debris, incising in the landscape as a result of agricultural processes, and the remains of historic occupations); (b) those interpreted to be of Caddo culture origin (i.e., rectangular and circular structures and associated pits and hearths, possible community cemeteries, evidence of a possible compound fences surrounding Caddo farmsteads, and the remains of a borrow pit); (c) those originating from

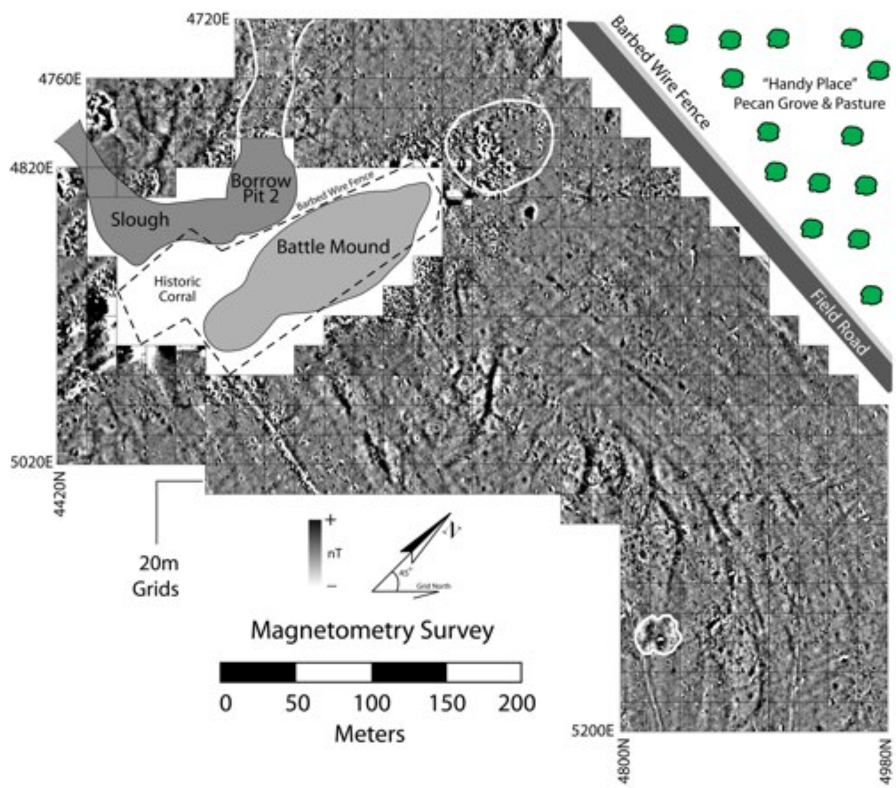

Figure 6.13. Total coverage of magnetic gradiometry survey.

natural processes (i.e., evidence of lightning strikes, a sequence of Red River meander scars, and evidence of a modern flood channel or slough); and (d) those of unknown origin.

Anomalies of Historic Farming Origin

The Great Bend region of the Red River has a recent history of major modifications to the landscape by Euro-Americans. With its agriculturally productive red-clay soils, many of these modifications are the result of intensive agricultural methods, which can leave deep and fairly rectilinear depressions. With the introduction of mechanized agriculture, the disposal of various iron fittings, nuts and bolts, iron runners, and other metallic plow parts have become discarded throughout the landscape. To facilitate the early agricultural economy in the Great Bend region, properties were often maintained under a system of family tenant farming (Blake 1939). Tenant farming families built structures and associated outbuildings on the worked fields and were often surrounded by plowed fields. These types of landscape modifications from farming have existed at Battle Mound for many decades. Today, the field surrounding the large mound is seasonally "disced" for the planting of winter wheat and subsequent grazing of cattle. Some of the anomalies in the archaeogeophysical survey can be attributed to these recent cultural activities, such as clusters of scattered metallic debris, incised earth caused by recent farming activities, and confirmation of structures related to historic farming.

Metallic Debris. Landscapes that have a history of farming are likely to contain numerous metal objects of varying size randomly scattered throughout the area, such as tractor parts, barbs from wire fences, and other metal debris related to farming. With a magnetic gradiometry survey, ferrous metallic debris is recorded as a dipolar anomaly of both extreme high and low values in opposition. In the Battle Mound magnetic gradiometry data, most of the high concentrations of metallic debris are confined to areas that are proximate to the large mound. A high magnetic concentration on the northwest corner of the mound is the result of an historic farming activity area that contained a barn and a barbed wire fence that fully encloses the mound. A large concentration of metal on the east side of the mound represents the remains of an historic tenant structure that is no longer standing. Metal debris along the south end of the mound is related to an extant 1950s-era cattle corral and former barn. With a reclassification of the data (see Wheatley and Gillings 2002:98-101), extreme high and low magnetic values (greater than +/- 5 nT based on an examination of raw survey data) were isolated that represent probable metallic debris scattered throughout the surveyed area (Figure 6.14).

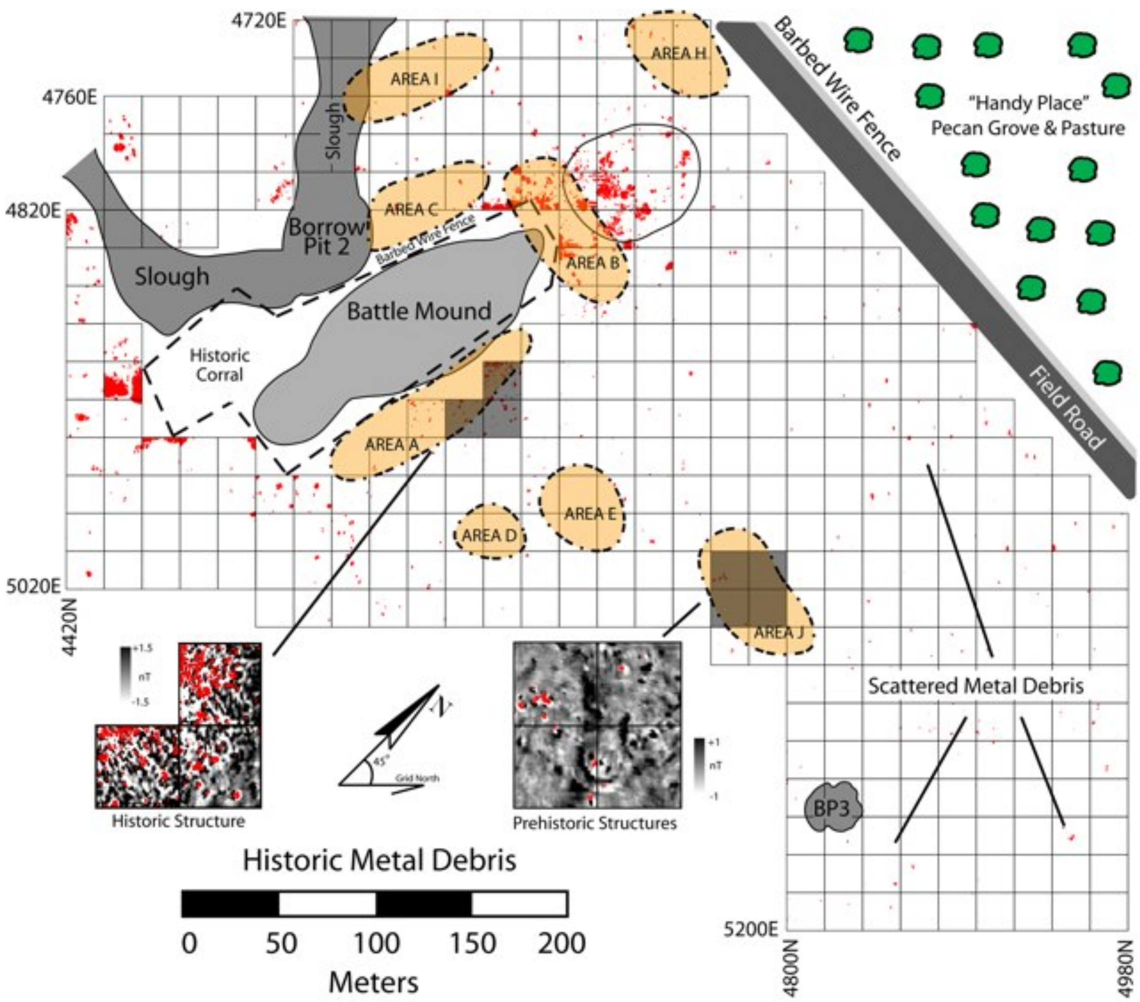

Figure 6.14. Reclassification of paired high and low magnetic values to reveal probable metallic debris. Surface collection areas discussed in Chapter 5 are also designated.

Agricultural Incising in the Landscape. The landscape along the Red River is fairly flat exhibiting little change in elevation over broad areas. In agricultural fields, incising of the earth is often caused by the creation of irrigation ditches or plowing. Incising may be visible on the surface one year and gone the next as farming needs and landscape modifications change. Major incising, caused mostly by deep plow furrows that dig well into the topsoil layer, can leave remnants of their use long after agricultural methods have changed. Incised earth is typically represented in magnetic gradiometry data as linear anomalies of low magnetism. The low magnetic values are the result of the removal of magnetically enriched topsoil leaving only a lesser magnetic subsurface soil matrix (Kvamme 2006a:219-220).

There are two identifiable examples of agricultural incising in the geophysical survey areas. The first example is subtle traces of regularly spaced linear anomalies of low magnetism. Given their regularity, these anomalies likely represent some sort earth modification tied to agriculture, perhaps by plowing (Figure 6.15a). While the site today is only seasonally “disced” with a fairly shallow depth impact to the landscape, historical records and photographs of the site indicate it was heavily plowed in areas around the mound for many years with cotton as a primary crop (Figure 6.15b).

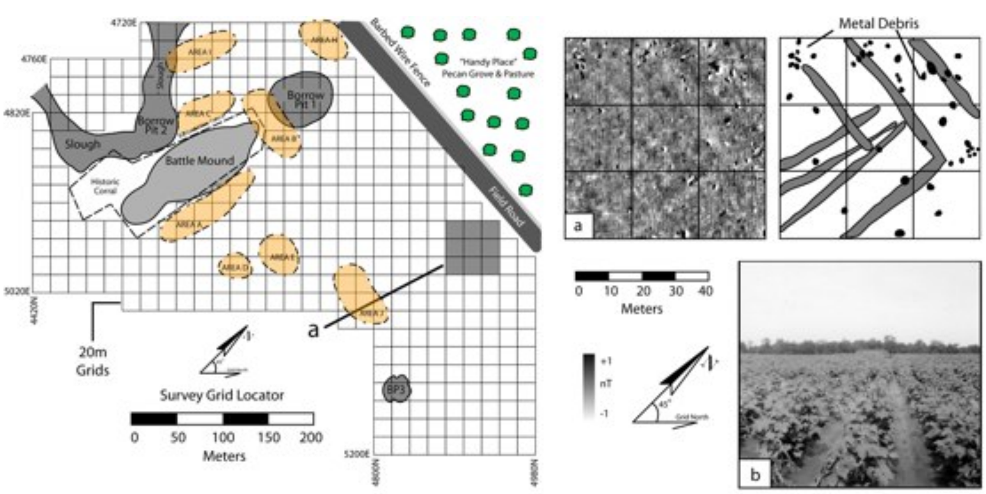

Figure 6.15. Evidence of incising in the landscape: (a) Low magnetic linear anomalies. (b) Cotton furrows from 1948.

Both electrical resistivity and conductivity surveys were also conducted in this area, since the linear bands were originally thought to be cultural in origin and it was hoped that additional methods would better define anomalies. Several long bands of high resistance are clearly discernable in the electrical resistivity data that correlate with the low magnetism linear anomalies identified in the magnetic gradiometry data (Figure 6.16). Conductivity data also reveals several linear bands of higher conductivity existing throughout the area (Figure 6.17). Interestingly, some subtle correlates with magnetic gradiometry can be discerned that could be related to modern earth modification associated with plowing. However, the broad patterning identified in the resistivity

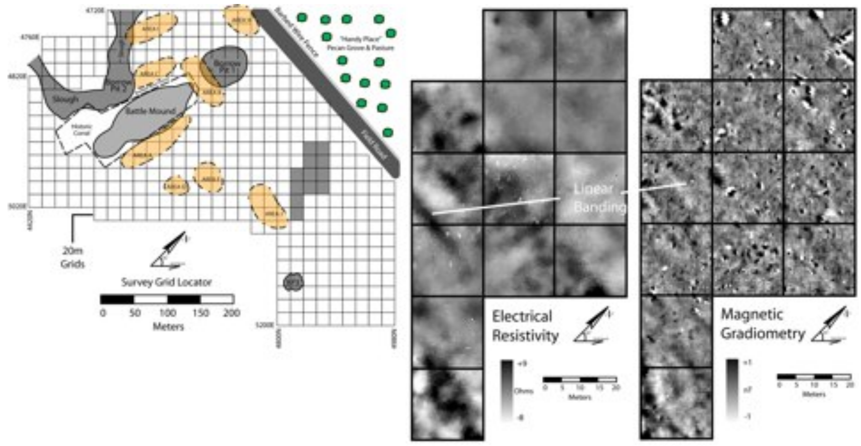

Figure 6.16. A comparison of electrical resistivity and magnetic gradiometry linear anomalies.

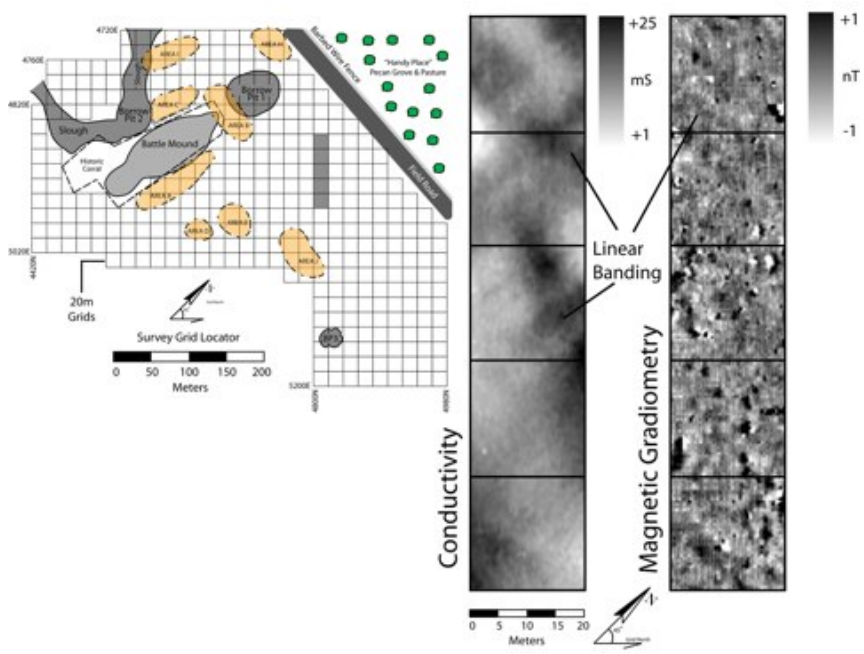

Figure 6.17. A comparison of conductivity and magnetic gradiometry linear anomalies.

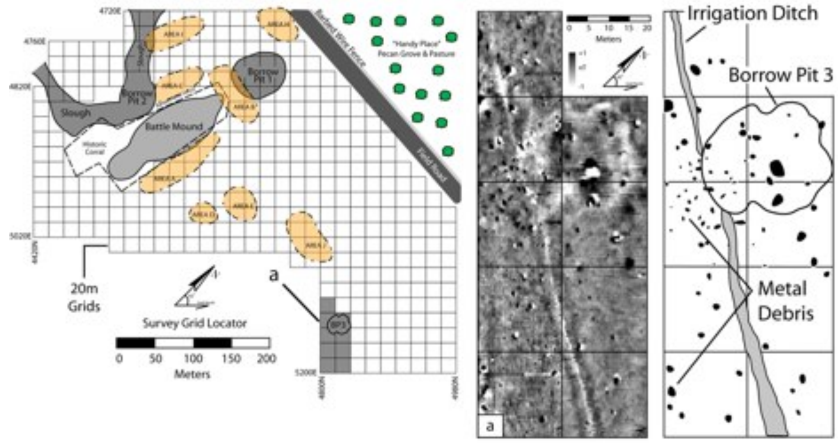

Figure 6.18. An example of an irrigation ditch that is visible on the surface. High concentrations of metal debris are scattered around the ditch and Borrow Pit 3.

and conductivity surveys could be related to irrigation ditches that have been filled with topsoil over time (see discussion of ditch work in Chapter 4). The clearer image of these bands in the conductivity dataset hints at the potential to define these bands across the site with an implementation of a larger conductivity coverage area.

A second example is long linear anomalies of low magnetism that represent irrigation ditches. For example, a linear incision anomaly about 100 meters in length and visible on the surface at about 30 cm deep is in the eastern corner of the survey area. The irrigation ditch intersects a large semi-circular anomaly of low magnetism that represents a filled-in borrow pit (Figure 6.18; see discussion of borrow pit below). A second highly visible linear low magnetic anomaly runs along the northern border of the historic farm road and represents the same irrigation ditch that truncated the southern end of the mound as discussed in Chapter 4 (Figure 6.19). The ditch (and associated unused

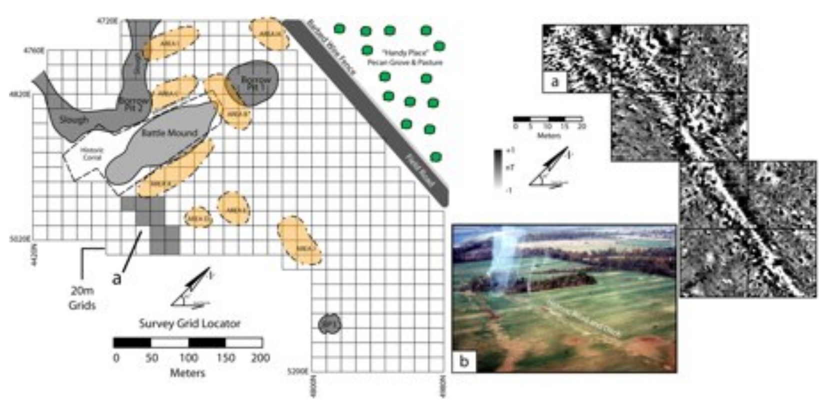

Figure 6.19. (a) An example of an irrigation ditch that is visible on the surface. (b) The ditch is adjacent to an historic farm road (80-CO-1719; used with permission by the Arkansas Archeological Survey.

farm road) is located in the southern portion of the survey area and extends for about 100 meters. The ditch and road are visible on the landscape today and aerial imagery documents that the former road, and likely associated irrigation ditch, extends for some distance into the adjoining fields.

Historic Occupation. From early photographs and reports, several historic structures and associated outbuildings related to farming activities stood on the north, east, and south of the mound and on top of the south mound platform. In 1948, several structures were documented to the immediate north and east (all of them gone by 1968) of the mound. In the 1950s, a cattle corral was built on the south end of the mound, presumably as land usage transitioned from cotton to cattle. The corral is still standing today but is no longer used. In 1968, a single structure (with electricity running to it) is documented on the south of the mound adjacent to the cattle corral. Additionally, by 1968 a fence had been built adjacent to a farm road leading to the 1950s cattle corral (Figure 6.20). Today, only a few surface artifacts exist to indicate the general location of the former historic farming structures. As already mentioned, the old farm road is no longer in service (although the cattle still use the compact elevated area as a path) and the fence adjoining the farm road is no longer standing.

Figure 6.20. Evidence of historic occupation: (a) Several historic structures are present on the mound and directly east of the mound in 1948 (UAM 480096; used with permission from the University of Arkansas Museum Collections). (b) An historic structure and long fence is documented in 1968 (AAS 682146; used with permission from the Arkansas Archeological Survey). (c) Remains of cattle coral in 2012 (photo by author).

A heavy concentration of metallic debris constitutes the bulk of the magnetic gradiometry anomalies in these areas. Although much of the subsurface is littered with various metallic artifacts, linear patterns in the data can be recognized and corroborated with historic photographs that are related to farm occupation and associated activity areas. In an area to the east of the mound, a very dense concentration of metallic debris is situated close to the mound base. This dense rectangular concentration is related to a large domestic structure and hog pen (Figure 6.21). In 1948, Mr. Richard Marshall occupied the domestic structure. In an historic photograph, the large mound is backdrop to a large gabled roof structure with a porch facing south. A chimneystack can be seen opposite the structure on the same side as the mound. Additionally, the domestic structure is recorded on the 1948 topographic map (see Figure 3.2). Today, brick fragments are scattered about in this area and are likely from the old chimneystack. Because of the high degree of metallic debris in this area, and with evidence from the surface collection of Caddo ceramics and daub (see Chapter 5), an electrical resistivity survey was also conducted in a portion of the area east of the mound where a few Caddo circular structures are interpreted. Those results are discussed below in the section '*Anomalies of Prehistoric Cultural Origin*'.

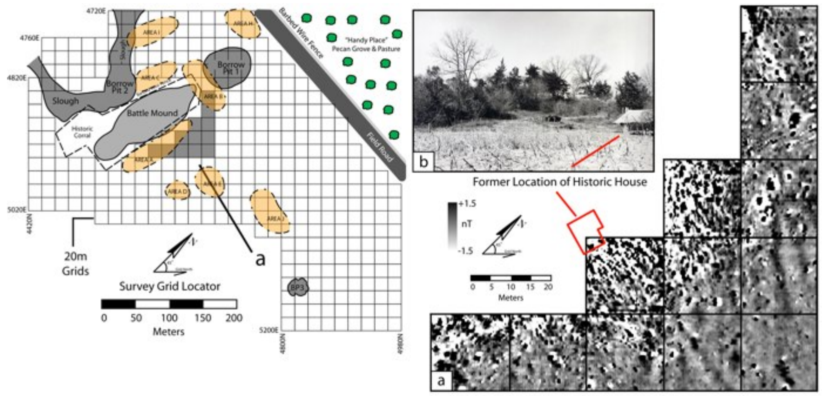

Figure 6.21. Survey area east of mound in Area A: (a) Historic photo showing former location of house and outbuildings (UAM 480089; used with permission from the University of Arkansas Museum Collections). (b) Magnetic gradiometry data showing concentrations of metallic debris.

To the north of the mound are additional concentrations of metallic debris related to additional corralling areas and a second large structure (Figure 6.22). The structure is a barn that is also documented on the 1948 topographic map (see Figure 3.2). During a recent drought when the northern borrow pit was dried-up, the area over the borrow pit was surveyed revealing that an abundance of metal debris is buried in the borrow pit – presumably pushed there over the years as a quick way to dispose of refuse.

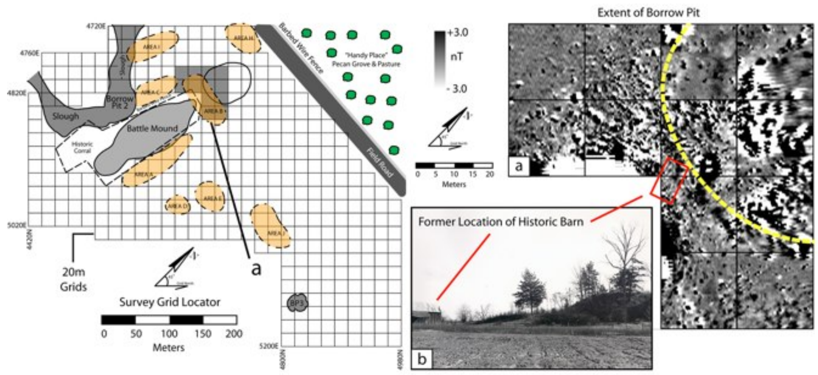

Figure 6.22. Survey area north of the mound in Area B: (a) Magnetic gradiometry results showing concentrations of metal at the barn location. (b) Historic photo showing former location of barn (UAM 480095; used with permission from the University of Arkansas Museum Collections).

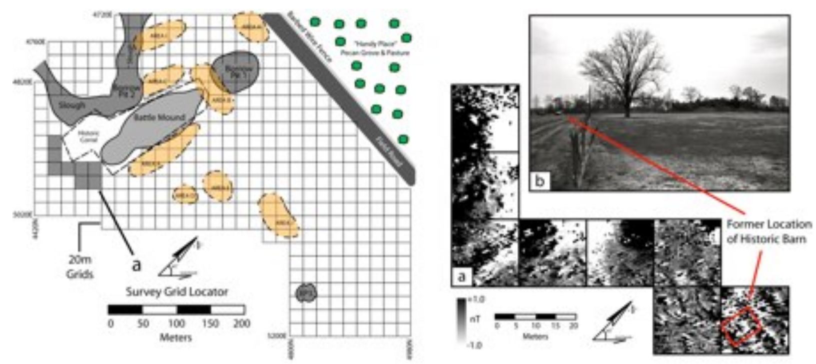

Figure 6.23. Survey area south of the mound: (a) Magnetic gradiometry results showing concentrations of metal at the barn location. (b) Historic photo showing former location of barn (AAS 682146; used with permission from the Arkansas Archeological Survey).

Lastly, large areas of metallic debris are also visible beyond the southern portion of the mound that are associated with farming activities related to the 1950s cattle corral and a medium sized barn or outbuilding (ca. 1968; Figure 6.23). The high concentration of metal debris in these three areas are related to farming activities associated with the use and modification of metal objects, such as metal-smithing, shoeing horses, barbed wire fence construction, or the maintenance of farming equipment. Likely sources for the metal artifacts include nails, bolts, and screws, fence barbs, machinery, pipes, and other farming and domestic (in the case of the Mr. Marshall house) related debris.

Overall, especially with the long history of historic agricultural farming activities at the Battle Mound site, there are relatively few areas across the surveyed landscape that are impacted by high concentrations of metal debris. As expected, based on historic photographs and surface collection artifacts, the majority of anomalies of recent cultural origin are concentrated around the base of the large mound (Figure 6.24).

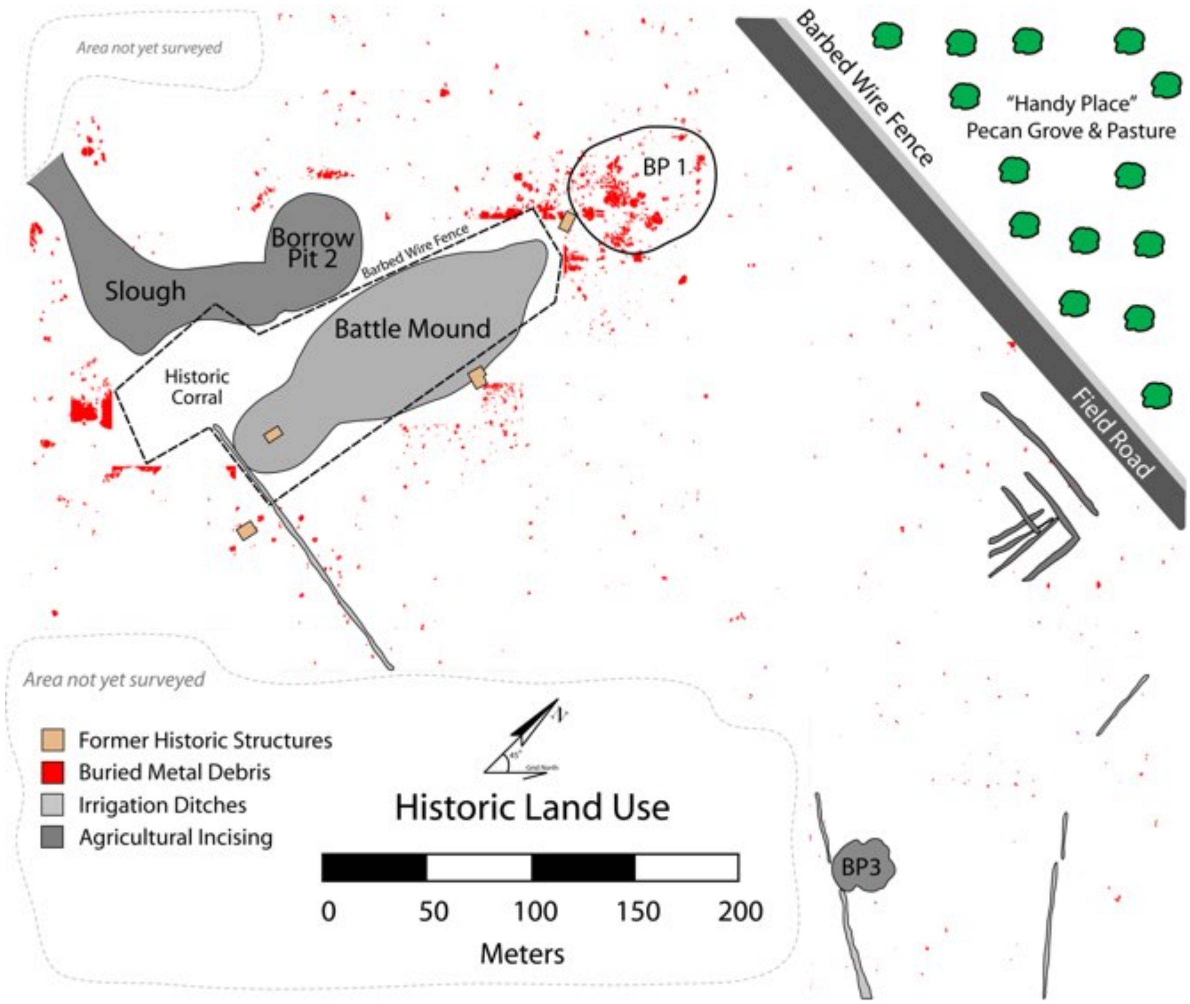

Figure 6.24. Interpreted anomalies as a result of historic agricultural farming activities.

Anomalies of Caddo Culture Origin

Caddo people occupied the Battle Mound site over the course of several time periods, particularly after ca. A.D. 1200 (Krieger 1949; Perttula et al. 2009; Schambach et al. 1980). Archaeogeophysical results from the site have identified many anomalies that are cultural in origin and represent characteristic shapes, sizes, and arrangements associated with prehistoric occupations that are most likely Caddo in affiliation (see McKinnon 2008, 2009, 2010b; McKinnon and Brandon 2009; Walker and McKinnon 2012). A total of eighteen anomalies are interpreted as Caddo rectangular structures and a total of thirty-two anomalies are interpreted as Caddo circular structures. Anomalies identified as Caddo culture origin demonstrate that a complex prehistoric settlement existed close to the large mound that was composed of several structures of various sizes, at least three community cemeteries, farmsteads groups with compound fences, and borrow pits.

Rectangular Structures and Associated Anomalies. Numerous anomalies of higher magnetism that form various sizes of rectangular and circular shapes are visible in the magnetic gradiometry data. Several anomalies are rectangular in shape (n=14) and likely represent the remains of burned rectangular structures. Additionally, four small rectangular structures are interpreted in resistivity data collected immediately east of the large mound (see Figure 6.2; magnetometry data were not collected in these grids). The dimensions of the rectangular patterns range between 12 x 12 meters for the largest and 4 x 4 meters for the smallest (Figure 6.25). Fairly centralized within some of the rectangular patterns exist semi-circular patterns that may represent central fire hearth, storage pits, or sub-floor burials within the structures.

Two small rectangular patterns (R17, R18) are proximate to two large circular anomalies (C28, C29) and four small rectangular patterns are interpreted proximate to the large mound. The small rectangular patterns might represent the remains of open-air ramadas similar to those documented in the Terán map (see Swanton 1942:pl.1). Archaeologically, postmold patterns of similar size have been interpreted as being the remains of rectangular ramadas (Trubowitz 1984; Kelley 1997). Alternatively, the small rectangular patterns might represent evidence of smaller specific use enclosed structures rather than open-air ramadas. Structures of similar dimension have been identified in geophysical data from a survey at the Tom Jones (3HE40) site (Lockhart 2007, 2010). Results from excavations of one of the rectangular anomalies at the site demonstrate that the small interior space (4 m x 4 m) and existence of large cooking pots define the small rectangular structures as special use cookhouses related to activities associated with the large mound (Lockhart 2010:242).

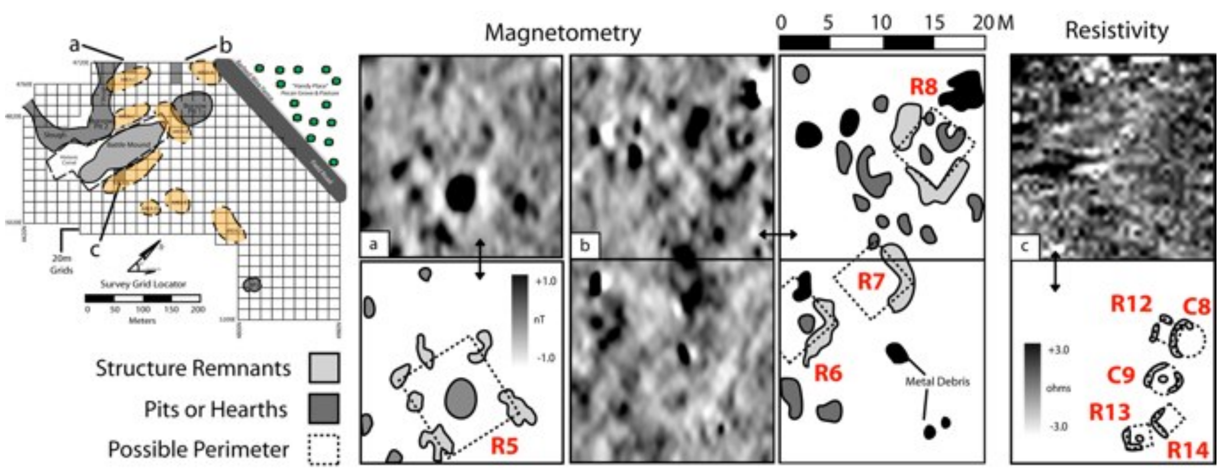

Figure 6.25. Examples of rectangular structures: (a) A large structure approximately 12 m x 12 m with a large central anomaly. (b) Smaller rectangular structures, each about 5 m x 5 m in dimension. Several possible pits or hearths are in close proximity. (c) Resistivity data showing possible rectangular structures at the base of the mound.

The overall shape of the rectangular patterns in the Battle Mound data resemble structures that have been identified both geophysically (Lockhart 2007, 2010) and archaeologically at other Caddo mound sites (Jackson et al. 2000; Skinner 1920; Webb 1959; Wood 1963a; Wood 1981; Figure 6.26). For example, at the Belcher Mounds (16CD013) site, a rectangular structure (House 4) was excavated from the level pre-mound surface of Mound A that measured roughly 7 m x 6 m (Webb 1959:37-40). Within the House 4 structure were two "ash basins" interpreted as fire hearths with three burial pits under the structure floor. Charred cane and grass was found spread around the floor with a large concentration of fired clay daub in the central section of the structure. Geophysical survey (and subsequent excavations) at the Tom Jones site revealed eight small rectangular structures, between 4-5 meters on a side, at the base of the mound (Lockhart 2007, 2010).

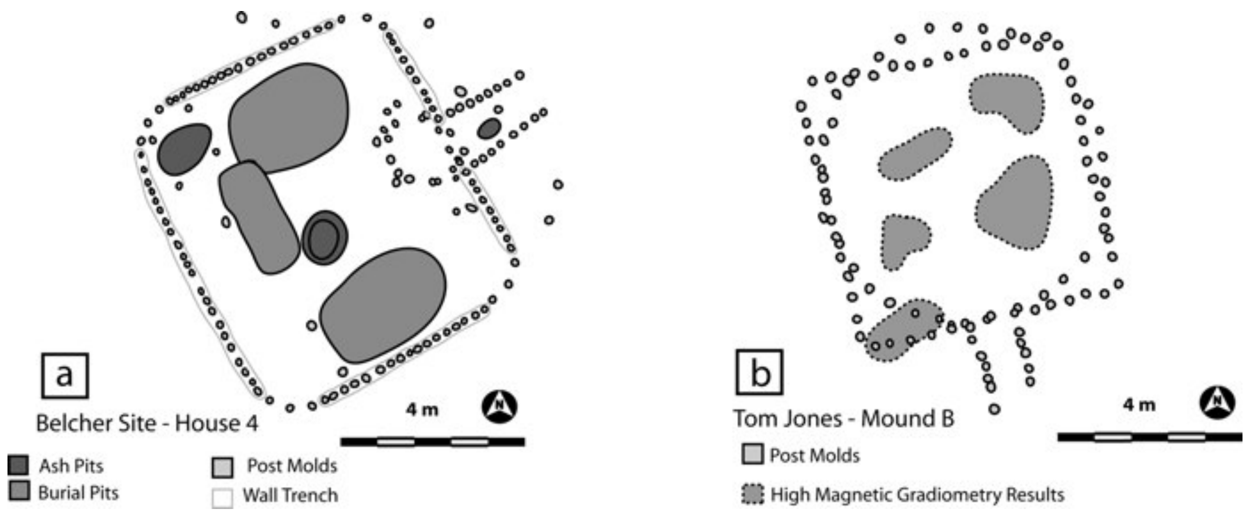

Figure 6.26. Examples of rectangular structures from archaeological and geophysical investigations: (a) House 4 at Belcher (after Webb 1959:35) (b) House on Mound B showing magnetic gradiometry survey results and arrangement of excavated post molds (after Lockhart 2007:99).

Circular Structures and Associated Anomalies. In addition to the rectangular structures identified in the Battle Mound survey data, concentrations of higher magnetic and higher resistivity values form several circular patterns that likely represent Caddo circular structures similar to those seen in the Terán map (see Swanton 1942:pl.1). Dimensions of the circular patterns are between 15-18 meters in diameter for the largest and approximately 4 meters in diameter for the smallest (Figure 6.27). Within most of the circular patterns centralized high magnetic values are present and probably represent the magnetic remnants of fire hearths. In two of the larger circular structures (C28, C29), part of a cluster of anomalies situated on a low rise (Area J – see Chapter 5), clearly visible isolated high magnetic values are arranged in a linear pattern that aligns with the circle center (Figure 6.27a).

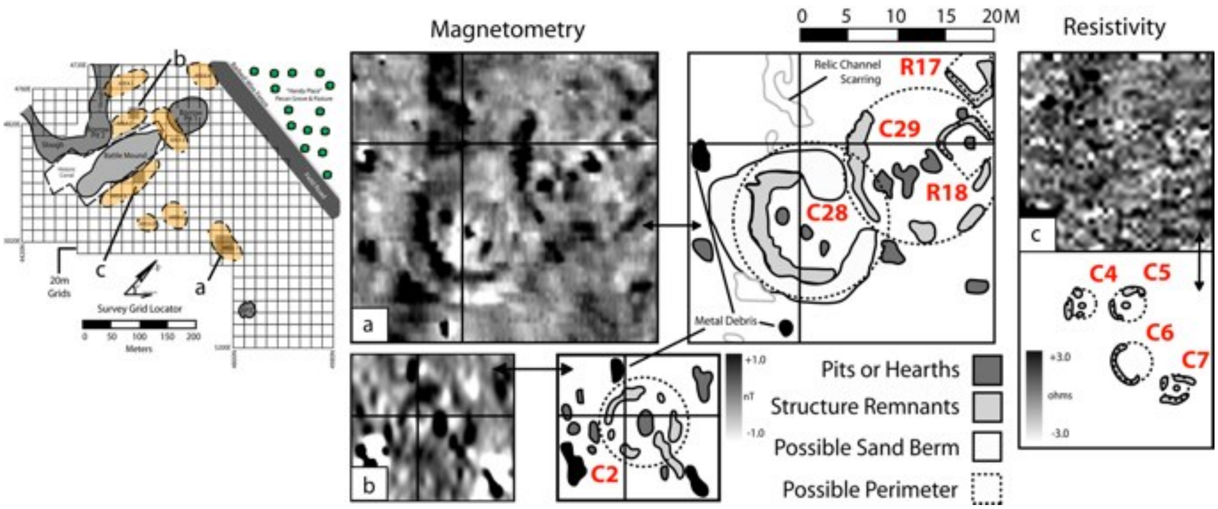

Figure 6.27. Examples of circular structures from the Battle Mound survey data: (a) Two large structures between 15-18 meters in diameter with numerous anomalies located in close proximity (Area J). (b) A smaller structure about 10 meters in diameter with a probable central hearth and possible evidence of an extend entranceway (Area C). (c) Possible small circular structures identified in resistivity data and located at the base of the mound (Area A).

A second cluster of large circular structures (C12-C18) is located on a second low rise (Area E, Chapter 5) closer to the mound (Figure 6.28). The two low rises likely represent two of the “four low humps and rises off the ground the long cultivation evidently had considerably spread,” as described by Moore (1912:566) during his investigations at the Battle Mound site. The rises may represent either culturally constructed mounds, such as eroded or plowed down house mounds, or naturally occurring rises, such as pre-occupation point bars of an old river channel (probably both). A portion of Area E was collected using resistivity (Figure 6.29). Although there are no direct architectural correlates, results reveal concentrations of high resistivity that might represent components of house floor pits.

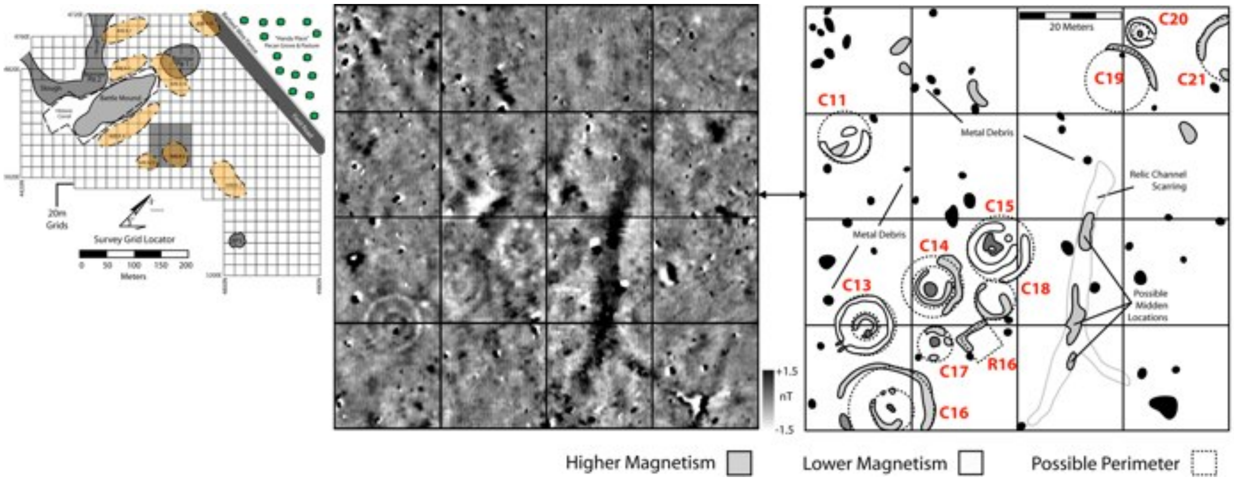

Figure 6.28. Numerous anomalies of stronger magnetism that form various sizes of circular shapes are visible in the magnetic gradiometry data on the eastern side of the mound (Area E).

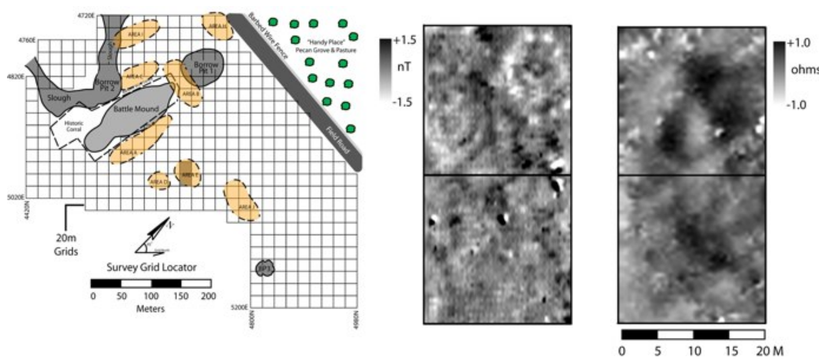

Figure 6.29. A comparison of magnetic gradiometry and electrical resistivity data in Area E. Resistivity results reveal concentrations of high resistivity that might represent components of house floor pits.

A third cluster of small circular structures (C4-C10) is immediately adjacent to the large mound (an area directly east of the mound littered with magnetic debris). Data were collected in this area using resistivity in an attempt to understand if the remains of structures are present. Surface collections in Area A demonstrate the presence of ceramics and daub in the area (see Chapter 5). The structures are fairly small in dimension and are situated at the immediate base of the mound (Figure 6.30). Small structures at the base of a large mound have been identified at the Tom Jones site (Lockhart 2007, 2010). As already mentioned, the structures excavated at the Tom Jones site are interpreted as cookhouses. Additionally, possible Haley to Belcher phase structures (although size and geometry is undeterminable) were identified below the south platform during excavations and ditch salvage work (see Chapter 4). Given the small size of the anomalies (similar to those at the Tom Jones site) and their proximity to the large mound at Battle, they might represent structures of a similar function related to cooking activities.

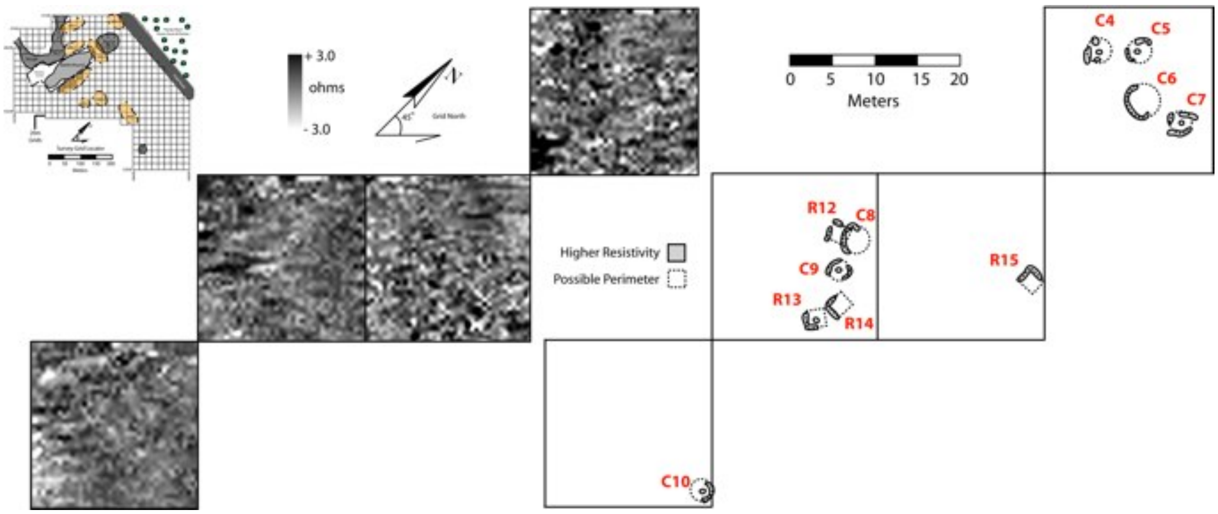

Figure 6.30. Resistivity results and interpretations from grids located directly east of the mound in Area A.

The location of the circular anomalies close to the mound and the clustering of some on low rises suggest potentialities of social importance in the Caddo community. Numerous excavations at Caddo sites along the Red River have recorded circular structures that form patterns similar to the patterns in the Battle Mound data (Kelley 1997; Perttula 2005; Trubowitz 1984; Webb 1959, 1983). Importantly, at the Battle Mound site itself, three circular structures of similar dimension have been excavated from the mound platforms (see Chapter 4; Howard 1948; Krieger 1949; McKinnon 2010a). Additionally, several east Texas Caddo sites containing numerous circular structures have been identified using geophysical methods (Creel et al. 2005; Walker and McKinnon 2012; Walker and Pertula 2007; Walker and Shultz 2006).

At the McLelland (16BO236) and Joe Clark (16BO237) sites in northwestern Louisiana (Kelley 1997), the excavation of two small farmsteads along the Red River allows for a comparison of intra-structure patterning with the Battle Mound circular anomalies. Structure 1 at the McLelland site consisted of a series of postmolds in a circular pattern eleven meters in diameter with numerous additional postmolds located throughout the structure interior (Figure 6.31a). Also located inside the structure were several small to medium size storage and trash pits with three burials that form a linear pattern aligning with the circle center. The Structure 1 patterning of intra-structure features is similar to two of the large patterns (C28, C29) of circular anomalies (Figure 6.31b).

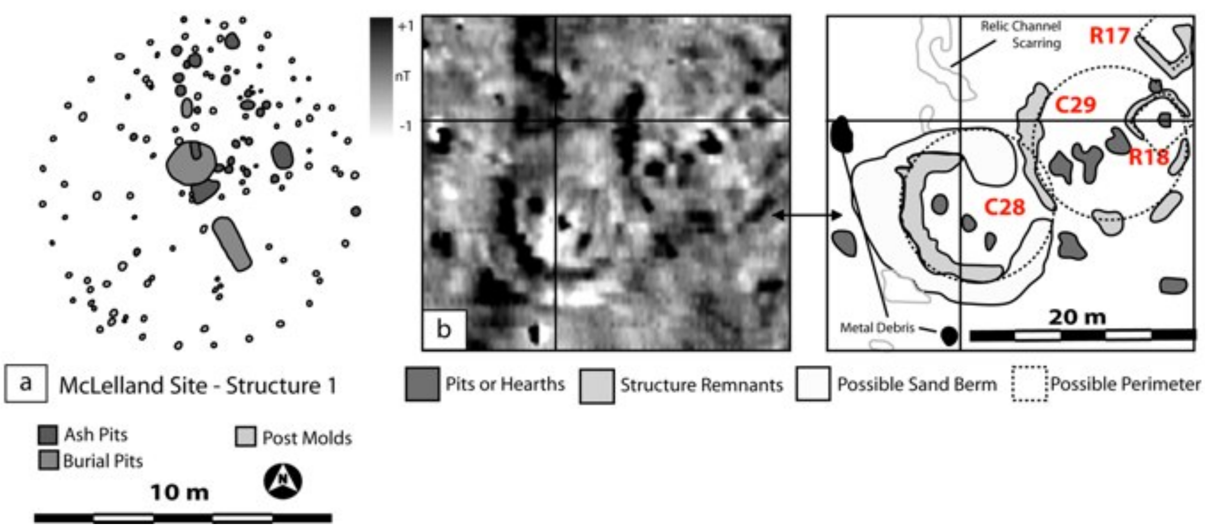

Figure 6.31. A comparison of (a) McLelland site Structure 1 (after Kelley 1997:30) with (b) two large circular structures at Battle Mound. Note change of scale between compared images.

Several of the circular anomalies are defined by patterns of low magnetic concentric circles or "halos". A profile of magnetic values comparing concentric circular structures discovered on the two low rises (Areas E and J) demonstrates a pattern of inner and outer circles of low magnetism with mildly raised magnetism evident between the two circles (Figure 6.32). Although the range of magnetic data values between "low" and "high" magnetism is very subtle

(+/- 1nT), the concentric circles of low magnetism may represent the deliberate piling of soil to create a soil “berm” around the outside of the structure, or possibly a structure with inner and outer circles of post hole patterning.

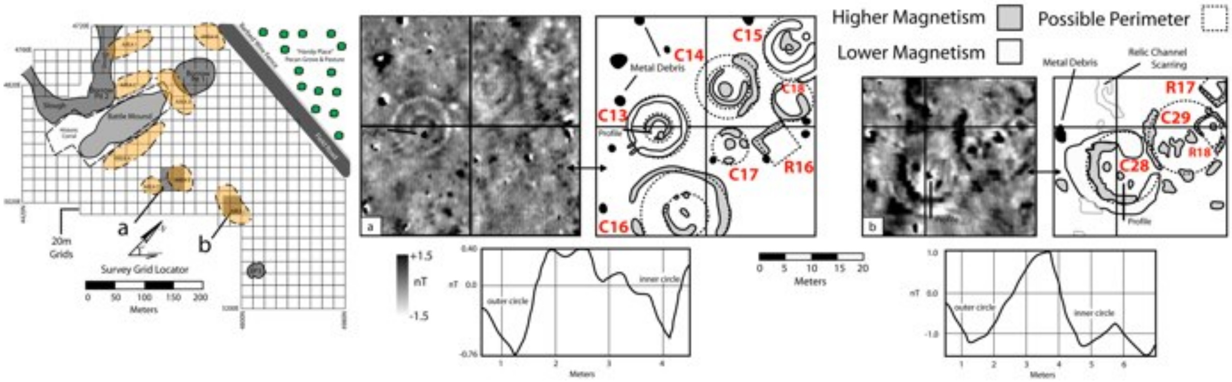

Figure 6.32. A comparison of circular anomalies: (a) area directly east of the mound on a low rise (Area E) with (b) an area 200 m east of the mound on a separate low rise (Area J).

Soil berms have been identified at sites throughout the Caddo area (Davis and Gipson 1960; Jelks and Tunnell 1959; Perino 1994; Walters and Haskins 1998, 2000). For example, at the Middle Caddo (ca. A.D. 1200-1400) Bryan Hardy (41SM56) site in Smith County, Texas, excavations of a structure revealed “a ledge of soil around part of the house, particularly by the entrance” (Walters and Haskins 2000:4). At the Tom Jones site, geophysical investigations revealed a probable “berm-like” anomaly encircling a small rectangular structure that was later defined in excavations as soil that was “bermed outside the walls of the completed structure” (Lockhart 2010:242). Even at the Battle Mound site, unpublished daily log notes from the 1948 excavations discuss the occurrence of three burned structures that had a concentrated layer of daub covered by a thick layer of fill (see Chapter 4; Howard 1948; Krieger 1949; McKinnon 2010a).

As an alternative interpretation, the seemingly almost perfect orientation of the concentric circles identified in the Battle Mound site data also supports the possibility of a group of structures with concentric post patterning (Figure 6.33). The concentric patterning is similar to a structure identified at the Werner (16BO8) site, a Late Caddo (ca. A.D. 1400-1680) mound site in northwestern Louisiana. At the Werner site, Webb (1983) describes the excavation of two concentric circles of postholes. The inner posthole circle was 14.3 m in diameter and the outer post circle was 24.27 m in diameter (Figure 6.33c). Webb (1983:217-221) interpreted the concentric pattern as the remnants of a burned ceremonial lodge with an inner circle of roof supports and the larger outer circle comprising the structure wall. Within a standing structure, a concentric pattern of inner structure posts and an outer wall may have defined a space that was ritually cleaned. Such an activity would inadvertently remove magnetically enriched topsoil and leave a wide circular band of low magnetic soil matrix. Comparisons of the concentric posthole patterning from the Werner site with concentric circular anomalies in the Battle Mound site data indicate similarities in patterning, although the Warner structure is somewhat larger in maximum diameter.

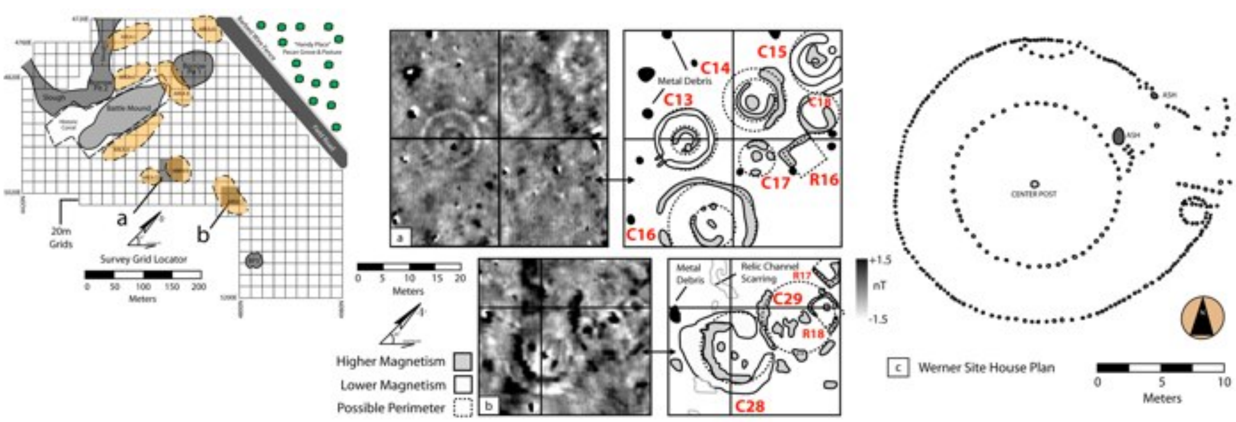

Figure 6.33. A comparison of circular anomalies at the Battle Mound site to the plan of an excavated structure at the Werner site: (a) area directly east of the mound on a low rise (b) an area 300 m east of the mound on a separate low rise (c) a concentric post-hole structure at the Werner site (16BO8; after Webb 1983).

An ethnographic example of a concentric circle structure with delineated activity areas, that that would remove magnetically enriched topsoil, comes from the Pawnee - Caddoan language speakers with traditional homelands north of the Caddo area (Carlson 1998; Hyde 1974). The example comes from ethnographic information collected about Pawnee structures and a reconstructed structure that was a part of the Field Museum of Natural History. The structure is illustrated as part of descriptions related to the Pawnee Purification of the Sacred Bundles ceremony (Figure 6.34; Linton 1923). The illustrated structure is large in dimension and contains an inner circle of posts that delineates various ceremonial activities (see Figure 6.34). As part of the ceremony, several priests (holders of sacred bundles) gathered in a lodge and seated themselves in "designated places around it, spreading their mats on the ground and hanging their bundles, unopened on the wall behind them [and] remained in the lodge for three days and nights, sleeping in their designated places" (Linton 1923:41-42). Again, such activity would inadvertently remove magnetically enriched topsoil and leave a wide circular band of low magnetic soil matrix.

Figure 6.34. Ethnographic example of Pawnee structure showing delineated activity areas (Linton 1923; original leaflet publication and photo not under copyright).

In addition to the larger concentric circle patterns, several additional smaller patterns of circular anomalies are revealed in the magnetic gradiometry data. One in particular (C2), located on the western side of the mound contains an architectural feature of an extended entranceway similar to that identified through excavation of several structures at the Belcher Mound site

(Figure 6.35) and at numerous additional sites throughout the Caddo homeland (see Perttula 2009). Along with the extended entranceway, the C2 structure contains several patterned anomalies that may represent "ash pits" similar to

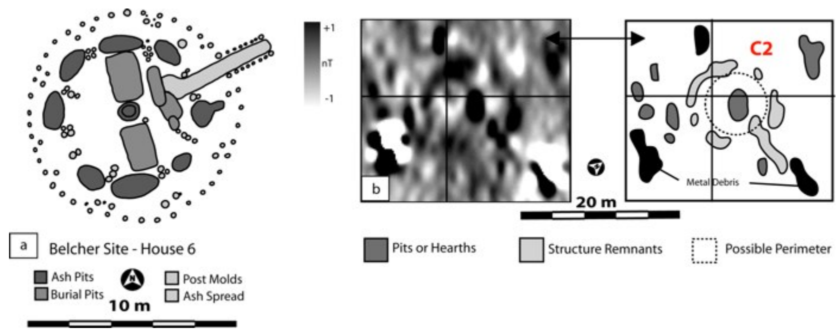

Figure 6.35. A comparison of (a) Belcher site House 6 (after Webb 1959:41) with (b) a small circular structure at Battle Mound. Note change of scale between compared images.

those excavated within structures at the Belcher Mound site (Webb 1959). For example, Belcher Houses six and seven contain numerous ash pits in a circular pattern around the inside of the outer wall with a fire hearth situated in the center of each house structure (see Figure 6.35a). Each ash pit was situated directly in front of a long bench or seat and was between 6 and 12 inches thick of ash deposits mixed with numerous sherds, bone, shell fragments and other debris (Webb 1959:43-44). Although ash is not highly magnetic in isolation, the use of these pits as fire hearths could generate concentrations of higher magnetic values in the hearth base and walls where the most intense heat would have occurred increasing magnetic levels within the surrounding soil matrix.

Multiple Instrument Survey over Area J. In an attempt to further define the physical properties of subsurface anomalies, a multi-instrument survey was conducted in Area J. A portion of Area J, focused over the two (C28, C29) interpreted circular structures, was surveyed with four different geophysical principles – magnetic gradiometry, electrical resistivity, electromagnetic induction, and GPR.

Components of the two structures are visible in all instruments surveyed in this area. Resistivity data shows a large circular band of low resistivity around the outside portions of the structure perimeters (Figure 6.36b). Internal areas are defined by higher resistance values. The band of low resistivity suggests that the possibility of an external berm of soil surrounding each of the structures is composed of more of a loam based soil rather than a sandy soil, since loam is less resistant than sand. Conversely, the higher resistivity within the internal structure might represent more of a sand based soil that defines the structure floors. Conductivity data roughly corresponds with resistivity data and shows that, as a whole, the location of the structures C28 and C29 is higher in conductivity (Figure 6.36c).

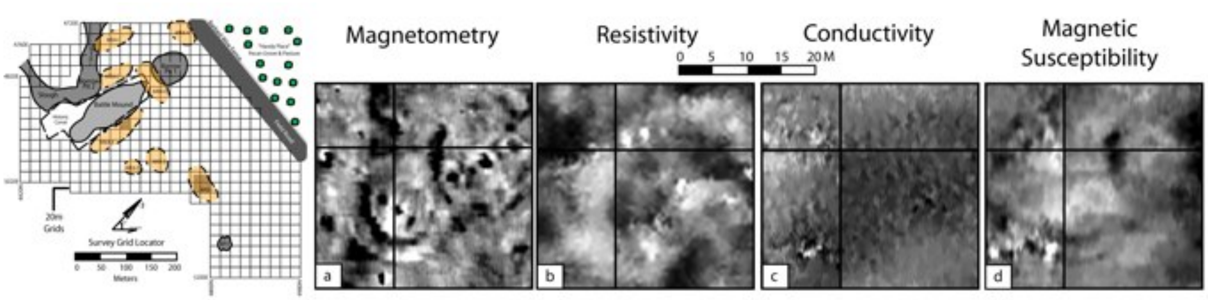

Figure 6.36. Multiple instrument survey in Area J: (a) Magnetic gradiometry (b) Electrical resistivity (c) Conductivity (d) Magnetic susceptibility.

Magnetic Susceptibility also shows evidence of the two structures and differential soil types. Foremost are the lower magnetic susceptibility readings within the internal structure that also suggest a more sand based soil, since sand generally exhibits very low magnetic susceptibility (Figure 6.36d). Excavations of structures on the mound further suggest that the soil within the structure is more of a sandy soil. A multiple floor structure on the south platform of the mound was excavated that revealed that the floors were part of a single structure where the lower floor was cleaned and red sand deposited to create the upper floor (see Chapter 4). Ground-penetrating radar results shed light on the depth below surface of the circular structures and the possible chronological relationship between structure C28 and C29. A series of five time-slices were generated at 40 cm per slice (Figure 6.37). Evidence of the C28 structure is visible in time slice three at a depth between 80-120 cm. This depth correlates nicely with evidence that close to a meter of alluvium has been deposited over the Caddo occupation material (see Chapter 3). Slightly deeper in time slice four at a depth between 120-160 cm is evidence of the C29 structure, suggesting that C29 was constructed prior to C28.

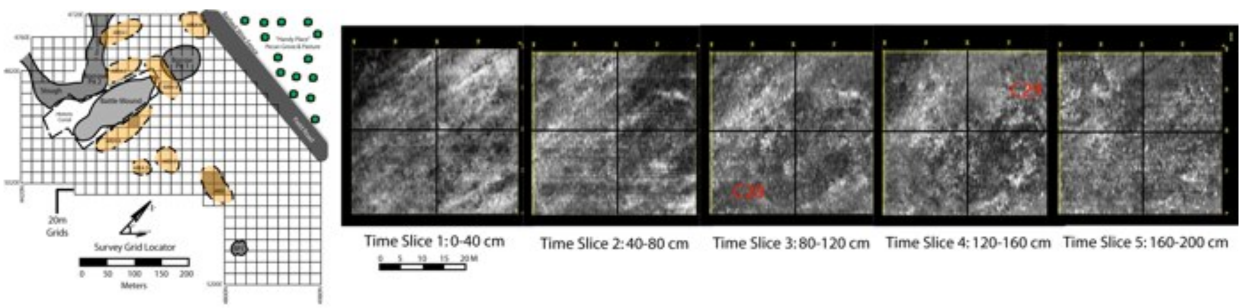

Figure 6.37. Ground-penetrating radar time slices showing that Structure C28 was likely constructed after Structure C29.

Community Cemeteries. Three concentrations of isolated high magnetic anomalies in the area interpreted as possible community cemeteries and provide initial insights into what large community cemeteries look like geophysically. One of the concentrations (Cemetery 2) encompasses an area roughly 1,600 square meters in size (Figure 6.38). In the Cemetery 2 area, a large concentration of isolated monopolar magnetic anomalies, some as large as approximately 6 square meters, form a pattern of two possible linear groupings. In all three proposed cemeteries, several smaller isolated monopolar magnetic anomalies are spread throughout each area. The monopoles indicate they are probably not metallic in origin. In the Cemetery 1 area, magnetic susceptibility data document a dense concentration of anomalies of higher magnetic susceptibility that correlate with the magnetic gradiometry results (Figure 6.39).

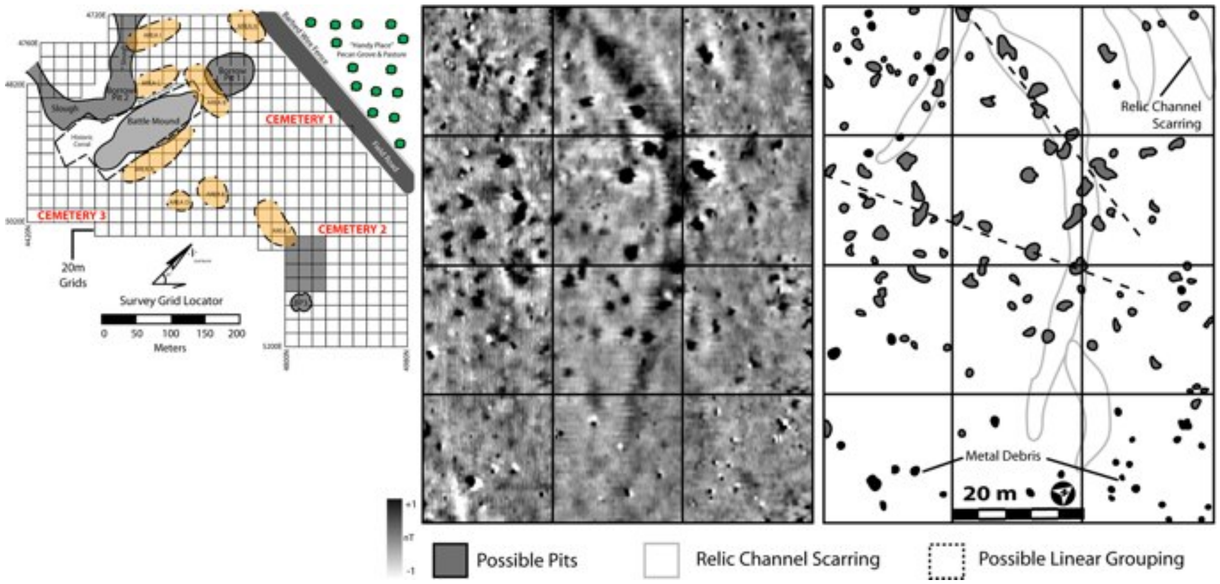

Figure 6.38. A large cluster of pits possibly representing a cemetery area (Cemetery 2). Two linear groups consisting of larger pits can be identified.

Given the amount of isolated anomalies (and linear patterning in Cemetery 2), these isolated high magnetic anomalies are likely cultural in origin and might represent a cluster of different types of pits, such as storage pits, refuse pits, or burial pits. The range of raw (un-clipped) magnetic data values of the isolated magnetic anomalies is between 2 and 4 nT, making it difficult to fully differentiate the type of pit (or a combination of pit types) based on magnetic value alone. However, the organization of the anomalies into rows (similar to a Haley phase mortuary pattering), the spatial proximity of Cemetery 2 to the two large (and presumably ceremonial) circular structures on a low rise (C28, C29), the close proximity of Cemetery 3 to the large mound, and the location of Cemetery 1 to the Handy Place – a burial area heavily excavated throughout the early and mid-twentieth century (see Chapter 3) – influence interpretations to consider the cluster of pits a possible cemetery composed of several "grave groups" similar to the multiple subgroups of burials at the nearby Cedar Grove (3LA97) site (Trubowitz 1984:108). Caddo community cemeteries have been noted to contain numerous individuals, the size depending on settlement densities of the surrounding populations (Brown 1984:54; Perttula 1992:83; Story 1990:338-339).

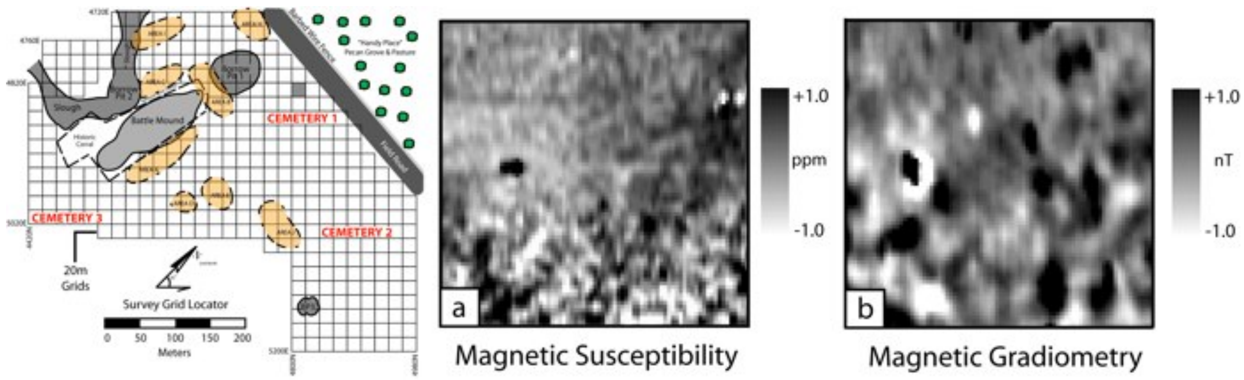

Figure 6.39. Magnetic susceptibility and magnetic gradiometry results in Cemetery 1

Farmstead and Compound fences. At least three possible compound fences are interpreted in the magnetic gradiometry data (Fence 1-3). Most notably is Area H (see Chapter 4) where a highly concentrated area of higher magnetic values is evidenced (Figure 6.40). Differing from the high magnetic dipole values characteristic of high concentrations of metal debris, the majority of the values are not the result of metal debris but rather consist of a complex pattern of numerous magnetic monopoles. The Area H complex patterning abuts the Handy Place property - a parcel of land where many Caddo burials have been excavated since the early 1900s. The sporadic and unsystematic excavations that have occurred in this area (see Chapter 3) certainly have contributed to the complex high magnetic concentrations visible in the data. With a history of excavations in an area of highly dynamic cultural activity, the patterned magnetic gradiometry results in this area are therefore not surprising.

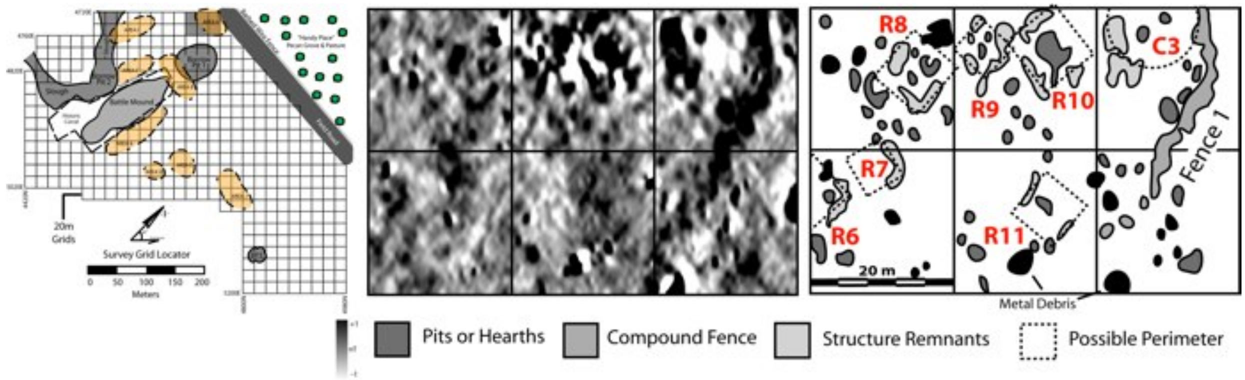

Figure 6.40. A large linear grouping of high magnetic values forms a possible fence (Area H). Several other high magnetic values form various geometric shapes.

Within the complex patterning in Area H, at least six patterns of anomalies are interpreted as possible rectangular structures (R6-R11) that are each approximately 4 m on a side (see Figure 6.40). These rectangular anomalies are small for residential structures and may represent parts of larger structures or non-residential structures, such as cooking or storage structures. There is also a single possible circular structure in this same area that is approximately 10 m in diameter.

In Area H, a wide and long linear band of high magnetic values runs south to north (see Figure 6.40, Fence 1). The visible extent of the linear anomaly is approximately 15 m long and 2 m wide. The magnetic linear band continues to the north beyond the survey area and into the "Handy Place" property. This large linear anomaly could be the remains of a compound fence that defined a boundary between two habitation areas northwest of the large platform mound, similar to the somewhat systematic placement of vegetation between the farmstead groupings in the 1691 Terán Map (see Swanton 1942:pl.1). The interpretation of a cluster of structures in close proximity to the "Handy Place", evidence of known habitation areas and cemeteries north of the large platform mound, and the possibility of a compound fence suggest that the Area H cluster of anomalies is evidence of a possible Caddo farmstead compound.

Furthermore, two additional possible compound fences are proposed (Fence 2 & 3). There are no interpreted structures close to Fence 2, although it is adjacent to a possible community cemetery (Cemetery 1). Fence 3, located in the easternmost portion of the survey area is proximate to two possible circular structures, associated pits, and a large filled-in borrow pit. The high magnetic values that make up the possible compound fences could be the result of a burning event, aeolian processes depositing magnetically enriched topsoil along the fence area, or a combination of both.

Compound fences have been identified through excavations at two Caddo sites (Perttula 2005; Williams 1993). At the Hardman (3CL418) site, a large distinctive arc of postmolds about 20 m in length has been interpreted as a being remnants of a compound fence (Williams 1993:42-46). Several less distinct arcs of postmold patterns are also present at the Hardman site and are thought to be additional compound fences. At least two house structures are in close proximity to the large compound fence arc at Hardman.

At the Hatchel (41BW3) site, Perttula (2005) interprets a linear group of postholes that run for 15 m (excavated by WPA archaeologists in 1938-39) as a possible compound fence similar to the one described at the Hardman site. Additionally, an archaeogeophysical survey at the Hill Farm (41BW169) site identified two wide and long linear anomalies that may represent "compound dividers" that "flank" a circular structure (Perttula et al. 2008:100 and Figure 11; Walker and McKinnon 2012).

Borrow Pits. Large "borrow pits" are a common landscape feature in prehistoric mound sites. At these mound sites, borrow pits were created by the "borrowing" of basket loads of soil to construct large mounds and other surface features.

An area first surveyed by magnetic gradiometry and subsequently by ground-penetrating radar reveals a large semi-circular pattern (Figure 6.41). In the magnetic gradiometry data, a semi-circular concentration of low magnetic values can be discerned that are the remnants of a former borrow pit located roughly 100 m east of a low topographic rise and 300 m east of the large mound (Figure 6.41a). These low magnetic values are the result of magnetically enriched topsoil having been removed as fill materials for mound construction, thus reducing the magnetic composition of the remaining soil matrix.

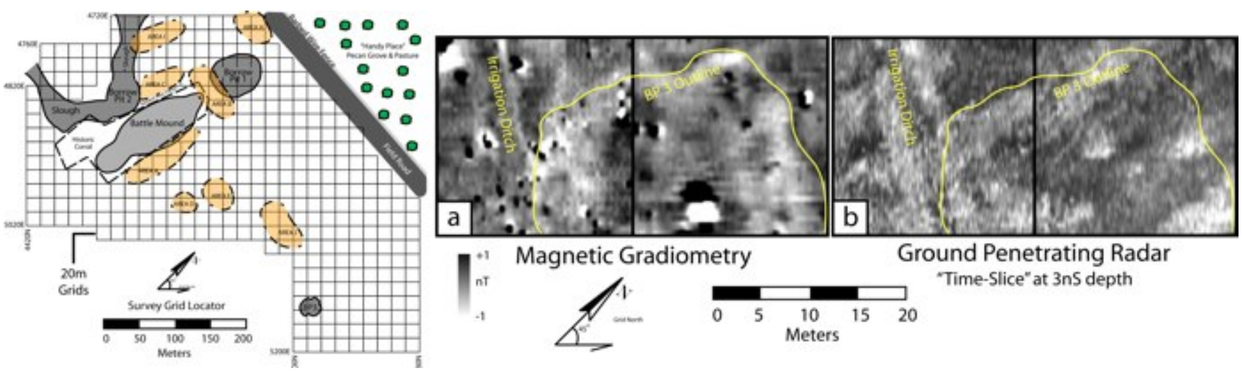

Figure 6.41. Comparison of (a) magnetic gradiometry and (b) ground-penetrating radar over Borrow Pit 3.

The GPR results reveal slight evidence of the outline (Figure 6.41b). The subtle nature of the anomaly in the GPR data and difficulty to fully discern is probably because a sharp boundary between the borrow pit and the surrounding soil matrix does not exist. Instead, the subsoil is likely composed of a gradation of electrical changes within the soil matrix. Additionally, the GPR results reveal slight evidence of an irrigation ditch (discussed previously; see Figure 6.18) that is currently visible on the surface.

When the GPR results are compared to the results from the magnetic gradiometry survey, correlations in anomalies can be identified. For example, the irrigation ditch in the magnetic gradiometry data is revealed as a linear magnetic low, owing to incised topsoil and the removal of a magnetically rich soil matrix. In the GPR data, this same irrigation ditch is represented as two parallel linear lines that presumably represent the sides of the ditch where a denser composition of soil exists. The denser area most likely represents an increase in radar attenuation in an area with more clay.

A set of photographs from the AAS files record several aerial images of the Battle Mound landscape in 1980. In a telltale image (Figure 6.42), the semi-circle seen in the magnetic gradiometry and GPR data spatially coincides with a small water-filled pit, which is visible at the tip of the airplane's right wing in the aerial image as BP3. This water-filled pit provides confirmation of a borrow pit interpretation.

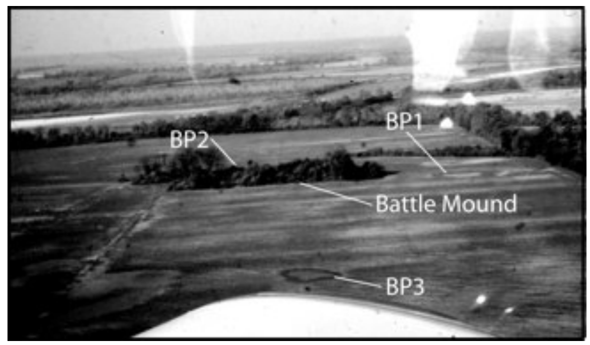

Figure 6.42. Aerial image showing borrow pits as they existed in 1980 (AAS 80-CO-1718; used with permission from the Arkansas Archeological Survey).

In the same aerial image, a large borrow pit (BP1) to the north of the large mound can be identified. A third borrow pit (BP2) is located on the west side of the mound and is not visible in this aerial image. Borrow Pits 1 and 2 are still visible on the surface today, whereas Borrow Pit 3 it is no longer visible in the present-day landscape because it was filled and leveled in recent years (Paul Brent, land owner, personal communication).

Anomalies of Natural Origin

Several anomalies present in the Battle Mound data are interpreted as being the result of natural causes. Identifying these naturally generated anomalies is the result of the use of a wide-area survey methodology and the ability to discern trends over a large area. These anomalies add to the already informative dataset and provide an insight into the dynamic nature of the Red River landscape.

Lightning Strikes. Two large and intense magnetic anomalies revealed in the Battle Mound data likely represent what Dalan (2008:23-24) discusses as isothermal remanent magnetization associated with lightning currents (Figure 6.43). Jones and Maki (2005) refer to these types of anomalies as lightning-induced remanent magnetism (LIRM). The two magnetic anomalies exhibit patterns of dipole polarity that is situated perpendicular to the anomalies long axis. Similar patterning has been recorded during magnetic gradiometry surveys (see Jones and Maki 2005; Dalan 2008; Simpson and Kvamme 2001). Maki (2005) examined soil samples gathered from an area that produced similar magnetic patterning to conclude that the magnetic anomalies were the source of LIRM rather than the product of an archaeological feature. In the Battle Mound data, one of the LIRM anomalies is almost 15 meters in length whereas the second is composed of four shorter linear dipoles that radiate from a central location (see Figure 6.43).

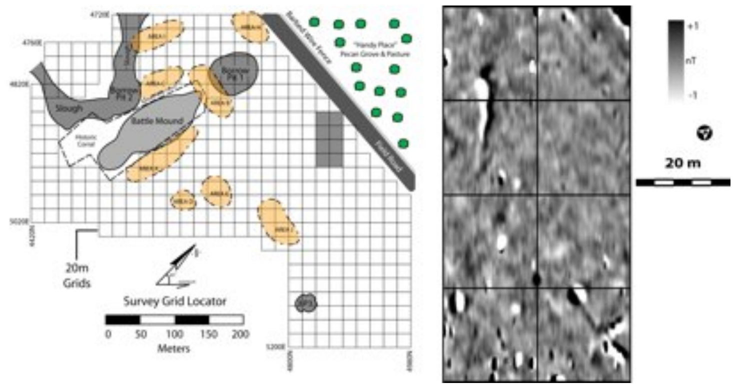

Figure 6.43. Two lightning-induced remanent magnetism anomalies producing interesting linear patterns of dipolar polarity situated perpendicular along the long axis of the anomaly.

Remnant Paleochannels. The Great Bend region is highly dynamic with a wide Red River meander belt. Several geomorphological studies of the Great Bend region have been conducted to locate and date variations in the Red River channel (see Guccione 1984; Pearson

1982; see also Chapter 2). These studies exemplify the geomorphic diversity of the Red River and the remnant scars left in the landscape.

Several long arcing bands of high magnetic values are easily discerned in the magnetic gradiometery survey. These bands can be confidently interpreted as remnant paleochannels (Figure 6.44). They exist primarily in the eastern portions of the survey area and are fairly systematic in their pattern. A comparison of USGS soil survey data with georeferenced magnetic gradiometry data reveals that visibility of the remnant paleochannels roughly correlates with interpolated changes in soil type. Interestingly, paleochannels are *more* apparent in areas composed of Latanier clay – a poorly drained, gently undulating soil type and are *less* apparent in areas composed of Caspiana silt loam – a well-drained soil type on natural levees bordering former river channels (see Laurent 1984). A further observation, worthy of note, is the correlation of the large mound and the majority of interpreted structures situated within the well-drained Caspiana silt loam soil type rather than situated on the poorly drained Latanier and Perry clay soil types.

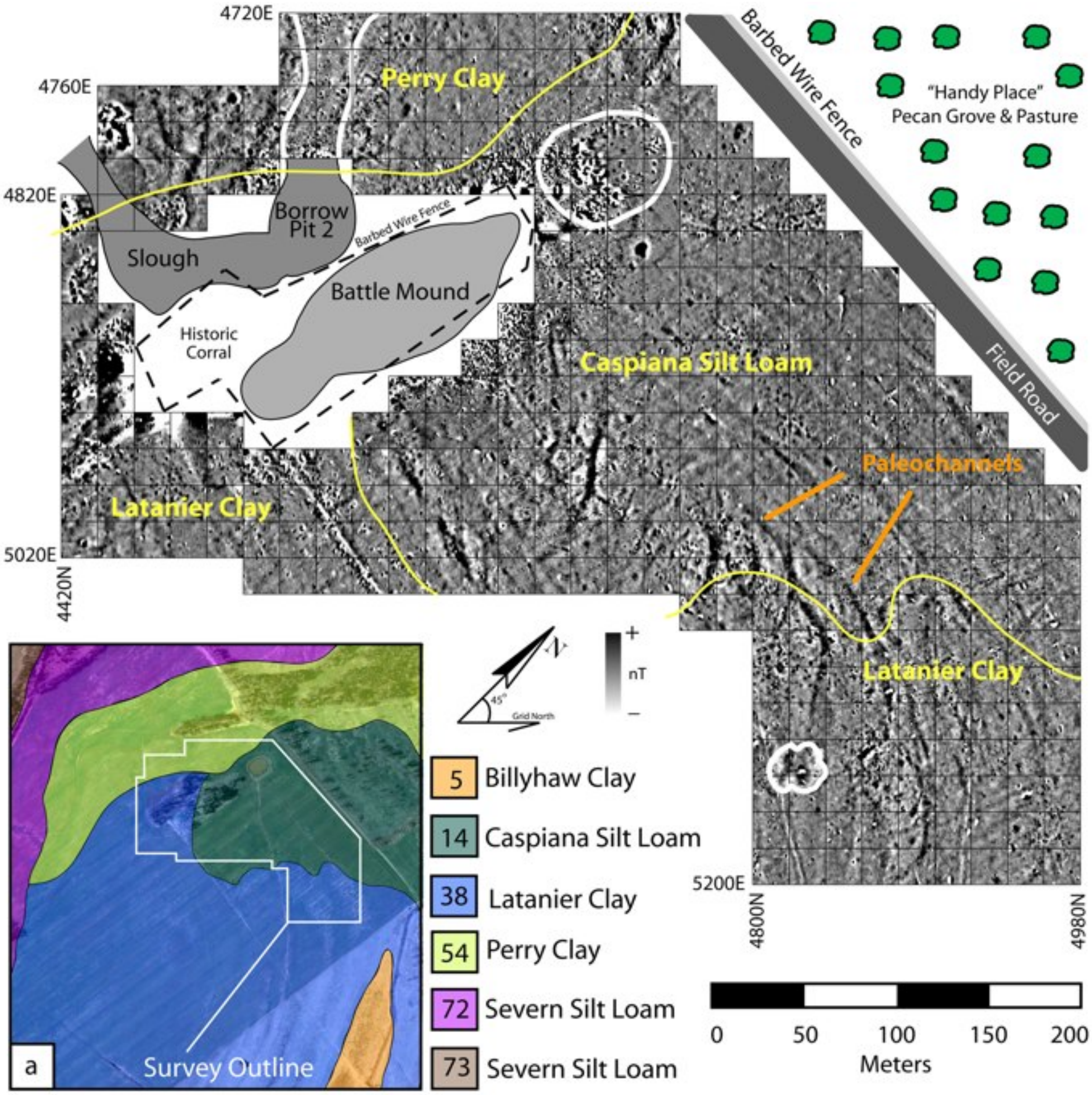

Figure 6.44. Identification of paleochannels: (a) Color schematic of soil types (after Laurent 1984). The survey area is outlined in white and is divided between three soil types. Note change of vegetation that forms similar arcs in the landscape (b) Interpolated soil gradation marked in yellow. The delineated areas reveal a change in paleochannel visibility.

The long arcing bands of high magnetic values are most likely the result of sediments containing higher magnetism being naturally deposited adjacent to the channels. Over time, these deposits have a potential to create large buildups, or berms, along the channel banks. This buildup of highly magnetic sediment can increase the overall magnetic signal in these areas. As the channels move, long bands of highly magnetic sediment are left where the former channel banks once existed. The result is long arcing bands of high magnetic values that can be measured by magnetic gradiometry instrumentation.

Modern Flood Channel. To the west of Battle Mound and close to Borrow Pit 2 are a series of high magnetic bands similar in size and distribution to the remnant paleochannel signatures. Rather than remnant paleochannel signatures, instead these bands are possible indicators of sediment buildup on temporary "banks" of a current small flood channel or slough that extends from the southern end of a slough (Figure 6.45). The flood channel is wider as it exits the slough and channels into Borrow Pit 2 forming an area of water accumulation and soil deposition.

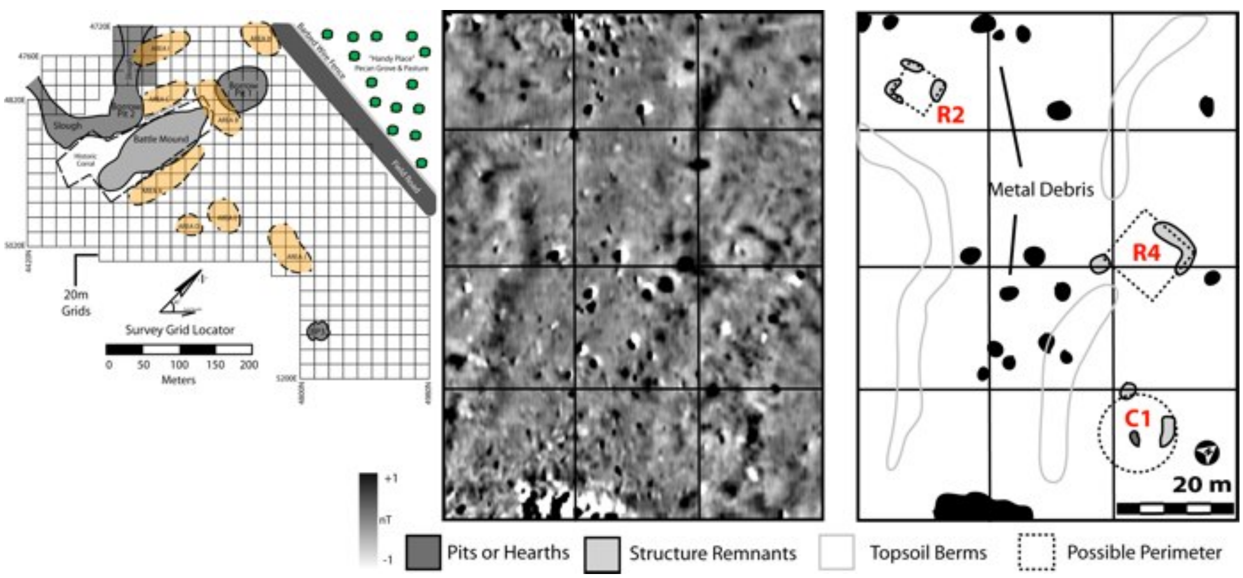

Figure 6.45. Evidence of topsoil deposition during flood events. Three possible structure perimeters can be discerned. Note the increased metal debris located mostly where it might have been deposited in the channel during flood events.

A high rain event, common in the Great Bend region (Figure 6.46), has the ability to carry magnetically enriched topsoil across the landscape during minor (and major) overland flooding. Linear topographic depressions on the fairly flat river basin can become natural conduits for water drainage during high rain events. In such an event, magnetically enriched topsoil is carried down natural conduits and is deposited along the temporary "banks" or eddies. The long linear bands in the magnetic gradiometery data are interpreted as the result of overland flooding events and subsequent soil deposition on the temporary "banks." Additionally, the spatial distribution of metal debris being mostly located between the two long linear bands suggests either the movement of metallic objects as they were carried into the flood channel and deposited during a high rain event or simply a location where more farming activity took place.

Figure 6.46. Surveying at Battle Mound after a five-day rain event. Photo taken by author.

Three potential structures (R2-4, C1) in the area are also interpreted based on a few geometric shapes of high magnetic value. Unlike other interpretations of structures within the Battle Mound survey dataset, evidence for associated pits and hearths are not discernable in this general area. Presumably, this is a result of a thicker sediment deposit (which may mask subtle magnetic anomalies) then in other more elevated areas distance from flood prone area. More so, based on USDA soil data (see Figure 6.44), this area is mostly composed of Perry Clay – a frequently flooded, poorly drained soil. Given this, evidence of additional structures and associated features may be "masked" by deeper layers of soil matrix within the modern flood channel.

Anomalies of Unknown Origin

While many types of anomalies have been identified and discussed, some are considered unknown in origin and will require additional investigation. At least three areas in the magnetic gradiometry data are classified as being unknown in origin (Figure 6.47).

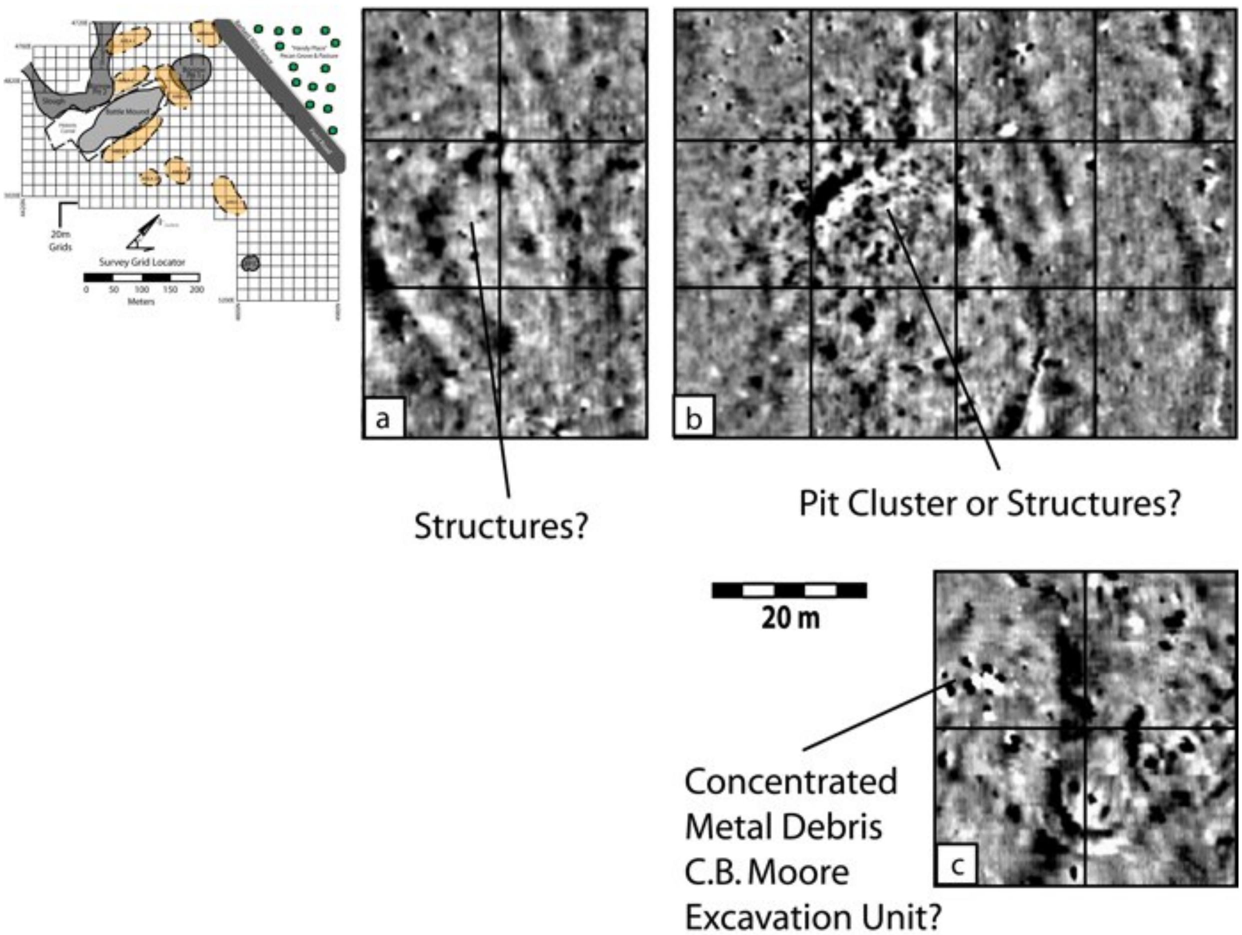

Figure 6.47. Anomalies of unknown origin: (a) Possible structure components, such as postmolds (b) Possible pits or structure components (c) Possible metal debris from C.B. Moore 1911 excavations on a low rise.

Several linear anomalies composed of high magnetic values forming a right angle allude to a possible large structure (Figure 6.47a). Alternatively, the location of these anomalies “mixed in” with those interpreted as paleochannels might suggest that these unknown anomalies also represent paleochannels.

A concentrated cluster of linear anomalies mixed with several isolated small circular anomalies suggests several anomalies of cultural origin (Figure 6.47b). Numerous anomalies in this area might represent a small cluster of structures with associated hearths and pits.

An interesting concentration of metal debris can be seen close to the proposed large circular structures (Figure 6.47c). Moore (1912) mentioned digging on a low rise to the east of the mound. This metal debris could possibly be metal trash related to those excavations.

Summary of Anomaly Interpretations

Archaeogeophysical data collection at the Battle Mound site has proved to be very successful in the development of an additional and important set of interpretations related to the intrasite spatial diversity of Caddo structures and other features. When the entire surveyed area (14.32 ha) is viewed across the landscape, numerous anomalies interpreted to be of prehistoric cultural origin are identified. The corpus of archaeogeophysical anomalies represent the possibility of a total of thirty-two circular structures, eighteen rectangular structures, farmstead areas, three compound fences, three community cemeteries, and a buried borrow pit that are interpreted as being likely Caddo in origin (Figure 6.48).

About 100 m west of the large platform mound is a mix of three rectangular and two circular structures (see Figure 6.48; McKinnon 2008, 2009, 2010b). Within one of the circular structures (C2), situated close to the mound, are geophysical anomalies that resemble a circular pattern of "ash pits" similar to those that have been identified archaeologically at other Caddo sites (see Webb 1959:43-44). The structure also contains a linear anomaly that is interpreted as an extended entranceway facing the west side of the mound. Extended entranceways are a fairly common architectural feature and have been documented throughout the Caddo area with directionality linked to cosmological beliefs about life and death (see Kay and Sabo 2006; Perttula 2009).

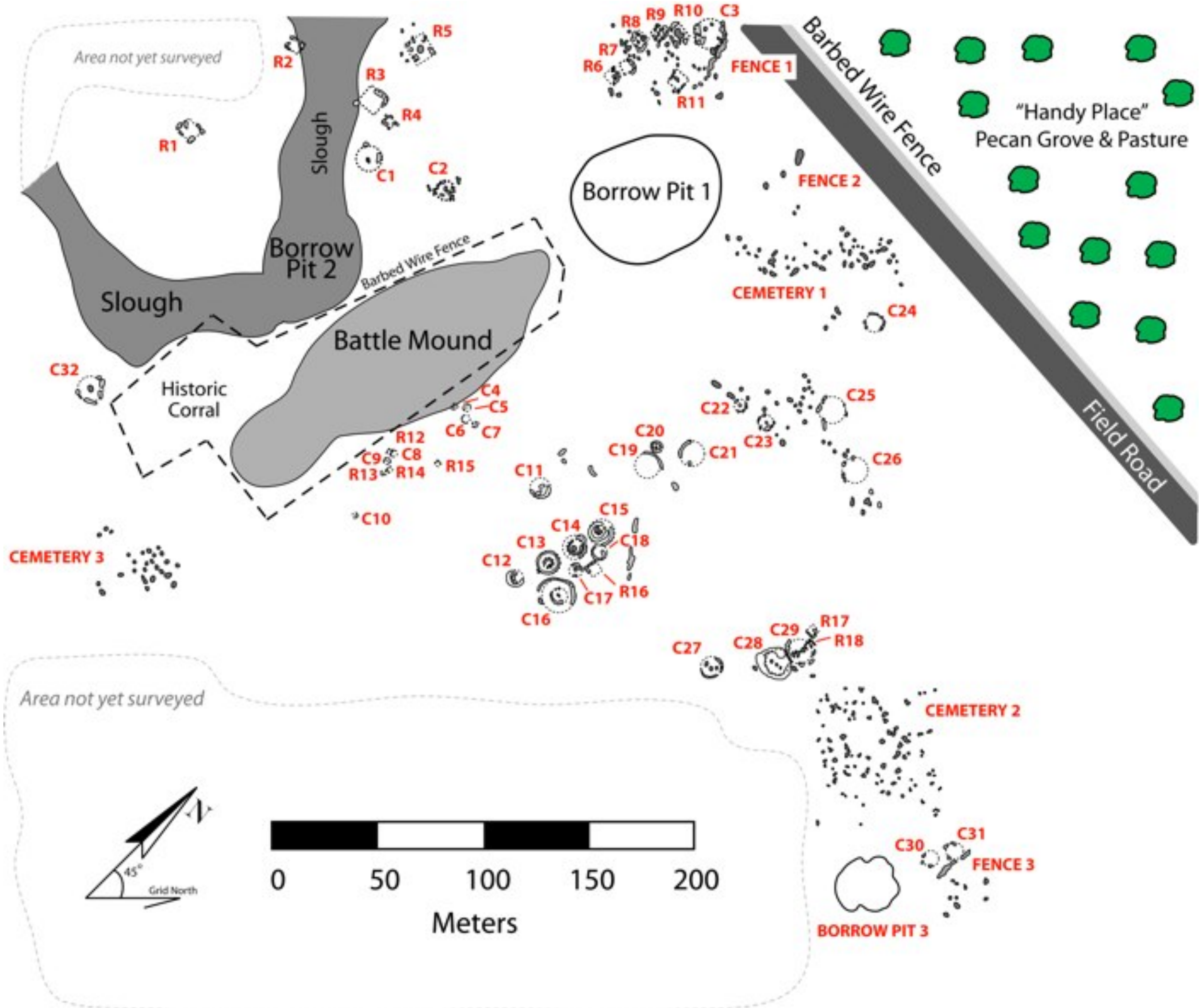

Figure 6.48. An image of interpretations of anomalies of potential cultural origin reveals their relationship to the large mound. Several clusters of possible Caddo structures can be discerned along with possible cemeteries and possible compound fences.

North of the large mound is a complex pattern of high magnetic signatures that form at least six rectangular structures (R6-11), one circular structure (C3), a compound fence (Fence 1), and many associated anomalies simply interpreted as pits (see Figure 6.48). This area of numerous anomalies borders what is frequently referred to as the Handy Place property, and is noted by Moore (1912:484; Weinstein et al. 2003:59) as a location of a Caddo cemetery area. The cluster of structures and associated features, the possible compound fence, and proximity to a cemetery area would seem to represent a possible farmstead compound in this area (see McKinnon 2008, 2009, 2010b; McKinnon and Brandon 2009). Compound fences have been interpreted at other Caddo sites (see Perttula 2005; Williams 1993) and have been demonstrated ethnographically as occurring with some regularity across a Caddo community (see Swanton 1942:pl.1).

East of the large platform mound are two low topographic rises no more than 1 m in height. According to Moore (1912:484; Weinstein et al. 2003:59), as many as four low rises were visible at the Battle Mound site during his visit in the early twentieth century. The two rises visible today are likely part of the four low rises that Moore identified. Each rise contains numerous circular structures and associated features. The first rise, approximately 100 m from the mound (Area E), contains at least seven circular structures (C12-C18). The easternmost rise, approximately 200 m from the mound (Area J), contains at least two large circular structures (C28, C29) and two small rectangular structures (R1, R18) with numerous intra-structure anomalies (see Figure 6.48).

The concentric circles that define the large circular structures on both rises are interpreted as the remnants of either a large “soil berm” constructed around the outside of the structure or an interior partitioned area of a large structure. The circular structures resemble certain excavated Caddo structures that have been archaeologically interpreted as characteristic of specialized structures, most likely used for ceremonial purposes (see

Webb 1983:219-221). Given their size, proximity to the mound, and distinctive patterning, these structures might represent a communal ceremonial space or possibly an area occupied by the *caddi*, or community political leader.

There are also anomalies of twentieth century origin associated with a tenant farm occupation. These anomalies are mostly located on the peripheries of the mound and are identified as large areas containing anomalies indicative of metallic debris (see Figure 6.14). Given the density of historic metallic debris in this area, the implementation of other archaeogeophysical instruments, most notably electrical resistivity, has proven productive in the identification of anomalies related to the Caddo occupation (see Figure 6.34).

Finally, a wide arcing band of Red River meander scars, evidence of lightning-to-ground events, and a modern flood channel have been identified (see Figures 6.43-6.45). These environmentally derived anomalies illuminate the dynamic natural processes that have occurred at the site over several centuries and hint at the nature of landscape change over time.

CHAPTER 7: SYNTHESIS AND FUTURE DIRECTIONS

"Emphasis is placed on what was learned from each method, and what the integrated information indicates about this site in a holistic sense."
Kenneth L. Kvamme and Stanley A. Ahler 2007:541

The purpose of the archaehistorical and archaeogeophysical datasets has been to develop a more complete (both quantitatively and qualitatively) perspective into the organization of the Battle Mound cultural landscape. The use of these datasets is an attempt to understand architectural variability and how differential use areas can be compared to ethnographic and archaeological data concerning Caddo community structure and landscape use.

When viewed independently, the analysis of each set of data has allowed for new insights into the organization of space and associated landscape use over time. For example, results from mound top excavations demonstrate a model of bilateral use during the later Haley and earlier Belcher phases, with structures and occupational areas on the south platform associated with communal and feasting activities and structures on the north platform associated with a more domestic space (Chapter 4). The analysis of systematically collected surface artifacts reveals the presence of differential use areas that are organized in relation to the central mound with the north and immediate east areas representing activities more domestic in function and the west, south, and further east representing activities more communal in function (Chapter 5). The geophysical data present the first broad scale visualization of the extent and intrasite distribution of a Red River community. The results reveal variability in type and distribution of anomalies that defines a dense Caddo community filled with structures, cemeteries, and farmsteads (Chapter 6).

Synthesis

When viewed cumulatively, the large amount of data gathered over the many years have been examined as an integrated suite of cultural variables that characterize Caddo culture and permit a glimpse at the contributions of individuals and their engagement and participation in a community at large. This integrated approach has allowed for a more holistic examination of spatial organization and settlement patterning, intrasite differential use and activity areas, and the cultural history at the site. In other words, this research has informed us on the space, place, and history of a particular Red River Caddo community.

Spatial Organization and Settlement Patterning

How does Battle Mound compare to what is currently known about the spatial organization and settlement patterning of Caddo communities and farmstead clusters?

This research demonstrates that the Red River Great Bend landscape is characterized by a combination of two settlement pattern models. First, when examined at a regional scale, the Spirit Lake Complex-Battle Mound Community-Kadohadacho-Province of Naguatex is composed of a settlement pattern defined by numerous farmsteads distributed several kilometers along the Red River. A large supporting platform mound (3LA1) is situated to the north of the community. Contemporaneous Middle to Late Caddo archaeological sites recorded in a dispersed pattern along the Red River throughout the Spirit Lake Complex document this “top down” view (see Figure 1.1). More so, the regional pattern is similar to the ethnographically documented Upper Nasoni community. Farmsteads and their structural components are situated at some distance from the mound with a “vacancy” of structures in the immediate proximity of the mound. A single structure is located on the mound.

Conversely, geophysical and surface data from the Battle site reveal that there are structures and cultural materials that define intensively utilized areas throughout the village area and up to the mound edge (see Figures 5.39 and 6.48). In other words, the areas proximate to the mound are not "vacant." As such, these data present a second and new "bottom up" intrasite model of settlement patterning in the Red River region "to take to the field and test for accuracy and time depth" (Schambach 1982a:7).

At this intrasite scale, the architectural composition and size of structures is similar to what has been documented at other Caddo sites (Kelley 1997; Lockhart 2010; Osburn et al. 2008; Perttula 2005; Walker and McKinnon 2012; Walters and Haskins 2000; Webb 1959; Wood 1981). In some cases, the form and construction are seemingly identical to those on the Terán map. For example, the geophysical data map the presence of a few rectangular structures and numerous highly magnetic circular Caddo structures. Corresponding surface collections contain higher occurrences of daub (< 10 pieces; see Appendix E), suggesting the remains of burned circular structures composed of wattle and daub wall construction and thatch roofs (specifically Area J; Harrington 1924:Figure 41; Trubowitz 1984:Figure 9-16b). Areas A, B, and C all contain higher amounts of daub from burned walled structures, but the dense historic metal debris has limited visibility into structure details in the magnetic data. Contrastingly, two areas (Area E and D) contain circular geophysical anomalies of low magnetism that represent differential use areas (Figure 7.1). In these corresponding areas, very little daub (< 10 pieces; see Appendix E) was collected demonstrating variability in architecture with a second type of structure more similar to a grass lodge without wattle and daub walls (Bolton 1987:159; Harrington 1924:Figure 40; Trubowitz 1984:Figure 9-16a). These grass lodge structures may still have been burned, but their lack of wattle and daub significantly reduces the potential for higher magnetic readings (see Kvamme 2006a). If burned, a grass lodge would easily erupt into flames, quickly engulfing the structure, and completely burning within a few minutes never having an opportunity to remain at the Curie point for much time. In fact, the rapid burning of a grass lodge structure has been documented with the modern construction and subsequent burning (after several years) at the George C. Davis (41CE19) site in east Texas (Texas Beyond History 2003). In that experiment, a grass lodge was constructed by the Texas Parks and Wildlife Department to better understand construction methods (Cheatham 1992). After several years, the structure was set aflame and within minutes it had fully collapsed and the fire diminished. Within a year, the location of the former structure had returned to its previous grassy state.

In Area I (west) and Area H (north), rectangular structures dominate (see Figure 6.48) with Area H containing the highest amount of daub and high magnetic signatures (see Figure 6.40). Additionally, supporting architectural features and activity areas are also interpreted, such as outdoor cooking areas, evidence of possible drying racks and ramadas, community cemeteries, and possible compound fences (Perttula 2005; Williams 1993).

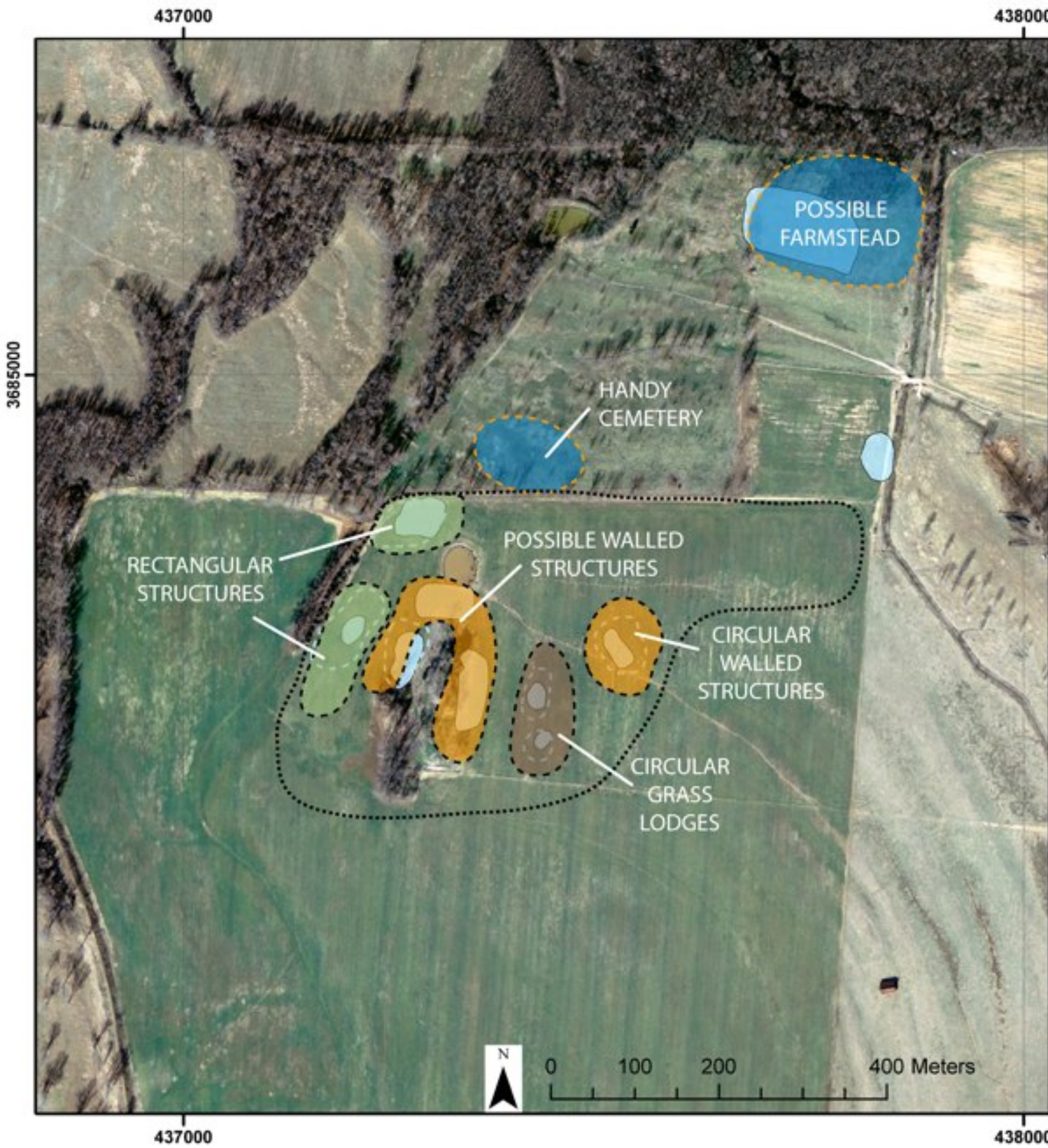

Figure 7.1. An interpretation of the architectural landscape reveals variability in architecture composition and form associated with spatial organization and settlement patterning.

In addition to the village area, the mound top excavations document the presence of multiple structures and construction sequences tied to the burning, burying, and rebuilding of structures. This cyclical process where structures are deliberately burned and then covered with a layer of soil has been documented at other central Caddo sites (Trubitt 2009; Webb 1959; Wood

1963b). The structures are circular in form and represent two different construction sequences. The first consists of the roof retrofit of a well-used cookhouse (Structure 1) whereas the second is a succession of burning, burying, and rebuilding (Structures 2 and 3). While only one mound structure is documented on the Terán map, the presence of multiple (contemporaneous) structures located on central Caddo mound summits have been identified (Early 1988; Schambach 1996; Weber 1971, 1972, 1973). Also interpreted are the presence of several occupational areas and their associated architectural features on the south end of the mound. The occupational areas were associated with cooking activities close to the mound, similar to what was identified at the Tom Jones (3HE40) site (Lockhart 2007, 2010). Ceramic and radiocarbon data demonstrate the area was utilized during the late Haley phase until the south platform was built over the top during the early to middle Belcher phase. It is unknown if structures were placed on top of the southern platform after it was constructed (although likely), since most of the top few centimeters have been eroded away as a result of the former historic house at that location (see Figure 4.3).

The use of a "bottom up" approach to comparing ethnographic accounts of spatial organization and settlement patterning activities to the archaeological record demonstrate a higher density of architectural features and variation than observed in the "top down" approach. In short, the familiar structures, farmstead groups, and compound fences are much more closely organized than those documented in ethnographic accounts of Red River settlement patterning. Additionally, the integration of geophysical and surface data documents variability in the type of structures (walled circular, grass lodge circular, and walled rectangular) and associated use (see Intrasite Behavioral Practices below).

As for the question of scale within the Terán map, the stylistic map could represent either scale, although the “bottom up” perspective seems more spatially “accurate.” The “bottom up” perspective suggests that what is visualized on the Terán map is a zoomed-in truncated image of the larger Upper Nasoni community, rather than the widely dispersed community in its entirety. Either way, this research shows that an examination at multiple scales of resolution can inform us about the spatial organization and settlement patterning of Caddo communities and how these underlying principles that define space have endured or been modified over time (Sabo 2012:446). It also proposes a new intrasite model that can be productively tested with geophysical methods and the mapping of the distribution of features within large village areas. The continued use of geophysical methods in the Red River valley to visualize settlement patterning is critical in the identification of “small dispersed midden areas that actually made up the villages” (Schambach 1982:9; see Buchner et al. 2012 for an example of a multi-discipline survey model with Caddo settlement patterning in mind).

Integrated Intrasite Behavioral Practices

Are there differential use areas or intrasite behavioral practices that influenced settlement patterning and use of space?

The integration of mound excavations, surface material, and geophysical anomalies offer insights into intrasite behavioral practices and associated differential use areas. At the most basic level, geophysical and surface data document fairly isolated areas of historic landscape use with high metallic anomalies and historic artifacts distributed primarily on the north and east sides of the mound (see Appendix C). The location of these historic period anomalies and artifacts close to the mound are linked to agricultural behavioral practices that necessitated that the buildings be close to the mound to allow for the maximum amount of fertile land to be cultivated. The location possibly also served as an attempt to manage environmental conditions with the winter morning sun rising to heat the east facing structure and the looming mound providing some level of shade in the summer as the hot sun sets to the west.

In terms of the Middle and Late Caddo occupation, differential use of space is also apparent (Figure 7.2). Geophysical and surface collection data in the village document clusters of circular structures situated on low rises (Areas D, E, and J). The sandy low rises are the result of ridge and swale topography along with the likely deliberate addition of earth to create low house mounds. Such behavior would have been dually beneficial. Functionally, the permeable sandy soil provides a naturally drier area less prone to frequent flooding in the surrounding clay soil (see Figure 6.46). Socially and symbolically, the low mounds represent an elevated space that befitted in the elevated status of the inhabitant or inhabitants. The difference in proposed architecture types found on the low mounds represents differences in function and social use (Webb 1940). For example, the large high magnetic walled structures on the low mound in Area J are proposed as meeting or council houses where it has been documented that the "council building was a large one, and the architecture apparently was different from that of the round grass lodge" (Bolton 1987:119). Relatedly, the low magnetic cluster of several grass lodge circular structures in Areas D and E are proposed as temporary (seasonal?) structures that housed "chief men" and "emissaries" from surrounding tribes during periods of ceremony and visitation (Bolton 1987:119; Giffith 1954:133).

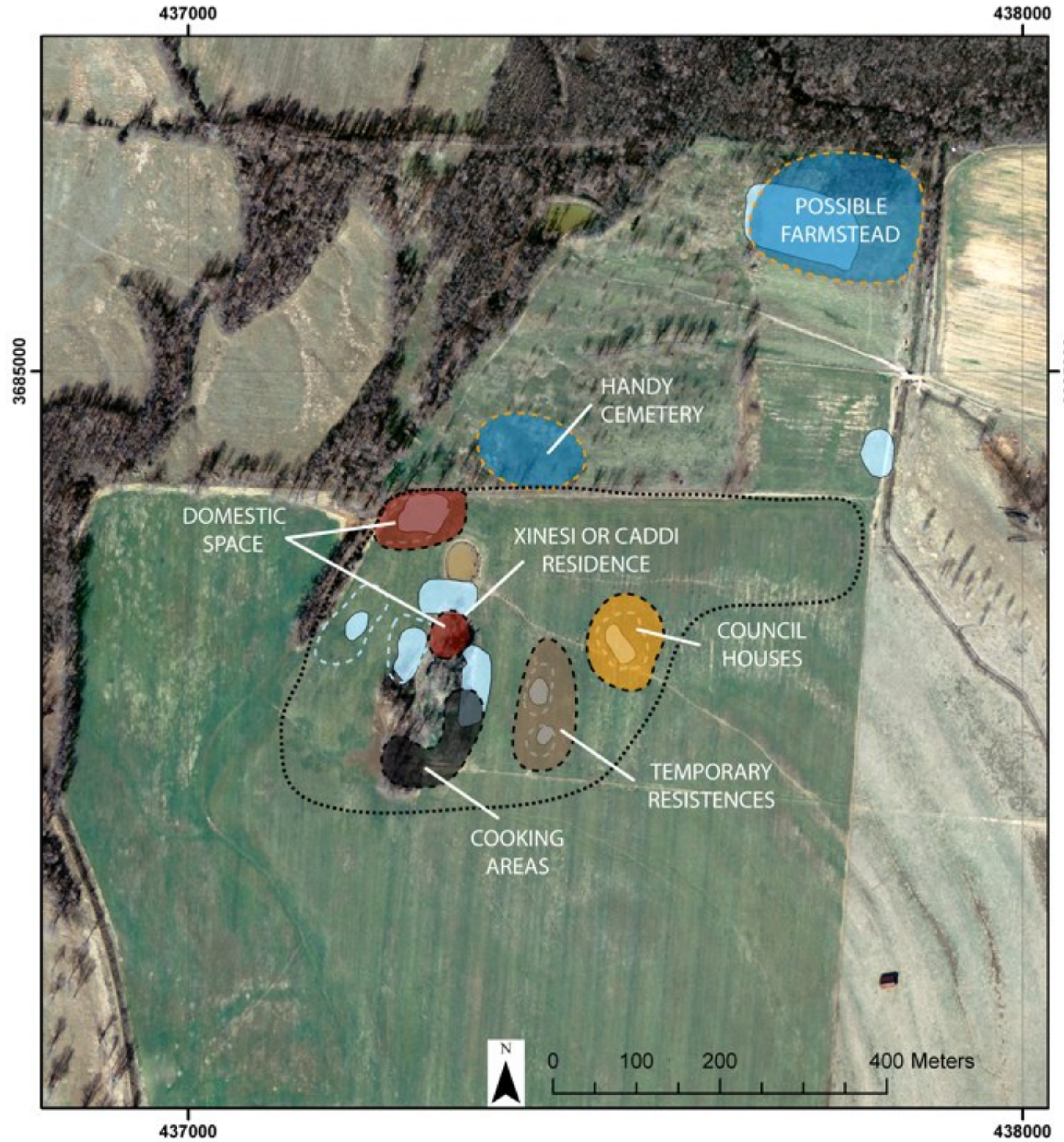

Figure 7.2. An interpretation of function proposes the presence of several differential use areas based on architectural interpretations.

As documented in ethnohistoric accounts, visiting relations between the Hasinai groups of east Texas and the Red River Kadohadacho were frequent and reciprocal. Neighboring groups would visit "en masse" after seasonal harvests to "renew their friendships, reaffirm their pledges of mutual aid against common enemies, exchange gifts, carry on trade, display prowess, and make merry together" (as cited in Griffith 1954:133). Additionally, similar visits and celebrations would certainly have occurred with groups in the Arkansas, Ouachita and Ozan Creek drainages and beyond. Ceramic and other artifact styles found at the Battle site and documented at far reaching sites in Clark, Columbia, Garland, Hempstead, Hot Spring, Montgomery, Ouachita, Pike, and Pulaski counties in Arkansas (to name just a few) demonstrate this integrated exchange and reciprocity of social concepts and ideas (McKinnon 2011b; 2012c).

In preparation for these elaborate celebrations, individuals throughout the community were summoned together to provide food and construct lodging for important members of the visiting groups (Griffith 1954:133). Such temporary and palimpsest activities in Areas D and E explain the lack of daub linked to the construction of temporary grass lodges (which would burn quickly and leave little thermoremnant signature), the low number of ceramics in these areas (since vessels would likely have been communally situated within the council house and not in the temporary dwellings), the close spatial relationship to the mound and council houses in Area J, and the high concentration of low magnetic circular structures.

Additional areas of differential use in the village are the presence of at least one farmstead group and possibly more. For example, Area H, northwest of the mound, contains numerous magnetic gradiometry anomalies of high magnetic signature. It also contains the highest quantity of ceramic sherds, lithic debris, and daub pieces. In other words, it is proposed that Area H represents an area of increased activities directly associated with daily behaviors and domestic duties. Area H also contained the highest amount of brushed (n = 247) and undecorated (n = 355) sherds (see Appendix E) – design attributes associated with vessels of more utilitarian use. Interestingly, Area A (also interpreted as a domestic area) is second in terms of the number of brushed (n = 181) and undecorated (n = 309) sherds recovered (see Appendix E). A second possible farmstead is located some distance from the mound (Area G). The amount of surface material collected in this area is quite high (n = 795), despite the 700 m or so distance from the mound. Ceramic material includes evidence of Haley and Belcher phase types and the presence of daub documents the remains of at least one burned structure.

Lastly, differential use areas are present on the mound with the south platform associated with communal activities and the north platform associated with domestic activities (Chapter 4). The large fire pits, an abundance of oversize cooking vessels, and the possible ritual "hardware" (Hempstead Engraved and Moore Noded vessels) found in Structure 1 document the cooking of large quantities of food directly associated with various communal ceremonies. The structures on the north platform are the locations of the residence of an important high-ranking individual, such as the chiefly *Xinesi* or *Caddi*. Furthermore, the burning and burying of Structures 2 and 3 are likely associated with mortuary events and the death of the high status individual(s) that lived on the mound sometime during the middle to late 14th century (Webb 1959:110).

When integrated intrasite behavioral practices are summarized as a whole, communally based events are associated with the eastern extent of the site, with the interpretation of council houses and temporary dwellings for visiting dignitaries situated on the low rises (see Figure 7.2). Communal space is also extended to the south of the mound with "occupational areas" as places utilized for the preparation of food tied to feasting ceremonies. On the north platform of the mound is the home of the community leader, perched up on the mound platform and socially and symbolically linked to the daily activities and events associated with the domestic structures in Area H, also on the north.

Caddo Culture History

What is the Caddo culture-history at the site and how does this history fit into what is known about settlement patterning, architectural features, and associated behavioral processes within established geo-temporal classifications or archaeological phases that define the Great Bend region?

The temporal information gained from this research further confirms that the Battle site was a principal mound center during the Middle and Late Caddo period (A.D. 1200 – A.D. 1700). Certainly, the site and its occupants were instrumental in maintaining social cohesion throughout the Red River Valley and beyond.

Radiocarbon Dates. At present, there are four radiocarbon dates from Battle. All of them are from mound contexts and demonstrate that the mound was in use during the Haley and Belcher phases (McKinnon 2011a, 2012a; Valastro et al. 1972). Within the Spirit Lake Complex, there are several sites that contain Haley or Belcher phase components (Figure 7.3).

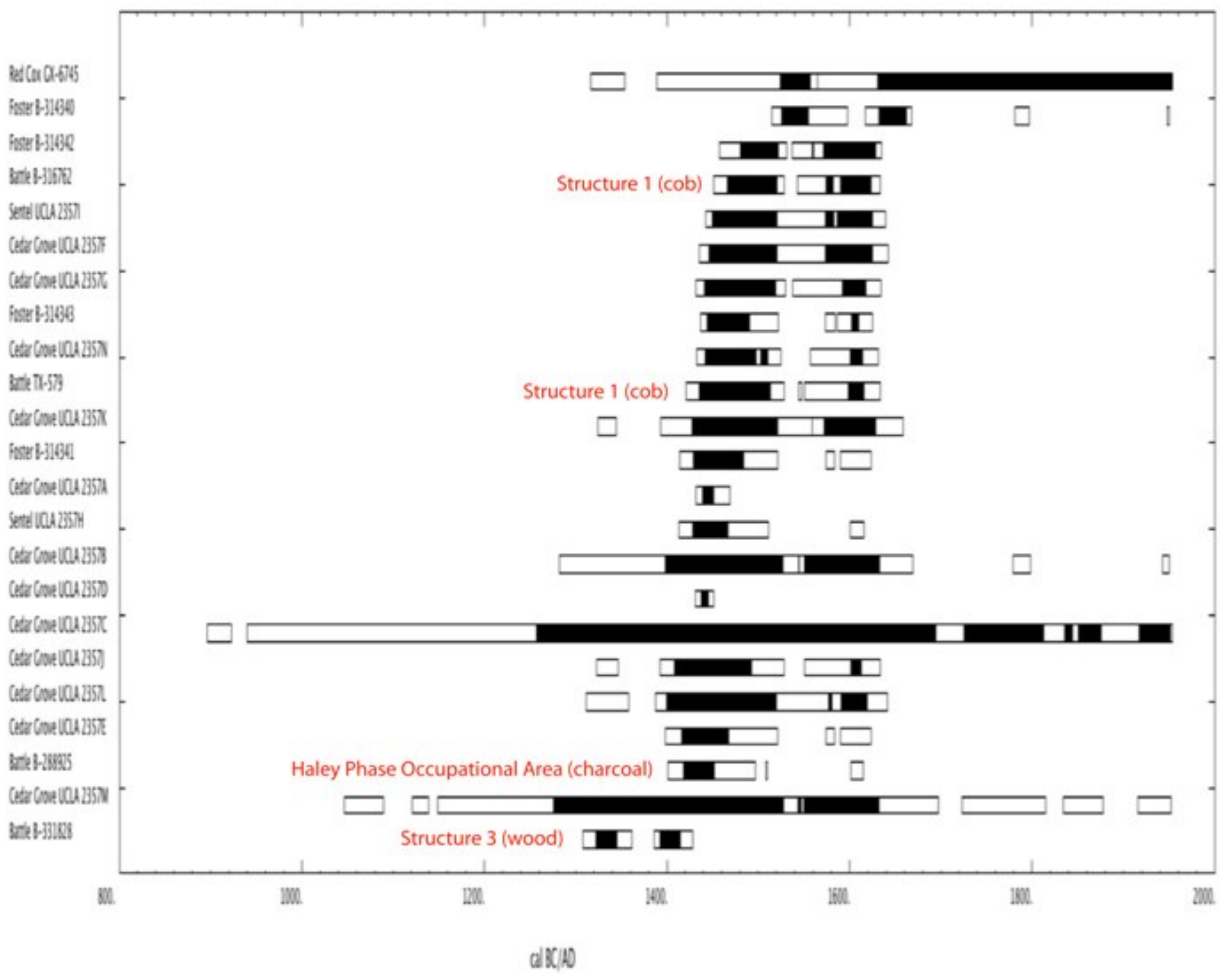

Figure 7.3. A selected series of radiocarbon dates demonstrate numerous concurrent occupations in the Great Bend region. Calibrations calculated with IntCal09 curve using CALIB 6.1.0 (Reimer et al. 2009; Stuiver et al. 2005).

Sites like Cedar Grove (3LA97), Red Cox (3LA18), Sentell (3LA128), and Foster (3LA27) contain radiocarbon dates that demonstrate some level of contemporaneity with the Battle site. Another site, not listed in Figure 7.3 (because of the lengthy list of radiocarbon dates), is the Crenshaw (3MI6) site where recent radiocarbon dates suggest that the large number of ritually distributed skulls and mandibles were deposited over a period of time during the Haley phase (Samuelsen 2011).

Ceramics. Ceramic material collected from both the mound and village area is predominantly of Haley and Belcher phase types. Familiar Red River types, such as Foster

Trailed-Incised, Pease Brushed-Incised, and Moore Noded are numerous. More so, varieties of Haley and Belcher phase ceramics have been found at numerous sites throughout the Caddo area. For example, a distributional analysis of Foster Trailed-Incised vessels reveals that vessels of similar form and style are located within two clusters along the Red River and upper Ouachita drainages and are dispersed eastward into the Arkansas River Valley and west into a couple locations in east Texas (McKinnon 2011b). Similarities in ceramic design attributes suggest that the occupants of Battle Mound (and the larger Spirit Lake Complex) were engaged in long distance interaction and cultural linkages with groups up and down the Red River Valley and throughout the Caddo Homeland at least during the Middle and Late Caddo period (Figure 7.4).

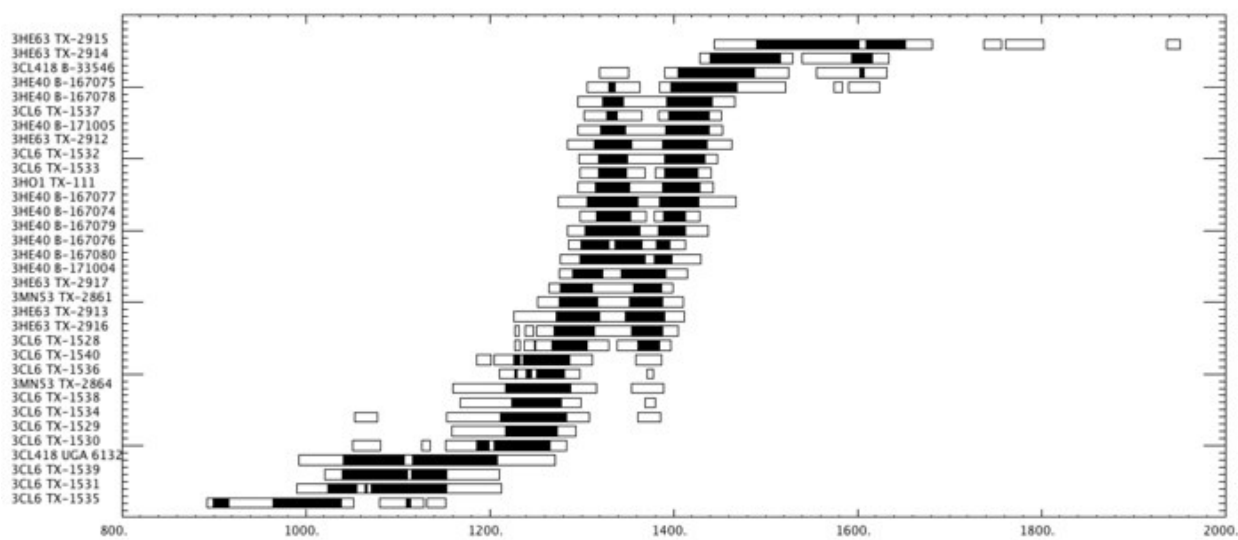

Figure 7.4. A selected series of radiocarbon dates demonstrate numerous concurrent occupations beyond the Red River Valley. Calibrations calculated with IntCal09 curve using CALIB 6.1.0 (Reimer et al. 2009; Stuiver et al. 2005).

Mound Construction. The proposed mound construction sequence, although not fully realized, is characterized by an occupational cooking area (south) and companion domestic structure (north, Structure 3) during the Haley phase. At some later time around a transitional period, the occupational area was covered and the south platform was constructed. It is still not known if the large mound at Battle evolved from a single mound (all built at once during the south platform construction) or several separate mounds (three?) that became conjoined over time (also during the south platform construction). Current data suggests that the south platform was added and joined to what is now the central main portion of the mound during the early Belcher phase.

The differential use of space that develops during the Haley phase continues into the early Belcher phase with the cookhouse (Structure 1) built on the south platform. Similar differential use on mound platforms has been documented elsewhere as temporally associated with Middle Caddo periods. Structures vary in shape and dimension, yet the organization, use, and disposal is similar. This consistency demonstrates the presence of a set of underlying principles that govern the layout and integrated ceremonies rather than a specific adherence to architectural shape (Early 1988; Schambach 1996; Weber 1971, 1972, 1973). Such reasoning is in line with the suggestion that during this time there was a change in mortuary ceremonialism from the veneration of individuals to a veneration of structures or buildings during the Haley phase (Schambach 1996:41).

Future Directions and Considerations for a Red River Survey

The Battle Mound archaeohistorical and archaeogeophysical data primarily focused on intra-site scale during the Haley and Belcher phase time periods. A synthesis of these data have informed us about the organization of a specific Red River community and proposed a model to be tested and refined at other Red River sites.

Red River Survey: Site Excavations

Geophysical interpretations of the village area have been guided using deductive and inductive reasoning to form interpretations about the type of structures, the composition of the structures, and activities related to the structures. This does not obviate the need to excavate a target set of anomalies to refine interpretations ("ground truth") and to develop an interpretive corpus of community village attributes that can be compared with other Red River excavations (Hargrave 2006). Excavations should be focused on the following goals:

1. Investigate interpretations related to concentric circle patterning and associated sand berms. As a geophysical dataset, the concentric circle patterning is unique in Caddo geophysical surveys. Does the patterning represent a distinctive Red River architectural feature?
2. Identify the community cemetery. Not only does the identification of a community cemetery contribute to a better understanding of the spatial layout of a Middle to Late Caddo mound community, but also demonstrates the use of geophysics to avoid these types of cultural features. Excavations should be focused on the simple identification of a burial that can then be extrapolated to other anomalies of similar magnetic signature and approximate size.
3. Gather radiocarbon dates in the village area. As of this research, radiocarbon dates are only available from mound contexts. In order to better understand the temporal relationships of the numerous geophysical anomalies, the collection of carbonized material for radiocarbon dating is critical.

While the mound itself is not in immediate threat of destruction (although cows have been known to erode the mound) and overall preservation at the site is fairly good, efforts should be taken to consider steps necessary for site preservation. The agricultural economy of the Red River is changing (or has certainly changed already) and farmers are diversifying how they use the land. It is unknown how these changes (and landownership) may impact the current stability of the site – and by site it should be emphasized (as geophysical results demonstrate) that the "site" is not just the mound (see Dunnell and Dancey 1983).

Red River Survey: Resolution and Scale

The Battle site is the first Red River community to receive the amount of geophysical coverage necessary for an examination of settlement patterning at both "top down" and "bottom up" scales of a community village. The testing of these two scales will allow for a multiple resolution and scale approach. Results from these data should be integrated with additional cultural datasets that will inform on other cultural attributes. Such integration will allow for the creation of a "parallel system of classification" (Galaty 2008:243) that can be comparatively used in distributional studies of a variety of archaeological datasets.

One example would be to build upon petrographic foundations established by Shepard (1971) and advanced by Stoltman (1989, 1991, 2000), among others, toward a program of site specific and quantitatively based digital petrographic ceramic temper or 'recipe' analyses (see Livingood 2007; Ortmann and Kidder 2004). In terms of Caddo ceramics, objective petrographic analyses are desperately needed in order to facilitate and develop systematic control and management of specific sets of temper recipes that go beyond the current corpus of idiosyncratic and subjective temper descriptions derived primarily from "perceptions, experience, and implicit biases of the individual researcher" (Sinopoli 1991:50). The unique and transformational integration of geophysical and digital petrographic methods to explore relational dynamics and traditions across cultural landscapes would offer a new approach to facilitate comparative understandings of settlement patterns, regional movement and interaction of groups, and economic and social trade throughout the Red River Valley.

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APPENDIX A – GEOMORPHOLOGY SOIL CORE DESCRIPTIONS

Battle Mound Core Location 1

Location:. Natural Levee (Core 1) **Latitude and Longitude:** 33° 18' 02.640"N 93° 39' 40.008"W **Elevation:** 68.58 m	**7-1/2" Quadrangle:** Garland **Township and Range:** SE ¼, NW ¼, Sec 2, T17S, R25W **County and State:** Lafayette County, Arkansas **Soil:** Rilla Silt Loam **Described by:** Albarran, Curry, Welcome, Wood

Geomorphic Position: Natural Levee

Elevation (m)	Depth (cm)	Thickness (cm)	Horizon	Parent Material	Description
68.58	0-10	10	Ap	Bank deposits	Dark brown (10YR 3/3) silt loam; moderate medium sub angular blocky structure; many medium roots, few fine and medium root pores; clear boundary.
68.50	10-33	23	A	Bank deposits	Brown (10YR 4/4) **silt loam**; moderate fine granular structure; few fine roots, few fine root pores: clear boundary.
68.70	33-64	31	A	Bank deposits	Brown (7.5YR 4/6) **silt loam**; moderate fine granular; few fine root pores; few fine roots; gradual boundary
67.96	64- 152	88	B	Distal Over bank	Yellowish red (5YR 4/6) clayey sand; moderate fine granular structure; few fine roots, many fine root pores; gradual boundary
67.07	152-182	30	Bss	Distal Over bank	Dark red (2.5YR 3/6) silt clay loam; strong fine platy structure; no bedding; few fine roots, many fine root pores; gradual boundary
66.78	182-247	65	B	Distal Over bank	Dark red (5YR 4/6) silt loam, moderate medium sub angular blocky structure; many fine roots, many fine root pores; gradual boundary.

66.70	247-274	30	B	Distal Over bank	Reddish brown (5YR 4/6) **silt loam**, moderate medium sub angular blocky structure; many fine roots, many fine root pores; clear boundary.
66.37	274-285	11	B	Over bank	Brown (7.5YR 5/6) **silt loam**, massive; few fine roots; few fine root pores; clear boundary.
66.22	285-358	73	N/A	N/A	missing
65.49	358-385	27	B	Channel fill	Brown (10YR 8/5) sandy loam; massive; few fine roots; clear boundary.
65.22	385-394	9	2C	Channel fill	Light brown (10 YR 6/6) fine sand; single grained; Abrupt boundary.
65.13	394-427	33	2C	Channel fill	Light tan (10 YR 3/8) **fine sand**; single grained; abrupt boundary.
64.80	427-432	6	2C	Channel fill	Dark brown (7.5 YR 6/4) sandy loam; massive abrupt boundary.
64.74	432-467	35	2C	Channel fill	Brown (7.5YR 6/6) **loamy sand**.

Battle Mound Core 2

Location: 5 km south of Spirit Lake in Lafayette County, AR.
Latitude and Longitude:
33º18’01.682”N, 90º40’17.065”W
Elevation: 68.58 m (225 feet)

7-1/2" Quadrangle: Garland
Township and Range: Sec 3, T17S, R25W
County and State: Lafayette, Arkansas
Soil: Mapped as Caspiana silt loam
Described by: McKinnon and Farkas Alcahe

Geomorphic Position: Within the Red River floodplain, 1.16 km east of current channel.

Elevation (m)	Depth (cm)	Thickness (cm)	Horizon	Parent Material	Description
68.58	0-14	14	Ap	Overbank	Dark brown (10YR 3/3) silt loam; moderate medium subangular blocky structure; many fine roots; few fine pores; clear boundary.
68.44	14-68	54	B	Overbank	Strong brown (7.5YR 4/6) **silt loam**; moderate fine subangular blocky structure; clear boundary.
67.90	68-82	14	Ab	Overbank	Dark brown (7.5YR 3/4) **loam**; moderate medium subangular blocky structure; few fine roots; few fine pores; abrupt boundary.
67.76	82-150	68	C	Pointbar Sand	Yellowish red (5YR 5/8) **sand**; single grained; gradual boundary.
67.08 66.90	150-168+	18	C	Pointbr Sand	Yellowish red (5YR 5/8) sand; single grained; bedded.

Red River Arkansas Battle Mound Site #3

Location:. Red River
GPS coordinates: WGS 84
Latitude and Longitude: 33º 18' 02.058"N
93º 40' 28.969"W

Elevation: 67.66 m (222 feet)

7-1/2" Quadrangle: Garland
Township and Range: NE ¼ SE ¼ of Sec 3, T. 17 S, R 25 S.
County and State: Lafayette Co., Arkansas
Soil: Mapped as Perry Series
Described by: Feinstein, Fouts, Reid, and Smith

Geomorphic Position: Natural levee

Elevation (m)	Depth (cm)	Thickness (cm)	Horizon	Parent Material	Description
67.66	0-11	11	A	Organics	Dark yellowish brown (10YR 4/4) silt loam, moderate medium subangular blocky structure, many medium roots, abrupt boundary.
66.55	11-44	33	A	Overbank (silt from floods)	Brown (7.5YR 4/4) **silty clay**; moderate coarse angular blocky structure; few medium distinct dark gray (10YR 4/1) concentrations ; many fine roots, common fine root pores: clear boundary.
67.21	45-70	25	Bw	Overbank (silt from floods)	Dark reddish brown (5YR 3/4) silty clay; common medium distinct very dark grayish brown (10YR 3/2) depletions, strong coarse angular blocky structure; common fine roots; common fine roots; common thin patchy cutans, clear boundary.
66.95	71-103	31	Bg	Overbank	Dark reddish gray (5YR 4/2) **clay**; many fine distinct dark yellowish brown (10YR 4/4) concentrations; moderate fine angular blocky structure; few fine roots; few fine root pores; few thin patchy cutans; abrupt boundary.
66.63	103-177	74	B	Overbank	Dusky red (2/5 YR 3/3) silt loam; common medium distinct dark gray (7.5YR 4/1 depletions; moderate fine angular blocky structure; few fine roots; few fine root pores; clear boundary.

65.89	177-202	25	B	Overbank	Dusky red (2.5YR 4/3) silt; few fine faint dark gray (7.5YR 4/1) depletions; strong medium angular blocky structure; few fine root pores; few thin patchy cutans; gradual boundary.
65.63	203-262	59	B	Overbank	Dusky red (2.5YR 4/3) silty clay; common medium distinct dark gray (7.5YR 3/1) depletions; strong medium angular blocky structure; few fine root pores; clear boundary.
65.03	263-271	8	B	Channel fill	Reddish brown (5YR 4/3) loam; few fine faint black (7.5YR 2.5/1) concentrations; massive; clear boundary.
64.95	271-284	13	B	Channel fill	Dark reddish gray (5YR 4/2) silt loam; few fine faint depletions (7.5YR 2.5/1 black); massive; gradual boundary.
64.04	362-372+	10+	B		Dusky red (2/5YR 4/4) silt loam; weak fine massive structure.

Garland, Arkansas Core 4

Location:. 1.9 km southeast of Battle Mound, 2.6 km east of Red River.
Latitude and Longitude: 33°17’33”N
93°39’13”W

Elevation: 68.88 m (226 feet)

7-1/2" Quadrangle: Garland
Township and Range: SW ½, NE ½, NE ½, Sec 11, T17S, R25W
County and State: Lafayette County, Arkansas
Soil: Mapped as Rilla Silt Loam
Described by: Taylor Friesenhahan, Keshia Koehn, Loren Labusch, Darrell Pennington, Anna Nottmeier, and Angela Rowland

Geomorphic Position: Natural levees bordering abandoned channels near the backswamp of the Red River

Elevation (m)	Depth (cm)	Thickness (cm)	Horizon	Parent Material	Description
68.88	0-34	34	A	Distal Overbank	Dark reddish brown (5YR 3/3) **silt loam**; few fine faint MnO_2 RMF; moderate medium subangular blocky structure; common

				Deposit	fine roots; clear boundary.
68.54	34-59	25	B	Distal Overbank Deposit	Yellowish red (5YR 4/6) **silty clay loam**; few fine faint MnO_2 RMF near bottom boundary; moderate medium subangular blocky structure; common fine roots; gradual boundary.
68.29	59-81	22	B	Distal Overbank Deposit	Reddish brown (5YR 4/4) clay loam; few fine faint MnO_2 RMF near top boundary; moderate medium subangular blocky structure; common fine roots; few fine root pores; abrupt boundary.
67.73	81-149	68	Bt	Distal Overbank Deposit	Reddish brown (5YR 4/4) silty clay loam; weak subangular blocky structure; few fine roots, few fine pores; few thin patchy clay films; clear boundary.
66.52	149-270	121	C	Distal Overbank Deposit	Strong brown (7.5YR 4/6) **silt loam grading down to a very fine sandy loam**; massive; clear boundary.
66.25	270-297	27	2Bwb	Natural Levee	Yellowish red (5YR 4/6) very fine sandy loam; weak subangular blocky structure; clear boundary.
65.30	297-392	95	2C	Natural Levee	Reddish brown (5Y 4/4) **very fine sandy loam**; massive; clear boundary.

APPENDIX B – GEOMORPHOLOGY SOIL GRAIN SIZE ANALYSIS

Battle Mound Core 1

Sample Depth (cm)	% Gravel	% Very Coarse Sand	% Coarse Sand	% Medium Sand	% Fine Sand	% Very Fine Sand	**% Total Sand**	% Coarse Silt	% Medium Silt	% Fine Silt	**% Total silt**	**% Clay**
21	0	0	0	0	0	23	**23**	61	7	4	**72**	**5**
47	0	0	0	0	0	32	**32**	56	5	-5	**56**	**12**
152	0	0	0	0	0	0	**0**	49	8	5	**62**	**37**
198	0	0	0	0	0	0	**0**	1	18	11	**30**	**70**
267	0	0	0	0	0	26	**26**	49	5	1	**55**	**19**
307	0	0	0	0	0	33	**34**	48	4	1	**53**	**14**
405	0	0	0	0	66	30	**96**	3	0	-1	**3**	**2**
436	0	0	0	0	6	70	**76**	20	1	0	**21**	**2**

Battle Mound Core 2

Sample Depth (cm)	% Gravel	% Very Coarse Sand	% Coarse Sand	% Medium Sand	% Fine Sand	% Very Fine Sand	**% Total Sand**	% Coarse Silt	% Medium Silt	% Fine Silt	**% Total Silt**	**% Clay**
31	0	0	0	3	3	5	**10**	52	14	3	**69**	**21**
62	0	0	0	6	5	17	**28**	46	9	2	**57**	**15**
77	0	0	0	16	11	6	**34**	27	12	3	**43**	**24**
107	0	0	1	50	42	5	**98**	0	0	1	**1**	**1**

Battle Mound Core 3

Sample Depth (cm)	% Gravel	% Very Coarse Sand	% Coarse Sand	% Medium Sand	% Fine Sand	% Very Fine Sand	**% Total Sand**	% Coarse Silt	% Medium Silt	% Fine Silt	**% Total Silt**	**% Clay**
19	0	0	0	0	0	0	**0**	10	30	11	**50**	**50**
91	0	0	0	0	0	0	**1**	3	12	11	**26**	**73**
152	0	1	0	0	0	0	**1**	3	29	54	**85**	**14**
195	0	1	1	1	0	1	**4**	64	16	9	**89**	**7**
233	0	0	0	0	0	1	**2**	11	29	11	**51**	**47**
267	0	0	0	1	2	4	**50**	35	7	-1	**41**	**8**

Battle Mound Core 4

Sample Depth (cm)	% Gravel	% Very Coarse Sand	% Coarse Sand	% Medium Sand	% Fine Sand	% Very Fine Sand	**% Total Sand**	% Coarse Silt	% Medium Silt	% Fine Silt	**% Total Silt**	**% Clay**
27	0	0	0	0	0	3	**4**	61	11	3	**74**	**22**
46	0	0	0	0	0	10	**11**	34	15	4	**53**	**36**
172	2	1	0	0	0	4	**5**	63	13	3	**80**	**15**
198	0	0	0	0	1	70	**72**	22	2	0	**24**	**4**
238	0	0	0	0	1	42	**43**	48	1	1	**50**	**7**
318	0	0	0	0	0	48	**58**	36	1	1	**38**	**3**
418	0	0	0	0	0	15	**17**	67	5	3	**74**	**9**
471	0	0	1	0	0	18	**18**	58	10	1	**69**	**13**
504	0	0	0	0	0	5	**5**	42	23	5	**71**	**24**
556	1	0	0	0	0	14	**15**	38	15	5	**58**	**27**
603	0	0	0	0	1	25	**26**	58	6	1	**65**	**9**

APPENDIX C: 1948 MATERIAL INVENTORY

Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-1	1	1	1-2 (1-12")	FAUN	UMOD					BNE	3	30.2
48-1-2-1	1	1	1-2 (1-12")	CL	BIF	ARW					0	
48-1-2-2	1	1	1-2 (1-12")	POT	SHRD						13	13.2
48-1-2-3	1	1	1-2 (1-12")	POT	SHRD		BRSH	PUCT		CLY	1	21.9
48-1-2-4	1	1	1-2 (1-12")	POT	SHRD		PLN			CLY	24	70.3
48-1-2-5	1	1	1-2 (1-12")	POT	SHRD		BRSH			CLY	17	85.0
48-1-2-6	1	1	1-2 (1-12")	POT	SHRD		PLN			CLY	1	14.4
48-1-2-7	1	1	1-2 (1-12")	POT	SHRD		INCI			CLY	1	2.8
48-1-2-8	1	1	1-2 (1-12")	POT	SHRD		INCI			BNE	1	2.4
48-1-2-9	1	1	1-2 (1-12")	POT	SHRD		PLN			BNE	7	19.2
48-1-2-10	1	1	1-2 (1-12")	POT	SHRD		BRSH			BNE	6	19.2
48-1-3-1	1	1	1-2 (1-12")	POT	NVES	DAUB				CLY	20	71.6
48-1-3-2	1	1	1-2 (1-12")	POT	SHRD		PLN			CLY	1	6.5
48-1-4-1	1	1	3 (12-18")	POT	SHRD						66	128.3

APPENDIX C: 1948 MATERIAL INVENTORY

Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-4-2	1	1	3 (12-18")	POT	SHRD		PLN			CLY	3	19.0
48-1-4-3	1	1	3 (12-18")	POT	SHRD		BRSH			CLY	6	25.0
48-1-4-4	1	1	3 (12-18")	POT	SHRD		PLN			CLY	21	113.4
48-1-4-5	1	1	3 (12-18")	POT	SHRD		BRSH			CLY	22	100.3
48-1-4-6	1	1	3 (12-18")	POT	SHRD		ENG	RED		CLY	1	4.7
48-1-4-7	1	1	3 (12-18")	POT	SHRD		ENG			SHL	3	9.7
48-1-4-8	1	1	3 (12-18")	POT	SHRD		INCI			CLY	1	3.3
48-1-4-9	1	1	3 (12-18")	POT	SHRD		INCI			BNE	1	3.2
48-1-4-10	1	1	3 (12-18")	POT	SHRD		BRSH			BNE	3	10.7
48-1-4-11	1	1	3 (12-18")	POT	SHRD		PLN			SHL	2	4.6
48-1-4-12	1	1	3 (12-18")	POT	SHRD		BRSH	PUCT		BNE	2	12.0
48-1-4-13	1	1	3 (12-18")	POT	SHRD		BRSH	INCI		CLY	1	5.9
48-1-4-14	1	1	3 (12-18")	POT	SHRD		BRSH			BNE	1	5.8
48-1-4-15	1	1	3 (12-18")	POT	SHRD		BRSH	PUCT		CLY	1	5.9

APPENDIX C: 1948 MATERIAL INVENTORY

Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-4-16	1	1	3 (12-18")	POT	RIM		BRSH			CLY	1	5.1
48-1-4-17	1	1	3 (12-18")	POT	RIM		BRSH	PUCT		BNE	1	2.6
48-1-5-1	1	1	3 (12-18")	FAUN	UMOD					BNE	8	54.9
48-1-5-2	1	1	3 (12-18")	FAUN	UMOD		BUR			BNE	7	7.1
48-1-6-1	1	1	3 (12-18")	POT	NVES	DAUB				CLY	21	41.2
48-1-6-2	1	1	3 (12-18")	FLOR	UNID					UNID	1	0.2
48-1-7	1	1	4 (21" +)	POT	SHRD		PLN			CLY	2	3.5
48-1-8-1	1	1	4 (21" +)	POT	SHRD		PLN			CLY	1	12.8
48-1-8-2	1	1	4 (21" +)	POT	SHRD		BRSH			CLY	3	40.2
48-1-8-3	1	1	4 (21" +)	POT	RIM	JAR	BRSH			CLY	1	32.0
48-1-8-4	1	1	4 (21" +)	POT	SHRD	CBL	ENG			CLY	2	11.8
48-1-8-5	1	1	4 (21" +)	POT	RIM		ENG			CLY	1	3.6
48-1-8-6	1	1	4 (21" +)	POT	SHRD		PUCT			CLY	2	4.4
48-1-8-7	1	1	4 (21" +)	POT	RIM	JAR	INCI			CLY	3	27.9

APPENDIX C: 1948 MATERIAL INVENTORY

Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-8-8	1	1	4 (21" +)	POT	SHRD	CBL	INCI			CLY	1	3.8
48-1-8-9	1	1	4 (21" +)	POT	RIM	JAR	INCI			BNE	1	5.4
48-1-8-10	1	1	4 (21" +)	POT	RIM	JAR	BRSH	PUCT		CLY	2	28.9
48-1-8-11	1	1	4 (21" +)	POT	SHRD		BRSH	PUCT		CLY	2	19.1
48-1-8-12	1	1	4 (21" +)	POT	SHRD		APLQ			CLY	1	22.7
48-1-8-13	1	1	4 (21" +)	POT	SHRD		BRSH	APLQ		CLY	2	16.5
48-1-9-1	1	1	4 (21" +)	POT	SHRD						28	77.2
48-1-9-2	1	1	4 (21" +)	POT	SHRD		PLN			BNE	1	8.2
48-1-9-3	1	1	4 (21" +)	POT	SHRD		PLN			BNE	1	3.4
48-1-9-4	1	1	4 (21" +)	POT	SHRD		PLN			CLY	18	123.3
48-1-9-5	1	1	4 (21" +)	POT	SHRD		PLN			BNE	3	28.2
48-1-9-6	1	1	4 (21" +)	POT	SHRD		PLN			CLY	5	67.3
48-1-9-7	1	1	4 (21" +)	POT	SHRD		PLN			CLY	3	18.4
48-1-9-8	1	1	4 (21" +)	POT	SHRD		PLN			SHL	1	12.6

APPENDIX C: 1948 MATERIAL INVENTORY

Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-9-9	1	1	4 (21" +)	POT	SHRD		BRSH			BNE	2	8.5
48-1-9-10	1	1	4 (21" +)	POT	SHRD		BRSH			CLY	31	271.1
48-1-9-11	1	1	4 (21" +)	POT	SHRD		BRSH			BNE	7	59.4
48-1-9-12	1	1	4 (21" +)	POT	SHRD		BRSH			CLY	12	90.2
48-1-9-13	1	1	4 (21" +)	POT	SHRD		BRSH			CLY	14	124.2
48-1-9-14	1	1	4 (21" +)	POT	SHRD		BRSH			SHL	3	20.9
48-1-9-15	1	1	4 (21" +)	POT	SHRD		INCI			BNE	1	8.9
48-1-9-16	1	1	4 (21" +)	POT	SHRD		INCI			CLY	5	39.3
48-1-9-17	1	1	4 (21" +)	POT	SHRD		INCI			CLY	2	16.3
48-1-9-18	1	1	4 (21" +)	POT	SHRD		ENG			BNE	1	5.3
48-1-9-19	1	1	4 (21" +)	POT	SHRD		APLQ			CLY	1	6.4
48-1-9-20	1	1	4 (21" +)	POT	SHRD		APLQ			BNE	1	4.8
48-1-9-21	1	1	4 (21" +)	POT	SHRD		APLQ	RED		CLY	1	7.4
48-1-9-22	1	1	4 (21" +)	POT	SHRD		BRSH	APLQ		CLY	5	34.4

APPENDIX C: 1948 MATERIAL INVENTORY

Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-9-23	1	1	4 (21" +)	POT	SHRD		BRSH	APLQ		CLY	1	14.2
48-1-9-24	1	1	4 (21" +)	POT	SHRD		BRSH	APLQ		CLY	6	68.6
48-1-9-25	1	1	4 (21" +)	POT	SHRD		BRSH	PUCT		CLY	2	12.3
48-1-9-26	1	1	4 (21" +)	POT	SHRD		BRSH	PUCT		CLY	4	23.3
48-1-9-27	1	1	4 (21" +)	POT	RIM		PLN			CLY	1	3.5
48-1-9-28	1	1	4 (21" +)	POT	RIM		ENG			CLY	1	3.9
48-1-9-29	1	1	4 (21" +)	POT	RIM		BRSH			CLY	3	34.5
48-1-9-30	1	1	4 (21" +)	POT	RIM		BRSH	PUCT		CLY	1	30.5
48-1-10-1	1	1	4 (21" +)	POT	SHRD						211	443.0
48-1-10-2	1	1	4 (21" +)	POT	SHRD		PLN			CLY	8	28.0
48-1-10-3	1	1	4 (21" +)	POT	SHRD		PLN			BNE	2	9.2
48-1-10-4	1	1	4 (21" +)	POT	SHRD		PLN			CLY	2	8.1
48-1-10-5	1	1	4 (21" +)	POT	SHRD		BRSH			CLY	26	117.5
48-1-10-6	1	1	4 (21" +)	POT	SHRD		BRSH			BNE	4	15.0

APPENDIX C: 1948 MATERIAL INVENTORY

Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-10-7	1	1	4 (21" +)	POT	SHRD		BRSH			CLY	4	16.3
48-1-10-8	1	1	4 (21" +)	POT	SHRD		BRSH			CLY	2	7.1
48-1-10-9	1	1	4 (21" +)	POT	SHRD		INCI			CLY	6	21.8
48-1-10-10	1	1	4 (21" +)	POT	SHRD		INCI			CLY	1	3.5
48-1-10-11	1	1	4 (21" +)	POT	SHRD		INCI			SHL	1	5.0
48-1-10-12	1	1	4 (21" +)	POT	SHRD		ENG			CLY	1	3.4
48-1-10-13	1	1	4 (21" +)	POT	SHRD		ENG			BNE	1	3.0
48-1-10-14	1	1	4 (21" +)	POT	SHRD		APLQ			CLY	1	4.2
48-1-10-15	1	1	4 (21" +)	POT	SHRD		PUCT			CLY	1	3.9
48-1-10-16	1	1	4 (21" +)	POT	SHRD		BRSH	APLQ		CLY	6	23.5
48-1-10-17	1	1	4 (21" +)	POT	RIM	BTL	PLN			CLY	2	4.7
48-1-10-18	1	1	4 (21" +)	POT	RIM	BOWL	ENG			CLY	1	1.6
48-1-10-19	1	1	4 (21" +)	POT	SHRD	CBL	ENG			CLY	1	4.6
48-1-10-20	1	1	4 (21" +)	POT	RIM	JAR	BRSH			CLY	1	3.7

APPENDIX C: 1948 MATERIAL INVENTORY

Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-10-21	1	1	4 (21" +)	POT	RIM	JAR	BRSH	PUCT		CLY	2	10.3
48-1-10-22	1	1	4 (21" +)	POT	RIM	JAR	BRSH			CLY	1	5.7
48-1-11-1	1	1	4 (21" +)	FAUN	UMOD		BUR			BNE	6	5.5
48-1-11-2	1	1	4 (21" +)	FAUN	UMOD					BNE	11	5.8
48-1-12	1	1	4 (21" +)	FAUN	UMOD					SHL	4	1.8
48-1-13	1	1	4 (21" +)	POT	NVES	DAUB				CLY	40	105.7
48-1-14-1	1	1	4 (21" +)	POT	SHRD	DAUB				CLY	248	590.0
48-1-14-2	1	1	4 (21" +)	POT	SHRD		PLN			BNE	3	20.6
48-1-14-3	1	1	4 (21" +)	POT	SHRD		PLN			BNE	3	15.5
48-1-14-4	1	1	4 (21" +)	POT	SHRD		PLN			CLY	10	67.1
48-1-14-5	1	1	4 (21" +)	POT	SHRD		PLN			CLY	27	141.9
48-1-14-6	1	1	4 (21" +)	POT	SHRD		PLN			CLY	11	59.9
48-1-14-7	1	1	4 (21" +)	POT	SHRD		PLN			SHL	1	4.7
48-1-14-8	1	1	4 (21" +)	POT	SHRD		BRSH			BNE	2	11.4

APPENDIX C: 1948 MATERIAL INVENTORY

Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-14-9	1	1	4 (21" +)	POT	SHRD		BRSH			BNE	1	5.1
48-1-14-10	1	1	4 (21" +)	POT	SHRD		BRSH			CLY	17	101.0
48-1-14-11	1	1	4 (21" +)	POT	SHRD		BRSH			BNE	3	19.2
48-1-14-12	1	1	4 (21" +)	POT	SHRD		BRSH			CLY	38	194.8
48-1-14-13	1	1	4 (21" +)	POT	SHRD		BRSH			CLY	15	96.9
48-1-14-14	1	1	4 (21" +)	POT	SHRD		INCI			BNE	1	11.6
48-1-14-15	1	1	4 (21" +)	POT	SHRD		INCI			CLY	3	3.7
48-1-14-16	1	1	4 (21" +)	POT	SHRD		INCI			CLY	7	31.8
48-1-14-17	1	1	4 (21" +)	POT	SHRD		INCI			CLY	4	14.6
48-1-14-18	1	1	4 (21" +)	POT	SHRD		BRSH	APLQ		CLY	3	34.1
48-1-14-19	1	1	4 (21" +)	POT	SHRD		BRSH	APLQ		CLY	18	142.1
48-1-14-20	1	1	4 (21" +)	POT	SHRD		ENG			CLY	7	25.7
48-1-14-21	1	1	4 (21" +)	POT	SHRD		ENG	RED		CLY	1	3.4
48-1-14-22	1	1	4 (21" +)	POT	RIM	JAR	BRSH			CLY	1	3.4

APPENDIX C: 1948 MATERIAL INVENTORY

Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-14-23	1	1	4 (21" +)	POT	RIM	JAR	BRSH	PUCT		CLY	4	27.1
48-1-14-24	1	1	4 (21" +)	POT	RIM	JAR	BRSH			CLY	2	8.2
48-1-14-25	1	1	4 (21" +)	POT	RIM	JAR	BRSH			CLY	2	12.3
48-1-14-26	1	1	4 (21" +)	POT	RIM	JAR	BRSH	PUCT		CLY	2	7.2
48-1-15-1	1	1	4 (21" +)	POT	SHRD						161	313.7
48-1-15-2	1	1	4 (21" +)	POT	SHRD		PLN			CLY	2	9.4
48-1-15-3	1	1	4 (21" +)	POT	SHRD		BRSH			BNE	1	4.4
48-1-15-4	1	1	4 (21" +)	POT	SHRD		BRSH			CLY	7	35.4
48-1-15-5	1	1	4 (21" +)	POT	SHRD		BRSH			CLY	6	26.5
48-1-15-6	1	1	4 (21" +)	POT	SHRD		PUCT			CLY	1	6.5
48-1-15-7	1	1	4 (21" +)	POT	SHRD		BRSH	PUCT	RED	CLY	1	4.2
48-1-15-8	1	1	4 (21" +)	POT	SHRD		BRSH	APLQ		CLY	1	9.9
48-1-15-9	1	1	4 (21" +)	POT	RIM	JAR	BRSH	PUCT		CLY	2	10.9
48-1-16	1	1	4 (21" +)	FAUN	UMOD					SHL	12	4.9

APPENDIX C: 1948 MATERIAL INVENTORY

Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-17-1	1	1	4 (21" +)	FAUN	UMOD					BNE	12	32.7
48-1-17-2	1	1	4 (21" +)	FAUN	UMOD		BUR			BNE	17	18.4
48-1-18-1	1	1	5 (NE 34" SE 31")	POT	SHRD						10	21.2
48-1-18-2	1	1	5 (NE 34" SE 31")	POT	SHRD		PLN			CLY	2	17.2
48-1-18-3	1	1	5 (NE 34" SE 31")	POT	SHRD		PLN			CLY	3	14.1
48-1-18-4	1	1	5 (NE 34" SE 31")	POT	SHRD		BRSH			BNE	2	16.8
48-1-18-5	1	1	5 (NE 34" SE 31")	POT	SHRD		BRSH			CLY	5	28.7
48-1-18-6	1	1	5 (NE 34" SE 31")	POT	SHRD		BRSH			CLY	2	16.4
48-1-18-7	1	1	5 (NE 34" SE 31")	POT	SHRD		ENG			CLY	2	10.7
48-1-18-8	1	1	5 (NE 34" SE 31")	POT	SHRD	CBL	ENG			BNE	1	3.1
48-1-18-9	1	1	5 (NE 34" SE 31")	POT	RIM	JAR	ENG			CLY	1	6.4
48-1-18-10	1	1	5 (NE 34" SE 31")	POT	RIM	JAR	INCI			CLY	1	2.7
48-1-19	1	1	5 (NE 34" SE 31")	FAUN	UMOD					BNE	8	53.8
48-1-20-1	1	1&2	4 (21")	POT	UMOD					BNE	19	63.8

APPENDIX C: 1948 MATERIAL INVENTORY

Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-20-2	1	1&2	4 (21")	POT	UMOD		BUR			BNE	7	9.9
48-1-21-1	1	1&2	4 (21")	POT	SHRD						232	501.6
48-1-21-2	1	1&2	4 (21")	POT	SHRD		PLN			BNE	2	15.2
48-1-21-3	1	1&2	4 (21")	POT	SHRD		PLN			CLY	8	33.8
48-1-21-4	1	1&2	4 (21")	POT	SHRD		PLN			CLY	32	159.4
48-1-21-5	1	1&2	4 (21")	POT	SHRD		PLN			CLY	12	53.3
48-1-21-6	1	1&2	4 (21")	POT	SHRD		BRSH			BNE	3	20.0
48-1-21-7	1	1&2	4 (21")	POT	SHRD		BRSH			BNE	1	3.3
48-1-21-8	1	1&2	4 (21")	POT	SHRD		BRSH			CLY	4	34.0
48-1-21-9	1	1&2	4 (21")	POT	SHRD		BRSH			BNE	5	34.3
48-1-21-10	1	1&2	4 (21")	POT	SHRD		BRSH			CLY	47	394.4
48-1-21-11	1	1&2	4 (21")	POT	SHRD		BRSH			CLY	22	184.9
48-1-21-12	1	1&2	4 (21")	POT	SHRD		INCI			BNE	1	10.2
48-1-21-13	1	1&2	4 (21")	POT	SHRD		ENG			CLY	3	10.8

APPENDIX C: 1948 MATERIAL INVENTORY

Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-21-14	1	1&2	4 (21")	POT	SHRD		BRSH	APLQ		CLY	1	5.2
48-1-21-15	1	1&2	4 (21")	POT	SHRD		BRSH	APLQ		BNE	2	10.9
48-1-21-16	1	1&2	4 (21")	POT	SHRD		BRSH	APLQ		CLY	6	43.7
48-1-21-17	1	1&2	4 (21")	POT	SHRD		BRSH	APLQ		CLY	3	19.9
48-1-21-18	1	1&2	4 (21")	POT	SHRD		INCI	APLQ		CLY	3	38.3
48-1-21-19	1	1&2	4 (21")	POT	RIM	JAR	BRSH			CLY	2	34.4
48-1-21-20	1	1&2	4 (21")	POT	RIM	JAR	BRSH			BNE	1	6.6
48-1-21-21	1	1&2	4 (21")	POT	RIM		PLN			BNE	1	2.1
48-1-21-22	1	1&2	4 (21")	POT	RIM		BRSH	APLQ		BNE	1	5.2
48-1-21-23	1	1&2	4 (21")	POT	RIM	CBL	INCI			CLY	1	2.9
48-1-21-24	1	1&2	4 (21")	POT	RIM	BOWL	ENG			CLY	1	3.2
48-1-22	1	1&2	4 (21")	FAUN	UMOD					SHL	23	14.6
48-1-23-1	1	1&2	4 (21")	POT	SHRD						347	825.9
48-1-23-2	1	1&2	4 (21")	POT	SHRD		PLN			BNE	2	14.1

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-23-3	1	1&2	4 (21")	POT	SHRD		PLN			CLY	31	199.7
48-1-23-4	1	1&2	4 (21")	POT	SHRD		PLN			CLY	5	25.6
48-1-23-5	1	1&2	4 (21")	POT	SHRD		BRSH			BNE	5	24.6
48-1-23-6	1	1&2	4 (21")	POT	SHRD		BRSH			BNE	9	55.9
48-1-23-7	1	1&2	4 (21")	POT	SHRD		BRSH			CLY	47	348.4
48-1-23-8	1	1&2	4 (21")	POT	SHRD		BRSH			CLY	5	38.4
48-1-23-9	1	1&2	4 (21")	POT	SHRD		INCI			BNE	1	5.4
48-1-23-10	1	1&2	4 (21")	POT	SHRD		INCI			CLY	5	32.7
48-1-23-11	1	1&2	4 (21")	POT	SHRD		APLQ			CLY	1	17.4
48-1-23-12	1	1&2	4 (21")	POT	SHRD		BRSH	APLQ		BNE	1	7.4
48-1-23-13	1	1&2	4 (21")	POT	SHRD		BRSH	APLQ		CLY	20	133.0
48-1-23-14	1	1&2	4 (21")	POT	SHRD		BRSH	PUCT		CLY	1	23.8
48-1-23-15	1	1&2	4 (21")	POT	SHRD		ENG			CLY	3	9.0
48-1-23-16	1	1&2	4 (21")	POT	SHRD		BRSH	INCI		BNE	1	3.2

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-23-17	1	1&2	4 (21")	POT	RIM		PLN			CLY	1	2.9
48-1-23-18	1	1&2	4 (21")	POT	RIM	BTL	PLN			BNE	2	8.5
48-1-23-19	1	1&2	4 (21")	POT	RIM		BRSH			BNE	1	2.7
48-1-23-20	1	1&2	4 (21")	POT	RIM		BRSH			CLY	1	2.8
48-1-23-21	1	1&2	4 (21")	POT	RIM		BRSH			CLY	2	10.9
48-1-23-22	1	1&2	4 (21")	POT	RIM		BRSH	PUCT			4	13.4
48-1-23-24	1	1&2	4 (21")	POT	RIM		INCI			CLY	1	7.0
48-1-23-25	1	1&2	4 (21")	POT	RIM		BRSH	PUCT		BNE	1	3.9
48-1-23-26	1	1&2	4 (21")	POT	RIM		ENG			CLY	1	4.9
48-1-24-1	1	2	1 (1-6")	POT	SHRD						68	122.4
48-1-24-2	1	2	1 (1-6")	POT	SHRD		PLN			BNE	2	7.8
48-1-24-3	1	2	1 (1-6")	POT	SHRD		PLN			BNE	1	3.4
48-1-24-4	1	2	1 (1-6")	POT	SHRD		PLN			CLY	6	45.7
48-1-24-5	1	2	1 (1-6")	POT	SHRD		BRSH			BNE	1	6.6

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-24-6	1	2	1 (1-6")	POT	SHRD		BRSH			BNE	2	10.0
48-1-24-7	1	2	1 (1-6")	POT	SHRD		BRSH			CLY	5	25.0
48-1-24-8	1	2	1 (1-6")	POT	SHRD		INCI			CLY	3	11.1
48-1-24-9	1	2	1 (1-6")	POT	RIM		PLN			CLY	2	12.6
48-1-24-10	1	2	1 (1-6")	POT	RIM		INCI	PUCT		CLY	1	9.9
48-1-25	1	2	1 (1-6")		UMOD					BNE	4	3.9
48-1-26-1	1	2	2 (6-12")		UMOD					BNE	7	5.2
48-1-26-2	1	2	2 (6-12")		UMOD		BUR			BNE	1	1.4
48-1-27-1	1	2	2 (6-12")	POT	SHRD						15	29.4
48-1-27-2	1	2	2 (6-12")	POT	SHRD		PLN			CLY	2	11.2
48-1-27-3	1	2	2 (6-12")	POT	SHRD		BRSH			BNE	1	4.4
48-1-27-4	1	2	2 (6-12")	POT	SHRD		BRSH			CLY	2	15.3
48-1-27-5	1	2	2 (6-12")	POT	RIM	CBL	APLQ	PUCT		CLY	1	14.2
48-1-28	1	2	3 (12-18")		UMOD					BNE		

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-29-1	1	2	3 (12-18")	POT	SHRD						19	38.6
48-1-29-2	1	2	3 (12-18")	POT	SHRD		PLN			CLY	2	18.0
48-1-29-3	1	2	3 (12-18")	POT	SHRD		BRSH			CLY	3	10.8
48-1-30	1	2	4 (18-24")		UMOD					SHL	1	0.4
48-1-31	1	2	4 (18-24")		UMOD					BNE	3	1.2
48-1-32-1	1	2	4 (18-24")	POT	SHRD						7	13.6
48-1-32-2	1	2	4 (18-24")	POT	SHRD		PLN			BNE	2	10.7
48-1-32-3	1	2	4 (18-24")	POT	SHRD		PLN			CLY	3	16.6
48-1-32-4	1	2	4 (18-24")	POT	SHRD		BRSH			CLY	3	25.1
48-1-33-1	1	2	5 (36" - post hole)	POT	SHRD						40	74.9
48-1-33-2	1	2	5 (36" - post hole)	POT	SHRD		PLN			BNE	1	4.2
48-1-33-3	1	2	5 (36" - post hole)	POT	SHRD		PLN			CLY	5	26.7
48-1-33-4	1	2	5 (36" - post hole)	POT	SHRD		BRSH			CLY	5	38.3
48-1-33-5	1	2	5 (36" - post hole)	POT	SHRD		INCI			CLY	1	5.5

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-33-6	1	2	5 (36" - post hole)	POT	SHRD		BRSH	INCI		BNE	2	18.0
48-1-33-7	1	2	5 (36" - post hole)	POT	SHRD		BRSH	PUCT		CLY	1	15.8
48-1-33-8	1	2	5 (36" - post hole)	POT	SHRD		BRSH	APLQ		CLY	2	18.4
48-1-33-9	1	2	5 (36" - post hole)	POT	RIM	BTL	PLN			BNE	1	4.1
48-1-33-10	1	2	5 (36" - post hole)	POT	RIM	JAR	BRSH			BNE	2	18.8
48-1-34	1	2	5 (36" - post hole)	FAUN	UMOD					BNE	1	0.6
48-1-35	1	2	NE 37" SE 34"	FAUN	UMOD					BNE	7	19.2
48-1-36-1	1	2	NE 37" SE 34"	POT	SHRD						5	10.2
48-1-36-2	1	2	NE 37" SE 34"	POT	SHRD		PLN			BNE	1	3.8
48-1-36-3	1	2	NE 37" SE 34"	POT	SHRD		PLN			CLY	2	24.0
48-1-36-4	1	2	NE 37" SE 34"	POT	SHRD		PLN			CLY	4	42.9
48-1-36-5	1	2	NE 37" SE 34"	POT	SHRD		BRSH			BNE	1	5.1
48-1-36-6	1	2	NE 37" SE 34"	POT	SHRD		BRSH			CLY	2	44.6
48-1-36-7	1	2	NE 37" SE 34"	POT	SHRD		INCI			CLY	1	3.1

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-37	1	3	1 (1-6")	POT	SHRD						15	29.9
48-1-38-1	1	3	1 (1-6")	FAUN	UMOD					BNE	1	16.9
48-1-38-2	1	3	1 (1-6")	FAUN	MOD		NTCH			BNE	1	5.8
48-1-39-1	1	3	2 (6-12")	POT	SHRD						11	23.4
48-1-39-2	1	3	2 (6-12")	POT	SHRD		PLN			BNE	1	1.5
48-1-39-3	1	3	2 (6-12")	POT	SHRD		PLN			BNE	2	9.1
48-1-39-4	1	3	2 (6-12")	POT	SHRD		BRSH	APLQ		CLY	1	11.2
48-1-40	1	3	2 (6-12")	FAUN	UMOD					BNE	17	66.5
48-1-41	1	3	3 (12-18")	FAUN	UMOD					BNE	13	10.7
48-1-42-1	1	3	3 (12-18")	POT	SHRD						19	34.1
48-1-42-2	1	3	3 (12-18")	POT	SHRD		PLN			BNE	2	24.5
48-1-42-3	1	3	3 (12-18")	POT	SHRD		PLN			CLY	5	31.5
48-1-42-4	1	3	3 (12-18")	POT	SHRD	JAR	BRSH			BNE	1	25.8
48-1-42-5	1	3	3 (12-18")	POT	SHRD		BRSH			BNE	2	10.9

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-42-6	1	3	3 (12-18")	POT	SHRD		BRSH			BNE	1	4.6
48-1-42-7	1	3	3 (12-18")	POT	SHRD		BRSH			CLY	3	13.5
48-1-42-8	1	3	3 (12-18")	POT	RIM		BRSH			CLY	2	4.6
48-1-43	1	3	3 (12-18")	FAUN	UMOD					SHL	1	2.8
48-1-44	1	3	4 (18-24")	FAUN	UMOD					SHL	6	27.8
48-1-45-1	1	3	4 (18-24")	FAUN	UMOD					BNE	16	59.6
48-1-45-2	1	3	4 (18-24")	FAUN	UMOD		BUR			BNE	2	12.1
48-1-45-3	1	3	4 (18-24")	FAUN	UMOD		MLAR			TTH	1	2.2
48-1-46-1	1	3	4 (18-24")	POT	SHRD						80	118.6
48-1-46-2	1	3	4 (18-24")	POT	SHRD		PLN			BNE	4	21.3
48-1-46-3	1	3	4 (18-24")	POT	SHRD		PLN			CLY	14	73.5
48-1-46-4	1	3	4 (18-24")	POT	SHRD		BRSH			BNE	2	10.4
48-1-46-5	1	3	4 (18-24")	POT	SHRD		BRSH			BNE	2	25.9
48-1-46-6	1	3	4 (18-24")	POT	SHRD		BRSH			CLY	7	27.6

APPENDIX C: 1948 MATERIAL INVENTORY

Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-46-7	1	3	4 (18-24")	POT	SHRD		INCI			BNE	2	12.7
48-1-46-8	1	3	4 (18-24")	POT	SHRD		INCI			CLY	2	10.2
48-1-46-9	1	3	4 (18-24")	POT	SHRD		ENG			BNE	1	6.6
48-1-46-10	1	3	4 (18-24")	POT	SHRD		BRSH	APLQ		BNE	2	11.8
48-1-46-11	1	3	4 (18-24")	POT	SHRD		BRSH	INCI		CLY	1	6.7
48-1-46-12	1	3	4 (18-24")	POT	RIM	BTL	PLN			BNE	1	4.8
48-1-47-1	1	3	5 (firepit #3)	POT	SHRD						16	22.9
48-1-47-2	1	3	5 (firepit #3)	POT	SHRD		PLN			BNE	2	15.3
48-1-47-3	1	3	5 (firepit #3)	POT	SHRD		BRSH			BNE	2	12.4
48-1-47-4	1	3	5 (firepit #3)	POT	SHRD		BRSH			CLY	1	6.7
48-1-47-5	1	3	5 (firepit #3)	POT	SHRD		BRSH			CLY	1	8.7
48-1-47-6	1	3	5 (firepit #3)	POT	SHRD		INCI			CLY	1	6.2
48-1-47-7	1	3	5 (firepit #3)	POT	SHRD		INCI	APLQ		BNE	1	5.4
48-1-47-8	1	3	5 (firepit #3)	POT	RIM		INCI			CLY	3	19.2

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-48	1	3	5 (firepit #3)	FAUN						BNE		
48-1-49	1	3	5 (firepit #3)	FAUN	UMOD					SHL	7	1.8
48-1-50	1	3	40" NE 39" SE 34"	FAUN	UMOD					SHL	1	6.4
48-1-51	1	3	40" NE 39" SE 34"	FAUN	UMOD					BNE	6	14.2
48-1-52-1	1	3	40" NE 39" SE 34"	POT	SHRD						8	20.3
48-1-52-2	1	3	40" NE 39" SE 34"	POT	SHRD		PLN			CLY	3	15.1
48-1-52-3	1	3	40" NE 39" SE 34"	POT	SHRD		BRSH			BNE	2	12.8
48-1-52-4	1	3	40" NE 39" SE 34"	POT	SHRD		BRSH			CLY	3	11.6
48-1-52-5	1	3	40" NE 39" SE 34"	POT	SHRD		BRSH	PUCT		CLY	1	3.2
48-1-53-1	1	3&4	firepit	POT	SHRD						376	849.9
48-1-53-2	1	3&4	firepit	POT	SHRD		PLN			BNE	8	70.5
48-1-53-3	1	3&4	firepit	POT	SHRD		PLN			BNE	12	68.7
48-1-53-4	1	3&4	firepit	POT	SHRD		PLN			CLY	24	121.5
48-1-53-5	1	3&4	firepit	POT	SHRD		BUSH			BNE	9	61.8

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-53-6	1	3&4	firepit	POT	SHRD		BRSH			BNE	15	100.4
48-1-53-7	1	3&4	firepit	POT	SHRD		BRSH			CLY	40	290.2
48-1-53-8	1	3&4	firepit	POT	SHRD		INCI			CLY	2	5.4
48-1-53-9	1	3&4	firepit	POT	SHRD		INCI			CLY	3	27.0
48-1-53-10	1	3&4	firepit	POT	SHRD		ENG			CLY	1	3.8
48-1-53-11	1	3&4	firepit	POT	SHRD		ENG			SHL	1	3.7
48-1-53-12	1	3&4	firepit	POT	SHRD		BRSH	APLQ		CLY	13	105.8
48-1-53-13	1	3&4	firepit	POT	RIM		PLN			BNE	3	15.3
48-1-53-14	1	3&4	firepit	POT	RIM		INCI			BNE	2	7.3
48-1-53-15	1	3&4	firepit	POT	RIM		INCI			CLY	5	23.8
48-1-53-16	1	3&4	firepit	POT	RIM		PUCT			CLY	1	2.9
48-1-53-17	1	3&4	firepit	POT	RIM		ENG			BNE	1	8.8
48-1-54-1	1	3&4	firepit	FAUN	UMOD					BNE	15	45.6
48-1-54-2	1	3&4	firepit	FAUN	UMOD		BUR			BNE	4	10.1

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-55	1	3&4	firepit	FAUN	UMOD					SHL	15	16.9
48-1-56	1	4	1-2 (1-12")	FAUN	UMOD					SHL	5	5.1
48-1-57	1	4	1-2 (1-12")	FAUN	UMOD					BNE	8	25.6
48-1-58-1	1	4	1-2 (1-12")	POT	SHRD						16	39.3
48-1-58-2	1	4	1-2 (1-12")	POT	SHRD		PLN			BNE	2	7.8
48-1-58-3	1	4	1-2 (1-12")	POT	SHRD		PLN			CLY	5	21.9
48-1-58-4	1	4	1-2 (1-12")	POT	SHRD		BRSH			BNE	3	26.0
48-1-58-5	1	4	1-2 (1-12")	POT	SHRD		BRSH			CLY	5	28.6
48-1-58-6	1	4	1-2 (1-12")	POT	SHRD		ENG			CLY	1	3.3
48-1-58-7	1	4	1-2 (1-12")	POT	SHRD		INCI	PUCT		CLY	1	3.3
48-1-58-8	1	4	1-2 (1-12")	POT	SHRD		INCI	APLQ		CLY	1	4.2
48-1-59	1	4	3 (12-18")	POT	SHRD						4	
48-1-60-1	1	4	3 (12-18")	FAUN	UMOD					BNE	4	12.9
48-1-60-2	1	4	3 (12-18")	FAUN	UMOD		BUR			BNE	1	0.3

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-61-1	1	4	4 (18-24")	FAUN	UMOD					BNE	13	34.4
48-1-61-2	1	4	4 (18-24")	FAUN	MOD		CUTS			BNE	2	1.2
48-1-62-1	1	4	4 (18-24")	POT	SHRD						20	45.4
48-1-62-2	1	4	4 (18-24")	POT	SHRD		PLN			BNE	2	8.3
48-1-62-3	1	4	4 (18-24")	POT	SHRD		PLN			CLY	5	25.2
48-1-62-4	1	4	4 (18-24")	POT	SHRD		BRSH			BNE	2	7.6
48-1-62-5	1	4	4 (18-24")	POT	SHRD		BRSH			CLY	1	4.1
48-1-62-6	1	4	4 (18-24")	POT	SHRD		INCI			BNE	3	18.8
48-1-62-7	1	4	4 (18-24")	POT	SHRD		INCI			CLY	1	9.5
48-1-62-8	1	4	4 (18-24")	POT	RIM	CBL	ENG			CLY	1	12.1
48-1-62-9	1	4	4 (18-24")	POT	SHRD		INCI	APLQ		CLY	1	14.6
48-1-62-10	1	4	4 (18-24")	POT	RIM		PUCT	WHITE		CLY	1	2.9
48-1-62-11	1	4	4 (18-24")	CL	DRIP	DRIL	CYL			CRT	1	3.3
48-1-63	1	4	4 (18-24")	FAUN	UMOD					SHL	12	7.2

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-64	1	4	5 (24"-30")	FAUN	UMOD					SHL	14	16.4
48-1-65-1	1	4	5 (24"-30")	FAUN	UMOD					BNE	11	38.2
48-1-65-2	1	4	5 (24"-30")	FAUN	UMOD		BUR			BNE	2	2.1
48-1-66-1	1	4	5 (24"-30")	POT	SHRD						53	111.8
48-1-66-2	1	4	5 (24"-30")	POT	SHRD		PLN			BNE	2	13.9
48-1-66-3	1	4	5 (24"-30")	POT	SHRD		PLN			CLY	5	70.8
48-1-66-4	1	4	5 (24"-30")	POT	SHRD		BRSH			BNE	4	18.4
48-1-66-5	1	4	5 (24"-30")	POT	SHRD		BRSH			CLY	6	55.8
48-1-66-6	1	4	5 (24"-30")	POT	SHRD		BRSH	INCI		CLY	1	5.1
48-1-66-7	1	4	5 (24"-30")	POT	SHRD		BRSH	APLQ		BNE	2	13.9
48-1-66-8	1	4	5 (24"-30")	POT	RIM		BRSH	PUCT		CLY	1	3.8
48-1-66-9	1	4	5 (24"-30")	POT	RIM		PLN			CLY	1	4.4
48-1-67-1	1	4	6 (32"-38")	POT	SHRD		PLN			BNE	2	5.8
48-1-67-2	1	4	47" NE 49" SE 39"	POT	SHRD		PLN			CLY	1	5.3

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-67-3	1	4	47" NE 49" SE 39"	POT	SHRD		BRSH			BNE	1	7.8
48-1-67-4	1	4	47" NE 49" SE 39"	POT	SHRD		BRSH			CLY	2	5.8
48-1-68	1	4	47" NE 49" SE 39"	FAUN	UMOD					BNE		
48-1-69-1	1	4	47" NE 49" SE 39"	FAUN	UMOD					BNE	36	102.7
48-1-69-2	1	4	47" NE 49" SE 39"	FAUN	UMOD					TTH	2	0.1
48-1-70-1	1	4	47" NE 49" SE 39"	POT	SHRD						32	65.3
48-1-70-2	1	4	47" NE 49" SE 39"	POT	SHRD		PLN			BNE	1	5.6
48-1-70-3	1	4	47" NE 49" SE 39"	POT	SHRD		PLN			CLY	4	31.3
48-1-70-4	1	4	47" NE 49" SE 39"	POT	SHRD		BRSH			CLY	5	30.0
48-1-70-5	1	4	47" NE 49" SE 39"	POT	SHRD		ENG			CLY	1	3.9
48-1-70-6	1	4	47" NE 49" SE 39"	POT	SHRD		INCI	APLQ		CLY	1	6.5
48-1-70-7	1	4	47" NE 49" SE 39"	POT	RIM		PLN			CLY	1	6.8
48-1-71	1	4	47" NE 49" SE 39"	FAUN	UMOD					SHL	20	48.9
48-1-72	1	4	ashpit	FAUN	UMOD					SHL	23	21.8

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-73-1	1	4	ashpit	FAUN	UMOD					BNE	19	39.2
48-1-73-2	1	4	ashpit	FAUN	UMOD		BUR			BNE	6	5.7
48-1-73-3	1	4	ashpit	FAUN	UTIL		CHOF			ATL	1	4.5
48-1-74-1	1	4	ashpit	POT	SHRD						102	396.3
48-1-74-2	1	4	ashpit	POT	SHRD		PLN			BNE	5	41.4
48-1-74-3	1	4	ashpit	POT	SHRD		PLN			BNE	6	31.8
48-1-74-4	1	4	ashpit	POT	SHRD		PLN			CLY	2	7.2
48-1-74-5	1	4	ashpit	POT	SHRD		PLN			CLY	15	73.1
48-1-74-6	1	4	ashpit	POT	SHRD		PLN			SHL	1	14.0
48-1-74-7	1	4	ashpit	POT	SHRD		BRSH			BNE	8	46.8
48-1-74-8	1	4	ashpit	POT	SHRD		BRSH			BNE	13	93.2
48-1-74-9	1	4	ashpit	POT	SHRD		BRSH			CLY	24	140.8
48-1-74-10	1	4	ashpit	POT	SHRD		INCI			BNE	1	9.3
48-1-74-11	1	4	ashpit	POT	SHRD		INCI			CLY	1	8.5

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-74-12	1	4	ashpit	POT	SHRD		INCI			CLY	1	4.1
48-1-74-13	1	4	ashpit	POT	SHRD		ENG			CLY	3	11.4
48-1-74-14	1	4	ashpit	POT	SHRD		BRSH	APLQ		CLY	3	18.2
48-1-74-15	1	4	ashpit	POT	SHRD		BRSH	PUCT		BNE	2	15.6
48-1-74-16	1	4	ashpit	POT	RIM		INCI			CLY	5	22.2
48-1-74-17	1	4	ashpit	POT	RIM	BTL	PLN			CLY	2	4.4
48-1-74-18	1	4	ashpit	POT	RIM	CBL	ENG			CLY	1	6.1
48-1-74-19	1	4	ashpit	POT	RIM		PUCT			BNE	3	24.5
48-1-74-20	1	4	ashpit	POT	RIM		BRSH	PUCT		CLY	1	4.5
48-1-74-21	1	4	ashpit	POT	RIM		BRSH	INCI		BNE	2	20.1
48-1-74-22	1	4	ashpit	POT	RIM		BRSH			BNE	2	9.5
48-1-74-23	1	4	ashpit	POT	RIM		INCI			BNE	1	13.1
48-1-75	1	4	ashpit	POT	NVES	DAUB				CLY	17	19.2
48-1-76	1	4	midden	FAUN	UMOD					SHL	21	16.7

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-77-1	1	4	midden	FAUN	UMOD					BNE	12	21.2
48-1-77-2	1	4	midden	FAUN	UMOD		BUR			BNE	4	25.8
48-1-78-1	1	4	midden	POT	SHRD						109	209.1
48-1-78-2	1	4	midden	POT	SHRD		PLN			BNE	3	16.9
48-1-78-3	1	4	midden	POT	SHRD		PLN			CLY	5	23.3
48-1-78-4	1	4	midden	POT	SHRD		PLN			SHL	3	11.4
48-1-78-5	1	4	midden	POT	SHRD		BRSH			BNE	7	29.3
48-1-78-6	1	4	midden	POT	SHRD		BRSH			CLY	2	7.6
48-1-78-7	1	4	midden	POT	SHRD		BRSH			CLY	11	57.2
48-1-78-8	1	4	midden	POT	SHRD		INCI			CLY	5	18.0
48-1-78-9	1	4	midden	POT	SHRD		ENG			CLY	5	21.2
48-1-78-10	1	4	midden	POT	SHRD		BRSH	INCI		BNE	1	7.4
48-1-78-11	1	4	midden	POT	SHRD		BRSH	INCI		CLY	1	11.1
48-1-78-12	1	4	midden	POT	SHRD		BRSH	PUCT	APLQ	BNE	2	17.3

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-78-13	1	4	midden	POT	SHRD		APLQ			BNE	2	19.2
48-1-78-14	1	4	midden	POT	RIM	JAR	PLN			CLY	1	5.0
48-1-78-15	1	4	midden	POT	RIM	JAR	PUCT			BNE	1	3.1
48-1-79-1	1	5	24" NE 39" SE 25"	POT	SHRD						227	415.5
48-1-79-2	1	5	24" NE 39" SE 25"	POT	SHRD		PLN			BNE	7	37.2
48-1-79-3	1	5	24" NE 39" SE 25"	POT	SHRD		PLN			CLY	33	163.7
48-1-79-4	1	5	24" NE 39" SE 25"	POT	SHRD		PLN			SHL	3	8.6
48-1-79-5	1	5	24" NE 39" SE 25"	POT	SHRD		BRSH			BNE	7	30.2
48-1-79-6	1	5	24" NE 39" SE 25"	POT	SHRD		BRSH			BNE	5	30.3
48-1-79-7	1	5	24" NE 39" SE 25"	POT	SHRD		BRSH			CLY	23	97.1
48-1-79-8	1	5	24" NE 39" SE 25"	POT	SHRD		INCI			BNE	1	8.4
48-1-79-9	1	5	24" NE 39" SE 25"	POT	SHRD		INCI			CLY	4	16.8
48-1-79-10	1	5	24" NE 39" SE 25"	POT	SHRD		ENG			CLY	3	17.9
48-1-79-11	1	5	24" NE 39" SE 25"	POT	SHRD		BRSH	INCI		CLY	1	21.2

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-79-12	1	5	24" NE 39" SE 25"	POT	SHRD		BRSH	APLQ		CLY	3	17.1
48-1-79-13	1	5	24" NE 39" SE 25"	POT	SHRD		BRSH	PUCT		CLY	1	18.1
48-1-79-14	1	5	24" NE 39" SE 25"	POT	SHRD		PUCT			BNE	1	3.1
48-1-79-15	1	5	24" NE 39" SE 25"	POT	RIM		PUCT			CLY	1	4.9
48-1-79-16	1	5	24" NE 39" SE 25"	POT	RIM	BTL	PLN			CLY	1	3.3
48-1-79-17	1	5	24" NE 39" SE 25"	POT	RIM		INCI			BNE	2	6.8
48-1-79-18	1	5	24" NE 39" SE 25"	POT	RIM		BRSH			CLY	3	31.6
48-1-80-1	1	5	24" NE 39" SE 25"	FAUN	UMOD					BNE	54	95.4
48-1-80-2	1	5	24" NE 39" SE 25"	FAUN	UMOD					TTH	3	0.7
48-1-80-3	1	5	24" NE 39" SE 25"	FAUN	UMOD		BUR			BNE	13	24.8
48-1-81	1	5	24" NE 39" SE 25"	FAUN	UMOD					SHL	66	60.7
48-1-82	1	5	SW 5"-52" NE 61"-64"	FAUN	UMOD					SHL	29	47.7
48-1-83-1	1	5	SW 5"-52" NE 61"-64"	FAUN	UMOD					BNE	38	106.0
48-1-83-2	1	5	SW 5"-52" NE 61"-64"	FAUN	UMOD		BUR			BNE	1	1.7

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-83-3	1	5	SW 5"-52" NE 61"-64"	FAUN	UMOD					TTH	1	0.1
48-1-83-4	1	5	SW 5"-52" NE 61"-64"	FAUN	UTIL		CHOF			ATL	1	3.3
48-1-84-1	1	5	SW 5"-52" NE 61"-64"	POT	SHRD						37	76.6
48-1-84-2	1	5	SW 5"-52" NE 61"-64"	POT	SHRD		PLN			BNE	2	8.1
48-1-84-3	1	5	SW 5"-52" NE 61"-64"	POT	SHRD		PLN			CLY	1	4.4
48-1-84-4	1	5	SW 5"-52" NE 61"-64"	POT	SHRD		PLN			CLY	8	52.4
48-1-84-5	1	5	SW 5"-52" NE 61"-64"	POT	SHRD		BRSH			CLY	1	23.4
48-1-84-6	1	5	SW 5"-52" NE 61"-64"	POT	SHRD		BRSH			CLY	9	56.8
48-1-84-7	1	5	SW 5"-52" NE 61"-64"	POT	SHRD		PLN	RED		CLY	1	4.6
48-1-84-8	1	5	SW 5"-52" NE 61"-64"	POT	RIM		BRSH	PUCT		CLY	1	5.3
48-1-84-9	1	5	SW 5"-52" NE 61"-64"	POT	RIM	JAR	PLN			CLY	1	7.8
48-1-84-10	1	5	SW 5"-52" NE 61"-64"	POT	RIM		ENG			CLY	1	2.6
48-1-85-1	2	1	1 (1-6")	POT	SHRD						114	212.7
48-1-85-2	2	1	1 (1-6")	POT	SHRD		PLN			BNE	4	16.9

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-85-3	2	1	1 (1-6")	POT	SHRD		PLN			BNE	3	19.2
48-1-85-4	2	1	1 (1-6")	POT	SHRD		PLN			CLY	17	75.1
48-1-85-5	2	1	1 (1-6")	POT	SHRD		PLN			SHL	2	5.3
48-1-85-6	2	1	1 (1-6")	POT	SHRD		BRSH			BNE	2	6.8
48-1-85-7	2	1	1 (1-6")	POT	SHRD		BRSH			BNE	4	15.7
48-1-85-8	2	1	1 (1-6")	POT	SHRD		BRSH			CLY	3	10.9
48-1-85-9	2	1	1 (1-6")	POT	SHRD		BRSH			SHL	1	4.5
48-1-85-10	2	1	1 (1-6")	POT	SHRD		INCI			BNE	2	8.9
48-1-85-11	2	1	1 (1-6")	POT	SHRD		INCI			CLY	4	14.8
48-1-85-12	2	1	1 (1-6")	POT	SHRD		PUCT			SHL	1	2.8
48-1-85-13	2	1	1 (1-6")	POT	SHRD		ENG			BNE	2	3.8
48-1-85-14	2	1	1 (1-6")	POT	SHRD	CBL	ENG			CLY	2	7.7
48-1-85-15	2	1	1 (1-6")	POT	RIM	JAR	PLN			CLY	1	10.9
48-1-85-16	2	1	1 (1-6")	POT	RIM	JAR	PUCT			BNE	1	8.9

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-85-17	2	1	1 (1-6")	POT	RIM		ENG			BNE	1	2.2
48-1-86	2	1	1 (1-6")	FAUN	UMOD					BNE	28	84.1
48-1-87	2	1	1 (1-6")	POT	NVES	DAUB					26	100.3
48-1-88-1	2	1	2 (6-12")	FAUN	UMOD					BNE	79	433.9
48-1-88-2	2	1	2 (6-12")	POT	UMOD		BUR			BNE	9	11.6
48-1-88-3	2	1	2 (6-12")	POT	UMOD					TTH	1	0.8
48-1-89-1	2	1	2 (6-12")	POT	SHRD						43	267.7
48-1-89-2	2	1	2 (6-12")	POT	SHRD		PLN			BNE	3	30.5
48-1-89-3	2	1	2 (6-12")	POT	SHRD		PLN			BNE	17	88.9
48-1-89-4	2	1	2 (6-12")	POT	SHRD		PLN			CLY	1	4.5
48-1-89-5	2	1	2 (6-12")	POT	SHRD		PLN			CLY	42	220.4
48-1-89-6	2	1	2 (6-12")	POT	SHRD		PLN			SHL	7	21.4
48-1-89-7	2	1	2 (6-12")	POT	SHRD		BRSH			BNE	12	77.7
48-1-89-8	2	1	2 (6-12")	POT	SHRD		BRSH			BNE	20	103.8

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-89-9	2	1	2 (6-12")	POT	SHRD		BRSH			CLY	7	36.7
48-1-89-10	2	1	2 (6-12")	POT	SHRD		BRSH			SHL	2	18.3
48-1-89-11	2	1	2 (6-12")	POT	SHRD		INCI			BNE	6	39.8
48-1-89-12	2	1	2 (6-12")	POT	SHRD		INCI			BNE	2	8.6
48-1-89-13	2	1	2 (6-12")	POT	SHRD		INCI			CLY	2	18.6
48-1-89-14	2	1	2 (6-12")	POT	SHRD		INCI			CLY	13	81.2
48-1-89-15	2	1	2 (6-12")	POT	SHRD		PUCT			CLY	2	9.1
48-1-89-16	2	1	2 (6-12")	POT	SHRD		ENG			BNE	1	7.8
48-1-89-17	2	1	2 (6-12")	POT	SHRD		ENG			CLY	5	53.0
48-1-89-18	2	1	2 (6-12")	POT	SHRD		APLQ			CLY	1	1.7
48-1-89-19	2	1	2 (6-12")	POT	SHRD		BRSH	PUCT		CLY	1	13.2
48-1-89-20	2	1	2 (6-12")	POT	SHRD		PLN			BNE	2	8.9
48-1-89-21	2	1	2 (6-12")	POT	SHRD		PLN			CLY	1	20.2
48-1-89-22	2	1	2 (6-12")	POT	SHRD		BRSH			BNE	2	14.6

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-89-23	2	1	2 (6-12")	POT	SHRD		INCI			BNE	3	28.2
48-1-89-24	2	1	2 (6-12")	POT	SHRD		INCI			CLY	1	4.7
48-1-89-25	2	1	2 (6-12")	POT	SHRD		ENG			CLY	1	7.9
48-1-90	2	1	2 (6-12")	POT	NVES	DAUB				CLY	25	100.7
48-1-91-1	2	1	3 (12-18")	FAUN	UMOD					BNE	111	198.9
48-1-91-2	2	1	3 (12-18")	FAUN	UMOD		BUR			BNE	6	6.9
48-1-92-1	2	1	3 (12-18")	POT	SHRD						85	165.0
48-1-92-2	2	1	3 (12-18")	POT	SHRD		PLN			BNE	6	25.8
48-1-92-3	2	1	3 (12-18")	POT	SHRD		PLN			BNE	11	65.3
48-1-92-4	2	1	3 (12-18")	POT	SHRD		PLN			CLY	14	89.4
48-1-92-5	2	1	3 (12-18")	POT	SHRD		PLN			SHL	4	8.7
48-1-92-6	2	1	3 (12-18")	POT	SHRD		BRSH			BNE	16	93.1
48-1-92-7	2	1	3 (12-18")	POT	SHRD		BRSH			BNE	15	104.7
48-1-92-8	2	1	3 (12-18")	POT	SHRD		BRSH			CLY	17	130.8

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-92-9	2	1	3 (12-18")	POT	SHRD		INCI			BNE	6	25.2
48-1-92-10	2	1	3 (12-18")	POT	SHRD		INCI			CLY	4	17.1
48-1-92-11	2	1	3 (12-18")	POT	SHRD		ENG			CLY	1	3.6
48-1-92-12	2	1	3 (12-18")	POT	SHRD	CBL	ENG			CLY	5	50.4
48-1-92-13	2	1	3 (12-18")	POT	RIM		PLN			BNE	1	5.8
48-1-92-14	2	1	3 (12-18")	POT	RIM		BRSH			BNE	2	20.4
48-1-92-15	2	1	3 (12-18")	POT	RIM		BRSH			CLY	1	4.7
48-1-92-16	2	1	3 (12-18")	POT	RIM	JAR	BRSH			SHL	5	31.3
48-1-92-17	2	1	3 (12-18")	POT	RIM		INCI			BNE	1	5.3
48-1-92-18	2	1	3 (12-18")	POT	RIM		PUCT			BNE	1	7.6
48-1-92-19	2	1	3 (12-18")	POT	RIM		ENG			BNE	2	5.9
48-1-92-20	2	1	3 (12-18")	POT	RIM	CBL	ENG			CLY	4	55.9
48-1-93	2	1	3 (12-18")	POT	NVES	DAUB				CLY	15	58.5
48-1-94-1	2	1	4 (18-24")	FAUN	UMOD					BNE	47	158.7

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-94-2	2	1	4 (18-24")	FAUN	UMOD		BUR			BNE	6	9.9
48-1-95-1	2	1	4 (18-24")	POT	SHRD						63	34.3
48-1-95-2	2	1	4 (18-24")	POT	SHRD		PLN			BNE	7	69.1
48-1-95-3	2	1	4 (18-24")	POT	SHRD		PLN			CLY	21	168.0
48-1-95-4	2	1	4 (18-24")	POT	SHRD		PLN			SHL	6	34.6
48-1-95-5	2	1	4 (18-24")	POT	SHRD		BRSH			BNE	6	38.0
48-1-95-6	2	1	4 (18-24")	POT	SHRD		BRSH			BNE	10	63.7
48-1-95-7	2	1	4 (18-24")	POT	SHRD		BRSH			CLY	8	43.3
48-1-95-8	2	1	4 (18-24")	POT	SHRD		BRSH			SHL	2	12.6
48-1-95-9	2	1	4 (18-24")	POT	SHRD		INCI			BNE	3	20.4
48-1-95-10	2	1	4 (18-24")	POT	SHRD		INCI			CLY	3	33.8
48-1-95-11	2	1	4 (18-24")	POT	SHRD		BRSH	INCI		BNE	1	5.4
48-1-95-12	2	1	4 (18-24")	POT	SHRD		ENG	RED		CLY	1	3.2
48-1-95-13	2	1	4 (18-24")	POT	HNDSTR		PUCT			CLY	1	6.6

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-95-14	2	1	4 (18-24")	POT	RIM		BRSH			BNE	3	19.7
48-1-95-15	2	1	4 (18-24")	POT	RIM	CBL	ENG			CLY	5	29.4
48-1-95-16	2	1	4 (18-24")	POT	RIM		BRSH	PUCT		BNE	1	3.9
48-1-95-17	2	1	4 (18-24")	POT	SHRD		PLN	GREEN		UNK	1	1.1
48-1-96	2	1	4 (18-24")	FAUN	UMOD					SHL	13	4.4
48-1-97	2	1	4 (18-24")	POT	NVES		CLY			CLY	9	39.9
48-1-98-1	2	1	5 (24-30")	FAUN	UMOD					BNE	44	300.2
48-1-98-2	2	1	5 (24-30")	FAUN	UMOD		BUR			BNE	3	2.4
48-1-98-3	2	1	5 (24-30")	FAUN	UMOD					TRL	1	3.1
48-1-99	2	1	5 (24-30")	FAUN	UMOD					SHL	2	1.9
48-1-100-1	2	1	5 (24-30")	POT	SHRD						63	141.5
48-1-100-2	2	1	5 (24-30")	POT	SHRD		PLN			BNE	10	130.3
48-1-100-3	2	1	5 (24-30")	POT	SHRD		PLN			BNE	1	12.7
48-1-100-4	2	1	5 (24-30")	POT	SHRD		PLN			CLY	9	55.2

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-100-5	2	1	5 (24-30")	POT	SHRD		PLN			SHL	1	2.6
48-1-100-6	2	1	5 (24-30")	POT	SHRD		BRSH			BNE	15	100.6
48-1-100-7	2	1	5 (24-30")	POT	SHRD		BRSH			BNE	2	11.9
48-1-100-8	2	1	5 (24-30")	POT	SHRD		BRSH			CLY	16	104.2
48-1-100-9	2	1	5 (24-30")	POT	SHRD		INCI			BNE	2	16.3
48-1-100-10	2	1	5 (24-30")	POT	SHRD		INCI			CLY	3	48.1
48-1-100-11	2	1	5 (24-30")	POT	SHRD		INCI			SHL	1	8.4
48-1-100-12	2	1	5 (24-30")	POT	RIM		BRSH			CLY	2	14.8
48-1-100-13	2	1	5 (24-30")	POT	RIM	CBL	ENG	RED		CLY	1	8.4
48-1-100-14	2	1	5 (24-30")	POT	RIM	CBL	ENG	RED		CLY	1	5.0
48-1-101	2	1	5 (24-30")	FLOR	UMOD					WD	1	0.2
48-1-102-1	2	1	6 (30-36")	FAUN	UMOD					BNE	13	49.9
48-1-102-2	2	1	6 (30-36")	FAUN	UMOD		BUR			BNE	2	2.0
48-1-103-1	2	1	6 (30-36")	POT	SHRD						63	141.8

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-103-2	2	1	6 (30-36")	POT	SHRD		PLN			BNE	1	3.3
48-1-103-3	2	1	6 (30-36")	POT	SHRD		PLN			CLY	9	50.5
48-1-103-4	2	1	6 (30-36")	POT	SHRD		PLN			SHL	5	55.4
48-1-103-5	2	1	6 (30-36")	POT	SHRD		BRSH			BNE	4	19.9
48-1-103-6	2	1	6 (30-36")	POT	SHRD		BRSH			BNE	8	67.3
48-1-103-7	2	1	6 (30-36")	POT	SHRD		BRSH			CLY	13	98.1
48-1-103-8	2	1	6 (30-36")	POT	SHRD		BRSH			SHL	1	6.9
48-1-103-9	2	1	6 (30-36")	POT	SHRD		INCI			CLY	1	6.7
48-1-103-10	2	1	6 (30-36")	POT	SHRD		ENG	RED		CLY	4	21.4
48-1-103-11	2	1	6 (30-36")	POT	RIM		BRSH			BNE	2	11.2
48-1-104	2	1	6 (30-36")	FAUN	UMOD					SHL	1	0.3
48-1-105	2	1	6 (30-36")	POT	NVES	DAUB				CLY	2	3.3
48-1-106	2	1	7 (36-42")	FAUN	UMOD					SHL	6	2.0
48-1-107-1	2	1	7 (36-42")	POT	SHRD						16	29.3

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-107-2	2	1	7 (36-42")	POT	SHRD		PLN			BNE	2	7.7
48-1-107-3	2	1	7 (36-42")	POT	SHRD		PLN			CLY	5	26.7
48-1-107-4	2	1	7 (36-42")	POT	SHRD		PLN			SHL	2	8.7
48-1-107-5	2	1	7 (36-42")	POT	SHRD		BRSH			BNE	2	9.6
48-1-107-6	2	1	7 (36-42")	POT	SHRD		BRSH			CLY	1	3.9
48-1-107-7	2	1	7 (36-42")	POT	SHRD		BRSH			CLY	3	14.2
48-1-107-8	2	1	7 (36-42")	POT	SHRD		INCI			SHL	2	8.9
48-1-107-9	2	1	7 (36-42")	POT	SHRD		ENG	RED		CLY	1	5.7
48-1-107-10	2	1	7 (36-42")	POT	SHRD		ENG			BNE	3	8.2
48-1-107-11	2	1	7 (36-42")	POT	SHRD					BNE	2	12.9
48-1-108-1	2	1	7 (36-42")	FAUN	UMOD		BUR			BNE	12	20.9
48-1-108-2	2	1	7 (36-42")	FAUN	UMOD					BNE	2	1.3
48-1-109	2	1	7 (36-42")	POT	NVES	DAUB				CLY	5	15.5
48-1-110	2	1	8 (42-42")	FAUN	UMOD					BNE	7	71.8

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-111-1	2	1	8 (42-42")	POT	SHRD						7	17.6
48-1-111-2	2	1	8 (42-42")	POT	SHRD		PLN			CLY	1	10.5
48-1-111-3	2	1	8 (42-42")	POT	SHRD		PLN			SHL	1	2.5
48-1-111-4	2	1	8 (42-42")	POT	SHRD		BRSH			CLY	5	41.5
48-1-111-5	2	1	8 (42-42")	POT	SHRD		BRSH			SHL	2	8.8
48-1-111-6	2	1	8 (42-42")	POT	SHRD		INCI			CLY	1	4.9
48-1-111-7	2	1	8 (42-42")	POT	SHRD		ENG	RED		BNE	1	3.6
48-1-111-8	2	1	8 (42-42")	POT	SHRD		ENG			CLY	1	5.4
48-1-111-9	2	1	8 (42-42")	POT	SHRD		BRSH	APLQ		CLY	1	5.6
48-1-112	2	1	8 (42-42")	FAUN	UMOD					SHL	2	0.4
48-1-113	2	1	8 (42-42")	POT	NVES	DAUB				CLY	1	3.7
48-1-114	2	2	1 (1-6")	FAUN	UMOD					BNE	34	66.9
48-1-115-1	2	2	1 (1-6")	POT	SHRD						189	356.5
48-1-115-2	2	2	1 (1-6")	POT	SHRD		PLN			BNE	5	30.7

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-115-3	2	2	1 (1-6")	POT	SHRD		PLN			BNE	9	49.7
48-1-115-4	2	2	1 (1-6")	POT	SHRD		PLN			CLY	1	4.2
48-1-115-5	2	2	1 (1-6")	POT	SHRD		PLN			CLY	14	64.8
48-1-115-6	2	2	1 (1-6")	POT	SHRD		BRSH			BNE	7	45.4
48-1-115-7	2	2	1 (1-6")	POT	SHRD		BRSH			BNE	4	18.5
48-1-115-8	2	2	1 (1-6")	POT	SHRD		BRSH			CLY	1	4.1
48-1-115-9	2	2	1 (1-6")	POT	SHRD		BRSH			CLY	10	54.1
48-1-115-10	2	2	1 (1-6")	POT	SHRD		INCI			BNE	2	12.4
48-1-115-11	2	2	1 (1-6")	POT	SHRD		INCI			CLY	9	42.1
48-1-115-12	2	2	1 (1-6")	POT	SHRD		INCI	APLQ		CLY	1	9.3
48-1-115-13	2	2	1 (1-6")	POT	SHRD		ENG			CLY	3	10.1
48-1-115-14	2	2	1 (1-6")	POT	RIM		ENG			CLY	4	15.4
48-1-115-15	2	2	1 (1-6")	POT	RIM	CBL	ENG			BNE	1	8.6
48-1-116	2	2	1 (1-6")	FAUN	UMOD					SHL	1	1.5

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-117	2	2	1 (1-6")	POT	NVES	DAUB				CLY	13	51.1
48-1-118	2	2	1 (1-6")	CL								
48-1-119-1	2	2	2 (6-12")	POT	SHRD						108	227.8
48-1-119.2	2	2	2 (6-12")	POT	SHRD		PLN			BNE	6	50.9
48-1-119-3	2	2	2 (6-12")	POT	SHRD		PLN			BNE	12	113.4
48-1-119-4	2	2	2 (6-12")	POT	SHRD		PLN			CLY	14	79.4
48-1-119-5	2	2	2 (6-12")	POT	SHRD		PLN			SHL	1	1.0
48-1-119-6	2	2	2 (6-12")	POT	SHRD		BRSH			BNE	11	76.4
48-1-119-7	2	2	2 (6-12")	POT	SHRD		BRSH			BNE	15	96.8
48-1-119-8	2	2	2 (6-12")	POT	SHRD		BRSH			CLY	29	226.2
48-1-119-9	2	2	2 (6-12")	POT	SHRD		INCI			BNE	2	10.0
48-1-119-10	2	2	2 (6-12")	POT	SHRD		INCI			CLY	5	39.4
48-1-119-11	2	2	2 (6-12")	POT	SHRD		INCI	APLQ		CLY	2	9.0
48-1-119-12	2	2	2 (6-12")	POT	SHRD		BRSH	PUCT		BNE	1	5.2

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-119-13	2	2	2 (6-12")	POT	BODY	CBL	ENG			BNE	4	28.6
48-1-119-14	2	2	2 (6-12")	POT	RIM		BRSH			CLY	1	15.5
48-1-119-15	2	2	2 (6-12")	POT	RIM		ENG			BNE	2	15.7
48-1-119-16	2	2	2 (6-12")	POT	RIM		ENG	PUCT		BNE	2	13.7
48-1-120-1	2	2	2 (6-12")	FAUN	UMOD					BNE	60	75.2
48-1-120-2	2	2	2 (6-12")	FAUN	UMOD		BUR			BNE	4	9.4
48-1-120-3	2	2	2 (6-12")	FLOR	UMOD					WD	1	0.6
48-1-121	2	2	2 (6-12")	POT	NVES	DAUB				CLY	16	44.3
48-1-122-1	2	2	3 (12-18")	FAUN	UMOD					BNE	25	57.2
48-1-122-2	2	2	3 (12-18")	FAUN	UMOD		BUR			BNE	1	1.3
48-1-123-1	2	2	3 (12-18")	POT	SHRD						25	52.8
48-1-123-2	2	2	3 (12-18")	POT	SHRD		PLN			BNE	2	11.3
48-1-123-3	2	2	3 (12-18")	POT	SHRD		PLN			CLY	1	5.9
48-1-123-4	2	2	3 (12-18")	POT	SHRD		PLN			CLY	4	27.5

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-123-5	2	2	3 (12-18")	POT	SHRD		PLN			SHL	1	4.2
48-1-123-6	2	2	3 (12-18")	POT	SHRD		BRSH			BNE	3	41.2
48-1-123-7	2	2	3 (12-18")	POT	SHRD		BRSH			CLY	1	13.0
48-1-123-8	2	2	3 (12-18")	POT	SHRD		BRSH			SHL	1	5.3
48-1-123-9	2	2	3 (12-18")	POT	SHRD		ENG	RED		BNE	2	9.4
48-1-123-10	2	2	3 (12-18")	POT	HNDLLP		INCI			SHL	1	5.8
48-1-124	2	2	3 (12-18")	FAUN	UMOD					SHL	5	0.5
48-1-125	2	2	4 (18-24")	FAUN	UMOD					SHL		
48-1-126	2	2	4 (18-24")	FAUN	UMOD					BNE	28	34.0
48-1-127-1	2	2	4 (18-24")	POT	SHRD						49	98.9
48-1-127-2	2	2	4 (18-24")	POT	SHRD		PLN			BNE	3	63.8
48-1-127-3	2	2	4 (18-24")	POT	SHRD		PLN			BNE	2	7.4
48-1-127-4	2	2	4 (18-24")	POT	SHRD		PLN			CLY	9	72.8
48-1-127-5	2	2	4 (18-24")	POT	SHRD		BRSH			BNE	7	48.1

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-127-6	2	2	4 (18-24")	POT	SHRD		BRSH			CLY	8	71.0
48-1-127-7	2	2	4 (18-24")	POT	SHRD		BRSH	PUCT		SHL	1	2.9
48-1-127-8	2	2	4 (18-24")	POT	SHRD		ENG			CLY	1	4.1
48-1-127-9	2	2	4 (18-24")	POT	SHRD		INCI			CLY	1	15.1
48-1-127-10	2	2	4 (18-24")	POT	BODY	CBL	ENG			CLY	1	4.3
48-1-127-11	2	2	4 (18-24")	POT	RIM		BRSH			CLY	1	11.2
48-1-127-12	2	2	4 (18-24")	POT	RIM		INCI	PUCT		CLY	1	4.9
48-1-128-1	2	2	4 (18-24")	POT	NVES	DAUB				CLY	7	15.9
48-1-128-2	2	2	4 (18-24")	CL	FD						5	19.6
48-1-129	2	2	5 (24-30")	FAUN	UMOD					SHL	5	9.8
48-1-130-1	2	2	5 (24-30")	POT	SHRD						24	51.8
48-1-130-2	2	2	5 (24-30")	POT	SHRD		PLN			CLY	9	57.6
48-1-130-3	2	2	5 (24-30")	POT	SHRD		BRSH			BNE	6	42.7
48-1-130-4	2	2	5 (24-30")	POT	SHRD		BRSH			BNE	2	8.1

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-130-5	2	2	5 (24-30")	POT	SHRD		BRSH			CLY	6	45.2
48-1-130-6	2	2	5 (24-30")	POT	SHRD		INCI			BNE	1	6.4
48-1-130-7	2	2	5 (24-30")	POT	SHRD		INCI			CLY	1	23.4
48-1-130-8	2	2	5 (24-30")	POT	SHRD		ENG			CLY	1	3.4
48-1-130-9	2	2	5 (24-30")	POT	RIM		BRSH			CLY	5	45.1
48-1-131	2	2	5 (24-30")	FAUN	UMOD					BNE	12	31.5
48-1-132	2	2	5 (24-30")	CL	FD						3	10.9
48-1-133	2	2	6 (30-36")	FAUN	UMOD					BNE	36	77.9
48-1-134-1	2	2	6 (30-36")	CL	FD						6	25.8
48-1-134-2	2	2	6 (30-36")	POT	NVES	DAUB				CLY	9	24.4
48-1-135	2	2	6 (30-36")	FAUN	UMOD					SHL	2	0.8
48-1-136-1	2	2	6 (30-36")	POT	SHRD						1	68.1
48-1-136-2	2	2	6 (30-36")	POT	SHRD		PLN			BNE	1	27.8
48-1-136-3	2	2	6 (30-36")	POT	SHRD		PLN			CLY	6	42.4

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-136-4	2	2	6 (30-36")	POT	SHRD		PLN			SHL	3	20.6
48-1-136-5	2	2	6 (30-36")	POT	SHRD		BRSH			BNE	3	18.7
48-1-136-6	2	2	6 (30-36")	POT	SHRD		BRSH			CLY	6	66.6
48-1-136-7	2	2	6 (30-36")	POT	RIM		BRSH			SHL	1	8.7
48-1-136-8	2	2	6 (30-36")	POT	RIM	BTL	PLN			CLY	2	7.5
48-1-137-1	2	2	7 (36-42")	CL	FD						10	41.4
48-1-137-2	2	2	7 (36-42")	POT	NVES	DAUB				CLY	5	13.1
48-1-137-3	2	2	7 (36-42")	GRL	GEOB	BEAD					4	0.1
48-1-138-1	2	2	7 (36-42")	POT	SHRD						51	102.8
48-1-138-2	2	2	7 (36-42")	POT	SHRD		PLN			BNE	2	7.9
48-1-138-3	2	2	7 (36-42")	POT	SHRD		PLN			CLY	8	82.2
48-1-138-4	2	2	7 (36-42")	POT	SHRD		PLN			SHL	1	3.3
48-1-138-5	2	2	7 (36-42")	POT	SHRD		BRSH			CLY	1	18.2
48-1-138-6	2	2	7 (36-42")	POT	SHRD		BRSH			CLY	9	61.4

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-138-7	2	2	7 (36-42")	POT	SHRD		INCI			BNE	1	7.8
48-1-138-8	2	2	7 (36-42")	POT	SHRD		INCI			CLY	2	11.7
48-1-138-9	2	2	7 (36-42")	POT	SHRD		BRSH	APLQ		CLY	3	19.7
48-1-138-10	2	2	7 (36-42")	POT	SHRD		ENG			CLY	1	3.4
48-1-138-11	2	2	7 (36-42")	POT	RIM		BRSH			BNE	1	7.5
48-1-139	2	2	7 (36-42")	FAUN	UMOD					SHL	7	10.0
48-1-140-1	2	2	7 (36-42")	FAUN	UMOD					BNE	28	61.4
48-1-140-2	2	2	7 (36-42")	FAUN	UMOD					TTH	3	0.2
48-1-140-3	2	2	7 (36-42")	FAUN	UTMAN	BEAD				BNE	1	0.1
48-1-141-1	2	3	1 (1-6")	POT	SHRD						27	50.4
48-1-141-2	2	3	1 (1-6")	POT	SHRD		PLN			BNE	4	17.6
48-1-141-3	2	3	1 (1-6")	POT	SHRD		PLN			CLY	6	27.9
48-1-141-4	2	3	1 (1-6")	POT	SHRD		BRSH			SHL	1	1.9
48-1-141-5	2	3	1 (1-6")	POT	SHRD		BRSH	CLY		CLY	3	19.7

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-141-6	2	3	1 (1-6")	POT	SHRD		ENG	RED		CLY	1	1.5
48-1-141-7	2	3	1 (1-6")	POT	RIM					CLY	3	18.6
48-1-142-1	2	3	1 (1-6")	CL	FD						2	4.1
48-1-142-2	2	3	1 (1-6")	POT	NVES	DAUB				CLY	3	4.8
48-1-143-1	2	3	1 (1-6")	FAUN	UMOD					BNE	3	1.6
48-1-143-2	2	3	1 (1-6")	FLOR							1	1.1
48-1-144-1	2	3	2 (6-12")	POT	SHRD						2	4.0
48-1-144-2	2	3	2 (6-12")	POT	SHRD		PLN			CLY	1	3.0
48-1-144-3	2	3	2 (6-12")	POT	SHRD		BRSH			CLY	1	7.7
48-1-145	2	3	2 (6-12")	FAUN	UMOD					BNE	3	0.6
48-1-146	2	3	2 (6-12")	POT	NVES	DAUB				CLY	3	8.9
48-1-147	2	3	3 (12-18")	FAUN	UMOD					BNE		
48-1-148	2	3	3 (12-18")	POT	NVES	DAUB				CLY	19	16.4
48-1-149-1	2	3	3 (12-18")	POT	SHRD						1	3.6

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-149-2	2	3	3 (12-18")	POT	SHRD		BRSH			BNE	2	8.3
48-1-150	2	3	4-5 (18-30")	POT	SHRD		BRSH			BNE	2	5.6
48-1-151	2	3	4-5 (18-30")	POT	NVES	DAUB				CLY	5	1.2
48-1-152-1	2	3	ash (50-54")	POT	SHRD						41	78.9
48-1-152-2	2	3	ash (50-54")	POT	SHRD		PLN			BNE	3	22.6
48-1-152-3	2	3	ash (50-54")	POT	SHRD		PLN			CLY	2	51.3
48-1-152-4	2	3	ash (50-54")	POT	SHRD		PLN			CLY	1	3.2
48-1-152-5	2	3	ash (50-54")	POT	SHRD		PLN			SHL	2	7.1
48-1-152-6	2	3	ash (50-54")	POT	SHRD		BRSH			BNE	5	43.0
48-1-152-7	2	3	ash (50-54")	POT	SHRD		BRSH			CLY	8	72.2
48-1-152-8	2	3	ash (50-54")	POT	SHRD		INCI			CLY	1	6.0
48-1-152-9	2	3	ash (50-54")	POT	RIM		BRSH			CLY	1	8.0
48-1-153	2	3	ash (50-54")	FAUN	UMOD					SHL	17	11.1
48-1-154	2	3	ash (50-54")	FAUN	UMOD		BUR			BNE	2	2.8

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-155-1	2	3	ash (50-54")	CL	FD						3	10.3
48-1-155-2	2	3	ash (50-54")	POT	NVES	DAUB				CLY	8	17.7
48-1-156-1	2	3	cross section through ash	FAUN	UMOD					BNE	21	30.9
48-1-156-2	2	3	cross section through ash	FAUN	UMOD		BUR			BNE	7	3.8
48-1-156-3	2	3	cross section through ash	FAUN	UMOD					TTH	2	6.8
48-1-157-1	2	3	cross section through ash	POT	SHRD						42	96.0
48-1-157-2	2	3	cross section through ash	POT	SHRD		PLN			BNE	2	9.2
48-1-157-3	2	3	cross section through ash	POT	SHRD		PLN			CLY	1	7.6
48-1-157-4	2	3	cross section through ash	POT	SHRD		PLN			CLY	5	28.7
48-1-157-5	2	3	cross section through ash	POT	SHRD		PLN			SHL	3	46.3
48-1-157-6	2	3	cross section through ash	POT	SHRD		BRSH			BNE	3	11.1
48-1-157-7	2	3	cross section through ash	POT	SHRD		BRSH			CLY	6	39.6
48-1-157-8	2	3	cross section through ash	POT	SHRD		INCI			SHL	3	21.8
48-1-157-9	2	3	cross section through ash	POT	SHRD		ENG			CLY	1	3.6

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-157-10	2	3	cross section through ash	POT	SHRD		BRSH	APLQ		CLY	2	18.6
48-1-157-11	2	3	cross section through ash	POT	RIM		BRSH			CLY	2	8.5
48-1-158	2	3	cross section through ash	FAUN	UMOD					SHL	11	10.4
48-1-159-1	2	3	cross section through ash	CL	FD						14	39.9
48-1-159-2	2	3	cross section through ash	POT	NVES	DAUB				CLY	11	40.6
48-1-160	2	3	bottom of ash	FAUN	MAN	PIN				BNE	1	4.6
48-1-161-1	2	4	1 (1-6")	FAUN	UMOD					BNE	12	20.1
48-1-161-2	2	4	1 (1-6")	FAUN	UMOD		BUR			BNE	1	0.4
48-1-161-3	2	4	1 (1-6")	FAUN	UMOD					TTH	1	2.3
48-1-161-4	2	4	1 (1-6")	FAUN	UMOD					ATL	1	0.7
48-1-161-5	2	4	1 (1-6")	HIS	SHRD						1	8.7
48-1-162-1	2	4	1 (1-6")	POT	SHRD						13	21.7
48-1-162-3	2	4	1 (1-6")	POT	SHRD		PLN			BNE	1	4.5
48-1-162-4	2	4	1 (1-6")	POT	SHRD		PLN			CLY	1	5.6

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-162-5	2	4	1 (1-6")	POT	SHRD		PLN			SHL	3	10.4
48-1-162-6	2	4	1 (1-6")	POT	SHRD		BRSH			CLY	1	4.1
48-1-162-7	2	4	1 (1-6")	CL	CORE						2	36.0
48-1-163	2	4	1 (1-6")	FAUN	UMOD					SHL	2	0.8
48-1-164	2	4	1 (1-6")	POT	NVES	DAUB				CLY	10	32.9
48-1-165	2	4	2-3 (6-18")	FAUN	UMOD					BNE	3	3.5
48-1-166-1	2	4	2-3 (6-18")	POT	SHRD						4	6.3
48-1-166-2	2	4	2-3 (6-18")	POT	SHRD		PLN			BNE	2	7.4
48-1-166-3	2	4	2-3 (6-18")	POT	SHRD		PLN			CLY	2	23.7
48-1-166-4	2	4	2-3 (6-18")	POT	SHRD		PLN			SHL	1	5.8
48-1-167	2	4	2-3 (6-18")	POT	SHRD					SHL	2	0.1
48-1-168	2	4	2-3 (6-18")	POT	NVES	DAUB				CLY	28	64.8
48-1-169	2	4	5 (24-30")	POT	SHRD		PLN			CLY	1	3.1
48-1-170	2	4	9 (48-54")	FAUN	UMOD					BNE	3	7.8

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-171-1	2	4	9 (48-54")	POT	SHRD						20	37.9
48-1-171-2	2	4	9 (48-54")	POT	SHRD		PLN			BNE	2	8.7
48-1-172	2	4	10 (54-60")	FAUN	UMOD					SHL	26	25.2
48-1-173-1	2	4	10 (54-60")	FAUN	UMOD					BNE	8	21.9
48-1-173-2	2	4	10 (54-60")	FAUN	UMOD		BUR			BNE	4	3.5
48-1-174-1	2	4	10 (54-60")	POT	UMOD						69	149.4
48-1-174-2	2	4	10 (54-60")	POT	SHRD		PLN			BNE	6	41.8
48-1-174-3	2	4	10 (54-60")	POT	SHRD		PLN			CLY	1	5.1
48-1-174-4	2	4	10 (54-60")	POT	SHRD		PLN			CLY	10	50.1
48-1-174-5	2	4	10 (54-60")	POT	SHRD		PLN			SHL	10	57.4
48-1-174-6	2	4	10 (54-60")	POT	SHRD		BRSH			CLY	13	86.1
48-1-174-7	2	4	10 (54-60")	POT	SHRD		BRSH			SHL	1	4.6
48-1-174-8	2	4	10 (54-60")	POT	SHRD		INCI			CLY	1	6.7
48-1-174-9	2	4	10 (54-60")	POT	SHRD		INCI			CLY	1	8.2

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-174-10	2	4	10 (54-60")	POT	SHRD		INCI			SHL	2	7.0
48-1-174-11	2	4	10 (54-60")	POT	SHRD		PUCT			CLY	1	2.8
48-1-174-12	2	4	10 (54-60")	POT	SHRD		ENG			BNE	1	2.7
48-1-174-13	2	4	10 (54-60")	POT	SHRD		BRSH	APLQ		CLY	2	10.1
48-1-174-14	2	4	10 (54-60")	POT	SHRD		BRSH	PUCT		CLY	1	4.2
48-1-174-15	2	4	10 (54-60")	POT	BODY	CBL	ENG			BNE	2	5.8
48-1-174-16	2	4	10 (54-60")	POT	HNDLST		PLN			CLY	1	3.3
48-1-174-17	2	4	10 (54-60")	POT	HNDLLP		PLN			BNE	1	1.4
48-1-174-18	2	4	10 (54-60")	POT	RIM		BRSH	PUCT		CLY	1	4.2
48-1-174-19	2	4	10 (54-60")	POT	RIM		ENG			CLY	2	6.8
48-1-175-1	2	4	10 (54-60")	POT	NVES	DAUB				CLY	36	81.6
48-1-175-2	2	4	10 (54-60")	CL	FD						2	2.8
48-1-175-3	2	4	10 (54-60")	FLOR	CHARC					WD	2	0.5
48-1-176-1	2	5	1 (1-6")	FAUN	UMOD					BNE	10	14.6

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-176-2	2	5	1 (1-6")	FAUN	UMOD					TTH	2	8.2
48-1-177-1	2	5	1 (1-6")	POT	SHRD						10	22.6
48-1-177-2	2	5	1 (1-6")	POT	SHRD		INCI			SHL	1	9.0
48-1-177-3	2	5	1 (1-6")	POT	RIM		BRSH			SHL	1	3.7
48-1-178	2	5	1 (1-6")	FAUN	UMOD					SHL	4	0.6
48-1-179-1	2	5	2-3-4 (6-24")	POT	SHRD						2	2.9
48-1-179-2	2	5	2-3-4 (6-24")	POT	SHRD		PLN			CLY	2	8.6
48-1-179-3	2	5	2-3-4 (6-24")	POT	RIM	BTL	PLN			CLY	1	1.9
48-1-179-4	2	5	2-3-4 (6-24")	POT	RIM		ENG			BNE	1	4.0
48-1-180	2	5	ash level	POT	SHRD		INCI			SHL	1	4.9
48-1-181	2	5	ash level	POT	NVES	DAUB				CLY	44	89.5
48-1-182-1	2	5	SW 80-86" NE 63-69" SE	POT	SHRD						77	163.1
48-1-182-2	2	5	SW 80-86" NE 63-69" SE	POT	SHRD		PLN			BNE	11	101.9
48-1-182-3	2	5	SW 80-86" NE 63-69" SE	POT	SHRD		PLN			CLY	14	66.9

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-182-4	2	5	SW 80-86" NE 63-69" SE	POT	SHRD		PLN			SHL	2	6.1
48-1-182-5	2	5	SW 80-86" NE 63-69" SE	POT	SHRD		BRSH			BNE	2	18.6
48-1-182-6	2	5	SW 80-86" NE 63-69" SE	POT	SHRD		BRSH			CLY	13	88.6
48-1-182-7	2	5	SW 80-86" NE 63-69" SE	POT	SHRD		INCI			BNE	1	15.8
48-1-182-8	2	5	SW 80-86" NE 63-69" SE	POT	SHRD		INCI			CLY	3	12.4
48-1-182-9	2	5	SW 80-86" NE 63-69" SE	POT	SHRD		INCI			SHL	6	65.4
48-1-182-10	2	5	SW 80-86" NE 63-69" SE	POT	SHRD		APLQ			BNE	3	46.2
48-1-182-11	2	5	SW 80-86" NE 63-69" SE	POT	SHRD		BRSH	PUCT		CLY	1	14.3
48-1-182-12	2	5	SW 80-86" NE 63-69" SE	POT	SHRD		BRSH	PUCT		CLY	1	16.4
48-1-182-13	2	5	SW 80-86" NE 63-69" SE	POT	BODY	CBL	ENG			BNE	1	6.2
48-1-182-14	2	5	SW 80-86" NE 63-69" SE	POT	RIM		BRSH			BNE	2	9.8
48-1-182-15	2	5	SW 80-86" NE 63-69" SE	POT	RIM		BRSH			CLY	1	5.5
48-1-182-16	2	5	SW 80-86" NE 63-69" SE	POT	RIM		ENG			CLY	4	19.7
48-1-182-17	2	5	SW 80-86" NE 63-69" SE	POT	RIM	BOWL	PUCT	NODE		CLY	2	8.9

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-183-1	2	5	SW 80-86" NE 63-69" SE	FAUN	UMOD					BNE	21	108.2
48-1-183-2	2	5	SW 80-86" NE 63-69" SE	FAUN	UMOD		BUR			BNE	13	18.2
48-1-184	2	5	SW 80-86" NE 63-69" SE	FAUN	UMOD					SHL	36	48.1
48-1-185-1	2	5	SW 80-86" NE 63-69" SE	CL	FD						1	1.7
48-1-185-2	2	5	SW 80-86" NE 63-69" SE	FLOR	UMOD					WD	1	0.3
48-1-185-3	2	5	SW 80-86" NE 63-69" SE	POT	NVES	DAUB				CLY	21	79.7
48-1-186	2	6	1 (1-6")	HIS	CER		MBL			POR	1	31.4
48-1-187	2	6	1 (1-6")	FAUN	UMOD					SHL	2	3.6
48-1-188-1	2	6	1 (1-6")	POT	SHRD						8	27.2
48-1-188-2	2	6	1 (1-6")	POT	SHRD		PLN			CLY	3	10.2
48-1-188-3	2	6	1 (1-6")	POT	SHRD		INCI			CLY	3	10.4
48-1-188-4	2	6	1 (1-6")	POT	SHRD		INCI			SHL	2	4.1
48-1-189	2	6	2 (6-12")	POT	SHRD		PLN			CLY	1	6.8
48-1-190	2	6	2 (6-12")	FAUN	UMOD					SHL	1	5.7

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-191	2	6	3 (12-18")	FAUN	UMOD					BNE	9	51.8
48-1-192	2	6	4-5 (18-30")	FAUN	UMOD					BNE	2	19.5
48-1-193	2	6	4-5 (18-30")	POT	SHRD						4	7.4
48-1-194	2	7	1 (1-6")	FAUN	UMOD					BNE	6	58.6
48-1-195-1	2	7	1 (1-6")	POT	SHRD						9	15.1
48-1-195-2	2	7	1 (1-6")	POT	SHRD		PLN			CLY	2	10.0
48-1-195-3	2	7	1 (1-6")	POT	SHRD		PLN			SHL	1	10.4
48-1-195-4	2	7	1 (1-6")	POT	SHRD		BRSH			CLY	1	4.1
48-1-195-5	2	7	1 (1-6")	POT	SHRD		INCI			CLY	2	6.9
48-1-195-6	2	7	1 (1-6")	POT	SHRD		INCI			SHL	1	3.5
48-1-195-7	2	7	1 (1-6")	POT	SHRD		PUCT	APLQ		CLY	2	19.7
48-1-196	2	7	1 (1-6")	FAUN	UMOD					SHL	5	0.9
48-1-197-1	2	7	1 (1-6")	CL	FD						1	0.6
48-1-197-2	2	7	1 (1-6")	POT	NVES	DAUB				CLY	7	6.2

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-198-1	2	7	2 (6-12")	POT	SHRD						6	15.0
48-1-198-2	2	7	2 (6-12")	POT	SHRD		PLN			BNE	3	27.1
48-1-198-3	2	7	2 (6-12")	POT	SHRD		PLN			CLY	2	42.9
48-1-198-4	2	7	2 (6-12")	POT	SHRD		PLN			SHL	1	3.4
48-1-198-5	2	7	2 (6-12")	POT	SHRD		BRSH			CLY	1	6.7
48-1-199-1	1	1	1 (1-6")	HIS	CER					CER	5	17.5
48-1-199-2	1	1	1 (1-6")	HIS	GLS					GLS	3	5.4
48-1-199-3	1	1	1 (1-6")	HIS							1	2.1
48-1-199-4	1	1	1 (1-6")	HIS	MTL					IRN	1	2.1
48-1-199-5	1	1	1 (1-6")	HIS							1	3.2
48-1-199-6	1	1	1 (1-6")	CL	FD						13	27.3
48-1-200-1	2	2	1 (1-6")	CL	FD						13	67.6
48-1-200-2	2	2	1 (1-6")	HIS	MTL					IRN	2	30.5
48-1-201-1	1	1	firepit 21"	FLOR	UMOD					WD	7	2.7

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-201-2	1	1	firepit 21"	FAUN	UMOD					SHL	8	5.0
48-1-201-3	1	1	firepit 21"	FLOR	UMOD					SED	1	0.1
48-1-202-1	1	5	34" NE 39" SE 25"	FLOR	UMOD		CRBNIZ			WD	2	1.2
48-1-202-2	1	5	34" NE 39" SE 25"	FAUN	UMOD					SHL	8	9.3
48-1-203-1	1	3	4 (18-24")	FLOR	UMOD		CRBNIZ			SED	3	0.2
48-1-203-2	1	3	4 (18-24")	FAUN	UMOD					SHL	2	5.6
48-1-203-3	1	3	4 (18-24")	FAUN	UMOD					BNE	1	0.2
48-1-204-1	1	4	4 (18-24")	POT	SHRD						1	0.8
48-1-204-2	1	4	4 (18-24")	FAUN	UMOD					SHL	7	0.9
48-1-204-3	1	4	4 (18-24")	FAUN	UMOD					BNE	19	4.6
48-1-205	1	4		POT	NVES	DAUB				CLY	4	17.3
48-1-206-1	1	2	posthole #1	FAUN	UMOD					BNE	5	1.6
48-1-206-2	1	2	posthole #1	FAUN	UMOD					SHL	4	5.8
48-1-206-3	1	2	posthole #1	FLOR	UMOD		CRBNIZ			WD	3	0.5

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-207-1	1	4	midden	FAUN	UMOD					SHL	1	0.2
48-1-207-2	1	4	midden	FAUN	UMOD					BNE	3	0.8
48-1-208-1	1	3	18-20" firepit #2	POT	SHRD						5	6.9
48-1-208-2	1	3	18-20" firepit #2	POT	SHRD		PLN			BNE	1	12.7
48-1-208-3	1	3	18-20" firepit #2	POT	RIM		BRSH			CLY	2	7.9
48-1-209	1	3	18-20" firepit #2	FAUN	UMOD					BNE	3	1.9
48-1-210-1	1		postholes	POT	SHRD		PLN			BNE	1	28.8
48-1-210-2	1		postholes	POT	SHRD		PLN			CLY	1	4.1
48-1-210-3	1		postholes	POT	SHRD		BRSH			BNE	1	3.2
48-1-210-4	1		postholes	POT	SHRD		INCI			CLY	2	14.9
48-1-210-5	1		postholes	POT	SHRD		BRSH	APLQ	PUCT	CLY	1	8.2
48-1-211-1	4	1	1 (1-6")	POT	SHRD						32	67.8
48-1-211-2	4	1	1 (1-6")	POT	SHRD		PLN			SHL	2	10.1
48-1-211-3	4	1	1 (1-6")	POT	SHRD		PLN			CLY	1	4.5

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-212-1	4	1	1 (1-6")	HIS			BUR			COL	2	23.6
48-1-212-2	4	1	1 (1-6")	POT	NVES	DAUB				CLY	1	5.0
48-1-212-3	4	1	1 (1-6")	CL	FD						2	2.3
48-1-213	4	1	1 (1-6")	FAUN	UMOD					BNE	2	5.7
48-1-214-1	4	1	2 (6-12")	POT	SHRD						37	78.3
48-1-214-2	4	1	2 (6-12")	POT	SHRD		PLN			BNE	1	6.4
48-1-214-3	4	1	2 (6-12")	POT	SHRD		PLN			CLY	7	29.9
48-1-214-4	4	1	2 (6-12")	POT	SHRD		BRSH			BNE	3	13.8
48-1-214-5	4	1	2 (6-12")	POT	SHRD		BRSH			CLY	3	14.7
48-1-214-6	4	1	2 (6-12")	POT	SHRD		INCI			BNE	1	16.4
48-1-214-7	4	1	2 (6-12")	POT	SHRD		ENG			SHL	1	3.6
48-1-215	4	1	2 (6-12")	POT	NVES	DAUB				CLY	8	30.6
48-1-216-1	4	1	3 (12-18")	POT	SHRD						16	30.9
48-1-216-2	4	1	3 (12-18")	POT	SHRD		PLN			BNE	1	3.6

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-216-3	4	1	3 (12-18")	POT	SHRD		PLN			BNE	1	6.8
48-1-216-4	4	1	3 (12-18")	POT	SHRD		PLN			CLY	3	15.6
48-1-216-5	4	1	3 (12-18")	POT	SHRD		PLN			SHL	3	12.2
48-1-216-6	4	1	3 (12-18")	POT	SHRD		BRSH			BNE	2	21.8
48-1-216-7	4	1	3 (12-18")	POT	SHRD		BRSH			BNE	2	10.0
48-1-216-8	4	1	3 (12-18")	POT	SHRD		BRSH			CLY	1	3.3
48-1-216-9	4	1	3 (12-18")	POT	SHRD		INCI			BNE	1	4.9
48-1-216-10	4	1	3 (12-18")	POT	SHRD		INCI			BNE	1	4.5
48-1-216-11	4	1	3 (12-18")	POT	SHRD		INCI			SHL	1	7.9
48-1-216-12	4	1	3 (12-18")	POT	RIM		INCI			CLY	1	3.5
48-1-216-13	4	1	3 (12-18")	POT	RIM		BRSH	PUCT		CLY	2	6.9
48-1-217-1	4	1	3 (12-18")	CL	BF						3	10.6
48-1-217-2	4	1	3 (12-18")	POT	NVES	DAUB				CLY	1	4.9
48-1-218-1	4	1	4 (18-24")	POT	SHRD						82	155.5

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-218-2	4	1	4 (18-24")	POT	SHRD		PLN			BNE	1	4.7
48-1-218-3	4	1	4 (18-24")	POT	SHRD		PLN			BNE	8	84.5
48-1-218-4	4	1	4 (18-24")	POT	SHRD		PLN			CLY	11	64.1
48-1-218-5	4	1	4 (18-24")	POT	SHRD		BRSH			BNE	8	55.7
48-1-218-6	4	1	4 (18-24")	POT	SHRD		BRSH			CLY	2	16.1
48-1-218-7	4	1	4 (18-24")	POT	SHRD		BRSH			BNE	2	11.4
48-1-218-8	4	1	4 (18-24")	POT	SHRD		BRSH			CLY	4	31.3
48-1-218-9	4	1	4 (18-24")	POT	SHRD		BRSH			SHL	1	3.9
48-1-218-10	4	1	4 (18-24")	POT	SHRD		INCI			CLY	2	10.3
48-1-218-11	4	1	4 (18-24")	POT	SHRD		INCI	PUCT		SHL	1	5.0
48-1-218-12	4	1	4 (18-24")	POT	RIM		PLN			CLY	1	5.2
48-1-218-13	4	1	4 (18-24")	POT	RIM		PLN			SHL	1	5.9
48-1-218-14	4	1	4 (18-24")	POT	RIM		BRSH			BNE	1	8.1
48-1-218-15	4	1	4 (18-24")	POT	RIM		BRSH			CLY	2	21.3

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-218-16	4	1	4 (18-24")	POT	SHRD	CBL	PLN			SND	2	22.3
48-1-218-17	4	1	4 (18-24")	POT	SHRD	CBL	INCI			BNE	1	6.6
48-1-219	4	1	4 (18-24")	FAUN	UMOD					BNE	3	3.2
48-1-220	4	1	4 (18-24")	POT	NVES	DAUB				CLY	12	49.3
48-1-221-1	4	1	5 (24-30")	FAUN	UMOD					BNE	37	293.9
48-1-221-2	4	1	5 (24-30")	FAUN	UMOD		BUR			BNE	1	1.0
48-1-222-1	4	1	5 (24-30")	POT	SHRD						141	300.2
48-1-222-2	4	1	5 (24-30")	POT	SHRD		PLN			BNE	4	30.8
48-1-222-3	4	1	5 (24-30")	POT	SHRD		PLN			BNE	5	55.1
48-1-222-4	4	1	5 (24-30")	POT	SHRD		PLN			CLY	24	168.2
48-1-222-5	4	1	5 (24-30")	POT	SHRD		PLN			SHL	2	21.2
48-1-222-6	4	1	5 (24-30")	POT	SHRD		BRSH			BNE	2	19.2
48-1-222-7	4	1	5 (24-30")	POT	SHRD		BRSH			CLY	18	130.8
48-1-222-8	4	1	5 (24-30")	POT	SHRD		BRSH			SHL	3	22.9

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-222-9	4	1	5 (24-30")	POT	SHRD		INCI			BNE	3	16.5
48-1-222-10	4	1	5 (24-30")	POT	SHRD		INCI			CLY	8	58.0
48-1-222-11	4	1	5 (24-30")	POT	SHRD	CBL	INCI			SHL	1	8.6
48-1-222-12	4	1	5 (24-30")	POT	RIM		BRSH			CLY	2	14.4
48-1-222-13	4	1	5 (24-30")	POT	RIM	CBL	ENG			CLY	2	27.2
48-1-222-14	4	1	5 (24-30")	POT	RIM	CBL				SHL	3	25.6
48-1-223	4	1	5 (24-30")	FAUN	UMOD					SHL	1	3.6
48-1-224-1	4	1	5 (24-30")	CL							2	10.2
48-1-224-2	4	1	5 (24-30")	POT	NVES	DAUB				CLY	13	33.2
48-1-225-1	4	1	6 (30-36")	FAUN	UMOD					BNE	45	239.9
48-1-225-2	4	1	6 (30-36")	FAUN	UMOD		BUR			BNE	1	0.6
48-1-226-1	4	1	6 (30-36")	POT	SHRD						32	66.3
48-1-226-2	4	1	6 (30-36")	POT	SHRD		PLN			BNE	1	4.4
48-1-226-3	4	1	6 (30-36")	POT	SHRD		PLN			BNE	1	13.4

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-226-4	4	1	6 (30-36")	POT	SHRD		PLN			CLY	12	88.8
48-1-226-5	4	1	6 (30-36")	POT	SHRD		BRSH			BNE	5	28.1
48-1-226-6	4	1	6 (30-36")	POT	SHRD		BRSH			CLY	3	26.4
48-1-226-7	4	1	6 (30-36")	POT	SHRD		INCI			SHL	2	4.7
48-1-226-8	4	1	6 (30-36")	POT	RIM	CBL	BRSH			BNE	1	10.5
48-1-226-9	4	1	6 (30-36")	POT	RIM		BRSH			CLY	1	4.4
48-1-227-1	4	1	6 (30-36")	CL	FD						5	25.4
48-1-227-2	4	1	6 (30-36")	POT	NVES	DAUB				CLY	1	2.5
48-1-228	4	1	7 (36-42")	FAUN	UMOD					BNE	10	14.0
48-1-229-1	4	1	7 (36-42")	POT	SHRD						22	43.2
48-1-229-2	4	1	7 (36-42")	POT	SHRD		PLN			CLY	3	24.3
48-1-229-3	4	1	7 (36-42")	POT	SHRD		BRSH			BNE	1	3.4
48-1-229-4	4	1	7 (36-42")	POT	SHRD		BRSH			CLY	3	28.0
48-1-229-5	4	1	7 (36-42")	POT	SHRD		INCI			SHL	1	4.1

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-230-1	4	1	7 (36-42")	CL	FD						5	38.1
48-1-230-2	4	1	7 (36-42")	POT	NVES	DAUB				CLY	6	11.6
48-1-231	4	1	8 (42-48")	FAUN	UMOD					BNE	6	26.1
48-1-232-1	4	1	8 (42-48")	POT	SHRD						12	23.4
48-1-232-2	4	1	8 (42-48")	POT	SHRD		BRSH			BNE	2	10.8
48-1-232-3	4	1	8 (42-48")	POT	SHRD		BRSH			SHL	1	4.6
48-1-233-1	4	1	8 (42-48")	POT	NVES	DAUB				CLY	4	24.6
48-1-233-2	4	1	8 (42-48")	CL							2	7.7
48-1-234	4	2	1 (1-6")	POT	SHRD						4	11.5
48-1-235-1	4	2	2 (6-12")	POT	SHRD						7	12.8
48-1-235-2	4	2	2 (6-12")	POT	SHRD		PLN			BNE	3	13.1
48-1-235-3	4	2	2 (6-12")	POT	SHRD		BRSH			BNE	5	20.1
48-1-235-4	4	2	2 (6-12")	POT	SHRD		BRSH			CLY	3	13.6
48-1-235-5	4	2	2 (6-12")	POT	SHRD		INCI			SHL	1	4.6

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-236	4	2	2 (6-12")	FAUN	UMOD					BNE	1	1.8
48-1-237-1	4	2	2 (6-12")	POT	NVES	DAUB				CLY	5	7.1
48-1-237-2	4	2	2 (6-12")	GRL							1	8.5
48-1-238-1	4	2	3 (12-18")	POT	SHRD						67	116.1
48-1-238-2	4	2	3 (12-18")	POT	SHRD		PLN			BNE	4	18.7
48-1-238-3	4	2	3 (12-18")	POT	SHRD		PLN			CLY	5	21.1
48-1-238-4	4	2	3 (12-18")	POT	SHRD		PLN			SHL	3	15.1
48-1-238-5	4	2	3 (12-18")	POT	SHRD		BRSH			BNE	10	51.4
48-1-238-6	4	2	3 (12-18")	POT	SHRD		BRSH			CLY	7	45.8
48-1-238-7	4	2	3 (12-18")	POT	SHRD		INCI			CLY	2	11.8
48-1-238-8	4	2	3 (12-18")	POT	SHRD		INCI			SHL	1	2.6
48-1-238-9	4	2	3 (12-18")	POT	SHRD		ENG			CLY	1	3.8
48-1-238-10	4	2	3 (12-18")	POT	RIM		BRSH			CLY	1	5.3
48-1-238-11	4	2	3 (12-18")	POT	RIM		INCI			CLY	1	7.9

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-239-1	4	2	3 (12-18")	POT	NVES	DAUB				CLY	3	5.4
48-1-239-2	4	2	3 (12-18")	CL							9	50.5
48-1-240-1	4	2	4 (18-24")	POT	SHRD						29	52.4
48-1-240-2	4	2	4 (18-24")	POT	SHRD		PLN			BNE	1	7.9
48-1-240-3	4	2	4 (18-24")	POT	SHRD		PLN			CLY	2	7.6
48-1-240-4	4	2	4 (18-24")	POT	SHRD		BRSH			BNE	6	48.1
48-1-240-5	4	2	4 (18-24")	POT	SHRD		INCI			BNE	1	8.9
48-1-240-6	4	2	4 (18-24")	POT	SHRD		ENG			CLY	2	7.9
48-1-240-7	4	2	4 (18-24")	POT	RIM		BRSH			CLY	3	16.6
48-1-241	4	2	4 (18-24")	FAUN	UMOD					BNE	4	2.6
48-1-242-1	4	2	5 (24-30")	POT	SHRD						15	31.2
48-1-242-2	4	2	5 (24-30")	POT	SHRD		PLN			BNE	2	18.0
48-1-242-3	4	2	5 (24-30")	POT	SHRD		PLN			CLY	4	24.2
48-1-242-4	4	2	5 (24-30")	POT	SHRD		BRSH			BNE	4	36.9

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-242-5	4	2	5 (24-30")	POT	SHRD		BRSH			CLY	3	12.8
48-1-243	4	2	5 (24-30")	FAUN	UMOD					BNE	11	30.4
48-1-244-1	4	2	6 (30-36")	POT	SHRD						15	21.1
48-1-244-2	4	2	6 (30-36")	POT	SHRD		PLN			BNE	3	19.3
48-1-244-3	4	2	6 (30-36")	POT	SHRD		PLN			CLY	6	30.1
48-1-244-4	4	2	6 (30-36")	POT	SHRD		BRSH			BNE	2	10.3
48-1-244-5	4	2	6 (30-36")	POT	SHRD		BRSH			CLY	6	48.9
48-1-244-6	4	2	6 (30-36")	POT	SHRD		INCI			CLY	1	5.9
48-1-244-7	4	2	6 (30-36")	POT	SHRD		BRSH	APLQ		SHL	2	33.6
48-1-244-8	4	2	6 (30-36")	POT	RIM		BRSH			CLY	1	5.4
48-1-245	4	2	6 (30-36")	FAUN	UMOD					BNE	14	25.2
48-1-246-1	4	2	6 (30-36")	POT	NVES	DAUB				CLY	3	3.9
48-1-246-2	4	2	6 (30-36")	CL							2	15.8
48-1-247	4	2	7 (36-42")	FAUN	UMOD					BNE	13	66.9

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-248	4	2	7 (36-42")	POT	SHRD		BRSH			CLY	2	13.7
48-1-249	4	2	45" NE 58" SE 60"	FAUN	UMOD					SHL	1	4.1
48-1-250-1	4	2	45" NE 58" SE 60"	POT	SHRD						40	89.6
48-1-250-2	4	2	45" NE 58" SE 60"	POT	SHRD		PLN			BNE	2	17.7
48-1-250-3	4	2	45" NE 58" SE 60"	POT	SHRD		PLN			CLY	8	38.4
48-1-250-4	4	2	45" NE 58" SE 60"	POT	SHRD		PLN			SND	2	12.9
48-1-250-5	4	2	45" NE 58" SE 60"	POT	SHRD		BRSH			CLY	5	128.9
48-1-250-6	4	2	45" NE 58" SE 60"	POT	SHRD		INCI			CLY	3	10.6
48-1-250-7	4	2	45" NE 58" SE 60"	POT	SHRD		INCI			SHL	1	7.8
48-1-250-8	4	2	45" NE 58" SE 60"	POT	SHRD		BRSH	APLQ		BNE	1	25.0
48-1-250-9	4	2	45" NE 58" SE 60"	POT	SHRD		APLQ			BNE	1	7.3
48-1-250-10	4	2	45" NE 58" SE 60"	POT	RIM		PUCT	APLQ		CLY	1	9.5
48-1-250-11	4	2	45" NE 58" SE 60"	POT	RIM		BRSH			CLY	1	8.7
48-1-251	4	2	45" NE 58" SE 60"	FAUN	UMOD					BNE	9	52.5

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-252-1	4	3	1 (1-6")	POT	SHRD						18	44.1
48-1-252-2	4	3	1 (1-6")	POT	SHRD		PLN			CLY	3	11.3
48-1-252-3	4	3	1 (1-6")	POT	SHRD		PLN			SHL	1	2.6
48-1-252-4	4	3	1 (1-6")	POT	SHRD		BRSH			BNE	1	5.7
48-1-252-5	4	3	1 (1-6")	POT	SHRD		BRSH			CLY	3	12.3
48-1-253	4	3	1 (1-6")	FAUN	UMOD					SHL	1	0.4
48-1-254	4	3	1 (1-6")	FAUN	UMOD					BNE	1	2.6
48-1-255-1	4	3	1 (1-6")	POT	NVES						5	13.6
48-1-255-2	4	3	1 (1-6")	CL		DAUB				CLY	1	7.9
48-1-256	4	3	2 (6-12")	FAUN	UMOD					BNE	1	0.6
48-1-257	4	3	2 (6-12")	FAUN	UMOD					SHL	1	0.7
48-1-258-1	4	3	2 (6-12")	POT	SHRD						10	19.7
48-1-258-2	4	3	2 (6-12")	POT	SHRD		PLN			CLY	2	9.2
48-1-258-3	4	3	2 (6-12")	POT	SHRD		PLN			SHL	1	3.7

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-258-4	4	3	2 (6-12")	POT	SHRD		BRSH			CLY	2	7.2
48-1-258-5	4	3	2 (6-12")	POT	SHRD		INCI			CLY	1	4.0
48-1-258-6	4	3	2 (6-12")	FAUN	UMOD					BNE	1	3.8
48-1-259-1	4	3	3 (12-18")	POT	SHRD						48	81.8
48-1-259-2	4	3	3 (12-18")	POT	SHRD		PLN			BNE	5	18.8
48-1-259-3	4	3	3 (12-18")	POT	SHRD		PLN			CLY	10	61.4
48-1-259-4	4	3	3 (12-18")	POT	SHRD		PLN			SHL	4	14.4
48-1-259-5	4	3	3 (12-18")	POT	SHRD		BRSH			BNE	1	4.5
48-1-259-6	4	3	3 (12-18")	POT	SHRD		BRSH			CLY	3	14.9
48-1-259-7	4	3	3 (12-18")	POT	SHRD		INCI			CLY	2	8.7
48-1-259-8	4	3	3 (12-18")	POT	SHRD		INCI			SHL	2	5.7
48-1-259-9	4	3	3 (12-18")	POT	SHRD		PUCT			CLY	1	4.9
48-1-259-10	4	3	3 (12-18")	POT	SHRD		ENG			CLY	1	3.2
48-1-259-11	4	3	3 (12-18")	POT	RIM		BRSH			BNE	1	9.9

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-259-12	4	3	3 (12-18")	POT	RIM		BRSH			CLY	1	11.2
48-1-160	4	3	3 (12-18")	CL	FD						3	5.4
48-1-261-1	4	3	3 (12-18")	POT	SHRD						13	23.2
48-1-261-2	4	3	3 (12-18")	POT	SHRD		PLN			CLY	3	11.1
48-1-262-1	5	1	1 (1-6")	POT	SHRD						26	49.0
48-1-262-2	5	1	1 (1-6")	POT	SHRD		PLN			CLY	4	18.4
48-1-262-3	5	1	1 (1-6")	POT	SHRD		PLN			SHL	1	2.8
48-1-262-4	5	1	1 (1-6")	POT	SHRD		BRSH			CLY	2	11.8
48-1-262-5	5	1	1 (1-6")	POT	SHRD		INCI			CLY	1	3.5
48-1-263-1	5	1	1 (1-6")	POT	NVES	DAUB				CLY	2	4.1
48-1-263-2	5	1	1 (1-6")	CL							10	42.4
48-1-264	5	1	1 (1-6")	FAUN	UMOD					BNE	4	0.7
48-1-265-1	5	1	2 (6-12")	POT	SHRD						20	35.8
48-1-265-2	5	1	2 (6-12")	POT	SHRD		PLN			BNE	2	8.4

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-265-3	5	1	2 (6-12")	POT	SHRD		PLN			CLY	9	34.2
48-1-265-4	5	1	2 (6-12")	POT	SHRD		PLN			SND	1	3.6
48-1-265-5	5	1	2 (6-12")	POT	SHRD		BRSH			BNE	5	18.2
48-1-265-6	5	1	2 (6-12")	POT	SHRD		BRSH			CLY	5	21.9
48-1-265-7	5	1	2 (6-12")	POT	SHRD		INCI			CLY	8	32.2
48-1-265-8	5	1	2 (6-12")	POT	SHRD	CBL	PUCT			CLY	1	6.6
48-1-265-9	5	1	2 (6-12")	POT	SHRD		PUCT			CLY	1	2.7
48-1-265-10	5	1	2 (6-12")	POT	RIM		INCI			SHL	1	5.4
48-1-265-11	5	1	2 (6-12")	POT	SHRD		STAMP			CLY	1	5.8
48-1-265-12	5	1	2 (6-12")	POT	VES4	JAR	PUCT			BNE	10	59.3
48-1-266-1	5	1	2 (6-12")	GRL							7	100.1
48-1-266-2	5	1	2 (6-12")	CL	FD						4	19.3
48-1-267-1	5	1	3 (12-18")	POT	SHRD						40	68.2
48-1-267-2	5	1	3 (12-18")	POT	SHRD		PLN			BNE	2	11.0

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-267-3	5	1	3 (12-18")	POT	SHRD		PLN			CLY	12	59.9
48-1-267-4	5	1	3 (12-18")	POT	SHRD		PLN			SHL	2	6.7
48-1-267-5	5	1	3 (12-18")	POT	SHRD		BRSH			BNE	3	16.9
48-1-267-6	5	1	3 (12-18")	POT	SHRD		INCI			BNE	1	6.8
48-1-267-7	5	1	3 (12-18")	POT	SHRD		INCI			CLY	2	6.5
48-1-267-8	5	1	3 (12-18")	POT	SHRD		PUCT			BNE	1	4.4
48-1-267-9	5	1	3 (12-18")	POT	RIM		BRSH			BNE	1	8.3
48-1-267-10	5	1	3 (12-18")	POT	RIM		BRSH			CLY	3	26.5
48-1-267-11	5	1	3 (12-18")	POT	RIM		BRSH			CLY	1	2.7
48-1-268	5	1	3 (12-18")	FAUN	UMOD		PUCT	INCI		BNE	1	1.9
48-1-269-1	5	1	3 (12-18")	POT	NVES	DAUB				CLY	10	25.7
48-1-269-2	5	1	3 (12-18")	GRL							11	65.6
48-1-270-1	5	1	4 (18-24")	POT	SHRD						32	58.8
48-1-270-2	5	1	4 (18-24")	POT	SHRD		PLN			CLY	15	69.4

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-270-3	5	1	4 (18-24")	POT	SHRD		PLN			SND	1	3.7
48-1-270-4	5	1	4 (18-24")	POT	SHRD		BRSH			BNE	1	4.8
48-1-270-5	5	1	4 (18-24")	POT	SHRD		BRSH			CLY	5	56.2
48-1-270-6	5	1	4 (18-24")	POT	VES4		INCI			CLY	6	110.8
48-1-270-7	5	1	4 (18-24")	POT	SHRD	CBL	INCI	PUCT		CLY	1	12.0
48-1-270-8	5	1	4 (18-24")	POT	RIM		PLN			CLY	3	7.8
48-1-270-9	5	1	4 (18-24")	POT	RIM		BRSH			CLY	1	3.8
48-1-271	5	1	4 (18-24")	FAUN	UMOD					BNE	3	14.5
48-1-272-1	5	1	4 (18-24")	POT	NVES	DAUB				CLY	4	6.6
48-1-272-2	5	1	4 (18-24")	CL							6	22.6
48-1-273-1	5	1	5 (24-30")	POT	SHRD		PLN			BNE	1	7.0
48-1-273-2	5	1	5 (24-30")	POT	SHRD		PLN			CLY	3	25.4
48-1-273-3	5	1	5 (24-30")	POT	SHRD		BRSH			BNE	1	6.3
48-1-273-4	5	1	5 (24-30")	POT	SHRD		BRSH			CLY	1	3.8

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-273-5	5	1	5 (24-30")	POT	SHRD		BRSH			SHL	1	3.4
48-1-273-6	5	1	5 (24-30")	POT	SHRD		INCI			CLY	1	4.0
48-1-274-1	5	1	5 (24-30")	CL	FD						2	9.3
48-1-274-2	5	1	5 (24-30")	GRL							1	17.6
48-1-275-1	5	1	6 (30-36")	POT	SHRD						30	60.3
48-1-275-2	5	1	6 (30-36")	POT	SHRD		PLN			BNE	1	6.1
48-1-275-3	5	1	6 (30-36")	POT	SHRD		PLN			CLY	6	26.1
48-1-275-4	5	1	6 (30-36")	POT	SHRD		PLN			SHL	2	11.9
48-1-275-5	5	1	6 (30-36")	POT	SHRD		PLN			SND	1	3.9
48-1-275-6	5	1	6 (30-36")	POT	SHRD		BRSH			CLY	1	3.3
48-1-275-7	5	1	6 (30-36")	POT	SHRD		ENG			CLY	1	7.2
48-1-275-8	5	1	6 (30-36")	POT	RIM		PLN			BNE	1	4.9
48-1-275-9	5	1	6 (30-36")	POT	RIM		PLN			CLY	2	14.3
48-1-275-10	5	1	6 (30-36")	POT	RIM		INCI	PUCT		CLY	1	5.1

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-276	5	1	6 (30-36")	FAUN	UMOD					BNE	11	28.8
48-1-277-1	5	1	6 (30-36")	POT	NVES	DAUB				CLY	28	110.1
48-1-277-2	5	1	6 (30-36")	CL							10	32.1
48-1-278-1	5	1	36"+ wattle	POT	SHRD						5	9.8
48-1-278-2	5	1	36"+ wattle	POT	SHRD		PLN			CLY	5	28.1
48-1-278-3	5	1	36"+ wattle	POT	RIM		ENG			CLY	1	12.3
48-1-279	5	1	36"+ wattle	POT	NVES	DAUB				CLY	5	10.7
48-1-280-1	5	2	1 (1-6")	POT	SHRD						35	70.2
48-1-280-2	5	2	1 (1-6")	POT	SHRD		PLN			CLY	8	33.1
48-1-280-3	5	2	1 (1-6")	POT	SHRD		PLN			SHL	1	2.4
48-1-280-4	5	2	1 (1-6")	POT	SHRD		BRSH			BNE	1	3.4
48-1-280-5	5	2	1 (1-6")	POT	SHRD		BRSH			CLY	4	18.7
48-1-280-6	5	2	1 (1-6")	POT	SHRD		BRSH			SHL	1	2.6
48-1-280-7	5	2	1 (1-6")	POT	SHRD		PUCT			BNE	1	6.7

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-280-8	5	2	1 (1-6")	POT	SHRD		PUCT			CLY	1	3.7
48-1-281	5	2	1 (1-6")	FAUN	UMOD					BNE	2	12.9
48-1-282	5	2	1 (1-6")	CL							8	31.6
48-1-283	5	2	2 (6-12")	FAUN	SHRD					BNE	4	13.9
48-1-284-1	5	2	2 (6-12")	POT	SHRD						7	13.6
48-1-284-2	5	2	2 (6-12")	POT	SHRD		PLN			CLY	2	14.8
48-1-284-3	5	2	2 (6-12")	POT	SHRD		BRSH			CLY	1	3.7
48-1-284-4	5	2	2 (6-12")	POT	SHRD		INCI	PUCT		CLY	1	2.6
48-1-285-1	5	2	3 (12-18")	POT	SHRD						13	28.1
48-1-285-2	5	2	3 (12-18")	POT	SHRD		PLN			BNE	2	7.6
48-1-285-3	5	2	3 (12-18")	POT	SHRD		PLN			CLY	2	7.7
48-1-285-4	5	2	3 (12-18")	POT	SHRD		PLN			SHL	3	18.6
48-1-285-5	5	2	3 (12-18")	POT	SHRD		PLN			SND	1	5.7
48-1-285-6	5	2	3 (12-18")	POT	SHRD		BRSH			CLY	2	26.1

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-285-7	5	2	3 (12-18")	POT	RIM		BRSH	PUCT		CLY	1	9.4
48-1-285-8	5	2	3 (12-18")	POT	RIM	BTL	PLN			CLY	1	21.8
48-1-286-1	5	2	4 (18-24")	POT	SHRD						23	45.4
48-1-286-2	5	2	4 (18-24")	POT	SHRD		PLN			BNE	2	12.4
48-1-286-3	5	2	4 (18-24")	POT	SHRD		PLN			CLY	7	27.8
48-1-286-4	5	2	4 (18-24")	POT	SHRD		BRSH			BNE	3	28.2
48-1-286-5	5	2	4 (18-24")	POT	SHRD		BRSH			CLY	4	29.1
48-1-286-6	5	2	4 (18-24")	POT	SHRD		BRSH	PUCT		CLY	1	10.2
48-1-286-7	5	2	4 (18-24")	POT	RIM		INCI	PUCT		SHL	1	2.8
48-1-286-8	5	2	4 (18-24")	POT	RIM		BRSH	PUCT		CLY	1	4.9
48-1-287-1	5	2	4 (18-24")	POT	NVES	DAUB				CLY	16	71.2
48-1-287-2	5	2	4 (18-24")	CL							4	42.6
48-1-287-3	5	2	4 (18-24")	FAUN	UMOD					BNE	1	0.1
48-1-288	5	2	4 (18-24")	FAUN	UMOD					BNE	2	1.2

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-289-1	5	2	5 (24-30")	POT	SHRD						10	23.2
48-1-289-2	5	2	5 (24-30")	POT	SHRD		PLN			BNE	1	9.5
48-1-289-3	5	2	5 (24-30")	POT	SHRD		PLN			CLY	4	19.6
48-1-289-4	5	2	5 (24-30")	POT	SHRD		BRSH			BNE	5	29.4
48-1-289-5	5	2	5 (24-30")	POT	SHRD		BRSH			CLY	7	32.4
48-1-289-6	5	2	5 (24-30")	POT	SHRD		BRSH	APLQ		CLY	1	15.4
48-1-289-7	5	2	5 (24-30")	POT	SHRD		INCI			CLY	1	3.2
48-1-289-8	5	2	5 (24-30")	POT	SHRD	JAR	BRSH	PUCT		CLY	1	10.2
48-1-289-9	5	2	5 (24-30")	POT	RIM	BTL	PLN			BNE	1	5.7
48-1-289-10	5	2	5 (24-30")	POT	RIM		ENG			CLY	1	2.4
48-1-290-1	5	2	5 (24-30")	POT	NVES	DAUB				CLY	14	43.0
48-1-290-2	5	2	5 (24-30")	CL							4	15.0
48-1-291	5	2	5 (24-30")	FAUN	UMOD					BNE	2	0.5
48-1-292	5	2	6 (30-36")	FAUN	UMOD					BNE	10	67.0

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-293-1	5	2	6 (30-36")	POT	SHRD						11	16.2
48-1-293-2	5	2	6 (30-36")	POT	SHRD		PLN			BNE	1	6.3
48-1-293-3	5	2	6 (30-36")	POT	SHRD		PLN			CLY	3	28.2
48-1-293-4	5	2	6 (30-36")	POT	SHRD		PLN			SHL	1	2.5
48-1-293-5	5	2	6 (30-36")	POT	SHRD		BRSH			BNE	2	10.5
48-1-293-6	5	2	6 (30-36")	POT	SHRD		BRSH			CLY	4	23.8
48-1-293-7	5	2	6 (30-36")	POT	SHRD		INCI	APLQ		CLY	1	12.7
48-1-294-1	5	2	6 (30-36")	POT	NVES	DAUB				CLY	32	102.9
48-1-294-2	5	2	6 (30-36")	CL							5	15.1
48-1-295-1	5	2	36" wattle	POT	SHRD						8	15.9
48-1-295-2	5	2	36" wattle	POT	SHRD		PLN			CLY	2	9.0
48-1-295-3	5	2	36" wattle	POT	SHRD		PLN			SHL	1	6.5
48-1-295-4	5	2	36" wattle	POT	SHRD		BRSH			BNE	1	3.2
48-1-295-5	5	2	36" wattle	POT	SHRD		BRSH			CLY	8	67.6

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-295-6	5	2	36" wattle	POT	SHRD		INCI			BNE	1	10.0
48-1-295-7	5	2	36" wattle	POT	SHRD		BRSH	PUCT		CLY	1	5.6
48-1-295-8	5	2	36" wattle	POT	RIM		BRSH			BNE	2	31.0
48-1-295-9	5	2	36" wattle	POT	RIM		BRSH			CLY	4	83.8
48-1-296	5	2	36" wattle	FAUN	UMOD	DAUB				BNE	1	0.5
48-1-297-1	5	2	36" wattle	POT	NVES					CLY	10	42.7
48-1-297-2	5	2	36" wattle	CL							1	1.6
48-1-298-1	5	3	1 (1-6")	POT	SHRD						18	42.7
48-1-298-2	5	3	1 (1-6")	POT	SHRD		PLN			CLY	4	19.6
48-1-298-3	5	3	1 (1-6")	POT	SHRD		PLN			SHL	1	2.1
48-1-298-4	5	3	1 (1-6")	POT	SHRD		BRSH			CLY	1	4.5
48-1-298-5	5	3	1 (1-6")	POT	SHRD		INCI			BNE	1	3.4
48-1-298-6	5	3	1 (1-6")	POT	SHRD		INCI			CLY	2	13.3
48-1-298-7	5	3	1 (1-6")	POT	SHRD		INCI			SHL	1	3.3

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-299	5	3	1 (1-6")	FAUN	UMOD					BNE	2	2.5
48-1-300-1	5	3	1 (1-6")	POT	NVES	DAUB				CLY	1	11.6
48-1-300-2	5	3	1 (1-6")	CL							3	13.6
48-1-301-1	5	3	2 (6-12")	POT	SHRD						21	35.7
48-1-301-2	5	3	2 (6-12")	POT	SHRD		PLN			CLY	5	19.9
48-1-301-3	5	3	2 (6-12")	POT	SHRD		PLN			SHL	2	10.0
48-1-301-4	5	3	2 (6-12")	POT	SHRD		INCI			CLY	2	9.1
48-1-301-5	5	3	2 (6-12")	POT	SHRD		INCI			SHL	2	7.4
48-1-302-1	5	3	2 (6-12")	POT	NVES	DAUB				CLY	7	23.1
48-1-302-2	5	3	2 (6-12")	CL							5	34.0
48-1-303	5	3	2 (6-12")	FAUN	UMOD					BNE	2	2.4
48-1-304	5	3	3 (12-18")	FAUN	UMOD					BNE	8	5.6
48-1-305-1	5	3	3 (12-18")	POT	SHRD						4	8.9
48-1-305-2	5	3	3 (12-18")	POT	SHRD		PLN			CLY	6	35.8

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-305-3	5	3	3 (12-18")	POT	SHRD		PLN			SHL	1	12.8
48-1-305-4	5	3	3 (12-18")	POT	SHRD		INCI			CLY	1	25.4
48-1-305-5	5	3	3 (12-18")	POT	SHRD		PUCT			BNE	2	12.0
48-1-305-6	5	3	3 (12-18")	POT	SHRD		PUCT			SHL	1	3.5
48-1-305-7	5	3	3 (12-18")	POT	RIM	BTL	PLN			CLY	1	1.7
48-1-305-8	5	3	3 (12-18")	POT	RIM		BRSH			CLY	1	3.1
48-1-305-9	5	3	3 (12-18")	POT	RIM	JAR	INCI			SHL	1	2.7
48-1-306	5	3	3 (12-18")	POT	NVES	DAUB				CLY	15	39.9
48-1-307-1	5	3	4 (18-24")	POT	NVES	DAUB				CLY	5	18.1
48-1-307-2	5	3	4 (18-24")	GRL							1	13.2
48-1-308-1	5	3	4 (18-24")	POT	SHRD						6	9.7
48-1-308-2	5	3	4 (18-24")	POT	RIM	JAR	INCI			CLY	1	8.9
48-1-308-3	5	3	4 (18-24")	POT	SHRD		PUCT			CLY	1	4.1
48-1-309-1	5	3	5 (24-30")	POT	SHRD						11	21.4

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-309-2	5	3	5 (24-30")	POT	SHRD		PLN			BNE	2	9.3
48-1-309-3	5	3	5 (24-30")	POT	SHRD		PLN			CLY	2	14.1
48-1-309-4	5	3	5 (24-30")	POT	SHRD		PLN			CLY	6	39.5
48-1-309-5	5	3	5 (24-30")	POT	SHRD		ENG			BNE	1	4.2
48-1-309-6	5	3	5 (24-30")	POT	RIM		ENG			BNE	1	3.1
48-1-310	5	3	5 (24-30")	FAUN	UMOD					BNE	14	9.9
48-1-311	5	3	5 (24-30")	POT	NVES	DAUB				CLY	1	6.5
48-1-312-1	5	3	6 (30-36")	POT	SHRD		PLN			CLY	2	6.1
48-1-312-2	5	3	6 (30-36")	POT	SHRD		BRSH			CLY	3	19.0
48-1-312-3	5	3	6 (30-36")	POT	SHRD		ENG			BNE	1	9.8
48-1-313-1	5	3	6 (30-36")	POT	NVES	DAUB				CLY	28	27.8
48-1-313-2	5	3	6 (30-36")	CL							4	31.3
48-1-314-1	5	3	wattle level	POT	NVES	DAUB				CLY	100	575.5
48-1-314-2	5	3	wattle level	FAUN	UMOD						1	20.9

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-314-3	5	3	wattle level	CL							3	17.4
48-1-315-1	5	3	wattle level	POT	SHRD						16	34.6
48-1-315-2	5	3	wattle level	POT	SHRD		PLN			CLY	18	107.5
48-1-315-3	5	3	wattle level	POT	SHRD		BRSH			BNE	2	19.4
48-1-315-4	5	3	wattle level	POT	SHRD		BRSH			CLY	11	76.7
48-1-315-5	5	3	wattle level	POT	SHRD		BRSH			SHL	2	8.4
48-1-315-6	5	3	wattle level	POT	RIM		BRSH	PUCT		CLY	2	21.6
48-1-315-7	5	3	wattle level	POT	SHRD	CBL	ENG	WHITE		CLY	1	9.1
48-1-316	5	3	wattle level	FAUN	UMOD					BNE	1	2.3
48-1-317-1	5	3	wattle level	FLOR	CHARC					WD	1	21.5
48-1-317-2	5	3	wattle level	FLOR	CHARC					WD	1	21.5
48-1-318	5	3R2	24"	FAUN	SKELET		SUBAD			BNE	1	
48-1-319	5	3R2	24"	POT	SHRD	JAR	BRSH			CLY	5	49.2
48-1-320	5		ash bed of house	POT	UMOD					BNE	4	70.2

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-321-1	5		ash bed of house	POT	SHRD						6	12.5
48-1-321-2	5		ash bed of house	POT	SHRD		PLN			BNE	1	12.9
48-1-321-3	5		ash bed of house	POT	SHRD		PLN			CLY	8	62.7
48-1-321-4	5		ash bed of house	POT	SHRD		PLN			SHL	1	12.3
48-1-321-5	5		ash bed of house	POT	SHRD		BRSH			BNE	5	54.8
48-1-321-6	5		ash bed of house	POT	SHRD		BRSH			CLY	5	67.9
48-1-321-7	5		ash bed of house	POT	SHRD		PUCT			CLY	1	7.5
48-1-321-8	5		ash bed of house	POT	RIM		BRSH			CLY	2	16.2
48-1-321-9	5		ash bed of house	POT	SHRD	CBL	INCI			BNE	1	30.4
48-1-322-1	5		ash bed of house	POT	SHRD		PLN			BNE	1	11.0
48-1-322-2	5		ash bed of house	POT	SHRD		PLN			CLY	2	45.8
48-1-322-3	5		ash bed of house	POT	SHRD		BRSH	PUCT		CLY	1	22.3
48-1-322-4	5		ash bed of house	POT	SHRD		BRSH			CLY	1	10.9
48-1-322-5	5		ash bed of house	POT	RIM		BRSH			BNE	1	17.1

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-323-1	5		ash bed of house	POT	SHRD		PLN			CLY	4	28.6
48-1-323-2	5		ash bed of house	POT	SHRD		INCI			SHL	3	14.3
48-1-323-3	5		ash bed of house	POT	SHRD		PLN			CLY	2	26.0
48-1-323-4	5		ash bed of house	POT	RIM	CAST	PLN			CLY	1	14.5
48-1-324-1-1	5	3R1	1-2-3 (1-18")	POT	SHRD		PLN			BNE	3	21.3
48-1-324-1-2	5	3R1	1-2-3 (1-18")	POT	SHRD		BRSH			BNE	2	10.9
48-1-324-1-3	5	3R1	1-2-3 (1-18")	POT	SHRD		BRSH			CLY	1	16.3
48-1-324-1-4	5	3R1	1-2-3 (1-18")	POT	SHRD		PUCT	INCI		CLY	1	3.3
48-1-324-1-5	5	3R1	1-2-3 (1-18")	POT	SHRD		PUCT			BNE	1	5.7
48-1-324-1-6	5	3R1	1-2-3 (1-18")	POT	SHRD		PUCT			CLY	1	15.4
48-1-324-1-7	5	3R1	1-2-3 (1-18")	POT	RIM		INCI			SHL	2	20.8
48-1-324-2	5	3R1	1-2-3 (1-18")	FAUN	UMOD					BNE	2	7.3
48-1-324-3	5	3R1	1-2-3 (1-18")	FAUN	UMOD					SHL	2	7.4
48-1-324-4	5	3R1	1-2-3 (1-18")	CL							1	75.4

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-325-1	5	3R1	4 (18-24")	POT	SHRD	BTL	PLN			BNE	2	7.7
48-1-325-2	5	3R1	4 (18-24")	POT	SHRD		BRSH			CLY	1	8.0
48-1-325-3	5	3R1	4 (18-24")	POT	SHRD		BRSH			SHL	3	25.4
48-1-325-4	5	3R1	4 (18-24")	POT	SHRD		INCI			BNE	1	7.7
48-1-325-5	5	3R1	4 (18-24")	POT	SHRD		INCI	APLQ		CLY	1	16.7
48-1-325-6	5	3R1	4 (18-24")	POT	SHRD		ENG			CLY	1	3.9
48-1-326-1-1	5	3R1	5 (24-30")	POT	SHRD						5	8.5
48-1-326-1-2	5	3R1	5 (24-30")	POT	SHRD		BRSH			BNE	1	6.8
48-1-326-2	5	3R1	5 (24-30")	FAUN	UMOD					BNE	1	1.4
48-1-327-1-1	5	3R1	7 (36-42")	POT	SHRD		PLN			CLY	4	65.8
48-1-327-1-2	5	3R1	7 (36-42")	POT	SHRD		INCI			BNE	1	5.4
48-1-327-1-3	5	3R1	7 (36-42")	POT	SHRD		BRSH			CLY	2	10.2
48-1-327-2	5	3R1	7 (36-42")	FAUN	UMOD					BNE	1	0.3
48-1-328-1	5	3R1	8 (42-48")	POT	SHRD		PLN			CLY	3	19.9

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-328-2	5	3R1	8 (42-48")	POT	SHRD		PLN			SHL	1	6.0
48-1-328-3	5	3R1	8 (42-48")	POT	SHRD		BRSH			CLY	1	9.3
48-1-328-4	5	3R1	8 (42-48")	POT	RIM	CBL	ENG			CLY	1	15.9
48-1-328-5	5	3R1	8 (42-48")	POT	RIM		BRSH			CLY	1	3.5
48-1-329-1	5	3R1	8 (42-48")	POT	SHRD						7	19.7
48-1-329-2	5	3R1	8 (42-48")	POT	SHRD		PLN			CLY	11	137.6
48-1-329-3	5	3R1	8 (42-48")	POT	SHRD		PLN			SHL	1	2.5
48-1-329-4	5	3R1	8 (42-48")	POT	SHRD		BRSH			BNE	1	17.1
48-1-329-5	5	3R1	8 (42-48")	POT	SHRD		BRSH			CLY	3	22.7
48-1-329-6	5	3R1	8 (42-48")	POT	SHRD		INCI			BNE	1	13.2
48-1-329-7	5	3R1	8 (42-48")	POT	SHRD		INCI			CLY	3	25.8
48-1-329-8	5	3R1	8 (42-48")	POT	SHRD		BRSH	APLQ		BNE	1	11.0
48-1-329-9	5	3R1	8 (42-48")	POT	SHRD		ENG			CLY	1	7.7
48-1-330-1	5	3R1	pit in north wall	POT	SHRD		PLN			CLY	18	230.4

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-330-2	5	3R1	pit in north wall	POT	SHRD		BRSH			BNE	1	7.7
48-1-330-3	5	3R1	pit in north wall	POT	SHRD		BRSH			CLY	3	25.2
48-1-330-4	5	3R1	pit in north wall	POT	SHRD		BRSH			SHL	1	4.2
48-1-330-5	5	3R1	pit in north wall	POT	SHRD		INCI			SHL	2	14.3
48-1-330-6	5	3R1	pit in north wall	POT	SHRD		PUCT			BNE	1	4.9
48-1-330-7	5	3R1	pit in north wall	POT	SHRD		PUCT			CLY	1	6.9
48-1-330-8	5	3R1	pit in north wall	POT	SHRD						11	31.8
48-1-330-9	5	3R1	pit in north wall	POT	RIM		INCI			CLY	3	22.2
48-1-330-10	5	3R1	pit in north wall	POT	RIM		BRSH			CLY	1	4.9
48-1-330-11	5	3R1	pit in north wall	POT	RIM		PUCT			CLY	2	12.4
48-1-330-12	5	3R1	pit in north wall	POT	RIM		INCI			SHL	1	12.1
48-1-330-13	5	3R1	pit in north wall	POT	SHRD	CBL	ENG			CLY	1	34.6
48-1-330-14	5	3R1	pit in north wall	POT	SHRD		INCI			CLY	1	29.8
48-1-330-15	5	3R1	pit in north wall	POT	RIM	JAR	INCI			BNE	1	60.7

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-330-16	5	3R1	pit in north wall	POT	SHRD		PUCT			CLY	1	4.4
48-1-330-17	5	3R1	pit in north wall	POT	SHRD		BRSH	STAMP		CLY	1	6.6
48-1-330-18	5	3R1	pit in north wall	POT	SHRD		PUCT	INCI		CLY	1	30.0
48-1-330-19	5	3R1	pit in north wall	POT	SHRD		PUCT	STAMP		CLY	9	73.4
48-1-331-1	5	3RR	1-2-3-4 (1-24")	FAUN	UMOD					SHL	1	1.6
48-1-331-2	5	3RR	1-2-3-4 (1-24")	FAUN	UMOD					BNE	14	39.6
48-1-331-3-1	5	3RR	1-2-3-4 (1-24")	POT	SHRD						42	92.5
48-1-331-3-2	5	3RR	1-2-3-4 (1-24")	POT	SHRD		PLN			BNE	15	78.3
48-1-331-3-3	5	3RR	1-2-3-4 (1-24")	POT	SHRD		PLN			CLY	21	140.3
48-1-331-3-4	5	3RR	1-2-3-4 (1-24")	POT	SHRD		PLN			SHL	3	7.9
48-1-331-3-5	5	3RR	1-2-3-4 (1-24")	POT	SHRD		BRSH			BNE	4	34.3
48-1-331-3-6	5	3RR	1-2-3-4 (1-24")	POT	SHRD		BRSH			CLY	4	24.3
48-1-331-3-7	5	3RR	1-2-3-4 (1-24")	POT	SHRD		INCI			CLY	7	54.8
48-1-331-3-8	5	3RR	1-2-3-4 (1-24")	POT	SHRD		INCI			SHL	1	2.9

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-331-3-9	5	3RR	1-2-3-4 (1-24")	POT	SHRD		PUCT			CLY	3	21.9
48-1-331-3-10	5	3RR	1-2-3-4 (1-24")	POT	RIM		BRSH	PUCT		SHL	1	13.2
48-1-331-3-11	5	3RR	1-2-3-4 (1-24")	POT	RIM		BRSH			BNE	1	5.8
48-1-331-3-12	5	3RR	1-2-3-4 (1-24")	POT	RIM		PUCT			BNE	1	5.7
48-1-331-3-13	5	3RR	1-2-3-4 (1-24")	POT	RIM		PLN			CLY	1	10.2
48-1-331-3-14	5	3RR	1-2-3-4 (1-24")	POT	RIM		INCI			CLY	2	10.6
48-1-331-3-15	5	3RR	1-2-3-4 (1-24")	POT	SHRD		INCI	APLQ		BNE	2	8.5
48-1-331-3-16	5	3RR	1-2-3-4 (1-24")	POT	VES4	CBL	INCI			CLY	17	233.7
48-1-332	5	1R1	30"	POT	SHRD		PLN			SHL	3	6.3
48-1-333-1	5	2R1	1-2 (1-12")	POT	SHRD		PLN			CLY	3	21.7
48-1-333-2	5	2R1	1-2 (1-12")	POT	SHRD		BRSH			CLY	6	67.1
48-1-334-1	5	2R1	4 (18-24")	POT	SHRD						11	28.6
48-1-334-2	5	2R1	4 (18-24")	POT	SHRD		PLN			BNE	4	59.1
48-1-334-3	5	2R1	4 (18-24")	POT	SHRD		PLN			CLY	7	54.4

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-334-4	5	2R1	4 (18-24")	POT	SHRD		BRSH			CLY	4	44.7
48-1-334-5	5	2R1	4 (18-24")	POT	SHRD		INCI			CLY	1	8.1
48-1-334-6	5	2R1	4 (18-24")	POT	RIM		ENG			CLY	3	33.9
48-1-334-7	5	2R1	4 (18-24")	POT	SHRD		PLN			BNE	1	15.3
48-1-335-1	5	2R1	7 (36-42")	POT	SHRD		PLN			CLY	3	22.2
48-1-335-2	5	2R1	7 (36-42")	POT	SHRD		PLN			SHL	1	6.9
48-1-335-3	5	2R1	7 (36-42")	POT	SHRD		BRSH			CLY	1	21.7
48-1-335-4	5	2R1	7 (36-42")	POT	RIM	BTL	PLN			CLY	1	6.8
48-1-336-1	5	2R2	1-2-3 (1-18")	FLOR	UMOD					WD	1	1.5
48-1-336-2	5	2R2	1-2-3 (1-18")	FAUN	UMOD					BNE	3	11.1
48-1-337-1	5	2R2	4 (18-24")	POT	SHRD						9	20.1
48-1-337-2	5	2R2	4 (18-24")	POT	SHRD		PLN			CLY	7	52.4
48-1-337-3	5	2R2	4 (18-24")	POT	SHRD		PLN			SHL	1	5.7
48-1-337-4	5	2R2	4 (18-24")	POT	SHRD		BRSH			BNE	1	6.7

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-337-5	5	2R2	4 (18-24")	POT	SHRD		BRSH			SHL	2	11.0
48-1-337-6	5	2R2	4 (18-24")	POT	SHRD		INCI			CLY	1	6.4
48-1-337-7	5	2R2	4 (18-24")	POT	SHRD		INCI			SHL	2	7.3
48-1-337-8	5	2R2	4 (18-24")	POT	SHRD		PUCT	INCI		CLY	1	4.4
48-1-337-9	5	2R2	4 (18-24")	POT	SHRD		ENG			CLY	1	15.8
48-1-338-1-1	5	2R2	4 (18-24")	POT	SHRD						17	42.3
48-1-338-1-2	5	2R2	4 (18-24")	POT	SHRD		PLN			BNE	4	46.5
48-1-338-1-3	5	2R2	4 (18-24")	POT	SHRD		PLN			CLY	7	53.0
48-1-338-1-4	5	2R2	4 (18-24")	POT	SHRD		PLN			SHL	7	35.2
48-1-338-1-5	5	2R2	4 (18-24")	POT	SHRD		BRSH			BNE	2	23.4
48-1-338-1-6	5	2R2	4 (18-24")	POT	SHRD		BRSH			CLY	9	103.3
48-1-338-1-7	5	2R2	4 (18-24")	POT	SHRD		INCI			CLY	1	3.9
48-1-338-1-8	5	2R2	4 (18-24")	POT	RIM		BRSH	PUCT		CLY	1	5.7
48-1-338-2-1	5	2R2	4 (18-24")	FAUN	UMOD					BNE	11	106.9

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-338-2-2	5	2R2	4 (18-24")	FAUN	MOD	PUNCH	CUTS			ATL	1	10.9
48-1-339-1	5	2R2	5 (24-30")	FAUN	UMOD					BNE	1	28.3
48-1-339-2-1	5	2R2	5 (24-30")	POT	SHRD						7	16.4
48-1-339-2-2	5	2R2	5 (24-30")	POT	SHRD		PLN			BNE	1	5.7
48-1-339-2-3	5	2R2	5 (24-30")	POT	SHRD		PLN			CLY	9	82.7
48-1-339-2-4	5	2R2	5 (24-30")	POT	SHRD		PLN			SHL	1	17.6
48-1-339-2-5	5	2R2	5 (24-30")	POT	SHRD		BRSH			BNE	2	23.9
48-1-339-2-6	5	2R2	5 (24-30")	POT	SHRD		INCI			CLY	1	5.8
48-1-339-2-7	5	2R2	5 (24-30")	POT	SHRD		ENG			CLY	2	12.9
48-1-339-2-8	5	2R2	5 (24-30")	POT	RIM		ENG			CLY	4	18.7
48-1-339-2-9	5	2R2	5 (24-30")	POT	RIM		BRSH			CLY	1	3.2
48-1-340-1	5	2R2	6 (30-36")	POT	SHRD						7	5.8
48-1-340-2	5	2R2	6 (30-36")	POT	SHRD		PLN			CLY	12	80.9
48-1-340-3	5	2R2	6 (30-36")	POT	SHRD		BRSH			CLY	5	31.5

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-340-4	5	2R2	6 (30-36")	POT	SHRD		BRSH			SHL	1	6.6
48-1-340-5	5	2R2	6 (30-36")	POT	SHRD		INCI			BNE	2	21.6
48-1-340-6	5	2R2	6 (30-36")	POT	SHRD		INCI			CLY	1	9.2
48-1-340-7	5	2R2	6 (30-36")	POT	RIM		ENG			CLY	7	33.7
48-1-340-8	5	2R2	6 (30-36")	POT	RIM		PUCT			CLY	1	6.3
48-1-340-9	5	2R2	6 (30-36")	POT	NVES	PIPE	PLN			CLY	1	16.8
48-1-341-1	5	2R2	7 (36-42")	FAUN	UMOD		BUR			BNE	10	13.9
48-1-341-2	5	2R2	7 (36-42")	POT	SHRD		BRSH			BNE	1	17.7
48-1-342-1	5	1R32R3	"pit"	POT	SHRD						18	38.8
48-1-342-2	5	1R32R3	"pit"	POT	SHRD		PLN			BNE	1	4.1
48-1-342-3	5	1R32R3	"pit"	POT	SHRD		PLN			CLY	5	45.2
48-1-342-4	5	1R32R3	"pit"	POT	SHRD		PLN			SHL	1	3.1
48-1-342-5	5	1R32R3	"pit"	POT	SHRD		BRSH			BNE	2	12.0
48-1-342-6	5	1R32R3	"pit"	POT	SHRD		BRSH			CLY	5	22.7

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-342-7	5	1R32R3	"pit"	POT	SHRD	CBL	INCI			CLY	1	8.7
48-1-342-8	5	1R32R3	"pit"	POT	SHRD		PUCT			BNE	1	3.1
48-1-342-9	5	1R32R3	"pit"	POT	RIM		PUCT			BNE	1	6.0
48-1-342-10	5	1R32R3	"pit"	POT	RIM		BRSH			CLY	1	3.8
48-1-343-1	5	2R3	1-2 (1-12")	POT	SHRD						7	12.2
48-1-343-2	5	2R3	1-2 (1-12")	POT	SHRD		PLN			BNE	1	23.8
48-1-343-3	5	2R3	1-2 (1-12")	POT	SHRD		PLN			CLY	15	126.4
48-1-343-4	5	2R3	1-2 (1-12")	POT	SHRD		BRSH			BNE	2	10.9
48-1-343-5	5	2R3	1-2 (1-12")	POT	SHRD		INCI			BNE	9	62.4
48-1-343-6	5	2R3	1-2 (1-12")	POT	SHRD		INCI			CLY	1	5.1
48-1-343-7	5	2R3	1-2 (1-12")	POT	SHRD		PUCT			BNE	1	4.4
48-1-343-8	5	2R3	1-2 (1-12")	POT	SHRD		ENG			BNE	1	10.0
48-1-343-9	5	2R3	1-2 (1-12")	POT	SHRD		PLN			CLY	2	12.3
48-1-343-10	5	2R3	1-2 (1-12")	POT	RIM		BRSH			CLY	2	10.1

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-343-11	5	2R3	1-2 (1-12")	POT	RIM		INCI			CLY	2	14.3
48-1-344-1	5	2R3	3 (12-18")	FAUN	UMOD					BNE	23	149.1
48-1-344-2-1	5	2R3	3 (12-18")	POT	SHRD						20	48.9
48-1-344-2-2	5	2R3	3 (12-18")	POT	SHRD		PLN			BNE	10	79.2
48-1-344-2-3	5	2R3	3 (12-18")	POT	SHRD		PLN			CLY	21	177.2
48-1-344-2-4	5	2R3	3 (12-18")	POT	SHRD		PLN			SHL	2	8.9
48-1-344-2-5	5	2R3	3 (12-18")	POT	SHRD		BRSH			BNE	7	50.4
48-1-344-2-6	5	2R3	3 (12-18")	POT	SHRD		BRSH			CLY	8	96.4
48-1-344-2-7	5	2R3	3 (12-18")	POT	SHRD		BRSH			SHL	5	32.0
48-1-344-2-8	5	2R3	3 (12-18")	POT	SHRD		INCI			CLY	4	37.3
48-1-344-2-9	5	2R3	3 (12-18")	POT	SHRD		ENG			CLY	3	18.4
48-1-344-2-10	5	2R3	3 (12-18")	POT	RIM		PLN			BNE	2	13.4
48-1-344-2-11	5	2R3	3 (12-18")	POT	RIM		BRSH	INCI		SHL	1	4.4
48-1-344-2-12	5	2R3	3 (12-18")	POT	RIM		INCI			CLY	1	9.2

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-344-2-13	5	2R3	3 (12-18")	POT	RIM	CBL	ENG			CLY	1	7.4
48-1-345-1	5	2R3	4 (18-24")	FAUN	UMOD					BNE	16	61.7
48-1-345-2-1	5	2R3	4 (18-24")	POT	SHRD						3	8.0
48-1-345-2-2	5	2R3	4 (18-24")	POT	SHRD		PLN			BNE	5	28.5
48-1-345-2-3	5	2R3	4 (18-24")	POT	SHRD		PLN			CLY	5	39.4
48-1-345-2-4	5	2R3	4 (18-24")	POT	SHRD		PLN			SHL	2	9.6
48-1-345-2-5	5	2R3	4 (18-24")	POT	SHRD		BRSH			CLY	5	34.4
48-1-345-2-6	5	2R3	4 (18-24")	POT	SHRD		BRSH			SHL	2	7.5
48-1-345-2-7	5	2R3	4 (18-24")	POT	SHRD		BRSH	INCI		SHL	1	23.4
48-1-345-2-8	5	2R3	4 (18-24")	POT	RIM		BRSH	INCI		SHL	1	12.7
48-1-345-2-9	5	2R3	4 (18-24")	POT	RIM		BRSH			BNE	1	5.1
48-1-346-1	5	2R3	5 (24-30")	POT	RIM						15	37.3
48-1-346-2	5	2R3	5 (24-30")	POT	SHRD		PLN			CLY	17	120.3
48-1-346-3	5	2R3	5 (24-30")	POT	SHRD		PLN			SHL	15	100.2

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-346-4	5	2R3	5 (24-30")	POT	SHRD		BRSH			CLY	8	69.5
48-1-346-5	5	2R3	5 (24-30")	POT	SHRD		BRSH			SHL	4	23.7
48-1-346-6	5	2R3	5 (24-30")	POT	SHRD		INCI			CLY	1	3.5
48-1-346-7	5	2R3	5 (24-30")	POT	HNDLST		PLN			BNE	1	8.2
48-1-346-8	5	2R3	5 (24-30")	POT	SHRD		INCI			BNE	1	14.4
48-1-347-1	5	1L1	40-44"	POT	SHRD						17	40.9
48-1-347-2	5	1L1	40-44"	POT	SHRD		PLN			BNE	4	43.1
48-1-347-3	5	1L1	40-44"	POT	SHRD		PLN			CLY	25	242.5
48-1-347-4	5	1L1	40-44"	POT	SHRD		PLN			SHL	4	25.6
48-1-347-5	5	1L1	40-44"	POT	SHRD		BRSH			BNE	6	58.3
48-1-347-6	5	1L1	40-44"	POT	SHRD		BRSH			CLY	13	122.8
48-1-347-7	5	1L1	40-44"	POT	SHRD		INCI			CLY	3	22.7
48-1-347-8	5	1L1	40-44"	POT	SHRD		BRSH	APLQ		CLY	1	42.7
48-1-347-9	5	1L1	40-44"	POT	SHRD		BRSH	PUCT		CLY	1	14.1

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-347-10	5	1L1	40-44"	POT	SHRD		INCI			CLY	1	30.0
48-1-347-11	5	1L1	40-44"	POT	RIM		PLN			CLY	2	19.0
48-1-347-12	5	1L1	40-44"	POT	RIM		INCI			SHL	1	2.2
48-1-347-13	5	1L1	40-44"	POT	RIM		BRSH	PUCT		CLY	3	23.2
48-1-347-14	5	1L1	40-44"	POT	RIM		PUCT			CLY	2	5.7
48-1-347-15	5	1L1	40-44"	POT	RIM		ENG			CLY	3	11.3
48-1-347-16	5	1L1	40-44"	POT	RIM		BRSH	STAMP		BNE	3	2.1
48-1-347-17	5	1L1	40-44"	POT	VES4	BOWL	ENG	RED		CLY	4	92.6
48-1-348-1	5	1L1	1 (1-6")	POT	SHRD						13	35.6
48-1-348-2	5	1L1	1 (1-6")	POT	SHRD		PLN			BNE	5	53.3
48-1-348-3	5	1L1	1 (1-6")	POT	SHRD		PLN			CLY	19	175.4
48-1-348-4	5	1L1	1 (1-6")	POT	SHRD		PLN			SHL	2	12.9
48-1-348-5	5	1L1	1 (1-6")	POT	SHRD		BRSH			BNE	3	25.4
48-1-348-6	5	1L1	1 (1-6")	POT	SHRD		BRSH			CLY	10	116.1

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-348-7	5	1L1	1 (1-6")	POT	SHRD		INCI			CLY	3	26.6
48-1-348-8	5	1L1	1 (1-6")	POT	SHRD		PUCT			BNE	3	17.8
48-1-348-9	5	1L1	1 (1-6")	POT	SHRD		INCI			CLY	2	31.0
48-1-348-10	5	1L1	1 (1-6")	POT	RIM		PLN			BNE	1	4.8
48-1-348-11	5	1L1	1 (1-6")	POT	RIM		BRSH			CLY	1	8.9
48-1-348-12	5	1L1	1 (1-6")	POT	RIM	BTL	PLN			CLY	1	6.8
48-1-348-13	5	1L1	1 (1-6")	POT	RIM	CBL	INCI	PUCT		BNE	2	22.2
48-1-348-14	5	1L1	1 (1-6")	POT	VES4	BEAKER	PLN			CLY	3	32.1
48-1-348-15	5	1L1	1 (1-6")	POT	VES4		PLN			BNE	15	359.5
48-1-348-16	5	1L1	1 (1-6")	POT	BASE	CBL	ENG			CLY	1	38.3
48-1-349-1	5	2L1	H3	POT	SHRD						10	24.7
48-1-349-2	5	2L1	H3	POT	SHRD		PLN			BNE	6	46.4
48-1-349-3	5	2L1	H3	POT	SHRD		PLN			CLY	4	21.2
48-1-349-4	5	2L1	H3	POT	SHRD		BRSH			CLY	6	32.6

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-349-5	5	2L1	H3	POT	SHRD		BRSH	PUCT		CLY	1	9.2
48-1-349-6	5	2L1	H3	POT	SHRD		PUCT			CLY	1	4.1
48-1-349-7	5	2L1	H3	POT	RIM		INCI			CLY	1	4.6
48-1-349-8	5	2L1	H3	POT	RIM	JAR	BRSH			BNE	1	25.9
48-1-349-9	5	2L1	H3	POT	RIM	JAR	BRSH	INCI		BNE	1	18.6
48-1-349-10	5	2L1	H3	POT	RIM	CBL	INCI	PUCT		CLY	3	17.2
48-1-350-1	5	2L1	8 (42-48")	POT	SHRD		INCI			CLY	2	17.6
48-1-350-2	5	2L1	8 (42-48")	POT	RIM		ENG			CLY	1	5.4
48-1-351-1	5	2L1	H3	FAUN	UMOD					BNE	7	22.9
48-1-351-2-1	5	2L1	H3	POT	SHRD						19	38.2
48-1-351-2-2	5	2L1	H3	POT	SHRD		PLN			BNE	1	3.0
48-1-351-2-3	5	2L1	H3	POT	SHRD		PLN			CLY	2	10.4
48-1-351-2-4	5	2L1	H3	POT	SHRD		BRSH			CLY	2	23.5
48-1-351-2-5	5	2L1	H3	POT	SHRD		BRSH			SHL	1	18.3

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-351-2-6	5	2L1	H3	POT	SHRD		INCI			CLY	2	37.9
48-1-351-2-7	5	2L1	H3	POT	SHRD		PUCT			CLY	1	8.1
48-1-351-2-8	5	2L1	H3	POT	SHRD		ENG			CLY	1	12.4
48-1-351-2-9	5	2L1	H3	POT	SHRD		PUCT			CLY	1	7.9
48-1-351-2-10	5	2L1	H3	POT	VES4	JAR	INCI			BNE	17	100.2
48-1-351-2-11	5	2L1	H3	POT	SHRD		INCI			BNE	2	32.5
48-1-351-2-12	5	2L1	H3	POT	RIM		PLN			CLY	1	10.4
48-1-351-2-13	5	2L1	H3	POT	RIM		PUCT	INCI		CLY	1	3.3
48-1-352-1	3	1	1 (1-6")	FAUN	UMOD					BNE	3	20.0
48-1-352-2	3	1	1 (1-6")	POT	NVES	DAUB				CLY	5	13.9
48-1-352-3-1	3	1	1 (1-6")	POT	SHRD						28	60.1
48-1-352-3-2	3	1	1 (1-6")	POT	SHRD		PLN			BNE	4	19.1
48-1-352-3-3	3	1	1 (1-6")	POT	SHRD		PLN			CLY	8	50.4
48-1-352-3-4	3	1	1 (1-6")	POT	SHRD		BRSH			CLY	4	21.4

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-352-3-5	3	1	1 (1-6")	POT	SHRD		PUCT			BNE	1	5.5
48-1-353-1	3	1	2 (6-12")	FAUN	UMOD					BNE	1	1.9
48-1-353-2-1	3	1	2 (6-12")	POT	SHRD						26	50.7
48-1-353-2-2	3	1	2 (6-12")	POT	SHRD		PLN			CLY	5	54.6
48-1-353-2-3	3	1	2 (6-12")	POT	SHRD		PLN			SHL	1	3.8
48-1-353-2-4	3	1	2 (6-12")	POT	SHRD		BRSH			BNE	3	14.4
48-1-353-2-5	3	1	2 (6-12")	POT	SHRD		BRSH			CLY	6	36.3
48-1-353-2-6	3	1	2 (6-12")	POT	SHRD		ENG			CLY	1	2.7
48-1-353-2-7	3	1	2 (6-12")	POT	RIM		INCI			BNE	1	3.2
48-1-353-2-8	3	1	2 (6-12")	POT	RIM		ENG			BNE	2	12.2
48-1-354-1	3	1	3 (12-18")	POT	SHRD		PLN			CLY	2	9.9
48-1-354-2	3	1	3 (12-18")	POT	SHRD		BRSH			CLY	2	27.8
48-1-354-3	3	1	3 (12-18")	POT	SHRD		INCI			SHL	1	0.9
48-1-355-1	3	1	39" NE 55" SE 48"	POT	NVES	DAUB				CLY	6	39.4

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-355-2-1	3	1	39" NE 55" SE 48"	POT	SHRD		PLN			CLY	1	6.6
48-1-355-2-2	3	1	39" NE 55" SE 48"	POT	RIM		ENG	RED		BNE	1	2.8
48-1-356-1	3	1	CAP/ABOVE WATTLE	FAUN	UMOD					BNE	17	37.1
48-1-356-2	3	1	CAP/ABOVE WATTLE	FAUN	UMOD					SHL	8	37.2
48-1-356-3	3	1	CAP/ABOVE WATTLE	POT	NVES	DAUB				CLY	59	510.7
48-1-356-4-1	3	1	CAP/ABOVE WATTLE	POT	SHRD						6	14.5
48-1-356-4-2	3	1	CAP/ABOVE WATTLE	POT	SHRD		PLN			BNE	1	0.9
48-1-356-4-3	3	1	CAP/ABOVE WATTLE	POT	SHRD		BRSH			BNE	1	10.2
48-1-356-4-4	3	1	CAP/ABOVE WATTLE	POT	SHRD		BRSH			CLY	4	45.0
48-1-356-4-5	3	1	CAP/ABOVE WATTLE	POT	RIM		BRSH			CLY	1	3.2
48-1-357-1-1	3	1	SAND UNDER	FAUN	UMOD					BNE	10	45.6
48-1-357-1-2	3	1	SAND UNDER	FAUN	UMOD		BUR			BNE	2	0.9
48-1-357-2	3	1	SAND UNDER	FAUN	UMOD					SHL	26	52.4
48-1-357-3	3	1	SAND UNDER	POT	NVES	DAUB				CLY	84	536.6

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-357-4-1	3	1	SAND UNDER	POT	SHRD						24	62.2
48-1-357-4-2	3	1	SAND UNDER	POT	SHRD		PLN			CLY	8	58.9
48-1-357-4-3	3	1	SAND UNDER	POT	SHRD		BRSH			BNE	5	29.0
48-1-357-4-4	3	1	SAND UNDER	POT	SHRD		BRSH			CLY	8	66.3
48-1-357-4-5	3	1	SAND UNDER	POT	SHRD		BRSH	INCI		BNE	1	8.9
48-1-357-4-6	3	1	SAND UNDER	POT	SHRD		INCI	APLQ		BNE	2	12.9
48-1-357-4-7	3	1	SAND UNDER	POT	SHRD		ENG			CLY	2	6.7
48-1-357-4-8	3	1	SAND UNDER	POT	RIM		INCI	PUCT		CLY	3	33.5
48-1-357-4-9	3	1	SAND UNDER	POT	RIM		BRSH	PUCT		CLY	2	23.9
48-1-357-4-10	3	1	SAND UNDER	POT	RIM		ENG	RED		CLY	1	3.0
48-1-357-4-11	3	1	SAND UNDER	POT	RIM		PUCT			CLY	2	16.4
48-1-358-1	3	2	1 (1-6")	POT	SHER						40	77.8
48-1-358-2	3	2	1 (1-6")	POT	SHRD		PLN			BNE	2	15.3
48-1-358-3	3	2	1 (1-6")	POT	SHRD		PLN			CLY	6	38.4

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-358-4	3	2	1 (1-6")	POT	SHRD		PLN			SHL	1	5.4
48-1-358-5	3	2	1 (1-6")	POT	SHRD		BRSH			CLY	4	16.1
48-1-358-6	3	2	1 (1-6")	POT	SHRD		ENG			CLY	1	3.5
48-1-358-7	3	2	1 (1-6")	POT	SHRD		ENG			CLY	1	2.9
48-1-359-1	3	2	2 (6-12")	FAUN	UMOD					BNE	1	3.8
48-1-359-2-1	3	2	2 (6-12")	POT	SHRD						4	6.3
48-1-359-2-2	3	2	2 (6-12")	POT	SHRD		PLN			CLY	3	60.3
48-1-359-2-3	3	2	2 (6-12")	POT	SHRD		BRSH			CLY	4	22.8
48-1-359-2-4	3	2	2 (6-12")	POT	SHRD		INCI			CLY	1	9.8
48-1-360-1	3	2	3 (12-18")	POT	NVES	DAUB				CLY	1	3.4
48-1-360-2	3	2	3 (12-18")	FAUN	UMOD					BNE	8	15.0
48-1-360-3-1	3	2	3 (12-18")	POT	SHRD						6	12.4
48-1-360-3-2	3	2	3 (12-18")	POT	SHRD		PLN			CLY	1	3.8
48-1-360-3-3	3	2	3 (12-18")	POT	SHRD		BRSH			CLY	4	20.4

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-361-1	3	2	4 (18-24")	POT	NVES	DAUB				CLY	1	4.1
48-1-361-2	3	2	4 (18-24")	FAUN	UMOD					BNE	3	4.4
48-1-361-3	3	2	4 (18-24")	FLOR	UMOD					NUT	1	3.4
48-1-361-4-1	3	2	4 (18-24")	POT	SHRD						6	11.8
48-1-361-4-2	3	2	4 (18-24")	POT	SHRD		PLN			CLY	1	6.2
48-1-361-4-3	3	2	4 (18-24")	POT	SHRD		BRSH			BNE	2	6.9
48-1-362-1	3	2	SW 28-38" NE 31-49" SE	FAUN	UNOD					BNE	26	157.9
48-1-362-2	3	2	SW 28-38" NE 31-49" SE	POT	NVES	DAUB				CLY	151	694.6
48-1-362-3	3	2	SW 28-38" NE 31-49" SE	FAUN	UMOD					SHL	4	5.5
48-1-362-4-1	3	2	SW 28-38" NE 31-49" SE	POT	SHRD						31	75.5
48-1-362-4-2	3	2	SW 28-38" NE 31-49" SE	POT	SHRD		PLN			BNE	1	1.4
48-1-362-4-3	3	2	SW 28-38" NE 31-49" SE	POT	SHRD		PLN			CLY	15	106.5
48-1-362-4-4	3	2	SW 28-38" NE 31-49" SE	POT	SHRD		BRSH			BNE	9	85.4
48-1-362-4-5	3	2	SW 28-38" NE 31-49" SE	POT	SHRD		BRSH			CLY	15	104.4

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-362-4-6	3	2	SW 28-38" NE 31-49" SE	POT	SHRD		ENG			CLY	1	4.9
48-1-362-4-7	3	2	SW 28-38" NE 31-49" SE	POT	SHRD		BRSH	PUCT		CLY	1	13.9
48-1-362-4-8	3	2	SW 28-38" NE 31-49" SE	POT	RIM		BRSH	PUCT		CLY	1	13.4
48-1-362-4-9	3	2	SW 28-38" NE 31-49" SE	POT	RIM		INCI	PUCT		CLY	1	4.7
48-1-362-4-10	3	2	SW 28-38" NE 31-49" SE	POT	RIM		ENG			CLY	1	3.6
48-1-362-4-11	3	2	SW 28-38" NE 31-49" SE	POT	RIM					CLY	1	5.5
48-1-363-1	3	2	40" NE 55" SE 39"	POT	NVES	DAUB				CLY	135	825.4
48-1-363-2	3	2	40" NE 55" SE 39"	FAUN	UMOD					BNE	16	119.8
48-1-363-3	3	2	40" NE 55" SE 39"	FAUN	UMOD					SHL	20	23.2
48-1-363-4-1	3	2	40" NE 55" SE 39"	POT	SHRD						33	82.8
48-1-363-4-2	3	2	40" NE 55" SE 39"	POT	SHRD		PLN			CLY	26	275.8
48-1-363-4-3	3	2	40" NE 55" SE 39"	POT	SHRD		BRSH			BNE	7	37.0
48-1-363-4-4	3	2	40" NE 55" SE 39"	POT	SHRD		BRSH			CLY	6	53.7
48-1-363-4-5	3	2	40" NE 55" SE 39"	POT	SHRD		INCI			CLY	3	36.4

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-363-4-6	3	2	40" NE 55" SE 39"	POT	SHRD		PUCT			CLY	1	26.9
48-1-363-4-7	3	2	40" NE 55" SE 39"	POT	SHRD		ENG			SHL	1	3.9
48-1-363-4-8	3	2	40" NE 55" SE 39"	POT	SHRD		ENG			CLY	1	4.3
48-1-363-4-9	3	2	40" NE 55" SE 39"	POT	SHRD		BRSH	APLQ	PUCT	BNE	1	36.4
48-1-363-4-10	3	2	40" NE 55" SE 39"	POT	RIM		PLN			CLY	2	13.8
48-1-363-4-11	3	2	40" NE 55" SE 39"	POT	RIM		ENG			CLY	3	19.9
48-1-364-1	3	3	1 (1-6")	FAUN	UMOD					BNE	4	3.9
48-1-364-2-1	3	3	1 (1-6")	POT	SHRD						25	57.5
48-1-364-2-2	3	3	1 (1-6")	POT	SHRD		PLN			CLY	8	37.8
48-1-364-2-3	3	3	1 (1-6")	POT	SHRD		BRSH			CLY	1	11.9
48-1-364-2-4	3	3	1 (1-6")	POT	SHRD		INCI			BNE	1	7.9
48-1-364-2-5	3	3	1 (1-6")	POT	SHRD		INCI			CLY	1	4.5
48-1-364-2-6	3	3	1 (1-6")	POT	SHRD		BRSH	APLQ		BNE	1	8.4
48-1-365-1	3	3	2 (6-12")	FAUN	UMOD					BNE	3	1.3

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-365-2-1	3	3	2 (6-12")	POT	SHRD						10	20.2
48-1-365-2-2	3	3	2 (6-12")	POT	SHRD		PLN			CLY	1	5.2
48-1-365-2-3	3	3	2 (6-12")	POT	SHRD		BRSH			CLY	1	4.8
48-1-366-1	3	3	3 (12-18")	POT	NVES	DAUB				CLY	16	41.4
48-1-366-2	3	3	3 (12-18")	FAUN	UMOD					BNE	3	27.4
48-1-366-3-1	3	3	3 (12-18")	POT	SHRD						4	10.5
48-1-366-3-2	3	3	3 (12-18")	POT	SHRD		PLN			CLY	4	32.4
48-1-367	3	3	SW 20-27" NE 32-42" SE	POT	NVES	DAUB				CLY	431	2289.6
48-1-368-1	3	3	SW 20-27" NE 32-42" SE	FAUN	UMOD					BNE	14	86.9
48-1-368-2-1	3	3	SW 20-27" NE 32-42" SE	POT	SHRD						39	93.1
48-1-368-2-2	3	3	SW 20-27" NE 32-42" SE	POT	SHRD		PLN			BNE	4	27.6
48-1-368-2-3	3	3	SW 20-27" NE 32-42" SE	POT	SHRD		PLN			CLY	9	49.0
48-1-368-2-4	3	3	SW 20-27" NE 32-42" SE	POT	SHRD		BRSH			BNE	3	14.6
48-1-368-2-5	3	3	SW 20-27" NE 32-42" SE	POT	SHRD		BRSH			CLY	11	105.2

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-368-2-6	3	3	SW 20-27" NE 32-42" SE	POT	SHRD		PUCT			CLY	1	20.7
48-1-368-2-7	3	3	SW 20-27" NE 32-42" SE	POT	SHRD		BRSH	APLQ	PUCT	CLY	1	4.3
48-1-368-2-8	3	3	SW 20-27" NE 32-42" SE	POT	SHRD		PUCT	STAMP		BNE	1	3.4
48-1-368-2-9	3	3	SW 20-27" NE 32-42" SE	POT	RIM		BRSH	PUCT		CLY	2	22.2
48-1-369-1	3	3	30" NE 50" SE 40"	POT	NVES	DAUB				CLY	96	926.3
48-1-369-2-1	3	3	30" NE 50" SE 40"	POT	SHRD		PLN			CLY	7	84.8
48-1-369-2-2	3	3	30" NE 50" SE 40"	POT	SHRD		BRSH			CLY	1	8.7
48-1-369-2-3	3	3	30" NE 50" SE 40"	POT	SHRD		INCI			CLY	1	8.2
48-1-369-2-4	3	3	30" NE 50" SE 40"	POT	RIM		BRSH	PUCT		CLY	1	19.4
48-1-370-1	3	3	WATTLE IN ORANGE	FAUN	UMOD					SHL	7	7.8
48-1-370-2-1	3	3	WATTLE IN ORANGE	POT	SHRD						4	14.8
48-1-370-2-2	3	3	WATTLE IN ORANGE	POT	SHRD		PLN			CLY	1	9.7
48-1-370-2-3	3	3	WATTLE IN ORANGE	POT	SHRD		BRSH			BNE	1	5.6
48-1-370-2-4	3	3	WATTLE IN ORANGE	POT	SHRD		BRSH			CLY	9	74.3

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-371-1	3	4	7 (36-42")	POT	NVES	DAUB				CLY	154	1365.1
48-1-371-2-1	3	4	7 (36-42")	FAUN	UMOD					BNE	7	6.8
48-1-371-2-2	3	4	7 (36-42")	FAUN	UMOD		BUR			BNE	2	1.2
48-1-371-2-3	3	4	7 (36-42")	FAUN	MOD					BNE	1	1.3
48-1-371-3	3	4	7 (36-42")	FAUN	UMOD					SHL	11	37.9
48-1-371-4-1	3	4	7 (36-42")	POT	SHRD						28	74.1
48-1-371-4-2	3	4	7 (36-42")	POT	SHRD		PLN			BNE	5	28.3
48-1-371-4-3	3	4	7 (36-42")	POT	SHRD		PLN			CLY	15	84.5
48-1-371-4-4	3	4	7 (36-42")	POT	SHRD		BRSH			BNE	1	8.8
48-1-371-4-5	3	4	7 (36-42")	POT	SHRD		BRSH			CLY	6	55.3
48-1-371-4-6	3	4	7 (36-42")	POT	SHRD		INCI			CLY	1	6.7
48-1-371-4-7	3	4	7 (36-42")	POT	SHRD		PUCT	STAMP		BNE	1	4.8
48-1-371-4-8	3	4	7 (36-42")	POT	SHRD		BRSH	PUCT		CLY	1	11.8
48-1-371-4-9	3	4	7 (36-42")	POT	RIM		PUCT			CLY	2	10.8

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-371-4-10	3	4	7 (36-42")	POT	RIM		ENG			CLY	1	6.1
48-1-372-1	3	4	EAST WALL 24"	POT	SHRD		PLN			CLY	5	180.1
48-1-372-2	3	4	EAST WALL 24"	POT	SHRD		PLN			CLY	2	4.8
48-1-372-3	3	4	EAST WALL 24"	POT	RIM		INCI			CLY	1	14.4
48-1-373-1	3	6	1 (1-6")	FAUN	UMOD					BNE	8	5.4
48-1-373-2	3	6	1 (1-6")	POT	NVES	DAUB				CLY	12	49.8
48-1-373-3-1	3	6	1 (1-6")	POT	SHRD						8	16.3
48-1-373-3-2	3	6	1 (1-6")	POT	SHRD		PLN			CLY	3	14.4
48-1-373-3-3	3	6	1 (1-6")	POT	SHRD		BRSH			BNE	2	7.1
48-1-373-3-4	3	6	1 (1-6")	POT	SHRD		BRSH			CLY	5	29.2
48-1-373-3-5	3	6	1 (1-6")	POT	RIM		PLN			CLY	1	5.2
48-1-373-3-6	3	6	1 (1-6")	POT	RIM		PUCT			CLY	2	9.3
48-1-373-3-7	3	6	1 (1-6")	POT	RIM		INCI			SHL	1	5.0
48-1-374-1-1	3	6	24" NE 29" SE 24"	FAUN	UMOD					BNE	27	53.2

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-374-1-2	3	6	24" NE 29" SE 24"	FAUN	UMOD		BUR			BNE	6	2.6
48-1-374-1-3	3	6	24" NE 29" SE 24"	FAUN	UMOD					TTH	1	0.4
48-1-374-2	3	6	24" NE 29" SE 24"	FAUN	UMOD					SHL	2	4.6
48-1-374-3	3	6	24" NE 29" SE 24"	POT	NVES	DAUB				CLY	2	9.1
48-1-374-4-1	3	6	24" NE 29" SE 24"	POT	SHRD						34	74.5
48-1-374-4-2	3	6	24" NE 29" SE 24"	POT	SHRD		PLN			BNE	1	3.1
48-1-374-4-3	3	6	24" NE 29" SE 24"	POT	SHRD		PLN			CLY	11	100.5
48-1-374-4-4	3	6	24" NE 29" SE 24"	POT	SHRD		BRSH			BNE	5	29.2
48-1-374-4-5	3	6	24" NE 29" SE 24"	POT	SHRD		BRSH			CLY	12	79.2
48-1-374-4-6	3	6	24" NE 29" SE 24"	POT	SHRD		INCI			CLY	4	25.1
48-1-374-4-7	3	6	24" NE 29" SE 24"	POT	SHRD		PUCT	STAMP		BNE	1	4.5
48-1-374-4-8	3	6	24" NE 29" SE 24"	POT	SHRD		ENG			BNE	1	7.5
48-1-374-4-9	3	6	24" NE 29" SE 24"	POT	RIM		PLN			BNE	1	6.1
48-1-374-4-10	3	6	24" NE 29" SE 24"	POT	RIM		BRSH			CLY	4	40.2

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-374-4-11	3	6	24" NE 29" SE 24"	POT	RIM		INCI			CLY	1	12.8
48-1-374-4-12	3	6	24" NE 29" SE 24"	POT	RIM		ENG			CLY	1	13.1
48-1-375-1	3	7	1 (1-6")	FAUN	UMOD					BNE	4	14.3
48-1-375-2-1	3	7	1 (1-6")	POT	SHRD						3	2.6
48-1-375-2-2	3	7	1 (1-6")	POT	SHRD		PLN			CLY	2	7.6
48-1-375-2-3	3	7	1 (1-6")	POT	SHRD		BRSH			BNE	1	9.7
48-1-376-1	3	7	3 (12-18")	FAUN	UMOD					BNE	8	21.0
48-1-376-2-1	3	7	3 (12-18")	POT	SHRD						5	13.9
48-1-376-2-2	3	7	3 (12-18")	POT	SHRD		PLN			CLY	1	9.0
48-1-376-2-3	3	7	3 (12-18")	POT	SHRD		BRSH			CLY	5	26.9
48-1-376-2-4	3	7	3 (12-18")	POT	RIM		PLN			SHL	1	1.4
48-1-377-1	3	8	1 (1-6")	FAUN	UMOD					BNE	3	6.5
48-1-377-2-1	3	8	1 (1-6")	POT	SHRD						3	6.2
48-1-377-2-2	3	8	1 (1-6")	POT	SHRD		PLN			CLY	2	10.4

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-377-2-3	3	8	1 (1-6")	POT	SHRD		BRSH			BNE	2	9.8
48-1-377-2-4	3	8	1 (1-6")	POT	SHRD		INCI			CLY	2	9.0
48-1-378-1	3	8	3 (12-18")	FAUN	UMOD					BNE	1	
48-1-378-2	3	8	3 (12-18")	POT	NVES	DAUB				CLY	2	
48-1-378-3	3	8	3 (12-18")	POT	SHRD						18	
48-1-379-1	3	1R1	1-6 (1-30")	FAUN	UMOD					BNE	14	80.9
48-1-379-2-1	3	1R1	1-6 (1-30")	POT	SHRD						9	19.9
48-1-379-2-2	3	1R1	1-6 (1-30")	POT	SHRD		PLN			CLY	2	12.5
48-1-379-2-3	3	1R1	1-6 (1-30")	POT	SHRD		BRSH			BNE	4	23.9
48-1-379-2-4	3	1R1	1-6 (1-30")	POT	SHRD		BRSH	APLQ		CLY	1	11.6
48-1-380-1-1	3	1R1	7-10 (36-60")	FAUN	UMOD					BNE	35	302.9
48-1-380-1-2	3	1R1	7-10 (36-60")	FAUN	UMOD					TTH	2	2.9
48-1-380-2	3	1R1	7-10 (36-60")	FAUN	UMOD					SHL	5	54.3
48-1-380-3-1	3	1R1	7-10 (36-60")	POT	SHRD						8	20.1

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-380-3-2	3	1R1	7-10 (36-60")	POT	SHRD		PLN			BNE	4	31.1
48-1-380-3-3	3	1R1	7-10 (36-60")	POT	SHRD		PLN			CLY	8	60.0
48-1-380-3-4	3	1R1	7-10 (36-60")	POT	SHRD		BRSH			CLY	7	44.0
48-1-380-3-5	3	1R1	7-10 (36-60")	POT	SHRD		INCI			CLY	1	12.8
48-1-380-3-6	3	1R1	7-10 (36-60")	POT	SHRD		INCI	PUCT		BNE	1	5.1
48-1-380-3-7	3	1R1	7-10 (36-60")	POT	SHRD		BRSH	PUCT	APLQ	CLY	1	11.3
48-1-380-3-8	3	1R1	7-10 (36-60")	POT	RIM		BRSH	PUCT		CLY	2	19.9
48-1-381-1-1	3	1R1	50"	FAUN	UMOD					BNE	16	114.3
48-1-381-1-2	3	1R1	50"	FAUN	UMOD		BUR			BNE	1	0.2
48-1-381-2	3	1R1	50"	FAUN	UMOD					SHL	21	84.7
48-1-381-3-1	3	1R1	50"	POT	SHRD						25	61.4
48-1-381-3-2	3	1R1	50"	POT	SHRD		PLN			BNE	3	21.8
48-1-381-3-3	3	1R1	50"	POT	SHRD		PLN			CLY	12	170.9
48-1-381-3-4	3	1R1	50"	POT	SHRD		BRSH			BNE	7	59.4

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-381-3-5	3	1R1	50"	POT	SHRD		BRSH			CLY	8	61.4
48-1-381-3-6	3	1R1	50"	POT	SHRD		BRSH	PUCT		CLY	2	12.7
48-1-381-3-7	3	1R1	50"	POT	SHRD		BRSH	PUCT	APLQ	CLY	1	5.1
48-1-381-3-8	3	1R1	50"	POT	RIM		INCI			CLY	1	13.2
48-1-382-1	3	1R3	42-51"	FAUN	UMOD					BNE	5	59.1
48-1-382-2	3	1R3	42-51"	FAUN	UMOD					SHL	3	17.4
48-1-382-3-1	3	1R3	42-51"	POT	SHRD						3	4.8
48-1-382-3-2	3	1R3	42-51"	POT	SHRD		PLN			BNE	3	23.6
48-1-382-3-3	3	1R3	42-51"	POT	SHRD		PLN			CLY	8	55.4
48-1-382-3-4	3	1R3	42-51"	POT	SHRD		BRSH			BNE	1	5.9
48-1-382-3-5	3	1R3	42-51"	POT	SHRD		BRSH			CLY	1	6.6
48-1-382-3-6	3	1R3	42-51"	POT	SHRD		INCI			BNE	1	4.8
48-1-383-1	3	2R1	1-6 (1-30")	FAUN	UMOD					BNE	24	20.1
48-1-383-2	3	2R1	1-6 (1-30")	FAUN	UMOD					SHL	1	0.1

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-383-3-1	3	2R1	1-6 (1-30")	POT	SHRD		PLN			CLY	2	9.7
48-1-383-3-2	3	2R1	1-6 (1-30")	POT	SHRD		BRSH			CLY	3	27.8
48-1-383-3-3	3	2R1	1-6 (1-30")	POT	SHRD		ENG			CLY	1	8.6
48-1-384-1	3	2R1	50"	FAUN	UMOD					BNE	11	72.8
48-1-384-2	3	2R1	50"	FAUN	UMOD					SHL	13	44.3
48-1-384-3-1	3	2R1	50"	POT	SHRD						12	35.6
48-1-384-3-2	3	2R1	50"	POT	SHRD		PLN			BNE	3	28.6
48-1-384-3-3	3	2R1	50"	POT	SHRD		PLN			CLY	12	265.7
48-1-384-3-4	3	2R1	50"	POT	SHRD		PLN			SHL	1	16.5
48-1-384-3-5	3	2R1	50"	POT	SHRD		BRSH			BNE	5	37.3
48-1-384-3-6	3	2R1	50"	POT	SHRD		BRSH			CLY	4	24.9
48-1-384-3-7	3	2R1	50"	POT	SHRD		INCI			BNE	1	9.9
48-1-384-3-8	3	2R1	50"	POT	SHRD		INCI			CLY	1	2.5
48-1-384-3-9	3	2R1	50"	POT	SHRD		INCI			SHL	1	2.2

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-384-3-10	3	2R1	50"	POT	RIM		BRSH			CLY	1	6.8
48-1-384-3-11	3	2R1	50"	POT	RIM		INCI			CLY	2	13.8
48-1-384-4	3	2R1	50"	CG							4	142.6
48-1-385-1	3	3R1	50"	FAUN	UMOD					BNE	8	44.3
48-1-385-2	3	3R1	50"	FAUN	UMOD					SHL	14	73.2
48-1-385-3-1	3	3R1	50"	POT	SHRD						8	24.1
48-1-385-3-2	3	3R1	50"	POT	SHRD		PLN			BNE	2	28.6
48-1-385-3-3	3	3R1	50"	POT	SHRD		PLN			CLY	9	84.6
48-1-385-3-4	3	3R1	50"	POT	SHRD		BRSH			CLY	4	47.4
48-1-385-3-5	3	3R1	50"	POT	SHRD		INCI			CLY	1	14.2
48-1-385-3-6	3	3R1	50"	POT	SHRD		ENG			CLY	1	14.1
48-1-385-3-7	3	3R1	50"	POT	RIM		INCI			CLY	2	20.6
48-1-385-3-8	3	3R1	50"	POT	RIM		PUCT			CLY	1	51.1
48-1-385-3-9	3	3R1	50"	POT	RIM		ENG			CLY	2	21.1

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-386-1	3	3R1	50"	POT	SHRD						2	5.8
48-1-386-2	3	3R1	50"	POT	SHRD		PLN			BNE	2	28.6
48-1-386-3	3	3R1	50"	POT	SHRD		BRSH			BNE	2	10.2
48-1-386-4	3	3R1	50"	POT	SHRD		BRSH			CLY	2	24.2
48-1-387-1-1	3	2-3R1	WATTLE OF H1	FAUN	UMOD					BNE	18	158.6
48-1-387-1-2	3	2-3R1	WATTLE OF H1	FAUN	UMOD		BUR			BNE	1	2.3
48-1-387-2	3	2-3R1	WATTLE OF H1	FAUN	UMOD					SHL	16	100.4
48-1-387-3-1	3	2-3R1	WATTLE OF H1	POT	SHRD						31	70.2
48-1-387-3-2	3	2-3R1	WATTLE OF H1	POT	SHRD		PLN			BNE	3	31.9
48-1-387-3-3	3	2-3R1	WATTLE OF H1	POT	SHRD		PLN			CLY	8	65.2
48-1-387-3-4	3	2-3R1	WATTLE OF H1	POT	SHRD		BRSH			BNE	2	11.8
48-1-387-3-5	3	2-3R1	WATTLE OF H1	POT	SHRD		BRSH			CLY	11	79.2
48-1-387-3-6	3	2-3R1	WATTLE OF H1	POT	SHRD		INCI			CLY	2	12.4
48-1-387-3-7	3	2-3R1	WATTLE OF H1	POT	SHRD		ENG			CLY	1	2.5

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-387-3-8	3	2-3R1	WATTLE OF H1	POT	RIM		BRSH			BNE	3	18.2
48-1-387-3-9	3	2-3R1	WATTLE OF H1	POT	RIM		ENG			CLY	3	25.7
48-1-388-1	3	5R1	WATTLE OF H1	FAUN	UMOD					BNE	5	32.2
48-1-388-2	3	5R1	WATTLE OF H1	FAUN	UMOD					SHL	3	8.4
48-1-388-3-1	3	5R1	WATTLE OF H1	POT	SHRD						7	16.4
48-1-388-3-2	3	5R1	WATTLE OF H1	POT	SHRD		PLN			BNE	1	4.8
48-1-388-3-3	3	5R1	WATTLE OF H1	POT	SHRD		PLN			CLY	1	6.5
48-1-388-3-4	3	5R1	WATTLE OF H1	POT	SHRD		BRSH			BNE	2	12.7
48-1-388-3-5	3	5R1	WATTLE OF H1	POT	SHRD		BRSH			CLY	4	40.9
48-1-388-3-6	3	5R1	WATTLE OF H1	POT	RIM		BRSH	PUCT		CLY	1	31.8
48-1-389-1-1	3	5R1	AND IN WATTLE H1	FAUN	UMOD					BNE	17	208.9
48-1-389-1-2	3	5R1	AND IN WATTLE H1	FAUN	UMOD		BUR			BNE	4	6.4
48-1-389-2	3	5R1	AND IN WATTLE H1	FAUN	UMOD					SHL	14	51.6
48-1-389-3-1	3	5R1	AND IN WATTLE H1	POT	SHRD						42	112.2

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-389-3-2	3	5R1	AND IN WATTLE H1	POT	SHRD		PLN			BNE	6	39.7
48-1-389-3-3	3	5R1	AND IN WATTLE H1	POT	SHRD		PLN			CLY	26	271.8
48-1-389-3-4	3	5R1	AND IN WATTLE H1	POT	SHRD		BRSH			BNE	23	220.1
48-1-389-3-5	3	5R1	AND IN WATTLE H1	POT	SHRD		BRSH			CLY	24	186.0
48-1-389-3-6	3	5R1	AND IN WATTLE H1	POT	SHRD		INCI			BNE	1	5.6
48-1-389-3-7	3	5R1	AND IN WATTLE H1	POT	SHRD		INCI			CLY	2	10.2
48-1-389-3-8	3	5R1	AND IN WATTLE H1	POT	SHRD		INCI			SHL	1	4.8
48-1-389-3-9	3	5R1	AND IN WATTLE H1	POT	SHRD		ENG			BNE	2	9.2
48-1-389-3-10	3	5R1	AND IN WATTLE H1	POT	SHRD		ENG			CLY	6	39.6
48-1-389-3-11	3	5R1	AND IN WATTLE H1	POT	SHRD		BRSH	PUCT		BNE	1	5.7
48-1-389-3-12	3	5R1	AND IN WATTLE H1	POT	SHRD		BRSH	PUCT		CLY	4	61.6
48-1-389-3-13	3	5R1	AND IN WATTLE H1	POT	SHRD	BTL	PLN			BNE	1	12.9
48-1-389-3-14	3	5R1	AND IN WATTLE H1	POT	SHRD	HNDLST	APLQ			CLY	1	7.2
48-1-389-3-15	3	5R1	AND IN WATTLE H1	POT	SHRD		STAMP	APLQ		CLY	1	6.7

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-389-3-16	3	5R1	AND IN WATTLE H1	POT	SHRD		INCI			SHL	1	7.5
48-1-389-3-17	3	5R1	AND IN WATTLE H1	POT	RIM		PLN			BNE	2	16.0
48-1-389-3-18	3	5R1	AND IN WATTLE H1	POT	RIM		ENG	WHITE		BNE	2	8.1
48-1-389-3-19	3	5R1	AND IN WATTLE H1	POT	RIM		BRSH			BNE	1	8.6
48-1-389-3-20	3	5R1	AND IN WATTLE H1	POT	RIM		BRSH			CLY	1	23.1
48-1-389-3-21	3	5R1	AND IN WATTLE H1	POT	RIM		ENG			CLY	2	8.9
48-1-389-3-22	3	5R1	AND IN WATTLE H1	POT	RIM		PUCT			BNE	1	7.3
48-1-390-1	3	5R1	CLY ABOVE WATTLE H1	POT	SHRD						6	20.9
48-1-390-2	3	5R1	CLY ABOVE WATTLE H1	POT	SHRD		PLN			BNE	4	22.9
48-1-390-3	3	5R1	CLY ABOVE WATTLE H1	POT	SHRD		PLN			CLY	4	25.7
48-1-390-4	3	5R1	CLY ABOVE WATTLE H1	POT	SHRD		PLN			SHL	1	4.6
48-1-390-5	3	5R1	CLY ABOVE WATTLE H1	POT	SHRD		BRSH			CLY	2	21.1
48-1-390-6	3	5R1	CLY ABOVE WATTLE H1	POT	SHRD		INCI			BNE	1	14.1
48-1-390-7	3	5R1	CLY ABOVE WATTLE H1	POT	SHRD		BRSH	APLQ		CLY	1	23.0

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-390-8	3	5R1	CLY ABOVE WATTLE H1	FAUN	UMOD					BNE	3	24.8
48-1-391-1-1	3	1R1	WATTLE LEVEL	FAUN	UMOD					BNE	4	7.4
48-1-391-1-2	3	1R1	WATTLE LEVEL	FAUN	UMOD		BUR			BNE	1	5.1
48-1-391-2	3	1R1	WATTLE LEVEL	FAUN	UMOD					SHL	14	22.4
48-1-391-3-1	3	1R1	WATTLE LEVEL	POT	SHRD						7	26.9
48-1-391-3-2	3	1R1	WATTLE LEVEL	POT	SHRD		PLN			BNE	1	9.8
48-1-391-3-3	3	1R1	WATTLE LEVEL	POT	SHRD		PLN			CLY	7	80.0
48-1-391-3-4	3	1R1	WATTLE LEVEL	POT	SHRD		BRSH			BNE	2	14.8
48-1-391-3-5	3	1R1	WATTLE LEVEL	POT	SHRD		BRSH			CLY	3	39.8
48-1-391-3-6	3	1R1	WATTLE LEVEL	POT	RIM		BRSH			CLY	1	8.1
48-1-391-3-7	3	1R1	WATTLE LEVEL	POT	RIM		ENG			CLY	1	5.1
48-1-392	3	2	WATTLE LAYER	FLOR	CHARC					WD		27.5
48-1-393-1	3	4R1	WATTLE LAYER 60"	FAUN	UMOD					BNE	3	56.0
48-1-393-2	3	4R1	WATTLE LAYER 60"	FAUN	UMOD					SHL	7	59.1

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-393-3-1	3	4R1	WATTLE LAYER 60"	POT	SHRD						10	31.6
48-1-393-3-2	3	4R1	WATTLE LAYER 60"	POT	SHRD		PLN			BNE	3	17.2
48-1-393-3-3	3	4R1	WATTLE LAYER 60"	POT	SHRD		PLN			CLY	7	86.1
48-1-393-3-4	3	4R1	WATTLE LAYER 60"	POT	SHRD		BRSH			BNE	4	40.9
48-1-393-3-5	3	4R1	WATTLE LAYER 60"	POT	SHRD		BRSH			CLY	7	90.7
48-1-393-3-6	3	4R1	WATTLE LAYER 60"	POT	SHRD		INCI			CLY	1	12.0
48-1-393-3-7	3	4R1	WATTLE LAYER 60"	POT	SHRD		ENG	WHITE		CLY	1	21.9
48-1-393-3-8	3	4R1	WATTLE LAYER 60"	POT	SHRD		BRSH	PUCT	APLQ	CLY	2	23.3
48-1-393-3-9	3	4R1	WATTLE LAYER 60"	POT	RIM		ENG			BNE	1	4.7
48-1-393-3-10	3	4R1	WATTLE LAYER 60"	POT	RIM		PLN			CLY	1	7.2
48-1-393-3-11	3	4R1	WATTLE LAYER 60"	POT	RIM		BRSH	PUCT		CLY	1	26.7
48-1-394-1	3	4L	WATTLE LAYER	POT	SHRD						13	35.2
48-1-394-2	3	4L	WATTLE LAYER	POT	SHRD		PLN			BNE	1	4.3
48-1-394-3	3	4L	WATTLE LAYER	POT	SHRD		PLN			CLY	5	31.7

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-394-4	3	4L	WATTLE LAYER	POT	SHRD		BRSH			BNE	5	37.8
48-1-394-5	3	4L	WATTLE LAYER	POT	SHRD		BRSH			CLY	6	105.3
48-1-394-6	3	4L	WATTLE LAYER	POT	SHRD		BRSH	APLQ		CLY	1	8.9
48-1-394-7	3	4L	WATTLE LAYER	POT	SHRD		BRSH	STAMP		BNE	1	4.3
48-1-394-8	3	4L	WATTLE LAYER	POT	RIM		INCI			CLY	1	9.0
48-1-394-9	3	4L	WATTLE LAYER	POT	RIM		PUCT			CLY	1	12.6
48-1-394-10	3	4L	WATTLE LAYER	POT	RIM		PLN			SHL	2	8.4
48-1-395	3	5	WATTLE LAYER	POT	NVES	DAUB				CLY	141	542.8
48-1-396-1	3	5	WATTLE LAYER	FAUN	UMOD					BNE	7	65.9
48-1-396-2-1	3	5	WATTLE LAYER	POT	SHRD						36	97.2
48-1-396-2-2	3	5	WATTLE LAYER	POT	SHRD		PLN			BNE	6	63.9
48-1-396-2-3	3	5	WATTLE LAYER	POT	SHRD		PLN			CLY	24	227.9
48-1-396-2-4	3	5	WATTLE LAYER	POT	SHRD		BRSH			BNE	11	104.6
48-1-396-2-5	3	5	WATTLE LAYER	POT	SHRD		BRSH			CLY	28	227.9

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-396-2-6	3	5	WATTLE LAYER	POT	SHRD		PUCT			CLY	1	9.8
48-1-396-2-7	3	5	WATTLE LAYER	POT	SHRD		BRSH	APLQ		CLY	2	20.7
48-1-396-2-8	3	5	WATTLE LAYER	POT	SHRD		ENG			CLY	1	6.2
48-1-396-2-9	3	5	WATTLE LAYER	POT	RIM		BRSH			CLY	2	57.7
48-1-396-2-10	3	5	WATTLE LAYER	POT	RIM		INCI			CLY	2	25.6
48-1-396-2-11	3	5	WATTLE LAYER	POT	RIM	CBL	ENG	WHITE		BNE	2	25.7
48-1-396-2-12	3	5	WATTLE LAYER	POT	RIM		PUCT	INCI		CLY	1	18.0
48-1-397-1	3	5L	WATTLE LAYER	FAUN	UMOD					BNE	6	4.3
48-1-397-2-1	3	5L	WATTLE LAYER	POT	SHRD						26	54.0
48-1-397-2-2	3	5L	WATTLE LAYER	POT	SHRD		PLN			CLY	5	34.2
48-1-397-2-3	3	5L	WATTLE LAYER	POT	SHRD		PLN			SHL	1	3.0
48-1-397-2-4	3	5L	WATTLE LAYER	POT	SHRD		BRSH			CLY	4	45.0
48-1-397-2-5	3	5L	WATTLE LAYER	POT	SHRD		INCI			BNE	1	6.6
48-1-397-2-6	3	5L	WATTLE LAYER	POT	SHRD		ENG	RED		CLY	1	5.4

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-397-2-7	3	5L	WATTLE LAYER	POT	RIM	BTL	PLN			CLY	1	3.9
48-1-398	3		WATTLE LAYER	POT	NVES	DAUB					479	3377.4
48-1-399-1	3	2	SAND BELOW	FAUN	UMOD					BNE	1	8.2
48-1-399-2	3	2	SAND BELOW	FAUN	UMOD					SHL	13	30.4
48-1-399-3-1	3	2	SAND BELOW	POT	SHRD						29	83.1
48-1-399-3-2	3	2	SAND BELOW	POT	SHRD		PLN			BNE	2	11.9
48-1-399-3-3	3	2	SAND BELOW	POT	SHRD		PLN			CLY	13	106.6
48-1-399-3-4	3	2	SAND BELOW	POT	SHRD		BRSH			BNE	6	70.5
48-1-399-3-5	3	2	SAND BELOW	POT	SHRD		BRSH			CLY	7	80.0
48-1-399-3-6	3	2	SAND BELOW	POT	SHRD		INCI			CLY		11.6
48-1-399-3-7	3	2	SAND BELOW	POT	RIM		BRSH			CLY	1	7.3
48-1-400-1	3	2	ABOVE H1	FAUN	UMOD					SHL	1	8.8
48-1-400-2-1	3	2	ABOVE H1	POT	SHRD		BRSH			BNE	1	5.9
48-1-400-2-2	3	2	ABOVE H1	POT	SHRD		INCI			CLY	1	17.3

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-400-2-3	3	2	ABOVE H1	POT	SHRD	CBL	ENG			CLY	1	14.6
48-1-400-2-4	3	2	ABOVE H1	POT	RIM		ENG			CLY	1	13.8
48-1-401-1	3	4L2	HOUSE FLOOR 1	POT	SHRD						2	7.7
48-1-401-2	3	4L2	HOUSE FLOOR 1	POT	SHRD		PLN			CLY	2	22.9
48-1-401-3	3	4L2	HOUSE FLOOR 1	POT	RIM	BTL	PLN			CLY	4	61.1
48-1-402-1	3	2-3-4-5R1	HOUSE FLOOR 1	POT	SHRD						14	36.2
48-1-402-2	3	2-3-4-5R1	HOUSE FLOOR 1	POT	SHRD		PLN			CLY	3	37.9
48-1-402-3	3	2-3-4-5R1	HOUSE FLOOR 1	POT	SHRD		BRSH			BNE	4	34.5
48-1-402-4	3	2-3-4-5R1	HOUSE FLOOR 1	POT	SHRD		BRSH			CLY	6	76.4
48-1-402-5	3	2-3-4-5R1	HOUSE FLOOR 1	POT	SHRD		INCI			CLY	1	8.1
48-1-402-6	3	2-3-4-5R1	HOUSE FLOOR 1	POT	SHRD		INCI			SHL	3	22.6
48-1-402-7	3	2-3-4-5R1	HOUSE FLOOR 1	POT	SHRD		PUCT			CLY	1	13.6
48-1-402-8	3	2-3-4-5R1	HOUSE FLOOR 1	POT	SHRD		ENG			CLY	1	5.4
48-1-402-9	3	2-3-4-5R1	HOUSE FLOOR 1	POT	SHRD		BRSH	PUCT		CLY	4	69.7

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-402-10	3	2-3-4-5R1	HOUSE FLOOR 1	POT	RIM		INCI			CLY	2	23.6
48-1-402-11	3	2-3-4-5R1	HOUSE FLOOR 1	POT	RIM		PLN			BNE	1	3.4
48-1-402-12	3	2-3-4-5R1	HOUSE FLOOR 1	POT	RIM	CBL	PUCT	INCI		CLY	1	8.9
48-1-403-1-1	3	9	HOUSE FLOOR 1	FAUN	UMOD					BNE	42	351.5
48-1-403-1-2	3	9	HOUSE FLOOR 1	FAUN	MOD	PEND				BNE	1	1.7
48-1-403-1-3	3	9	HOUSE FLOOR 1	FAUN	UMOD					TTH	3	0.8
48-1-403-2	3	9	HOUSE FLOOR 1	FAUN	UMOD					SHL	9	14.8
48-1-403-3-1	3	9	HOUSE FLOOR 1	POT	SHRD						3	4.4
48-1-403-3-2	3	9	HOUSE FLOOR 1	POT	SHRD		PLN			BNE	2	26.7
48-1-403-3-3	3	9	HOUSE FLOOR 1	POT	SHRD		PLN			CLY	6	85.1
48-1-403-3-4	3	9	HOUSE FLOOR 1	POT	SHRD		BRSH			BNE	3	52.6
48-1-403-3-5	3	9	HOUSE FLOOR 1	POT	SHRD		BRSH			CLY	9	101.6
48-1-403-3-6	3	9	HOUSE FLOOR 1	POT	SHRD		INCI			CLY	1	5.0
48-1-403-3-7	3	9	HOUSE FLOOR 1	POT	SHRD		PLN	RED		CLY	1	2.8

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-403-3-8	3	9	HOUSE FLOOR 1	POT	SHRD		BRSH	APLQ		CLY	4	56.9
48-1-403-3-9	3	9	HOUSE FLOOR 1	POT	SHRD		ENG			CLY	1	24.6
48-1-403-3-10	3	9	HOUSE FLOOR 1	POT	SHRD	HNDLLP	PUCT	APLQ		CLY	1	15.3
48-1-403-3-11	3	9	HOUSE FLOOR 1	POT	RIM		PLN			BNE	1	10.2
48-1-403-3-12	3	9	HOUSE FLOOR 1	POT	RIM		BRSH			CLY	2	14.9
48-1-403-3-13	3	9	HOUSE FLOOR 1	POT	RIM	JAR	BRSH	PUCT		CLY	1	50.8
48-1-404-1	3		HOUSE FLOOR 1	FAUN	UMOD					BNE	1	32.7
48-1-404-2-1	3		HOUSE FLOOR 1	POT	SHRD		PLN			CLY	1	35.6
48-1-404-2-2	3		HOUSE FLOOR 1	POT	RIM		ENG			CLY	1	12.5
48-1-405-1	3	2-3-4-5R1	HOUSE FLOOR 1	FAUN	UMOD					BNE	3	3.6
48-1-405-2	3	2-3-4-5R1	HOUSE FLOOR 1	FAUN	UMOD					SHL	10	25.6
48-1-405-3-1	3	2-3-4-5R1	HOUSE FLOOR 1	POT	SHRD						2	3.9
48-1-405-3-2	3	2-3-4-5R1	HOUSE FLOOR 1	POT	SHRD		PLN			CLY	1	15.5
48-1-405-3-3	3	2-3-4-5R1	HOUSE FLOOR 1	POT	SHRD		ENG			CLY	1	6.1

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-405-3-4	3	2-3-4-5R1	HOUSE FLOOR 1	SHRD	RIM		BRSH			CLY	1	8.2
48-1-406-1	3	5R1	HOUSE FLOOR 1	FAUN	UMOD					BNE	2	2.8
48-1-406-2	3	5R1	HOUSE FLOOR 1	FAUN	UMOD					SHL	3	5.5
48-1-406-3-1	3	5R1	HOUSE FLOOR 1	POT	SHRD		PLN			CLY	1	2.0
48-1-406-3-2	3	5R1	HOUSE FLOOR 1	POT	SHRD		BRSH			BNE	1	7.5
48-1-406-3-3	3	5R1	HOUSE FLOOR 1	POT	SHRD		BRSH			CLY	3	36.8
48-1-406-3-4	3	5R1	HOUSE FLOOR 1	POT	SHRD		APLQ			CLY	1	7.8
48-1-406-3-5	3	5R1	HOUSE FLOOR 1	POT	RIM		BRSH	PUCT		CLY	1	32.4
48-1-407-1	3		HOUSE FLOOR 1	FAUN	UMOD					BNE	2	3.6
48-1-407-2	3		HOUSE FLOOR 1	FAUN	UMOD					SHL	1	1.4
48-1-407-3-1	3		HOUSE FLOOR 1	POT	SHRD		PLN			CLY	3	41.8
48-1-407-3-2	3		HOUSE FLOOR 1	POT	SHRD		INCI			BNE	2	10.7
48-1-407-3-3	3		HOUSE FLOOR 1	POT	SHRD		BRSH	APLQ		CLY	1	8.4
48-1-407-3-4	3		HOUSE FLOOR 1	POT	RIM		INCI			CLY	1	7.0

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-408-1	3		HOUSE FLOOR 1	FAUN	UMOD					SHL	36	171.3
48-1-408-2	3		HOUSE FLOOR 1	FAUN	UMOD					BNE	1	13.6
48-1-409-1	3		HOUSE FLOOR 1	FAUN	UMOD					SHL	1	8.5
48-1-409-2-1	3		HOUSE FLOOR 1	POT	SHRD		PLN			CLY	2	16.4
48-1-409-2-2	3		HOUSE FLOOR 1	POT	SHRD		BRSH			CLY	8	64.1
48-1-410	3		HOUSE FLOOR 1	POT	VES3	JAR	INCI			BNE	42	1554.6
48-1-411	3	3L1	HOUSE FLOOR 1	GRIP	MANO	UCUT	GROUND				1	557.5
48-1-412-1	3		HOUSE FLOOR 1	FAUN	UMOD					BNE	1	2.9
48-1-412-2-1	3		HOUSE FLOOR 1	POT	SHRD		BRSH			CLY	1	8.5
48-1-412-2-2	3		HOUSE FLOOR 1	POT	SHRD		INCI			CLY	2	28.9
48-1-412-2-3	3		HOUSE FLOOR 1	POT	SHRD		ENG			CLY	1	18.3
48-1-412-2-4	3		HOUSE FLOOR 1	POT	SHRD		PUCT	STAMP		BNE	1	27.2
48-1-412-2-5	3		HOUSE FLOOR 1	POT	RIM		BRSH			CLY	1	5.4
48-1-412-2-6	3		HOUSE FLOOR 1	POT	RIM	CBL	ENG			CLY	1	9.1

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-413-1	3	2L1	HOUSE FLOOR 1	FAUN	UMOD					SHL	1	7.3
48-1-413-2-1	3	2L1	HOUSE FLOOR 1	FAUN	UMOD					BNE	3	6.2
48-1-413-2-2	3	2L1	HOUSE FLOOR 1	FAUN	UMOD		BUR			BNE	1	9.6
48-1-413-3-1	3	2L1	HOUSE FLOOR 1	POT	SHRD		PLN			BNE	1	19.1
48-1-413-3-2	3	2L1	HOUSE FLOOR 1	POT	SHRD		PLN			CLY	3	49.3
48-1-413-3-3	3	2L1	HOUSE FLOOR 1	POT	SHRD		BRSH			CLY	3	75.3
48-1-413-3-4	3	2L1	HOUSE FLOOR 1	POT	SHRD		INCI			CLY	1	2.9
48-1-413-3-5	3	2L1	HOUSE FLOOR 1	POT	SHRD		BRSH	PUCT		CLY	6	51.9
48-1-413-3-6	3	2L1	HOUSE FLOOR 1	POT	SHRD		INCI	PUCT		CLY	1	10.6
48-1-413-3-7	3	2L1	HOUSE FLOOR 1	POT	RIM		BRSH	PUCT		CLY	1	12.5
48-1-414-1	3		HOUSE FLOOR 1	POT	SHRD						3	8.2
48-1-414-2	3		HOUSE FLOOR 1	POT	SHRD		PLN			CLY	5	97.7
48-1-414-3	3		HOUSE FLOOR 1	POT	SHRD		BRSH			CLY	6	103.2
48-1-414-4	3		HOUSE FLOOR 1	POT	SHRD		INCI			CLY	1	9.2

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-414-5	3		HOUSE FLOOR 1	POT	SHRD		BRSH	STAMP		CLY	3	15.3
48-1-414-6	3		HOUSE FLOOR 1	POT	SHRD		INCI	PUCT		CLY	1	5.9
48-1-414-7	3		HOUSE FLOOR 1	POT	SHRD		BRSH	PUCT		CLY	3	25.4
48-1-414-8	3		HOUSE FLOOR 1	POT	SHRD		PUCT			BNE	1	18.7
48-1-414-9	3		HOUSE FLOOR 1	POT	RIM		BRSH	PUCT		BNE	2	10.2
48-1-414-10	3		HOUSE FLOOR 1	POT	RIM		INCI			CLY	2	16.5
48-1-414-11	3		HOUSE FLOOR 1	POT	RIM		BRSH			CLY	3	31.3
48-1-414-12	3		HOUSE FLOOR 1	POT	RIM		BRSH	PUCT		CLY	5	97.0
48-1-414-13	3		HOUSE FLOOR 1	POT	RIM		ENG			CLY	1	13.1
48-1-414-14	3		HOUSE FLOOR 1	POT	RIM		ENG	RED		CLY	1	13.9
48-1-414-15	3		HOUSE FLOOR 1	POT	RIM		INCI	APLQ		CLY	1	11.0
48-1-415	3	1L1	HOUSE FLOOR 1	POT	VES	BOWL	NODED				1	233.7
48-1-416-1	3		HOUSE FLOOR 1	POT	SHRD		BRSH			CLY	3	55.7
48-1-416-2	3		HOUSE FLOOR 1	POT	SHRD		ENG			CLY	1	6.4

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-416-3	3		HOUSE FLOOR 1	POT	SHRD		BRSH	APLQ		CLY	4	67.1
48-1-416-4	3		HOUSE FLOOR 1	POT	SHRD	CBL	ENG			CLY	1	51.3
48-1-416-5	3		HOUSE FLOOR 1	POT	SHRD	JAR	INCI	PUCT	WHITE	CLY	10	174.8
48-1-417	3	1	HOUSE FLOOR 1	FLOR	CHARC					WD		430.8
48-1-418-1	3	L1	HOUSE FLOOR 1	GRL	GRIP	HAM					1	178.9
48-1-418-2-1	3	L1	HOUSE FLOOR 1	POT	SHRD		PLN			CLY	1	30.3
48-1-418-2-2	3	L1	HOUSE FLOOR 1	POT	SHRD		BRSH			CLY	2	41.4
48-1-418-2-3	3	L1	HOUSE FLOOR 1	POT	SHRD		BRSH	APLQ		CLY	2	24.9
48-1-418-2-4	3	L1	HOUSE FLOOR 1	POT	SHRD		BRSH	APLQ		BNE	1	49.4
48-1-418-2-5	3	L1	HOUSE FLOOR 1	POT	RIM	BTL	PLN			CLY	1	24.8
48-1-418-2-6	3	L1	HOUSE FLOOR 1	POT	RIM	CBL	ENG			BNE	1	12.8
48-1-418-2-7	3	L1	HOUSE FLOOR 1	POT	SHRD	CBL	PLN			CLY	11	349.3
48-1-419-1	3	4	HOUSE FLOOR 1	FAUN	UMOD					BNE	1	33.4
48-1-419-2	3	4	HOUSE FLOOR 1	FAUN	UMOD					SHL	1	5.3

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-419-3	3	4	HOUSE FLOOR 1	GRL	GRIP	PEST					1	123.5
48-1-419-4-1	3	4	HOUSE FLOOR 1	POT	SHRD		PLN			CLY	1	1.4
48-1-419-4-2	3	4	HOUSE FLOOR 1	POT	SHRD		BRSH	APLQ		CLY	3	43.3
48-1-419-4-3	3	4	HOUSE FLOOR 1	POT	SHRD		ENG			CLY	1	4.4
48-1-419-4-4	3	4	HOUSE FLOOR 1	POT	RIM		PUCT	INCI		CLY	1	31.0
48-1-420	3	MISC	HOUSE FLOOR 1	POT	VES2	JAR	INCI			SHL	181	1061.6
48-1-421-1	3	MISC	HOUSE FLOOR 1	FAUN	UMOD					BNE	1	53.1
48-1-421-2	3		HOUSE FLOOR 1	POT	SHRD		BRSH			BNE	2	59.0
48-1-422	3		HOUSE FLOOR 1	POT	VES2	JAR	PUCT	INCI		CLY	30	4400.0
48-1-423	3		HOUSE FLOOR 1	FLOR	CHARC					PNT		89.2
48-1-424	3		HOUSE FLOOR 1	FLOR	CHARC					PNT		33.1
48-1-425-1	3	4-3-2-1R1	HOUSE FLOOR	FAUN	UMOD					SHL	112	270.9
48-1-425-2-1	3	4-3-2-1R1	HOUSE FLOOR	FAUN	UMOD					BNE	68	174.4
48-1-425-2-2	3	4-3-2-1R1	HOUSE FLOOR	FAUN	UMOD		SKULL			BNE	1	5.7

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-425-2-3	3	4-3-2-1R1	HOUSE FLOOR	FAUN	UMOD		BUR			BNE	7	37.7
48-1-425-3	3	4-3-2-1R1	HOUSE FLOOR	CL	BIF	PPT					1	12.6
48-1-425-4-1	3	4-3-2-1R1	HOUSE FLOOR	POT	SHRD		PLN			CLY	1	15.1
48-1-425-4-2	3	4-3-2-1R1	HOUSE FLOOR	POT	RIM		BRSH			CLY	4	75.2
48-1-426-1	3		HOUSE FLOOR 1 & 2	FAUN	UMOD					SHL	44	94.4
48-1-426-2	3		HOUSE FLOOR 1 & 2	FAUN	UMOD					BNE	98	222.3
48-1-426-3-1	3		HOUSE FLOOR 1 & 2	POT	SHRD		PLN			CLY	3	46.9
48-1-426-3-2	3		HOUSE FLOOR 1 & 2	POT	SHRD		BRSH			CLY	7	189.3
48-1-426-3-3	3		HOUSE FLOOR 1 & 2	POT	SHRD		BRSH			BNE	1	12.7
48-1-426-3-4	3		HOUSE FLOOR 1 & 2	POT	SHRD		BRSH	PUCT	APLQ	CLY	14	220.3
48-1-426-3-5	3		HOUSE FLOOR 1 & 2	POT	SHRD		BRSH	STAMP		CLY	7	70.1
48-1-426-3-6	3		HOUSE FLOOR 1 & 2	POT	SHRD		PUCT	APLQ		CLY	1	6.2
48-1-426-3-7	3		HOUSE FLOOR 1 & 2	POT	SHRD		INCI			CLY	1	4.3
48-1-426-3-8	3		HOUSE FLOOR 1 & 2	POT	SHRD		BRSH	PUCT		CLY	2	10.0

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-426-3-9	3		HOUSE FLOOR 1 & 2	POT	SHRD		ENG			CLY	1	7.7
48-1-426-3-10	3		HOUSE FLOOR 1 & 2	POT	RIM	BTL	PLN			BNE	1	5.0
48-1-426-3-11	3		HOUSE FLOOR 1 & 2	POT	RIM		INCI			CLY	3	19.9
48-1-426-3-12	3		HOUSE FLOOR 1 & 2	POT	RIM		PLN	WHITE		CLY	1	3.5
48-1-426-3-13	3		HOUSE FLOOR 1 & 2	POT	RIM		APLQ			CLY	1	5.4
48-1-427-1	3		FLOOR LEVEL OF	FAUN	UMOD					BNE	2	12.8
48-1-427-2-1	3		FLOOR LEVEL OF	POT	SHRD		PLN			CLY	1	69.6
48-1-427-2-2	3		FLOOR LEVEL OF	POT	SHRD		BRSH			CLY	1	15.4
48-1-427-2-3	3		FLOOR LEVEL OF	POT	SHRD		INCI			CLY	1	6.5
48-1-427-2-4	3		FLOOR LEVEL OF	POT	SHRD		PUCT			CLY	2	9.8
48-1-427-2-5	3		FLOOR LEVEL OF	POT	SHRD		ENG			BNE	1	4.7
48-1-427-2-6	3		FLOOR LEVEL OF	POT	SHRD		PUCT	STAMP		CLY	1	13.4
48-1-427-2-7	3		FLOOR LEVEL OF	POT	SHRD		BRSH	PUCT	APLQ	CLY	2	27.5
48-1-427-2-8	3		FLOOR LEVEL OF	POT	RIM		BRSH	PUCT		CLY	2	23.1

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-427-2-9	3		FLOOR LEVEL OF	POT	RIM		ENG			CLY	3	15.8
48-1-427-2-10	3		FLOOR LEVEL OF	POT	RIM		PLN	RED		CLY	2	10.2
48-1-427-2-11	3		FLOOR LEVEL OF	POT	RIM		INCI			CLY	1	19.0
48-1-428-1	3		FLOOR LEVEL OF	FAUN	UMOD					SHL	1	2.0
48-1-428-2-1	3		FLOOR LEVEL OF	POT	SHRD		PLN			CLY	1	10.4
48-1-428-2-2	3		FLOOR LEVEL OF	POT	SHRD		BRSH			CLY	3	18.4
48-1-428-2-3	3		FLOOR LEVEL OF	POT	RIM		PUCT	INCI		CLY	1	16.1
48-1-429-1	3		FLOOR LEVEL OF	FAUN	UMOD					BNE	3	52.6
48-1-429-2	3		FLOOR LEVEL OF	FAUN	UMOD					SHL	2	9.3
48-1-429-3-1	3		FLOOR LEVEL OF	POT	SHRD		PLN			BNE	1	24.5
48-1-429-3-2	3		FLOOR LEVEL OF	POT	SHRD		PLN			CLY	5	73.4
48-1-429-3-3	3		FLOOR LEVEL OF	POT	SHRD		BRSH			CLY	1	21.4
48-1-429-3-4	3		FLOOR LEVEL OF	POT	RIM	CBL	ENG	RED		CLY	2	31.0
48-1-430-1	3		FLOOR LEVEL OF	POT	SHRD		PLN			CLY	2	10.3

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-430-2	3		FLOOR LEVEL OF	POT	SHRD		BRSH			BNE	2	21.3
48-1-430-3	3		FLOOR LEVEL OF	POT	SHRD		BRSH			CLY	3	24.4
48-1-430-4	3		FLOOR LEVEL OF	POT	SHRD		INCI			CLY	1	12.7
48-1-430-5	3		FLOOR LEVEL OF	POT	SHRD		INCI			SHL	1	5.3
48-1-430-6	3		FLOOR LEVEL OF	POT	RIM		BRSH			CLY	1	8.6
48-1-430-7	3		FLOOR LEVEL OF	POT	RIM		PUCT			BNE	1	6.1
48-1-430-8	3		FLOOR LEVEL OF	POT	RIM		PUCT			CLY	2	23.4
48-1-431-1	3		PIT DUG BELOW H1	FAUN	UMOD					BNE	19	200.4
48-1-431-2	3		PIT DUG BELOW H1	POT	SHRD		BRSH			CLY	2	30.9
48-1-431-3	3		PIT DUG BELOW H1	POT	SHRD		PLN			CLY	2	15.9
48-1-432	3		HOUSE FLOOR 1	POT	VES4	JAR	BRSH			CLY	13	875.1
48-1-433-1	3		HOUSE FLOOR 1	POT	VES2	BOWL	APLQ			CLY	19	274.4
48-1-433-2	3		HOUSE FLOOR 1	FLOR	MAN		PLANT			CNE		1.1
48-1-433-3	3		HOUSE FLOOR 1							COP		

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-434	3		HOUSE FLOOR 1	POT	VES4	CBL	ENG	PUCT		CLY	48	1323.9
48-1-435	3		HOUSE FLOOR 1	FLOR	CHAR		PLANT			CORN		
48-1-436-1	5	2	WATTLE	FAUN	UMOD					BNE	6	1.8
48-1-436-2	5	2	WATTLE	FAUN	UMOD					SHL	1	0.5
48-1-437	3		HOUSE FLOOR 1	FLOR	CHAR		PLANT			CRN	5	8.1
48-1-438	3		HOUSE FLOOR 1	FLOR	CHARC		PLANT			CRN	3	5.1
48-1-439	3		HOUSE FLOOR 1	FLOR	CHARC		PLANT			CRN		
48-1-440-1	3		BURIAL 1	HUM	UMOD					BNE	1	0.6
48-1-440-2	3		BURIAL 1	FAUN	MAN	BEAD				SHL	3	8.4
48-1-441	3	2-3-4-5R	HOUSE FLOOR 1	FAUN	UMOD					BNE	9	74.7
48-1-442	3		HOUSE FLOOR 2	POT	NVES	DAUB				CLY	105	620.1
48-1-443-1	3	1-2-3-4R1	TOP OF FLOOR 2	POT	SHRD						231	544.8
48-1-443-2	3	1-2-3-4R1	TOP OF FLOOR 2	POT	SHRD		PLN			BNE	8	57.8
48-1-443-3	3	1-2-3-4R1	TOP OF FLOOR 2	POT	SHRD		PLN			CLY	57	509.0

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-443-4	3	1-2-3-4R1	TOP OF FLOOR 2	POT	SHRD		BRSH			BNE	3	60.7
48-1-443-5	3	1-2-3-4R1	TOP OF FLOOR 2	POT	SHRD		BRSH			CLY	10	78.5
48-1-443-6	3	1-2-3-4R1	TOP OF FLOOR 2	POT	SHRD		BRSH	APLQ		CLY	6	55.3
48-1-443-7	3	1-2-3-4R1	TOP OF FLOOR 2	POT	SHRD		STAMP			CLY	1	4.9
48-1-443-8	3	1-2-3-4R1	TOP OF FLOOR 2	POT	RIM		PLN			BNE	1	12.4
48-1-443-9	3	1-2-3-4R1	TOP OF FLOOR 2	POT	RIM		INCI			CLY	2	21.1
48-1-443-10	3	1-2-3-4R1	TOP OF FLOOR 2	POT	RIM		BRSH	PUCT		CLY	3	14.4
48-1-443-11	3	1-2-3-4R1	TOP OF FLOOR 2	POT	RIM		BRSH			CLY	2	33.8
48-1-443-12	3	1-2-3-4R1	TOP OF FLOOR 2	POT	RIM		INCI	APLQ		BNE	3	20.2
48-1-443-13	3	1-2-3-4R1	TOP OF FLOOR 2	POT	SHRD		INCI	PUCT	APLQ	CLY	1	19.9
48-1-443-14	3	1-2-3-4R1	TOP OF FLOOR 2	POT	SHRD		ENG			CLY	1	6.5
48-1-443-15	3	1-2-3-4R1	TOP OF FLOOR 2	POT	RIM		BRSH	PUCT		CLY	2	13.9
48-1-444-1	3	1-2-3-4R1	TOP OF FLOOR 2	POT	SHRD		PLN			BNE	2	62.6
48-1-444-2	3	1-2-3-4R1	TOP OF FLOOR 2	POT	SHRD		PLN			CLY	4	73.9

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-444-3	3	1-2-3-4R1	TOP OF FLOOR 2	POT	SHRD		BRSH			BNE	3	59.8
48-1-444-4	3	1-2-3-4R1	TOP OF FLOOR 2	POT	SHRD		BRSH			CLY	10	202.9
48-1-444-5	3	1-2-3-4R1	TOP OF FLOOR 2	POT	SHRD		INCI			CLY	1	9.9
48-1-444-6	3	1-2-3-4R1	TOP OF FLOOR 2	POT	SHRD		ENG			CLY	2	8.5
48-1-444-7	3	1-2-3-4R1	TOP OF FLOOR 2	POT	SHRD		PUCT			CLY	1	6.3
48-1-444-8	3	1-2-3-4R1	TOP OF FLOOR 2	POT	SHRD		PUNT			BNE	1	4.1
48-1-444-9	3	1-2-3-4R1	TOP OF FLOOR 2	POT	SHRD		BRSH	PUCT		BNE	1	8.2
48-1-444-10	3	1-2-3-4R1	TOP OF FLOOR 2	POT	SHRD		BRSH	PUCT	APLQ	CLY	1	20.7
48-1-444-11	3	1-2-3-4R1	TOP OF FLOOR 2	POT	RIM	JAR	BRSH	PUCT		CLY	1	104.1
48-1-444-12	3	1-2-3-4R1	TOP OF FLOOR 2	POT	RIM	JAR	BRSH			CLY	2	51.2
48-1-444-13	3	1-2-3-4R1	TOP OF FLOOR 2	POT	RIM		BRSH	PUCT		BNE	2	19.8
48-1-444-14	3	1-2-3-4R1	TOP OF FLOOR 2	POT	RIM		PUCT	RED		CLY	1	3.3
48-1-444-15	3	1-2-3-4R1	TOP OF FLOOR 2	POT	RIM		INCI			CLY	1	5.3
48-1-445	3	2L1	HOUSE FLOOR 1	POT	VES	BTL	ENG			CLY	78	1023.1

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-446-1	6	4	BURIAL 1	POT	SHRD						29	70.7
48-1-446-2	6	4	BURIAL 1	POT	SHRD		PLN			BNE	2	23.5
48-1-446-3	6	4	BURIAL 1	POT	SHRD		PLN			CLY	9	154.6
48-1-446-4	6	4	BURIAL 1	POT	SHRD		BRSH			BNE	3	19.9
48-1-446-5	6	4	BURIAL 1	POT	SHRD		BRSH			CLY	6	44.8
48-1-446-6	6	4	BURIAL 1	POT	SHRD		INCI			CLY	3	15.6
48-1-447	6	4	BURIAL 1							BNE		
48-1-448	6	4	BURIAL 1	POT	VES						1	
48-1-449-1	1	5	4 (18-24")	FAUN	UMOD					BNE	9	46.4
48-1-449-2-1	1	5	4 (18-24")	POT	SHRD						22	56.6
48-1-449-2-2	1	5	4 (18-24")	POT	SHRD		PLN			CLY	4	76.7
48-1-449-2-3	1	5	4 (18-24")	POT	SHRD		BRSH			BNE	1	7.8
48-1-449-2-4	1	5	4 (18-24")	POT	SHRD		ENG			CLY	2	12.2
48-1-449-2-5	1	5	4 (18-24")	POT	SHRD		BRSH	PUCT	APLQ	CLY	1	14.1

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-450-1	1	5	5 (24-30")	FAUN	UMOD					BNE	4	25.5
48-1-450-2	1	5	5 (24-30")	FAUN	UMOD					SHL	3	10.5
48-1-450-3-1	1	5	5 (24-30")	POT	SHRD						11	38.1
48-1-450-3-2	1	5	5 (24-30")	POT	SHRD		PLN			CLY	5	43.3
48-1-450-3-3	1	5	5 (24-30")	POT	SHRD		BRSH			CLY	7	53.5
48-1-450-3-4	1	5	5 (24-30")	POT	SHRD		INCI			CLY	1	8.0
48-1-450-3-5	1	5	5 (24-30")	POT	SHRD		PUCT	STAMP		CLY	1	3.9
48-1-450-3-6	1	5	5 (24-30")	POT	RIM		BRSH			CLY	1	22.2
48-1-451-1	1	5	ABOVE ASH LAYER	FAUN	UMOD					BNE	2	58.2
48-1-451-2	1	5	ABOVE ASH LAYER	FAUN	UMOD					SHL	2	21.3
48-1-451-3-1	1	5	ABOVE ASH LAYER	POT	SHRD						852	1952.5
48-1-451-3-2	1	5	ABOVE ASH LAYER	POT	SHRD		PLN			BNE	11	111.3
48-1-451-3-3	1	5	ABOVE ASH LAYER	POT	SHRD		PLN			CLY	114	878.5
48-1-451-3-4	1	5	ABOVE ASH LAYER	POT	SHRD		BRSH			BNE	20	175.4

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Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-451-3-5	1	5	ABOVE ASH LAYER	POT	SHRD		BRSH			CLY	100	771.9
48-1-451-3-6	1	5	ABOVE ASH LAYER	POT	SHRD		INCI			CLY	7	49.1
48-1-451-3-7	1	5	ABOVE ASH LAYER	POT	SHRD		ENG			CLY	13	88.9
48-1-451-3-8	1	5	ABOVE ASH LAYER	POT	SHRD		BRSH	PUCT	APLQ	CLY	7	50.0
48-1-451-3-9	1	5	ABOVE ASH LAYER	POT	SHRD		PLN	RED		SHL	1	1.1
48-1-451-3-10	1	5	ABOVE ASH LAYER	POT	SHRD		PUCT	STAMP		CLY	1	4.7
48-1-451-3-11	1	5	ABOVE ASH LAYER	POT	RIM		PLN			CLY	6	35.2
48-1-451-3-12	1	5	ABOVE ASH LAYER	POT	RIM		BRSH			SHL	1	6.4
48-1-451-3-13	1	5	ABOVE ASH LAYER	POT	RIM		BRSH			BNE	1	7.5
48-1-451-3-14	1	5	ABOVE ASH LAYER	POT	RIM		BRSH			CLY	8	53.4
48-1-451-3-15	1	5	ABOVE ASH LAYER	POT	RIM		INCI	WHITE		CLY	2	13.5
48-1-451-3-16	1	5	ABOVE ASH LAYER	POT	RIM		BRSH	PUCT		CLY	1	12.8
48-1-451-3-17	1	5	ABOVE ASH LAYER	POT	HNDLST		PUCT			CLY	2	27.7
48-1-452	6	2	2 (6-12")	POT	SHRD		PLN			CLY	3	10.1

APPENDIX C: 1948 MATERIAL INVENTORY

Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-453-1	6	4	1 (1-6")	POT	SHRD						4	5.8
48-1-453-2	6	4	1 (1-6")	POT	SHRD		BRSH			BNE	2	6.2
48-1-454-1	6	3	3 (12-18")	FAUN	UMOD					BNE	1	5.5
48-1-454-2	6	3	3 (12-18")	POT	SHRD		BRSH			BNE	1	3.7
48-1-455	6	4	5 (24-30")	POT	SHRD		BRSH			CLY	1	7.5
48-1-456-1	6	4	BELOW BURIAL 1	FAUN	UMOD					BNE	5	3.2
48-1-456-2	6	4	BELOW BURIAL 1	FAUN	MAN	BEAD				SHL	1	3.0
48-1-457	6	4	BELOW BURIAL 1	FLOR	CHARC					CRN		15.7
48-1-458	6	4	2 (6-12")	POT	SHRD		INCI			BNE	3	11.6
48-1-459-1	6	1	2 (6-12")	FAUN	UMOD					BNE	1	7.1
48-1-459-2	6	1	2 (6-12")	POT	SHRD		PLN			BNE	1	2.9
48-1-460	6	2	3 (12-18")	FAUN	UMOD					SHL	1	2.3
48-1-461	3	5	WATTLE H1	FAUN	MOD	PIN				BNE	1	1.4
48-1-462-1	3	4		FAUN	UMOD					BNE	8	2.0

APPENDIX C: 1948 MATERIAL INVENTORY

Accession #	TR	SQ	Level	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
48-1-462-2	3	4		FAUN	MOD	PIN				BNE	1	0.1
48-1-463	3	EASTOF1	0"	FAUN	UMOD					BNE		1.7
48-1-464	6	4	BURIAL 1	POT	VES	EFFGY				BNE	1	27.9
48-1-465			HOUSE FLOOR 1	POT	VES4					CLY	35	946.5
48-1-466				POT	VES4		INCI	RED		CLY	3	93.1
48-1-467				FAUN		BEAD				BNE	1	0.3
48-1-468-1	3	2L1	HOUSE FLOOR 1	POT	SHRD						168	402.9
48-1-468-2	3	2L1	HOUSE FLOOR 1	POT	SHRD		PLN			CLY	262	1702.5
48-1-468-3	3	2L1	HOUSE FLOOR 1	POT	SHRD		PLN			BNE	16	85.3
48-1-2	6		BURIAL 1	POT	VES		ENG				1	

APPENDIX D: 1949 SHELL REPORT

file with Battle mnd.

7018 East Central
Albuquerque, New Mexico
26 June 49

Dear Alex,

Last August, Bob Stephenson sent me shells from Battle Place for identification. I'll send him notice of their identification in time. don't bother

Here is the data on them:

Battle Place. Trench #3, Sq. 4, left # 1.

Shells below 1st House Floor, Arkansas.

coll. Stephenson 6 Aug 48.

Here is the classification data: (all freshwater mussels)

Uniomeras tetralasmus (Say)

Quadrula sp.

Caruncul1na texasensis (Lea)

Proptera laevissima (Lea)

There were just a few of each, or one of some, and none were in good condition. They seem to be species from the general area, although a check of the recent fauna of the stream (or streams) close to Battle Place wouldn't be out of line, if you can take some time to do some collecting. They would be on gravely bottoms in shallow (wading-deep) water.

Would like to have some more shells from Battle Place. Tell me what you want me to do with these few and crumbly specimens. keep

Also, could you be kind enough to send another copy of your letter describing the shell collecting in Tamaulipas. Much to my dismay, that letter is the only one I have lost track of for years. The label information is not as good and lucid as the infor as I remember it in the letter. So, hope you can send a copy. Pat copy

The mussel classifications were done at the USNM by Dr J P E Morrison. He is currently redoing the mussels of the US, so should have good data to give out. I checked them as best I could and they seemed pretty good.

Write,

Bob Drake

APPENDIX E: SAU17 SURFACE COLLECTION AND DITCH INVENTORY

Accession #	Area	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
63-1-1-1	GEN SURF	POT	NVES	DAUB					1	7.2
63-1-1-2	GEN SURF	POT	SHRD		BRUSH			SHELL	3	20.2
63-1-1-3	GEN SURF	POT	SHRD		PLAIN			CLAY	3	16.6
63-1-1-4	GEN SURF	POT	SHRD		INCI			CLAY	1	19.3
73-120-1-1	S & E OF MD	POT	SHRD						42	77.9
73-120-1-10	S & E OF MD	POT	SHRD		PLAIN	RED		CLAY	1	6.8
73-120-1-11	S & E OF MD	POT	RIM	CBOWL	PLAIN			CLAY	1	8.0
73-120-1-12	S & E OF MD	POT	RIM		BRUSH			CLAY	1	4.2
73-120-1-13	S & E OF MD	POT	RIM		PUNCT	INCI		BONE	1	4.6
73-120-1-14	S & E OF MD	POT	RIM		ENGRAV			CLAY	3	6.3
73-120-1-2	S & E OF MD	POT	SHRD		PLAIN			BONE	1	5.1
73-120-1-3	S & E OF MD	POT	SHRD		PLAIN			CLAY	13	74.1
73-120-1-4	S & E OF MD	POT	SHRD		PLAIN			SHELL	2	9.2
73-120-1-5	S & E OF MD	POT	SHRD		BRUSH			BONE	3	19.3
73-120-1-6	S & E OF MD	POT	SHRD		BRUSH			CLAY	6	54.2
73-120-1-7	S & E OF MD	POT	SHRD		BRUSH			SHELL	2	8.6
73-120-1-8	S & E OF MD	POT	SHRD		INCI			CLAY	10	75.5
73-120-1-9	S & E OF MD	POT	SHRD		PUNCT			CLAY	2	22.9
73-120-2	S & E OF MD	POT	NVES	DAUB					3	2.4
73-120-3	S & E OF MD	FAUNA	UMOD					BONE	7	19.0

APPENDIX E: SAU17 SURFACE COLLECTION AND DITCH INVENTORY

Accession #	Area	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
73-120-4-1	S & E OF MD	CL	FD						5	9.8
73-120-4-2	S & E OF MD	CG							2	58.6
79-460-1-1	AREA F	POT	SHRD						10	25.9
79-460-1-2	AREA F	POT	SHRD		PLAIN			BONE	1	4.6
79-460-1-3	AREA F	POT	SHRD		PLAIN			CLAY	4	15.4
79-460-2	AREA F	CL	FD						10	65.9
79-461-1-1	LARGE MD	POT	SHRD						13	26.8
79-461-1-2	LARGE MD	POT	SHRD		PLAIN			CLAY	5	27.8
79-461-1-3	LARGE MD	POT	SHRD		BRUSH			BONE	1	18.8
79-461-1-4	LARGE MD	POT	SHRD		INCI			BONE	2	10.7
79-461-1-5	LARGE MD	POT	SHRD		INCI			CLAY	3	16.9
79-461-1-6	LARGE MD	POT	RIM		PLAIN	RED		CLAY	1	3.9
79-461-2	LARGE MD	CL	FD						4	28.4
79-462-1-1	AREA C	POT	SHRD						17	38.6
79-462-1-2	AREA C	POT	SHRD		PLAIN			BONE	1	6.1
79-462-1-3	AREA C	POT	SHRD		PLAIN			CLAY	15	120.1
79-462-1-4	AREA C	POT	SHRD		BRUSH			BONE	2	9.3
79-462-1-5	AREA C	POT	SHRD		BRUSH			CLAY	4	29.4
79-462-1-6	AREA C	POT	RIM	BOTTLE	PLAIN			CLAY	1	14.1
79-462-1-7	AREA C	POT	RIM		PUNCT	BRUSH		CLAY	1	4.4

APPENDIX E: SAU17 SURFACE COLLECTION AND DITCH INVENTORY

Accession #	Area	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
79-462-2-1	AREA C	CL	FD						6	25.4
79-462-2-2	AREA C	CL	BIF	ARROW					2	7.5
79-462-3	AREA C	POT	NVES	DAUB					6	155.6
79-462-4-1	AREA C	HIST	SHRD	BOTTLE				GLASS	1	24.9
79-462-4-2	AREA C	HIST	SHRD						1	5.3
79-463-1-1	AREA B	POT	SHRD						40	97.2
79-463-1-2	AREA B	POT	SHRD		PLAIN			BONE	5	27.7
79-463-1-3	AREA B	POT	SHRD		PLAIN			CLAY	29	200.9
79-463-1-4	AREA B	POT	SHRD		BRUSH			BONE	11	58.4
79-463-1-5	AREA B	POT	SHRD		BRUSH			CLAY	33	235.7
79-463-1-6	AREA B	POT	SHRD		BRUSH			SHELL	1	3.9
79-463-1-7	AREA B	POT	SHRD		INCI			CLAY	4	31.1
79-463-1-8	AREA B	POT	SHRD		ENGRAV			CLAY	3	3.4
79-463-1-9	AREA B	POT	SHRD		PUNCT			CLAY	3	8.2
79-463-1-10	AREA B	POT	SHRD		BRUSH	APLQ		CLAY	5	35.4
79-463-1-11	AREA B	POT	RIM		PLAIN			CLAY	3	23.3
79-463-1-12	AREA B	POT	RIM		INCI			CLAY	3	10.7
79-463-1-13	AREA B	POT	RIM		INCI	PUNCT		CLAY	4	25.2
79-463-2-1	AREA B	CL	FD						18	69.7
79-463-2-2	AREA B	CL	BIF	ARROW					2	6.4

APPENDIX E: SAU17 SURFACE COLLECTION AND DITCH INVENTORY

Accession #	Area	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
79-463-3	AREA B	FAUNA	UMOD					BONE	5	10.4
79-463-4-1	AREA B	HIST	RIM	BOTTLE				GLASS	1	0.1
79-463-4-2	AREA B	HIST	SHRD						2	4.6
79-464-1-1	AREA A	POT	SHRD						27	65.3
79-464-1-2	AREA A	POT	SHRD		PLAIN			BONE	5	47.0
79-464-1-3	AREA A	POT	SHRD		PLAIN			CLAY	12	78.2
79-464-1-4	AREA A	POT	SHRD		PLAIN			SHELL	2	11.1
79-464-1-5	AREA A	POT	SHRD		BRUSH			BONE	6	74.9
79-464-1-6	AREA A	POT	SHRD		BRUSH			CLAY	14	127.8
79-464-1-7	AREA A	POT	SHRD		INCI			BONE	1	27.7
79-464-1-8	AREA A	POT	SHRD		INCI			CLAY	5	24.8
79-464-1-9	AREA A	POT	SHRD		INCI			SHELL	2	12.1
79-464-1-10	AREA A	POT	SHRD		ENGRAV			CLAY	2	10.4
79-464-1-11	AREA A	POT	RIM		PUNCT			BONE	1	5.6
79-464-1-12	AREA A	POT	RIM		INCI			BONE	1	10.2
79-464-1-13	AREA A	POT	SHRD		PLAIN	RED		CLAY	1	2.9
79-464-2-1	AREA A	CL	FD						42	118.4
79-464-2-2	AREA A	CL	BIF						1	1.1
79-464-3	AREA A	POT	NVES	DAUB				CLAY	1	4.8
79-464-4	AREA A	FAUNA	UN					BONE	5	11.7

APPENDIX E: SAU17 SURFACE COLLECTION AND DITCH INVENTORY

Accession #	Area	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
79-464-5	AREA A	HIST	RIM	BOTTLE				GLASS	1	18.1
79-465-1-1	GEN SURF	POT	SHRD						85	193.9
79-465-1-2	GEN SURF	POT	SHRD		PLAIN			BONE	10	51.7
79-465-1-3	GEN SURF	POT	SHRD		PLAIN			CLAY	42	272.1
79-465-1-4	GEN SURF	POT	SHRD		BRUSH			BONE	7	34.8
79-465-1-5	GEN SURF	POT	SHRD		BRUSH			CLAY	14	112.1
79-465-1-6	GEN SURF	POT	SHRD		BRUSH			SHELL	1	6.4
79-465-1-7	GEN SURF	POT	SHRD		INCI			BONE	4	23.7
79-465-1-8	GEN SURF	POT	SHRD		INCI			CLAY	12	67.7
79-465-1-9	GEN SURF	POT	SHRD		INCI			SHELL	2	6.5
79-465-1-10	GEN SURF	POT	SHRD		BRUSH	PUNCT		BONE	1	7.4
79-465-1-11	GEN SURF	POT	SHRD		INCU			CLAY	2	9.4
79-465-1-12	GEN SURF	POT	SHRD		BRUSH	APLQ		CLAY	3	29.7
79-465-1-13	GEN SURF	POT	SHRD		INCI	APLQ		CLAY	1	3.7
79-465-1-14	GEN SURF	POT	SHRD		EFFGY			BONE	1	10.3
79-465-1-15	GEN SURF	POT	RIM		PLAIN			SHELL	1	4.9
79-465-1-16	GEN SURF	POT	RIM		INCI			CLAY	3	36.6
79-465-1-17	GEN SURF	POT	RIM		INCI			SHELL	1	4.6
79-465-1-18	GEN SURF	POT	RIM		BRUSH	PUNCT		CLAY	2	20.1
79-465-1-19	GEN SURF	POT	RIM		INCI	PUNCT		CLAY	3	14.4

APPENDIX E: SAU17 SURFACE COLLECTION AND DITCH INVENTORY

Accession #	Area	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
79-465-1-20	GEN SURF	POT	RIM		PUNCT			CLAY	1	12.5
79-465-2-1	GEN SURF	CL	FD						44	180.9
79-465-2-2	GEN SURF	CL	BIF						2	12.5
79-465-2-3	GEN SURF	GRL	GRIP						1	92.2
79-465-3	GEN SURF	FAUNA	UMOD					BONE	11	27.2
79-465-4	GEN SURF	FAUNA	UMOD					SHELL	1	0.6
79-465-5-1	GEN SURF	HIST	SHRD					GLASS	2	20.1
79-465-5-2	GEN SURF	HIST	FAUNA	BUTTON				SHELL	1	0.9
79-466-1-1	AREA D	POT	SHRD						33	70.5
79-466-1-2	AREA D	POT	SHRD		PLAIN			CLAY	8	66.7
79-466-1-3	AREA D	POT	SHRD		BRUSH			BONE	1	5.9
79-466-1-4	AREA D	POT	SHRD		INCI			CLAY	1	11.4
79-466-1-5	AREA D	POT	RIM		PLAIN			CLAY	2	15.7
79-466-1-6	AREA D	POT	RIM		INCI			BONE	1	4.7
79-466-1-7	AREA D	POT	RIM		INCI			CLAY	1	3.0
79-466-2	AREA D	CL	FD						11	32.6
79-467-1-1	AREA E	POT	SHRD		PLAIN			BONE	1	3.8
79-467-1-2	AREA E	POT	SHRD		PLAIN			SHELL	1	3.0
79-467-1-3	AREA E	POT	SHRD		BRUSH			CLAY	1	7.4
79-467-1-4	AREA E	POT	RIM		INCI			CLAY	1	3.0

APPENDIX E: SAU17 SURFACE COLLECTION AND DITCH INVENTORY

Accession #	Area	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
79-467-1-5	AREA E	POT	NVES	DAUB				CLAY	1	2.1
79-468-1-1	AREA G	POT	NVES						78	175.9
79-468-1-2	AREA G	POT	SHRD		PLAIN			BONE	5	20.8
79-468-1-3	AREA G	POT	SHRD		PLAIN			CLAY	28	183.8
79-468-1-4	AREA G	POT	SHRD		PLAIN			SHELL	1	4.0
79-468-1-5	AREA G	POT	SHRD		BRUSH			CLAY	17	80.7
79-468-1-6	AREA G	POT	SHRD		INCI			BONE	2	7.6
79-468-1-7	AREA G	POT	SHRD		INCI			CLAY	7	36.8
79-468-1-8	AREA G	POT	SHRD		PUNCT			CLAY	4	15.1
79-468-1-9	AREA G	POT	SHRD		APLQ			CLAY	2	19.3
79-468-1-10	AREA G	POT	SHRD		INCI	PUNCT		CLAY	2	10.9
79-468-1-11	AREA G	POT	RIM		INCI			CLAY	5	21.4
79-468-1-12	AREA G	POT	RIM		BRUSH			CLAY	1	4.1
79-468-2-1	AREA G	CL	FD						65	309.2
79-468-2-2	AREA G	CL	BIF						4	25.6
79-468-2-3	AREA G	CL	FD					QUARTZ	1	3.8
79-468-3-1	AREA G	HIST	RIM	BOTTLE				GLASS	2	31.8
79-468-3-2	AREA G	HIST	SHRD						2	6.0
79-475-1-1	AREA A	POT	SHRD						21	43.5
79-475-1-2	AREA A	POT	SHRD		PLAIN			CLAY	10	49.1

APPENDIX E: SAU17 SURFACE COLLECTION AND DITCH INVENTORY

Accession #	Area	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
79-475-1-3	AREA A	POT	SHRD		PLAIN			SHELL	3	20.3
79-475-1-4	AREA A	POT	SHRD		BRUSH			BONE	4	17.3
79-475-1-5	AREA A	POT	SHRD		BRUSH			CLAY	6	32.1
79-475-1-6	AREA A	POT	SHRD		BRUSH			SHELL	1	4.5
79-475-1-7	AREA A	POT	SHRD		INCI			CLAY	2	11.9
79-475-2	AREA A	FAUNA	UMOD					SHELL	2	0.2
79-475-3	AREA A	POT	NVES	DAUB				CLAY	2	39.3
79-475-4	AREA A	FAUNA	UMOD					BONE	2	10.9
79-475-5-1	AREA A	CL	FD						49	225.4
79-475-5-2	AREA A	GRL	GRIP						1	47.4
79-476-1-1	AREA B	POT	SHRD						5	3.6
79-476-1-2	AREA B	POT	SHRD		PLAIN			CLAY	4	27.1
79-476-1-3	AREA B	POT	SHRD		BRUSH			CLAY	4	27.7
79-476-1-4	AREA B	POT	SHRD		BRUSH	APLQ		CLAY	1	7.4
79-476-1-5	AREA B	POT	RIM		BRUSH	PUNCT		CLAY	3	13.2
79-476-2	AREA B	CL	BIF						1	2.1
79-477-1-1	AREA E	POT	SHRD		PLAIN			CLAY	1	3.1
79-477-1-2	AREA E	POT	SHRD		INCI			CLAY	2	8.3
79-478-1-1	AREA G	POT	SHRD						46	115.9
79-478-1-2	AREA G	POT	SHRD		PLAIN			BONE	4	20.9

APPENDIX E: SAU17 SURFACE COLLECTION AND DITCH INVENTORY

Accession #	Area	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
79-478-1-3	AREA G	POT	SHRD		PLAIN			CLAY	28	155.3
79-478-1-4	AREA G	POT	SHRD		PLAIN			SHELL	1	3.3
79-478-1-5	AREA G	POT	SHRD		BRUSH			CLAY	17	102.0
79-478-1-6	AREA G	POT	SHRD		INCI			CLAY	4	13.9
79-478-1-7	AREA G	POT	SHRD		PUNCT			BONE	2	10.4
79-478-1-8	AREA G	POT	SHRD		PUNCT			CLAY	2	13.4
79-478-1-9	AREA G	POT	SHRD		ENGRAV			CLAY	1	25.1
79-478-1-10	AREA G	POT	RIM		BRUSH			CLAY	2	27.9
79-478-1-11	AREA G	POT	RIM		ENGRAV			CLAY	2	7.2
79-478-2-1	AREA G	CL	FD						12	39.9
79-478-2-2	AREA G	CL	BIF						2	13.2
79-478-2-3	AREA G	GRL	GRIP						1	77.0
79-479-1-1	AREA H	POT	SHRD						46	99.9
79-479-1-2	AREA H	POT	SHRD		PLAIN			BONE	2	24.0
79-479-1-3	AREA H	POT	SHRD		PLAIN			CLAY	25	180.0
79-479-1-4	AREA H	POT	SHRD		PLAIN			SHELL	1	2.1
79-479-1-5	AREA H	POT	SHRD		BRUSH			BONE	2	15.4
79-479-1-6	AREA H	POT	SHRD		BRUSH			CLAY	14	88.3
79-479-1-7	AREA H	POT	SHRD		INCI			CLAY	6	82.2
79-479-1-8	AREA H	POT	RIM		INCI			CLAY	2	11.1

APPENDIX E: SAU17 SURFACE COLLECTION AND DITCH INVENTORY

Accession #	Area	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
79-479-1-9	AREA H	POT	RIM	CBOWL	PUNCT	INCI	APLQ	CLAY	1	30.0
79-479-2-1	AREA H	CL	FD						28	154.7
79-479-2-2	AREA H	CL	BIF						1	0.5
79-479-3	AREA H	FAUNA	UMOD					BONE	4	62.9
79-479-4	AREA H	POT	NVES	DAUB					5	34.5
79-481-1-1	AREA J	POT	SHRD						2	5.1
79-481-1-2	AREA J	POT	SHRD		BRUSH			BONE	1	6.4
79-481-3	AREA J	CL	BIF						1	0.9
79-488-1-1	AREA I	POT	SHRD						2	4.7
79-488-1-2	AREA I	POT	SHRD		INCI			CLAY	1	4.1
79-488-3	AREA I	CL	FD						3	19.3
80-583-1-1	POTHOLE	POT	SHRD						4	8.3
80-583-1-2	POTHOLE	POT	SHRD		PLAIN			CLAY	3	22.4
80-583-1-3	POTHOLE	POT	SHRD		BRUSH			CLAY	1	15.1
80-583-1-4	POTHOLE	POT	SHRD		INCI			CLAY	1	7.6
80-583-1-5	POTHOLE	POT	RIM		PLAIN			CLAY	1	8.3
80-583-1-6	POTHOLE	POT	RIM		ENGRAV	PUNCT		CLAY	2	20.8
80-583-2-1	POTHOLE	GRL	CHIP						1	88.5
80-583-2-2	POTHOLE	CL	BIF						1	6.4
80-583-3	POTHOLE	FAUNA	UMOD					BONE	3	10.0

APPENDIX E: SAU17 SURFACE COLLECTION AND DITCH INVENTORY

Accession #	Area	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
80-583-4	POTHOLE	POT	NVES	DAUB				CLAY	2	20.1
80-589-1-1	GEN SURF	POT	SHRD						50	112.4
80-589-1-2	GEN SURF	POT	SHRD		PLAIN			CLAY	16	162.5
80-589-1-3	GEN SURF	POT	SHRD		BRUSH			CLAY	15	103.9
80-589-1-4	GEN SURF	POT	SHRD		INCI			CLAY	4	17.5
80-589-1-5	GEN SURF	POT	SHRD		INCI			SHELL	2	6.0
80-589-1-6	GEN SURF	POT	RIM		PUNCT			CLAY	1	5.4
80-589-1-7	GEN SURF	POT	RIM		BRUSH			BONE	1	13.0
80-589-1-8	GEN SURF	POT	RIM		BRUSH	PUNCH		CLAY	1	4.9
80-589-1-9	GEN SURF	POT	RIM		INCI			CLAY	4	24.7
80-589-2-1	GEN SURF	CL	FD						25	139.4
80-589-2-2	GEN SURF	CL	BIF						1	5.2
80-589-2-3	GEN SURF	CL	BIF	SCR					1	24.1
80-589-2-4	GEN SURF	GRL	CHIP	CORE					3	779.3
80-589-3	GEN SURF	FAUNA	UMOD					BONE	2	19.8
80-621-1-1-1	AREA A	POT	SHRD						341	733.7
80-621-1-1-2	AREA A	POT	SHRD		PLAIN			BONE	14	90.9
80-621-1-1-3	AREA A	POT	SHRD		PLAIN			CLAY	118	669.3
80-621-1-1-4	AREA A	POT	SHRD		PLAIN			SHELL	6	31.5
80-621-1-1-5	AREA A	POT	SHRD		BRUSH			BONE	16	123.4

APPENDIX E: SAU17 SURFACE COLLECTION AND DITCH INVENTORY

Accession #	Area	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
80-621-1-1-6	AREA A	POT	SHRD		BRUSH			CLAY	66	422.3
80-621-1-1-7	AREA A	POT	SHRD		BRUSH			SHELL	2	11.0
80-621-1-1-8	AREA A	POT	SHRD		INCI			BONE	3	15.1
80-621-1-1-9	AREA A	POT	SHRD		INCI			CLAY	21	95.7
80-621-1-1-10	AREA A	POT	SHRD		INCI			SHELL	4	17.3
80-621-1-1-11	AREA A	POT	SHRD		PUNCT			CLAY	5	23.8
80-621-1-1-12	AREA A	POT	SHRD		ENGRAV			CLAY	10	56.0
80-621-1-1-13	AREA A	POT	RIM		PLAIN			CLAY	1	5.5
80-621-1-1-14	AREA A	POT	RIM		PLAIN			SHELL	1	2.5
80-621-1-1-15	AREA A	POT	RIM		BRUSH			BONE	3	14.4
80-621-1-1-16	AREA A	POT	RIM		BRUSH			CLAY	4	30.1
80-621-1-1-17	AREA A	POT	RIM		BRUSH			SHELL	1	5.6
80-621-1-1-18	AREA A	POT	RIM		PUNCT			CLAY	1	4.4
80-621-1-1-19	AREA A	POT	RIM		PUNCT			SHELL	1	9.8
80-621-1-1-20	AREA A	POT	RIM		ENGRAV			CLAY	1	4.3
80-621-1-1-21	AREA A	POT	RIM	SHNDL	APLQ			CLAY	1	10.8
80-621-1-2-1	AREA A	CL	FD						97	550.3
80-621-1-2-2	AREA A	CL	BIF						15	61.8
80-621-1-2-3	AREA A	GRL	GRIP						25	1674.2
80-621-1-3	AREA A	FAUNA	UMOD					BONE	23	109.0

APPENDIX E: SAU17 SURFACE COLLECTION AND DITCH INVENTORY

Accession #	Area	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
80-621-1-4	AREA A	POT	NVES	DAUB					9	68.7
80-621-1-5-1	AREA A	HIST	SHRD	BOTTLE				GLASS	20	455.1
80-621-1-5-2	AREA A	HIST	SHRD						12	117.5
80-621-1-5-3	AREA A	HIST							2	20.1
80-621-1-5-4	AREA A	HIST	SHRD					GLASS	1	10.3
80-621-1-5-5	AREA A	HIST							1	5.8
80-621-1-5-6	AREA A	HIST		PIPE					1	13.7
80-621-1-5-7	AREA A	HIST						IRON	3	194.2
80-621-2-1-1	AREA B	POT	SHRD						81	480.8
80-621-2-1-2	AREA B	POT	SHRD		PLAIN			CLAY	76	565.4
80-621-2-1-3	AREA B	POT	SHRD		PLAIN			SHELL	2	5.9
80-621-2-1-4	AREA B	POT	SHRD		PLAIN			BONE	5	27.2
80-621-2-1-5	AREA B	POT	SHRD		BRUSH			CLAY	63	443.0
80-621-2-1-6	AREA B	POT	SHRD		BRUSH			SHELL	1	1.1
80-621-2-1-7	AREA B	POT	SHRD		INCI			CLAY	2	10.1
80-621-2-1-8	AREA B	POT	SHRD		INCI			SHELL	3	10.3
80-621-2-1-9	AREA B	POT	SHRD		PUNCT			CLAY	5	23.6
80-621-2-1-10	AREA B	POT	SHRD		ENGRAV			CLAY	2	10.0
80-621-2-1-11	AREA B	POT	SHRD		PUNCT	INCI		CLAY	1	3.8
80-621-2-1-12	AREA B	POT	SHRD		APLQ			CLAY	2	12.4

APPENDIX E: SAU17 SURFACE COLLECTION AND DITCH INVENTORY

Accession #	Area	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
80-621-2-1-13	AREA B	POT	RIM		PLAIN			BONE	1	4.1
80-621-2-1-14	AREA B	POT	RIM		PLAIN			CLAY	5	35.4
80-621-2-1-15	AREA B	POT	RIM		BRUSH			CLAY	3	15.1
80-621-2-1-16	AREA B	POT	RIM		BRUSH	PUNCT		CLAY	2	15.6
80-621-2-1-17	AREA B	POT	RIM		PUNCT			CLAY	1	5.7
80-621-2-1-18	AREA B	POT	SHRD		ENGRAV			CLAY	1	4.9
80-621-2-1-19	AREA B	POT	SHRD		INCI			CLAY	5	27.4
80-621-2-2-1	AREA B	CL	FD						29	312.0
80-621-2-2-2	AREA B	CL	BIF						1	4.0
80-621-2-2-3	AREA B	GRL	GRIP						15	378.6
80-621-2-3	AREA B	FAUNA	UMOD					BONE	5	22.0
80-621-2-4	AREA B	POT	NVES	DAUB				CLAY	1	8.2
80-621-2-5-1	AREA B	HIST	SHRD					GLASS	3	21.9
80-621-2-5-2	AREA B	HIST	SHRD						1	0.7
80-621-2-5-3	AREA B	HIST		BUTTON					1	0.4
80-621-3-1-1	AREA C	POT	SHRD						31	84.7
80-621-3-1-2	AREA C	POT	SHRD		PLAIN			BONE	1	4.6
80-621-3-1-3	AREA C	POT	SHRD		PLAIN			CLAY	8	51.3
80-621-3-1-4	AREA C	POT	SHRD		BRUSH			CLAY	6	38.6
80-621-3-1-5	AREA C	POT	SHRD		INCI			BONE	4	29.1

APPENDIX E: SAU17 SURFACE COLLECTION AND DITCH INVENTORY

Accession #	Area	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
80-621-3-1-6	AREA C	POT	SHRD		INCI			CLAY	3	14.3
80-621-3-1-7	AREA C	POT	SHRD		PUNCT			CLAY	1	4.0
80-621-3-1-8	AREA C	POT	SHRD		ENGRAV			CLAY	1	6.4
80-621-3-1-9	AREA C	POT	SHRD		APLQ			CLAY	1	5.7
80-621-3-1-10	AREA C	POT	SHRD		BRUSH	PUNCT		CLAY	2	12.5
80-621-3-2-1	AREA C	CL	FD						13	86.0
80-621-3-2-2	AREA C	GRL	GRIP						7	373.9
80-621-3-3	AREA C	FAUNA	UMOD					BONE	3	48.7
80-621-3-4	AREA C	POT	NVES	DAUB					22	204.7
80-621-3-5-1	AREA C	HIST		COMB					1	55.3
80-621-3-5-2	AREA C	HIST		BUTTON					1	0.6
80-621-4-1-1	AREA D	POT	SHRD						179	392.3
80-621-4-1-2	AREA D	POT	SHRD		PLAIN			BONE	9	46.9
80-621-4-1-3	AREA D	POT	SHRD		PLAIN			CLAY	41	259.6
80-621-4-1-4	AREA D	POT	SHRD		BRUSH			BONE	9	66.9
80-621-4-1-5	AREA D	POT	SHRD		BRUSH			CLAY	7	35.3
80-621-4-1-6	AREA D	POT	SHRD		BRUSH			SHELL	1	6.6
80-621-4-1-7	AREA D	POT	SHRD		INCI			BONE	1	3.2
80-621-4-1-8	AREA D	POT	SHRD		ENGRAV			CLAY	1	4.9
80-621-4-1-9	AREA D	POT	SHRD		BRUSH	PUNCT		CLAY	1	8.1

APPENDIX E: SAU17 SURFACE COLLECTION AND DITCH INVENTORY

Accession #	Area	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
80-621-4-1-10	AREA D	POT	RIM		INCI			CLAY	1	7.1
80-621-4-1-11	AREA D	POT			PLAIN			CLAY	1	3.6
80-621-4-2-1	AREA D	CL	FD						46	224.2
80-621-4-2-2	AREA D	GRL	GRIP						16	1094.4
80-621-4-3	AREA D	POT	NVES	DAUB					3	9.4
80-621-4-4	AREA D	FAUNA	UMOD					BONE	5	14.4
80-621-4-5	AREA D	HIST		BUCKLE				IRON	1	5.5
80-621-5-1-1	AREA E	POT	SHRD						217	494.3
80-621-5-1-2	AREA E	POT	SHRD		PLAIN			BONE	6	33.8
80-621-5-1-3	AREA E	POT	SHRD		PLAIN			CLAY	40	256.0
80-621-5-1-4	AREA E	POT	SHRD		PLAIN			SHELL	1	3.1
80-621-5-1-5	AREA E	POT	SHRD		BRUSH			BONE	4	2.3
80-621-5-1-6	AREA E	POT	SHRD		BRUSH			CLAY	20	120.0
80-621-5-1-7	AREA E	POT	SHRD		INCI			BONE	1	3.8
80-621-5-1-8	AREA E	POT	SHRD		INCI			CLAY	11	67.1
80-621-5-1-9	AREA E	POT	SHRD		INCI			SHELL	1	5.3
80-621-5-1-10	AREA E	POT	SHRD		PLAIN	RED		CLAY	1	5.9
80-621-5-1-11	AREA E	POT	RIM		PLAIN			CLAY	2	9.2
80-621-5-1-12	AREA E	POT	RIM		BRUSH			CLAY	3	17.4
80-621-5-1-13	AREA E	POT	RIM		INCI			CLAY	2	10.3

APPENDIX E: SAU17 SURFACE COLLECTION AND DITCH INVENTORY

Accession #	Area	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
80-621-5-1-14	AREA E	POT	RIM		PUNCT	INCI		CLAY	1	4.0
80-621-5-2	AREA E	POT	NVES		DAUB				2	9.1
80-621-5-3-1	AREA E	CL	FD						47	354.6
80-621-5-3-2	AREA E	GRL	GRIP						22	638.3
80-621-5-3-3	AREA E	CL	BIF						4	11.6
80-621-5-3-4	AREA E	CL						QUARTZ	1	3.1
80-621-5-4	AREA E	FLORA	PETRIFI					WOOD	2	14.9
80-621-5-5	AREA E	HIST	SHRD	BOTTLE				GLASS	2	74.8
80-621-6-1-1	AREA F	POT	SHRD						32	73.7
80-621-6-1-2	AREA F	POT	SHRD		BRUSH			CLAY	3	19.0
80-621-6-2	AREA F	CL	FD						9	116.3
80-621-7-1-1	AREA G	POT	SHRD						149	402.3
80-621-7-1-2	AREA G	POT	SHRD		PLAIN			CLAY	64	417.4
80-621-7-1-3	AREA G	POT	SHRD		PLAIN			BONE	4	17.6
80-621-7-1-4	AREA G	POT	SHRD		BRUSH			BONE	2	17.4
80-621-7-1-5	AREA G	POT	SHRD		BRUSH			CLAY	18	96.9
80-621-7-1-6	AREA G	POT	SHRD		INCI			BONE	4	29.2
80-621-7-1-7	AREA G	POT	SHRD		INCI			CLAY	8	38.9
80-621-7-1-8	AREA G	POT	SHRD		PUNCT			CLAY	1	2.9
80-621-7-1-9	AREA G	POT	SHRD		ENGRAV			CLAY	8	54.5

APPENDIX E: SAU17 SURFACE COLLECTION AND DITCH INVENTORY

Accession #	Area	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
80-621-7-1-10	AREA G	POT	SHRD		BRUSH	APLQ		CLAY	4	27.4
80-621-7-1-11	AREA G	POT	RIM		PLAIN			CLAY	1	7.5
80-621-7-1-12	AREA G	POT	RIM		BRUSH			BONE	3	12.5
80-621-7-1-13	AREA G	POT	RIM		INCI			CLAY	3	12.9
80-621-7-2	AREA G	POT	NVES	DAUB				CLAY	4	35.3
80-621-7-3-1	AREA G	CL	FD						39	429.7
80-621-7-3-2	AREA G	CL	BIF						11	50.6
80-621-7-3-3	AREA G	GRL	GRIP						15	476.8
80-621-8-1-1	AREA H	POT	SHRD						1039	2606.5
80-621-8-1-2	AREA H	POT	SHRD		PLAIN			CLAY	212	1503.5
80-621-8-1-3	AREA H	POT	SHRD		PLAIN			BONE	9	49.3
80-621-8-1-4	AREA H	POT	SHRD		PLAIN			SHELL	5	22.3
80-621-8-1-5	AREA H	POT	SHRD		BRUSH			BONE	12	61.5
80-621-8-1-6	AREA H	POT	SHRD		BRUSH			CLAY	102	632.1
80-621-8-1-7	AREA H	POT	SHRD		INCI			CLAY	34	201.2
80-621-8-1-8	AREA H	POT	SHRD		PUNCT			BONE	2	16.7
80-621-8-1-9	AREA H	POT	SHRD		PUNCT			CLAY	11	55.2
80-621-8-1-10	AREA H	POT	SHRD		ENGRAV			CLAY	10	62.5
80-621-8-1-11	AREA H	POT	SHRD		APLQ			BONE	4	29.8
80-621-8-1-12	AREA H	POT	SHRD		BRUSH	APLQ		CLAY	7	53.0

APPENDIX E: SAU17 SURFACE COLLECTION AND DITCH INVENTORY

Accession #	Area	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
80-621-8-1-13	AREA H	POT	SHRD		BRUSH	APLQ		BONE	1	5.9
80-621-8-1-14	AREA H	POT	SHRD		INCI	APLQ		CLAY	1	7.4
80-621-8-1-15	AREA H	POT	SHRD		PUNCT	APLQ		CLAY	1	16.4
80-621-8-1-16	AREA H	POT	SHRD		INCI	PUNCT		CLAY	1	4.2
80-621-8-1-17	AREA H	POT	RIM		PLAIN			CLAY	2	19.0
80-621-8-1-18	AREA H	POT	RIM		ENGRAV			CLAY	11	60.8
80-621-8-1-19	AREA H	POT	RIM		BRUSH			CLAY	4	31.0
80-621-8-1-20	AREA H	POT	RIM		BRUSH			BONE	1	4.5
80-621-8-1-21	AREA H	POT	RIM		INCI			CLAY	3	19.1
80-621-8-1-22	AREA H	POT	RIM		ENGRAV	PUNCT		CLAY	4	27.7
80-621-8-1-23	AREA H	POT	RIM		INCI	PUNCT		CLAY	3	16.6
80-621-8-1-24	AREA H	POT	RIM		APLQ			CLAY	1	11.9
80-621-8-2-1	AREA H	CL	FD						229	1720.2
80-621-8-2-2	AREA H	GRL	GRIP						20	1257.5
80-621-8-2-3	AREA H	CL	BIF						5	10.1
80-621-8-2-4	AREA H	CL	FD					QUARTZ	2	5.2
80-621-8-3	AREA H	POT	NVES	DAUB				CLAY	81	780.5
80-621-8-4	AREA H	FAUNA	UMOD					BONE	14	109.3
80-621-8-5-1	AREA H	HIST	SHRD					GLASS	3	11.1
80-621-8-5-2	AREA H	HIST	SHRD						2	9.2

APPENDIX E: SAU17 SURFACE COLLECTION AND DITCH INVENTORY

Accession #	Area	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
80-621-8-6	AREA H	FLORA	UMOD					WOOD	1	9.2
80-621-9-1-1	AREA I	POT	SHRD						38	85.9
80-621-9-1-2	AREA I	POT	SHRD		PLAIN			BONE	1	4.0
80-621-9-1-3	AREA I	POT	SHRD		PLAIN			CLAY	23	136.0
80-621-9-1-4	AREA I	POT	SHRD		BRUSH			CLAY	3	16.7
80-621-9-1-5	AREA I	POT	SHRD		INCI			CLAY	2	8.9
80-621-9-1-6	AREA I	POT	SHRD		PUNCT			CLAY	1	4.5
80-621-9-1-7	AREA I	POT	RIM	BOTTLE	PLAIN			CLAY	1	6.7
80-621-9-1-8	AREA I	POT	RIM		INCI	PUNCT		CLAY	2	9.0
80-621-9-2	AREA I	POT	NVES	DAUB				CLAY	4	39.1
80-621-9-3-1	AREA I	CL	FD						22	145.9
80-621-9-3-2	AREA I	CL	BIF						5	17.3
80-621-9-3-3	AREA I	GRL	GRIP						6	867.3
80-621-9-4	AREA I	FAUNA	UMOD					BONE	1	5.0
80-621-9-5	AREA I	HIST						IRON	1	31.1
80-621-10-1-1	AREA J	POT	SHRD						47	109.6
80-621-10-1-2	AREA J	POT	SHRD		PLAIN			BONE	2	6.9
80-621-10-1-3	AREA J	POT	SHRD		PLAIN			CLAY	22	101.6
80-621-10-1-4	AREA J	POT	SHRD		BRUSH			BONE	1	2.3
80-621-10-1-5	AREA J	POT	SHRD		BRUSH			CLAY	7	40.6

APPENDIX E: SAU17 SURFACE COLLECTION AND DITCH INVENTORY

Accession #	Area	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
80-621-10-1-6	AREA J	POT	SHRD		INCI			BONE	1	4.1
80-621-10-1-7	AREA J	POT	SHRD		INCI			CLAY	3	18.9
80-621-10-1-8	AREA J	POT	RIM		PUNCT			BONE	1	1.7
80-621-10-1-9	AREA J	POT	RIM		INCI			CLAY	2	10.4
80-621-10-2	AREA J	POT	NVES	DAUB				CLAY	14	113.5
80-621-10-3-1	AREA J	CL	FD						51	381.5
80-621-10-3-2	AREA J	CL	BIF						4	25.7
80-621-10-3-3	AREA J	GRL	GRIP	CELT					2	610.7
80-621-10-3-4	AREA J	GRL	GRIP	MAND					1	102.3
80-621-10-3-5	AREA J	GRL	GRIP						17	518.4
80-621-11-1-1	DITCH	POT	SHRD						10	23.9
80-621-11-1-2	DITCH	POT	SHRD		PLAIN			CLAY	5	64.9
80-621-11-1-3	DITCH	POT	SHRD		BRUSH			CLAY	5	48.5
80-621-11-1-4	DITCH	POT	SHRD		INCI			CLAY	1	6.3
80-621-11-1-5	DITCH	POT	SHRD		BRUSH			CLAY	2	30.5
80-621-11-1-6	DITCH	POT	SHRD		ENGRAV			CLAY	1	3.1
80-621-11-2	DITCH	POT	NVES	DAUB				CLAY	2	0.9
80-621-11-3	DITCH	FAUNA	UMOD					BONE	4	32.9
80-621-11-4	DITCH	CL	FD						1	10.2
80-621-11-5	DITCH	HIST	SHRD						1	2.6

APPENDIX E: SAU17 SURFACE COLLECTION AND DITCH INVENTORY

Accession #	Area	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
80-621-12	AREA B	CL	BIF						1	31.2
80-621-13	AREA A	HIST		KNOB				MARBLE	1	127.6
80-621-14	AREA D/E	HIST		HARP				IRON	1	3.2
80-621-15-1-1-1	DITCH	POT	SHRD						14	3.3
80-621-15-1-1-2	DITCH	POT	SHRD		PLAIN			BONE	1	1.0
80-621-15-1-1-3	DITCH	POT	SHRD		PLAIN			CLAY	2	42.0
80-621-15-1-1-4	DITCH	POT	SHRD		BRUSH			CLAY	5	101.1
80-621-15-1-1-5	DITCH	POT	SHRD		INCI			BONE	1	3.7
80-621-15-1-1-6	DITCH	POT	SHRD		INCI			CLAY	1	9.7
80-621-15-1-1-7	DITCH	POT	SHRD		BRUSH	APLQ		CLAY	3	35.2
80-621-15-1-1-8	DITCH	POT	SHRD		INCI			CLAY	2	20.5
80-621-15-1-2	DITCH	POT	NVES	DAUB				CLAY	8	113.1
80-621-15-1-3-1	DITCH	FAUNA	UMOD					BONE	6	30.8
80-621-15-1-3-2	DITCH	FAUNA	UMOD	BUR				BONE	3	6.1
80-621-15-1-4-1	DITCH	CL	FD						4	5.0
80-621-15-1-4-2	DITCH	GRL	GRIP						4	25.8
80-621-15-2-1-1	AREA 2+3	POT	SHRD						3	8.8
80-621-15-2-1-2	AREA 2+3	POT	SHRD		PLAIN			CLAY	2	4.5
80-621-15-2-1-3	AREA 2+3	POT	SHRD		INCI			CLAY	1	7.8
80-621-15-2-2	AREA 2+3	POT	NVES	DAUB				CLAY	13	100.0

APPENDIX E: SAU17 SURFACE COLLECTION AND DITCH INVENTORY

Accession #	Area	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
80-621-15-2-3	AREA 2+3	CL	FD						1	0.7
80-621-15-3-1-1	AREA 4	POT	SHRD						7	7.9
80-621-15-3-1-2	AREA 4	POT	SHRD		PLAIN			CLAY	10	53.5
80-621-15-3-1-3	AREA 4	POT	SHRD		BRUSH			BONE	2	12.4
80-621-15-3-1-4	AREA 4	POT	SHRD		BRUSH			CLAY	6	48.4
80-621-15-3-1-5	AREA 4	POT	SHRD		INCI			CLAY	1	3.9
80-621-15-3-1-6	AREA 4	POT	SHRD		INCI			BONE	2	6.3
80-621-15-3-1-7	AREA 4	POT	SHRD		PLAIN	RED		CLAY	2	2.8
80-621-15-3-1-8	AREA 4	POT	RIM		BRUSH	INCI		BONE	1	8.9
80-621-15-3-2	AREA 4	POT	NVES	DAUB				CLAY	13	76.3
80-621-15-3-3	AREA 4	FAUNA	UMOD					BONE	28	87.8
80-621-15-3-4	AREA 4	CL	FD						11	46.3
80-621-15-3-5	AREA 4	FAUNA	UMOD					SHELL	3	4.2
80-621-15-3-4-1	AREA 4	HIST	SHRD					GLASS	1	12.5
80-621-15-3-4-2	AREA 4	HIST						IRON	2	7.3
80-621-15-7-1	AREA 4	POT	SHRD	BOTTLE	PLAIN			BONE	5	23.1
80-621-15-7-2	AREA 4	POT	VES1	BOTTLE	ENGRAV			BONE	1	414.6
80-621-15-8	AREA 4							DIRT	1	642.6
80-621-16-1	AREA 1	POT	SHRD		INCI			SHELL	1	2.5
80-621-16-2	AREA 2	POT	SHRD		PLAIN			CLAY	1	10.3

APPENDIX E: SAU17 SURFACE COLLECTION AND DITCH INVENTORY

Accession #	Area	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
80-621-16-3	AREA 3	POT	SHRD		PLAIN			CLAY	2	10.4
80-621-16-4	AREA 4	POT	SHRD		BRUSH			BONE	1	10.6
80-621-16-5	AREA 5	POT	RIM		INCI			CLAY	1	14.6
80-621-16-6	AREA 6	POT	SHRD		INCI			CLAY	4	3.3
80-621-16-7	AREA 7	POT	SHRD		PLAIN			CLAY	6	40.7
80-621-16-8	AREA 8	POT	SHRD		PLAIN			CLAY	1	30.8
80-621-16-9-1	AREA 9	POT	SHRD		PLAIN			CLAY	4	13.9
80-621-16-9-2	AREA 9	FAUNA	UMOD					BONE	1	23.1
80-621-16-10	AREA 10	POT	SHRD		PLAIN			CLAY	1	13.8
80-621-16-11	AREA 11	FAUNA	UMOD					BONE	1	15.4
80-621-16-12	AREA 12	POT	SHRD		BRUSH			BONE	2	17.1
80-621-16-13	AREA 13	FAUNA	UMOD					BONE	1	12.8
80-621-16-14	AREA 14	POT	SHRD		BRUSH			CLAY	1	6.3
80-621-16-15	AREA 15	POT	RIM		INCI			CLAY	1	2.3
80-621-16-16	AREA 16	POT	SHRD		PLAIN			CLAY	1	4.5
80-621-16-17	AREA 17	POT	SHRD		BRUSH			CLAY	2	20.3
80-621-16-18	AREA 18	FAUNA	UMOD					BONE	6	9.9
80-621-16-19-1-1	AREA 19	POT	SHRD		BRUSH			CLAY	3	17.3
80-621-16-19-1-2	AREA 19	POT	SHRD		INCI			SHELL	1	3.4
80-621-16-19-1-3	AREA 19	POT	SHRD		PLAIN			CLAY	1	8.3

APPENDIX E: SAU17 SURFACE COLLECTION AND DITCH INVENTORY

Accession #	Area	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
80-621-16-19-2	AREA 19	FAUNA	UMOD					BONE	4	15.4
80-621-16-19-3	AREA 19	POT	NVES	DAUB				CLAY	25	131.8
80-621-16-20	AREA 20	POT	SHRD		PLAIN			CLAY	1	23.5
80-621-16-21	AREA 21	POT	NVES	DAUB				CLAY	1	23.1
80-621-16-22-1	AREA 22	POT	SHRD	CBOWL	ENGRAV			CLAY	25	200.3
80-621-16-22-2-1	AREA 22	POT	SHRD		BRUSH			CLAY	9	57.7
80-621-16-22-2-2	AREA 22	POT	SHRD		BRUSH			BONE	2	13.9
80-621-16-22-2-3	AREA 22	POT	RIM		BRUSH			CLAY	1	10.4
80-621-16-22-2-4	AREA 22	POT	SHRD		PLAIN			CLAY	5	49.5
80-621-16-22-2-5	AREA 22	POT	RIM		PLAIN			CLAY	2	8.2
80-621-16-22-2-6	AREA 22	POT	SHRD		INCI			SHELL	1	3.8
80-621-16-23-1	AREA 23	CHAR						CHAR		
80-621-16-23-2	AREA 23	CHAR						CHAR		
80-621-16-24-1	AREA 2	POT	SHRD		PLAIN			CLAY	2	26.1
80-621-16-24-2	AREA 2	POT	SHRD	DAUB				CLAY	19	149.4
80-621-16-25-1-1	AREA 3	POT	SHRD		BRUSH			BONE	11	28.1
80-621-16-25-1-2	AREA 3	POT	SHRD		PLAIN			CLAY	4	16.5
80-621-16-25-1-3	AREA 3	POT	SHRD		BRUSH	APLQ		BONE	1	13.7
80-621-16-25-2	AREA 3	GRD							4	30.9
80-621-16-25-3	AREA 3	POT	NVES	DAUB					8	29.5

APPENDIX E: SAU17 SURFACE COLLECTION AND DITCH INVENTORY

Accession #	Area	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
80-621-16-26-1-1	AREA 4	POT	SHRD		PLAIN			CLAY	2	20.1
80-621-16-26-1-2	AREA 4	POT	SHRD		BRUSH			BONE	2	10.4
80-621-16-26-1-3	AREA 4	POT	SHRD		INCI			SHELL	1	1.3
80-621-16-26-1-4	AREA 4	POT	RIM		INCI			CLAY	1	7.8
80-621-16-26-2	AREA 4	POT	NVES	DAUB				CLAY	1	3.3
80-621-16-26-3	AREA 4	FAUNA	UMOD					BONE	3	2.5
80-621-16-26-4	AREA 4	CL	FD						3	7.8
80-621-16-27-1-1	AREA 5	POT	SHRD		BRUSH			CLAY	12	53.1
80-621-16-27-1-2	AREA 5	POT	SHRD		PLAIN			CLAY	2	10.1
80-621-16-27-1-3	AREA 5	POT	RIM		PLAIN			CLAY	2	4.1
80-621-16-27-1-4	AREA 5	POT	SHRD		ENGRAV			CLAY	1	1.8
80-621-16-27-1-5	AREA 5	POT	SHRD		INCI	PUNCT		CLAY	1	2.2
80-621-16-27-2	AREA 5	POT	NVES	DAUB				CLAY	1	2.7
80-621-16-27-3	AREA 5	FAUNA	UMOD					BONE	23	123.1
80-621-16-27-4	AREA 5	FAUNA	UMOD					SHELL	8	0.9
80-621-16-27-5	AREA 5	CL	FD						5	31.2
80-621-16-28-1-1	AREA 6	POT	SHRD		PLAIN			CLAY	4	18.1
80-621-16-28-1-2	AREA 6	POT	SHRD		INCI			CLAY	4	26.1
80-621-16-28-1-3	AREA 6	POT	SHRD		INCI			SHELL	1	3.6
80-621-16-28-2	AREA 6	POT	NVES	DAUB				CLAY	1	4.2

APPENDIX E: SAU17 SURFACE COLLECTION AND DITCH INVENTORY

Accession #	Area	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
80-621-16-28-3-1	AREA 6	CL	FD						3	14.4
80-621-16-28-3-2	AREA 6	CL	BIF						1	2.1
80-621-16-28-3-3	AREA 6	GRP							1	4.2
80-621-16-28-4	AREA 6	FAUNA	UMOD					BONE	4	47.8
80-621-15-4	AREA 4	POT	SHRD		INCI	PUNCT		BONE	19	74.8
80-621-15-6	AREA 4	POT	VES4	BEAKER	INCI			CLAY	1	175.6
80-621-15-5	AREA 4	POT	VES4	JAR	INCI	APLQ		CLAY	1	159.7
80-621-17-1-1	AREA A	POT	SHRD						331	749.0
80-621-17-1-2	AREA A	POT	SHRD		PLAIN			BONE	19	102.0
80-621-17-1-3	AREA A	POT	SHRD		PLAIN			CLAY	92	515.2
80-621-17-1-4	AREA A	POT	SHRD		PLAIN			SHELL	8	37.9
80-621-17-1-5	AREA A	POT	SHRD		BRUSH			BONE	11	71.3
80-621-17-1-6	AREA A	POT	SHRD		BRUSH			CLAY	45	300.2
80-621-17-1-7	AREA A	POT	SHRD		INCI			BONE	6	48.6
80-621-17-1-8	AREA A	POT	SHRD		INCI			CLAY	28	140.1
80-621-17-1-9	AREA A	POT	SHRD		INCI			SHELL	2	2.9
80-621-17-1-10	AREA A	POT	SHRD		PUNCT			BONE	1	6.6
80-621-17-1-11	AREA A	POT	SHRD		PUNCT			CLAY	9	48.4
80-621-17-1-12	AREA A	POT	SHRD		APLQ			BONE	1	9.1
80-621-17-1-13	AREA A	POT	SHRD		PUNCT	INCI		CLAY	2	5.8

APPENDIX E: SAU17 SURFACE COLLECTION AND DITCH INVENTORY

Accession #	Area	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
80-621-17-1-14	AREA A	POT	SHRD		PLAIN	RED		CLAY	1	3.2
80-621-17-1-15	AREA A	POT	RIM		PLAIN			CLAY	4	16.6
80-621-17-1-16	AREA A	POT	RIM		PLAIN			SHELL	3	10.1
80-621-17-1-17	AREA A	POT	RIM		BRUSH			CLAY	2	10.4
80-621-17-1-18	AREA A	POT	RIM		INCI			CLAY	1	13.0
80-621-17-2	AREA A	POT	NVES	DAUB				CLAY	3	16.8
80-621-17-3-1	AREA A	CL	FD						55	412.7
80-621-17-3-2	AREA A	CL	BIF						2	6.8
80-621-17-3-3	AREA A	GRP	GRIP						16	601.0
80-621-17-4	AREA A	FAUNA	UMOD					BONE	9	24.1
80-621-17-5-1	AREA A	HIST	SHRD					GLASS	4	76.2
80-621-17-5-2	AREA A	HIST						IRON	1	291.5
80-621-18-1-1	AREA B	POT	SHRD						104	285.3
80-621-18-1-2	AREA B	POT	SHRD		PLAIN			BONE	5	25.1
80-621-18-1-3	AREA B	POT	SHRD		PLAIN			CLAY	62	454.1
80-621-18-1-4	AREA B	POT	SHRD		PLAIN			SHELL	2	9.6
80-621-18-1-5	AREA B	POT	SHRD		BRUSH			BONE	5	35.4
80-621-18-1-6	AREA B	POT	SHRD		BRUSH			CLAY	29	193.2
80-621-18-1-7	AREA B	POT	SHRD		INCI			BONE	1	8.0
80-621-18-1-8	AREA B	POT	SHRD		INCI			CLAY	30	191.9

APPENDIX E: SAU17 SURFACE COLLECTION AND DITCH INVENTORY

Accession #	Area	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
80-621-18-1-9	AREA B	POT	SHRD		PUNCT			CLAY	8	47.3
80-621-18-1-10	AREA B	POT	SHRD		PUNCT	INCI		CLAY	2	13.4
80-621-18-1-11	AREA B	POT	SHRD		APLQ			CLAY	2	17.1
80-621-18-1-12	AREA B	POT	SHRD		INCI	APLQ		CLAY	3	20.1
80-621-18-1-13	AREA B	POT	RIM		PLAIN			BONE	1	18.2
80-621-18-1-14	AREA B	POT	RIM		BRUSH			CLAY	3	16.1
80-621-18-1-15	AREA B	POT	RIM		ENGRAV			CLAY	2	13.8
80-621-18-2-1	AREA B	CL	FD						8	62.5
80-621-18-2-2	AREA B	CL	FD					QUARTZ	1	13.2
80-621-18-2-3	AREA B	CL	BIF						3	4.2
80-621-18-2-4	AREA B	GRP	GRIP						2	51.3
80-621-19-1-1	AREA H	POT	SHRD						248	589.4
80-621-19-1-2	AREA H	POT	SHRD		PLAIN			BONE	10	68.8
80-621-19-1-3	AREA H	POT	SHRD		PLAIN			CLAY	52	291.3
80-621-19-1-4	AREA H	POT	SHRD		BRUSH			BONE	13	70.2
80-621-19-1-5	AREA H	POT	SHRD		BRUSH			CLAY	37	180.1
80-621-19-1-6	AREA H	POT	SHRD		INCI			BONE	2	10.2
80-621-19-1-7	AREA H	POT	SHRD		INCI			CLAY	28	167.6
80-621-19-1-8	AREA H	POT	SHRD		INCI			SHELL	5	22.3
80-621-19-1-9	AREA H	POT	SHRD		PUNCT			CLAY	5	31.6

APPENDIX E: SAU17 SURFACE COLLECTION AND DITCH INVENTORY

Accession #	Area	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
80-621-19-1-10	AREA H	POT	SHRD		PUNCT			SHELL	1	3.6
80-621-19-1-11	AREA H	POT	SHRD		ENGRAV			BONE	1	2.9
80-621-19-1-12	AREA H	POT	SHRD		ENGRAV			CLAY	5	34.5
80-621-19-1-13	AREA H	POT	SHRD		BRUSH	PUNCT		CLAY	3	16.6
80-621-19-1-14	AREA H	POT	SHRD		PLAIN	RED		BONE	1	4.2
80-621-19-1-15	AREA H	POT	RIM		BRUSH			BONE	1	4.2
80-621-19-1-16	AREA H	POT	RIM		BRUSH			CLAY	4	19.9
80-621-19-1-17	AREA H	POT	RIM		INCI			BONE	2	12.8
80-621-19-1-18	AREA H	POT	RIM		ENGRAV			BONE	2	11.0
80-621-19-1-19	AREA H	POT	RIM		INCI			CLAY	2	15.5
80-621-19-1-20	AREA H	POT	RIM		ENGRAV			CLAY	2	7.6
80-621-19-1-21	AREA H	POT	RIM		INCI	PUNCT		CLAY	1	5.3
80-621-19-2	AREA H	POT	NVES	DAUB				CLAY	22	293.4
80-621-19-3	AREA H	FAUNA	UMOD					BONE	3	8.3
80-621-19-4	AREA H	FLORA	UMOD	PWOOD				WOOD	1	28.6
80-621-19-5-1	AREA H	CL	FD						30	179.1
80-621-19-5-2	AREA H	GRP	GRIP						12	493.7
80-621-20-1-1	AREA E	POT	SHRD						7	17.2
80-621-20-1-2	AREA E	POT	SHRD		PLAIN			BONE	1	5.6
80-621-20-1-3	AREA E	POT	SHRD		PLAIN			CLAY	2	11.5

APPENDIX E: SAU17 SURFACE COLLECTION AND DITCH INVENTORY

Accession #	Area	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
80-621-20-1-4	AREA E	POT	SHRD		INCI			CLAY	2	9.8
80-621-20-1-5	AREA E	POT	RIM		INCI			CLAY	1	4.9
80-621-20-2	AREA E	CL	FD						1	8.8
80-625-1-1	AREA H	POT	SHRD						17	35.7
80-625-1-2	AREA H	POT	SHRD		PLAIN			BONE	2	12.5
80-625-1-3	AREA H	POT	SHRD		PLAIN			CLAY	9	76.8
80-625-1-4	AREA H	POT	SHRD		BRUSH			BONE	4	35.6
80-625-1-5	AREA H	POT	SHRD		BRUSH			CLAY	9	98.7
80-625-1-6	AREA H	POT	SHRD		INCI			BONE	1	7.8
80-625-1-7	AREA H	POT	SHRD		INCI			CLAY	6	37.3
80-625-1-8	AREA H	POT	SHRD		INCI			SHELL	1	3.1
80-625-1-9	AREA H	POT	SHRD		PUNCT			CLAY	2	5.4
80-625-1-10	AREA H	POT	SHRD		ENGRAV			CLAY	5	23.2
80-625-1-11	AREA H	POT	RIM		BRUSH			CLAY	1	29.9
80-625-1-12	AREA H	POT	RIM		INCI			SHELL	1	4.6
80-625-1-13	AREA H	POT	RIM		PUNCT	INCI		CLAY	3	42.5
80-625-1-14	AREA H	POT	RIM		ENGRAV			CLAY	2	17.8
80-625-1-15	AREA H	POT	EFFGY		PLAIN			CLAY	1	6.7
80-625-2-1	AREA H	CL	FD						68	342.8
80-625-2-2	AREA H	CL	BIF						18	70.1

APPENDIX E: SAU17 SURFACE COLLECTION AND DITCH INVENTORY

Accession #	Area	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
80-625-2-3	AREA H	GRP	GRIP						7	1430.1
80-625-3	AREA H	POT	NVES	DAUB				CLAY	3	90.3
80-626-1-1	GEN SURF	POT	SHRD						82	178.6
80-626-1-2	GEN SURF	POT	SHRD		PLAIN			BONE	2	10.6
80-626-1-3	GEN SURF	POT	SHRD		PLAIN			CLAY	36	260.5
80-626-1-4	GEN SURF	POT	SHRD		BRUSH			BONE	3	30.1
80-626-1-5	GEN SURF	POT	SHRD		BRUSH			CLAY	31	344.0
80-626-1-6	GEN SURF	POT	SHRD		INCI			BONE	1	23.7
80-626-1-7	GEN SURF	POT	SHRD		INCI			CLAY	8	56.6
80-626-1-8	GEN SURF	POT	SHRD		PUNCT			CLAY	3	7.2
80-626-1-9	GEN SURF	POT	SHRD		ENGRAV			CLAY	6	51.2
80-626-1-10	GEN SURF	POT	SHRD		PLAIN	RED		CLAY	2	17.3
80-626-1-11	GEN SURF	POT	SHRD		BRUSH	PUNCT		CLAY	2	23.2
80-626-1-12	GEN SURF	POT	SHRD		INCI	PUNCT		CLAY	1	5.9
80-626-1-13	GEN SURF	POT	RIM		BRUSH			BONE	1	8.4
80-626-1-14	GEN SURF	POT	RIM		BRUSH			CLAY	4	27.2
80-626-1-15	GEN SURF	POT	RIM		BRUSH	PUNCT		CLAY	4	25.9
80-626-1-16	GEN SURF	POT	RIM		INCI			CLAY	1	3.2
80-626-1-17	GEN SURF	POT	RIM		ENGRAV			CLAY	1	7.9
80-626-2-1	GEN SURF	CL	FD						99	687.8

APPENDIX E: SAU17 SURFACE COLLECTION AND DITCH INVENTORY

Accession #	Area	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
80-626-2-2	GEN SURF	GRP	GRIP						13	1871.1
80-626-3-1	GEN SURF	HIST	SHRD					GLASS	3	4.8
80-626-3-2	GEN SURF	HIST		BUTTON				PLASTIC	1	0.6
80-626-3-3	GEN SURF	HIST						IRON	5	227.4
80-626-3-4	GEN SURF	HIST		BEAD					1	0.4
80-627-1-1	AREA G	POT	SHRD						11	29.3
80-627-1-2	AREA G	POT	SHRD		PLAIN			CLAY	8	57.8
80-627-1-3	AREA G	POT	SHRD		BRUSH			CLAY	3	20.7
80-627-1-4	AREA G	POT	SHRD		INCI			BONE	1	7.9
80-627-1-5	AREA G	POT	SHRD		INCI			CLAY	4	21.5
80-627-1-6	AREA G	POT	SHRD		PUNCT	INCI		CLAY	1	4.7
80-627-1-7	AREA G	POT	RIM		INCI			CLAY	3	4.4
80-627-1-8	AREA G	POT	RIM		ENGRAV			CLAY	1	6.9
80-627-2-1	AREA G	CL	FD						48	209.8
80-627-2-2	AREA G	CL	BIF						11	53.3
80-627-2-3	AREA G	CL						QUARTZ	1	48.5
80-627-2-4	AREA G	GRP	GRIP						13	1545.5
80-627-3	AREA G	HIST		SHOTGUN	SHELL				2	10.8
80-628-1	AREA I	POT	SHRD						6	11.7
80-628-2	AREA I	FAUNA	UMOD					BONE	6	28.4

APPENDIX E: SAU17 SURFACE COLLECTION AND DITCH INVENTORY

Accession #	Area	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
80-628-3	AREA I	GRP	GRIP						2	83.3
87-1008-1-1	GEN SURF	POT	SHRD						16	41.5
87-1008-1-2	GEN SURF	POT	SHRD		PLAIN			BONE	4	42.2
87-1008-1-3	GEN SURF	POT	SHRD		PLAIN			CLAY	10	99.0
87-1008-1-4	GEN SURF	POT	SHRD		BRUSH			BONE	4	28.7
87-1008-1-5	GEN SURF	POT	SHRD		BRUSH			CLAY	14	91.2
87-1008-1-6	GEN SURF	POT	SHRD		INCI			CLAY	2	13.7
87-1008-1-7	GEN SURF	POT	SHRD		APLQ			CLAY	1	9.4
87-1008-1-8	GEN SURF	POT	SHRD		PLAIN	RED		CLAY	1	1.8
87-1008-1-9	GEN SURF	POT	RIM		PUNCT			CLAY	2	10.5
87-1008-2	GEN SURF	POT	NVES	DAUB				CLAY	25	291.6
87-1008-3	GEN SURF	FAUNA	UMOD					BONE	3	15.3
87-1008-4-1	GEN SURF	CL	FD						32	134.1
87-1008-4-2	GEN SURF	CL	BIF						4	6.0
87-1008-4-3	GEN SURF	CL	FD					QUARTZ	2	0.9
87-1008-4-4	GEN SURF	GRP							2	44.8
87-1008-5-1	GEN SURF	HIST	SHRD	BOTTLE				GLASS	1	24.2
87-1008-5-2	GEN SURF	HIST	SHRD						5	17.1
87-1011-1-1	E OF MD	CL	BIF						8	118.8
87-1011-1-2	E OF MD	GRP							4	1700.4

APPENDIX E: SAU17 SURFACE COLLECTION AND DITCH INVENTORY

Accession #	Area	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
87-1037-1-1	GEN SURF	POT	SHRD						144	384.9
87-1037-1-2	GEN SURF	POT	SHRD		PLAIN			CLAY	29	152.7
87-1037-1-3	GEN SURF	POT	SHRD		PLAIN			SHELL	4	20.0
87-1037-1-4	GEN SURF	POT	SHRD		BRUSH			BONE	4	27.3
87-1037-1-5	GEN SURF	POT	SHRD		BRUSH			CLAY	13	75.6
87-1037-1-6	GEN SURF	POT	SHRD		INCI			CLAY	1	7.2
87-1037-1-7	GEN SURF	POT	SHRD		APLQ			CLAY	2	11.1
87-1037-1-8	GEN SURF	POT	SHRD		ENGRAV			CLAY	1	4.3
87-1037-1-9	GEN SURF	POT	RIM		PLAIN			CLAY	2	8.9
87-1037-1-10	GEN SURF	POT	RIM		PLAIN			SHELL	1	8.4
87-1037-1-11	GEN SURF	POT	RIM		PUNCT			CLAY	1	4.3
87-1037-2-1	GEN SURF	CL	FD						121	235.5
87-1037-2-2	GEN SURF	GRP							1	72.2
87-1037-3	GEN SURF	FAUNA	UMOD						1	17.1
87-1037-4	GEN SURF	HIST		SHOTGUN					1	2.5
90-662-1-1	GEN SURF	POT	SHRD		PLAIN			CLAY	4	27.4
90-662-1-2	GEN SURF	POT	SHRD		BRUSH			BONE	2	14.5
90-662-1-3	GEN SURF	POT	SHRD		INCI			CLAY	4	14.9
90-662-1-4	GEN SURF	POT	SHRD		PUNCT			CLAY	2	10.1
90-662-1-5	GEN SURF	POT	RIM		PUNCT			BONE	1	4.5

APPENDIX E: SAU17 SURFACE COLLECTION AND DITCH INVENTORY

Accession #	Area	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
90-662-2	GEN SURF	POT	NVES	DAUB					20	273.8
90-662-3-1	GEN SURF	CL	FD						29	227.7
90-662-3-2	GEN SURF	CL	BIF						2	8.9
90-662-3-3	GEN SURF	CL	FD					QUARTZ	3	7.7
90-662-3-4	GEN SURF	GRP							12	760.5
90-662-4	GEN SURF	HIST	SHRD						1	0.9
90-663	GEN SURF	HIST		SHOTGUN				METAL	3	16.9
90-664-1-1	E OF MD	POT	SHRD		PLAIN			BONE	1	3.9
90-664-1-2	E OF MD	POT	SHRD		PLAIN			CLAY	10	69.6
90-664-1-3	E OF MD	POT	SHRD		PUNCT	INCI		CLAY	1	8.7
90-664-2-1	E OF MD	CL	FD						46	321.9
90-664-2-2	E OF MD	CL	FD					QUARTZ	2	2.1
90-664-2-3	E OF MD	CL	BIF						10	56.6
90-664-2-4	E OF MD	GRP							4	273.2
90-664-3	E OF MD	FAUNA	UMOD					BONE	1	10.8
90-664-4-1	E OF MD	HIST	SHRD						17	40.5
90-664-4-2	E OF MD	HIST						IRON	2	16.3
90-665-1-1	N OF MD	POT	SHRD						5	14.8
90-665-1-2	N OF MD	POT	SHRD		PLAIN			BONE	1	5.2
90-665-1-3	N OF MD	POT	SHRD		PLAIN			CLAY	2	16.7

APPENDIX E: SAU17 SURFACE COLLECTION AND DITCH INVENTORY

Accession #	Area	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
90-665-1-4	N OF MD	POT	SHRD		BRUSH			CLAY	3	43.7
90-665-1-5	N OF MD	POT	SHRD		INCI			CLAY	5	40.1
90-665-1-6	N OF MD	POT	SHRD		ENGRAV			CLAY	2	4.3
90-665-1-7	N OF MD	POT	SHRD		BRUSH	PUNCT		CLAY	1	30.2
90-665-1-8	N OF MD	POT	RIM		INCI			CLAY	1	7.4
90-665-1-9	N OF MD	POT	RIM		BRUSH			CLAY	1	7.5
90-665-1-10	N OF MD	POT	RIM		BRUSH	PUNCT		CLAY	1	7.9
90-665-1-11	N OF MD	POT	RIM		ENGRAV			CLAY	1	4.2
90-665-2	N OF MD	POT	NVES	DAUB				CLAY	25	282.1
90-665-3	N OF MD	FAUNA	UMOD					BONE	3	9.6
90-665-4-1	N OF MD	CL	FD						29	172.3
90-665-4-2	N OF MD	CL	BIF						10	119.4
90-665-4-3	N OF MD	GRP							9	359.2
90-665-4-4	N OF MD	CL	FD					QUARTZ	2	1.3
90-665-5-1	N OF MD	HIST	SHRD						3	28.7
90-665-5-2	N OF MD	HIST	SHRD					GLASS	1	0.2
90-665-5-3	N OF MD	HIST						METAL	2	21.6
90-666-1-1	N & E OF MD	POT	SHRD						6	13.3
90-666-1-2	N & E OF MD	POT	SHRD		PLAIN			CLAY	6	46.4
90-666-1-3	N & E OF MD	POT	SHRD		BRUSH			BONE	2	11.7

APPENDIX E: SAU17 SURFACE COLLECTION AND DITCH INVENTORY

Accession #	Area	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
90-666-1-4	N & E OF MD	POT	SHRD		BRUSH			CLAY	5	53.5
90-666-1-5	N & E OF MD	POT	SHRD		BRUSH			SHELL	1	8.5
90-666-1-6	N & E OF MD	POT	SHRD		INCI			CLAY	5	36.1
90-666-1-7	N & E OF MD	POT	SHRD		BRUSH	PUNCT		CLAY	1	12.9
90-666-1-8	N & E OF MD	POT	RIM		BRUSH			BONE	2	15.4
90-666-2	N & E OF MD	POT	NVES	DAUB				CLAY	5	67.8
90-666-3	N & E OF MD	FAUNA	UMOD						3	11.2
90-666-4-1	N & E OF MD	CL	FD						27	161.7
90-666-4-2	N & E OF MD	CL	BIF						4	51.5
90-666-4-3	N & E OF MD	GRP							4	127.5
90-666-4-4	N & E OF MD	CL						QUARTZ	4	7.6
90-666-5-1	N & E OF MD	HIST	SHRD						14	30.5
90-666-5-2	N & E OF MD	HIST	SHRD					GLASS	16	83.9
90-666-5-3	N & E OF MD	HIST						METAL	8	52.4
90-666-5-4	N & E OF MD	HIST						STONE	1	2.2
91-532-1-1	GEN SURF	POT	SHRD						11	36.4
91-532-1-2	GEN SURF	POT	SHRD		PLAIN			CLAY	9	72.8
91-532-1-3	GEN SURF	POT	SHRD		PLAIN			SHELL	1	7.1
91-532-1-4	GEN SURF	POT	SHRD		BRUSH			CLAY	5	54.1
91-532-1-5	GEN SURF	POT	SHRD		INCI			SHELL	4	37.8

APPENDIX E: SAU17 SURFACE COLLECTION AND DITCH INVENTORY

Accession #	Area	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
91-532-1-6	GEN SURF	POT	SHRD		INCI			CLAY	2	12.3
91-532-1-7	GEN SURF	POT	RIM		BRUSH			BONE	2	14.8
91-532-1-8	GEN SURF	POT	RIM		PUNCT			CLAY	1	9.6
91-532-1-9	GEN SURF	POT	RIM		PUNCT	ENGRAV		CLAY	1	4.2
91-532-2	GEN SURF	POT	NVES	DAUB				CLAY	1	5.4
91-532-3	GEN SURF	CL	FD						5	31.1
91-709-1-1	N & E OF MD	POT	SHRD						63	173.3
91-709-1-2	N & E OF MD	POT	SHRD		PLAIN			BONE	7	42.2
91-709-1-3	N & E OF MD	POT	SHRD		PLAIN			CLAY	40	295.3
91-709-1-4	N & E OF MD	POT	SHRD		BRUSH			CLAY	19	133.4
91-709-1-5	N & E OF MD	POT	SHRD		INCI			BONE	2	9.2
91-709-1-6	N & E OF MD	POT	SHRD		INCI			CLAY	11	71.5
91-709-1-7	N & E OF MD	POT	SHRD		PUNCT	INCI		CLAY	1	10.6
91-709-1-8	N & E OF MD	POT	SHRD		BRUSH	APLQ		CLAY	4	32.6
91-709-1-9	N & E OF MD	POT	RIM		INCI			CLAY	1	7.8
91-709-1-10	N & E OF MD	POT	RIM		PUNCT			CLAY	1	3.4
91-709-2	N & E OF MD	POT	NVES	DAUB				CLAY	2	51.0
91-709-3	N & E OF MD	FAUNA	UMOD					BONE	6	10.8
91-709-4-1	N & E OF MD	CL	FD						4	19.2
91-709-4-2	N & E OF MD	GRP							14	470.1

APPENDIX E: SAU17 SURFACE COLLECTION AND DITCH INVENTORY

Accession #	Area	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
91-709-5-1	N & E OF MD	HIST	SHRD					GLASS	1	1.4
91-709-5-2	N & E OF MD	HIST		BUTTON				METAL	1	2.8
91-709-1-11	N & E OF MD	POT	SHRD		ENGRAV			CLAY	6	34.2
91-712-1-1	AREA H	POT	SHRD						8	20.3
91-712-1-2	AREA H	POT	SHRD		PLAIN			CLAY	22	247.9
91-712-1-3	AREA H	POT	SHRD		BRUSH			BONE	4	43.9
91-712-1-4	AREA H	POT	SHRD		BRUSH			CLAY	36	399.1
91-712-1-5	AREA H	POT	SHRD		BRUSH			SHELL	2	30.9
91-712-1-6	AREA H	POT	SHRD		INCI			CLAY	26	260.8
91-712-1-7	AREA H	POT	SHRD		INCI			SHELL	2	17.9
91-712-1-8	AREA H	POT	SHRD		PUNCT			CLAY	1	4.8
91-712-1-9	AREA H	POT	SHRD		ENGRAV			CLAY	10	62.6
91-712-1-10	AREA H	POT	SHRD		BRUSH	APLQ		CLAY	5	93.3
91-712-1-11	AREA H	POT	RIM		BRUSH	PUNCT	INCI	CLAY	1	25.6
91-712-1-12	AREA H	POT	RIM		PLAIN			CLAY	3	28.3
91-712-1-13	AREA H	POT	RIM		BRUSH			CLAY	1	13.3
91-712-1-14	AREA H	POT	RIM		PLAIN	RED		CLAY	1	13.4
91-712-1-15	AREA H	POT	RIM		PUNCT	INCI		CLAY	1	7.7
91-712-1-16	AREA H	POT	RIM		INCI			CLAY	4	28.5
91-712-1-17	AREA H	POT	RIM		ENGRAV			CLAY	5	32.1

APPENDIX E: SAU17 SURFACE COLLECTION AND DITCH INVENTORY

Accession #	Area	Gen	Spec	M-Fnct	Qual	Qual	Qual	Mtrl	Qty	Wt
91-712-2-1	AREA H	POT	NVES	DAUB				CLAY	49	838.6
91-712-2-2	AREA H	POT	NVES	DAUB	NEST			CLAY	4	31.2
91-712-3	AREA H	FAUNA	UMOD					BONE	7	136.9
95-451-1-1	GEN SURF	POT	SHRD						6	21.4
95-451-1-2	GEN SURF	POT	SHRD		PLAIN			CLAY	6	35.5
95-451-1-3	GEN SURF	POT	SHRD		BRUSH			CLAY	2	15.5
95-451-1-4	GEN SURF	POT	SHRD		ENGRAV			CLAY	2	9.6
95-451-1-5	GEN SURF	POT	RIM		PUNCT	ENGRAV		CLAY	1	5.1
95-451-2	GEN SURF	CL	FD						7	51.9
95-451-3-1	GEN SURF	HIST	SHRD						1	7.7
95-451-3-2	GEN SURF	HIST	SHRD					GLASS	1	8.9
95-451-3-3	GEN SURF	HIST						IRON	1	35.1

APPENDIX F: LARGE IMAGES OF GEOPHYSICAL DATA

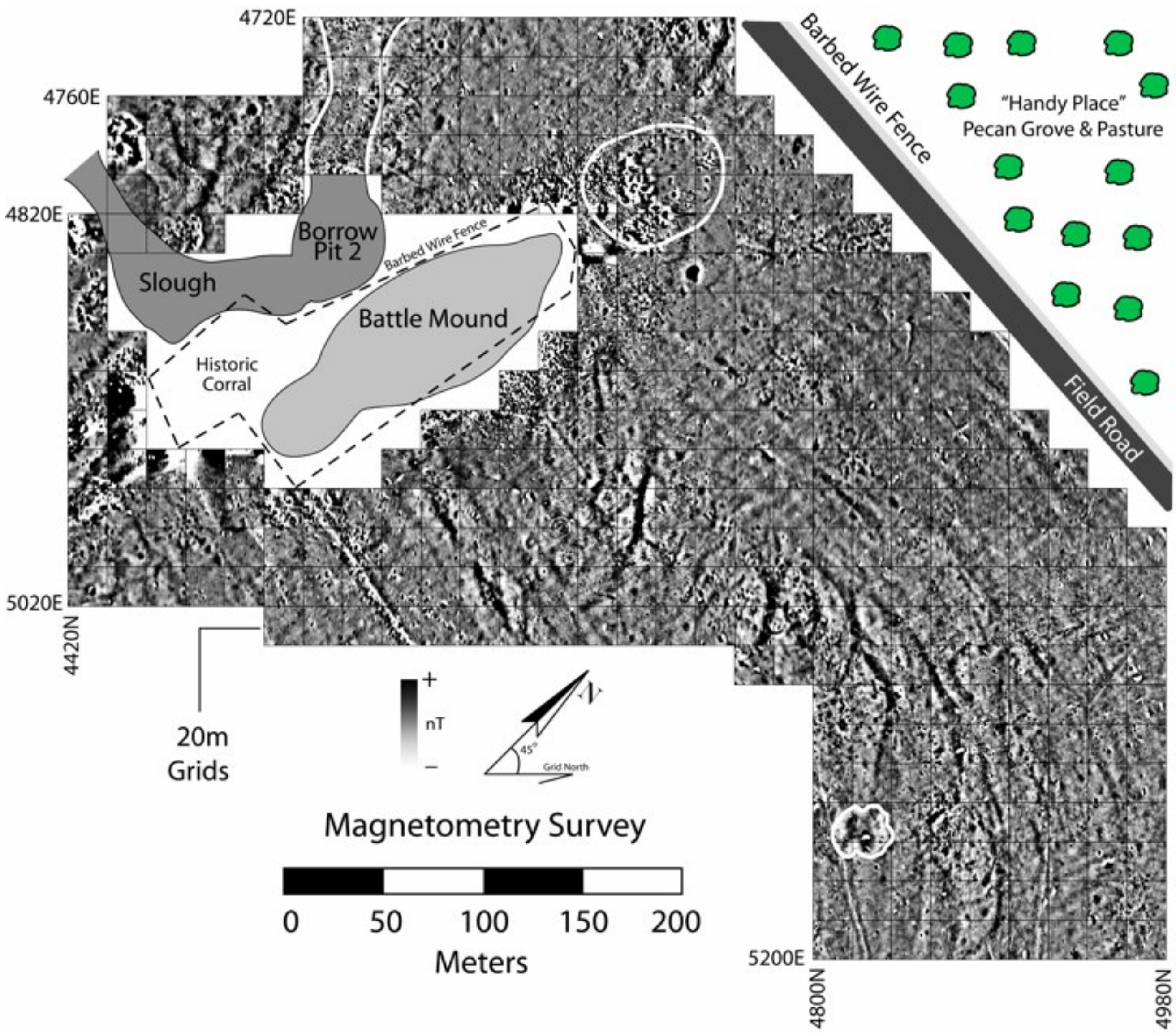


Figure 6.13. Total coverage of magnetic gradiometry survey.

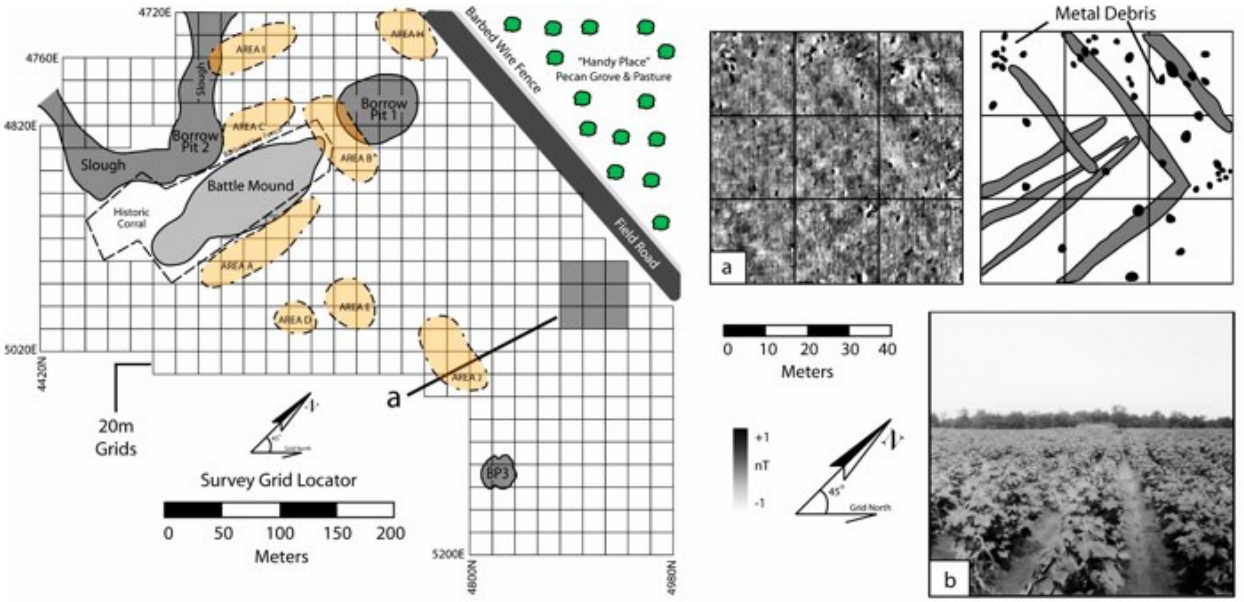


Figure 6.18. An example of an irrigation ditch that is visible on the surface. High concentrations of metal debris are scattered around the ditch and Borrow Pit 3.

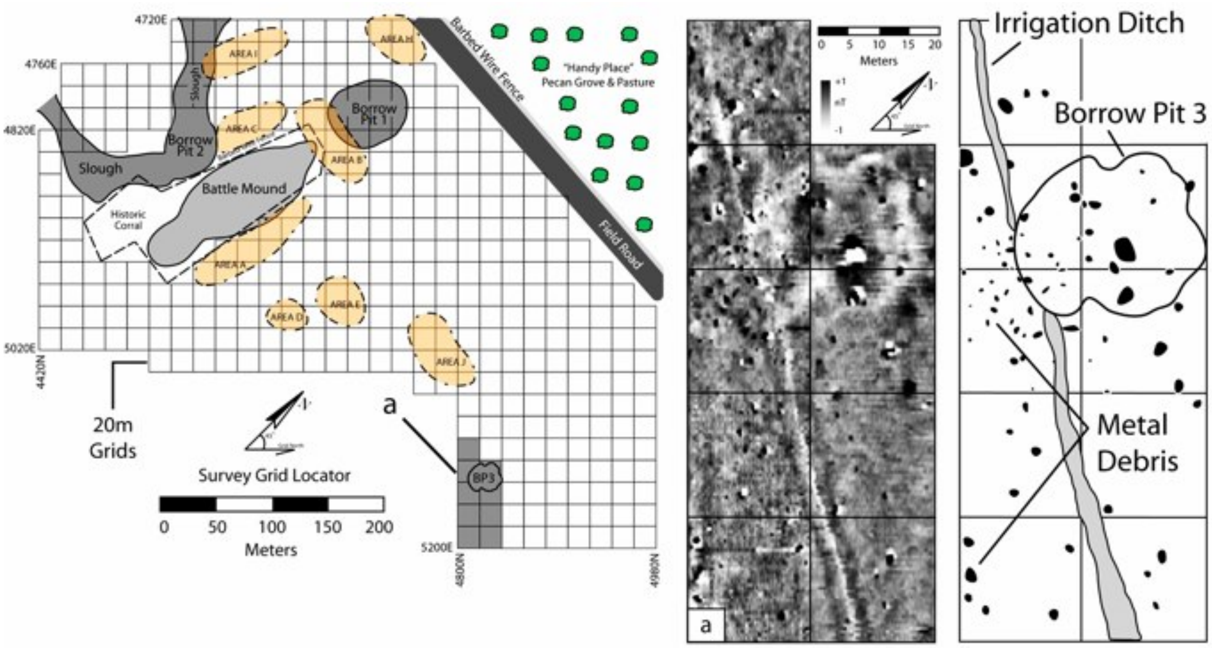


Figure 6.19. (a) An example of an irrigation ditch that is visible on the surface. (b) The ditch is adjacent to an historic farm road (80-CO-1719; used with permission by the Arkansas Archeological Survey.

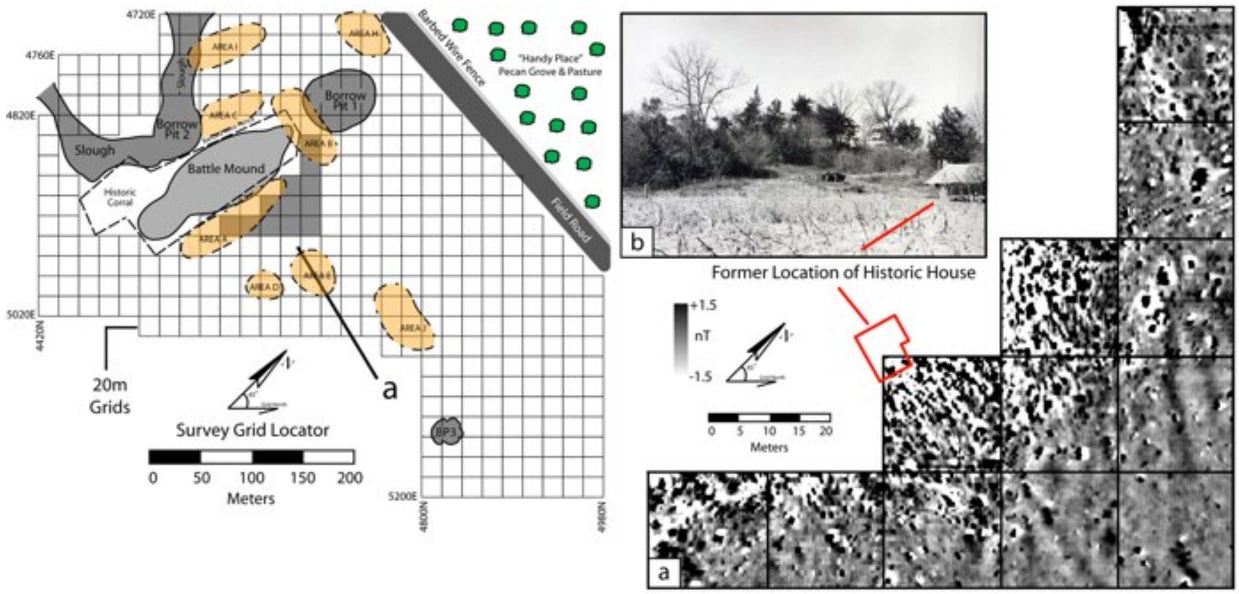


Figure 6.21. Survey area east of mound in Area A. (a) Historic photo showing former location of house and outbuildings (UAM 480089; used with permission from the University of Arkansas Museum Collections. (b) Magnetic gradiometry data showing concentrations of metallic debris.

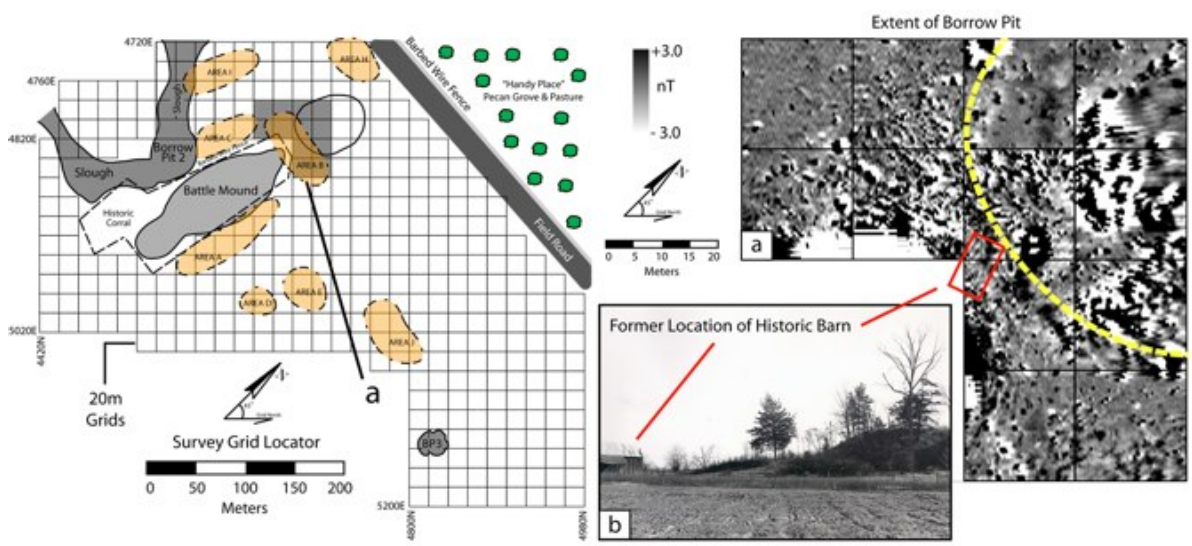


Figure 6.23. Survey area south of the mound. (a) Magnetic gradiometry results showing concentrations of metal at the barn location. (b) Historic photo showing former location of barn (AAS 682146; used with permission from the Arkansas Archeological Survey).

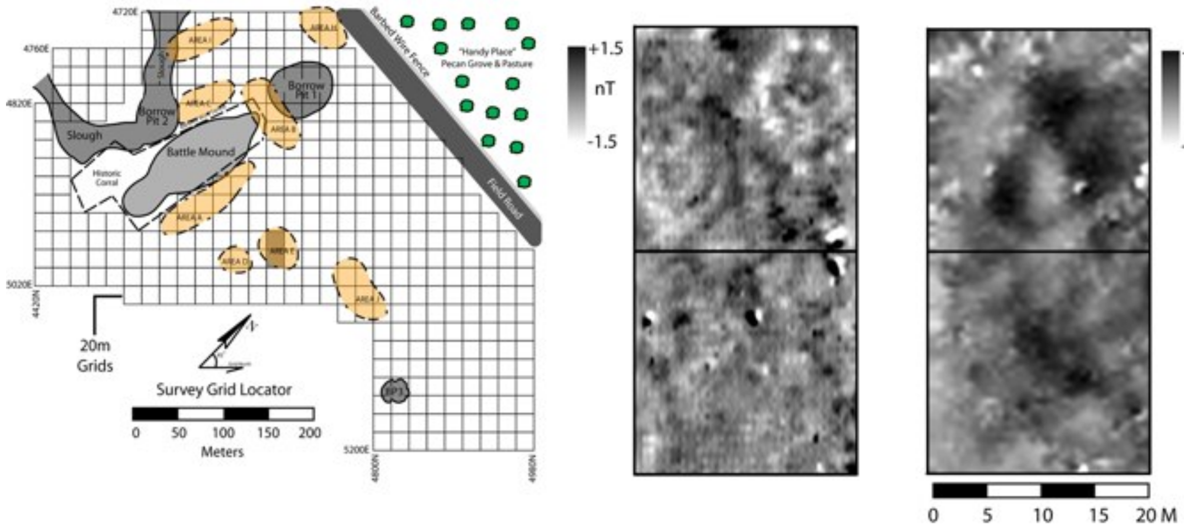


Figure 6.29. A comparison of magnetic gradiometry and electrical resistivity data in Area E. Resistivity results reveal concentrations of high resistivity that might represent components of house floor pits.

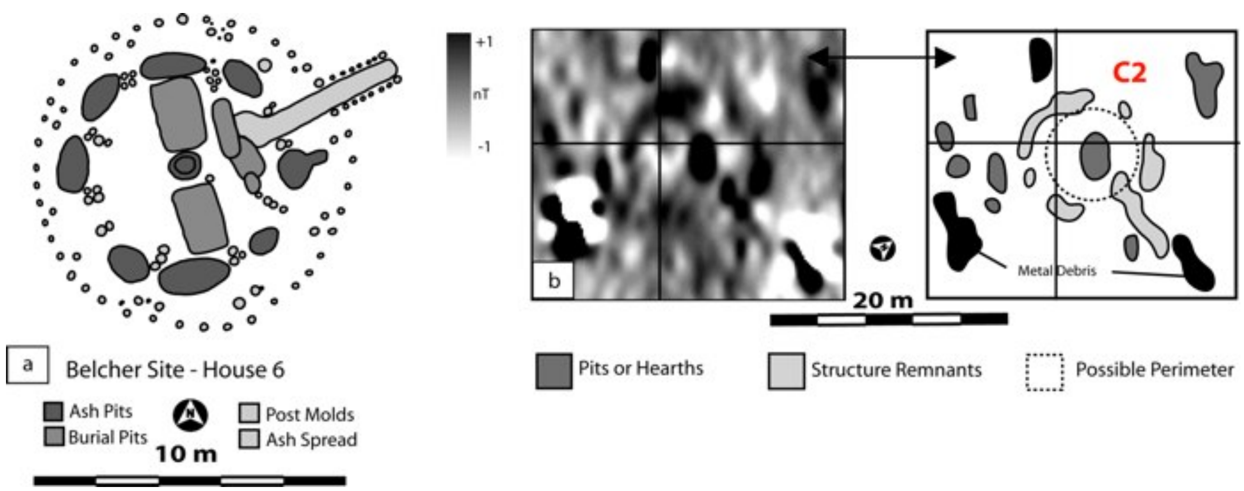


Figure 6.35. A comparison of (a) Belcher site House 6 (after Webb 1959:41) with (b) a small circular structure at Battle Mound. Note change of scale between compared images.

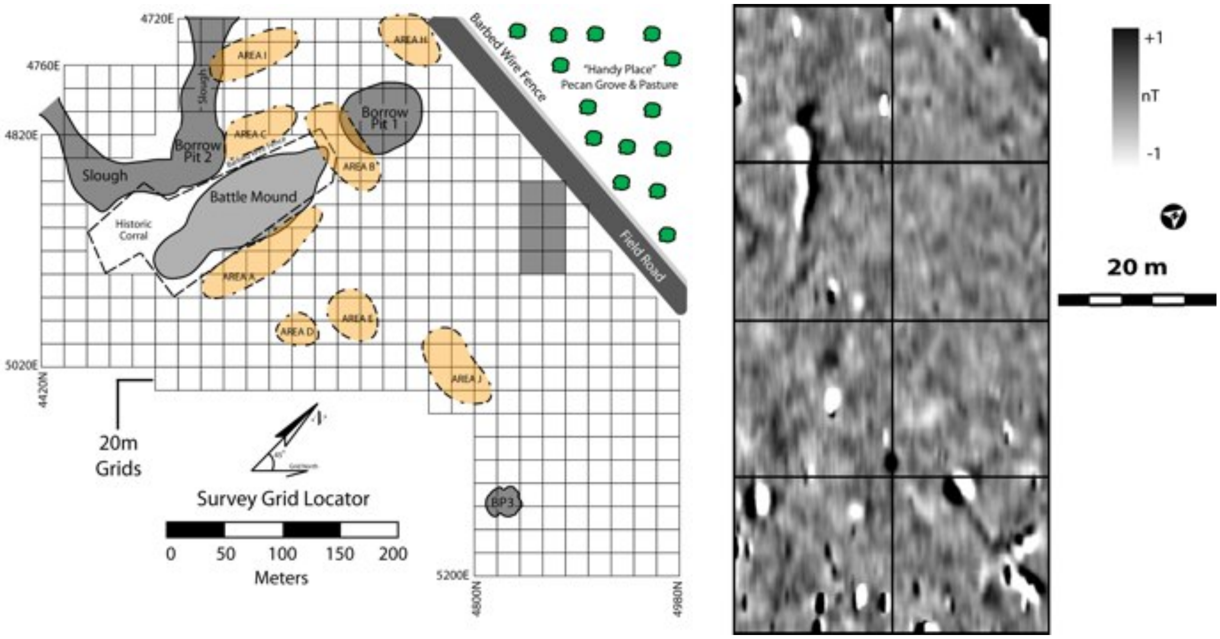
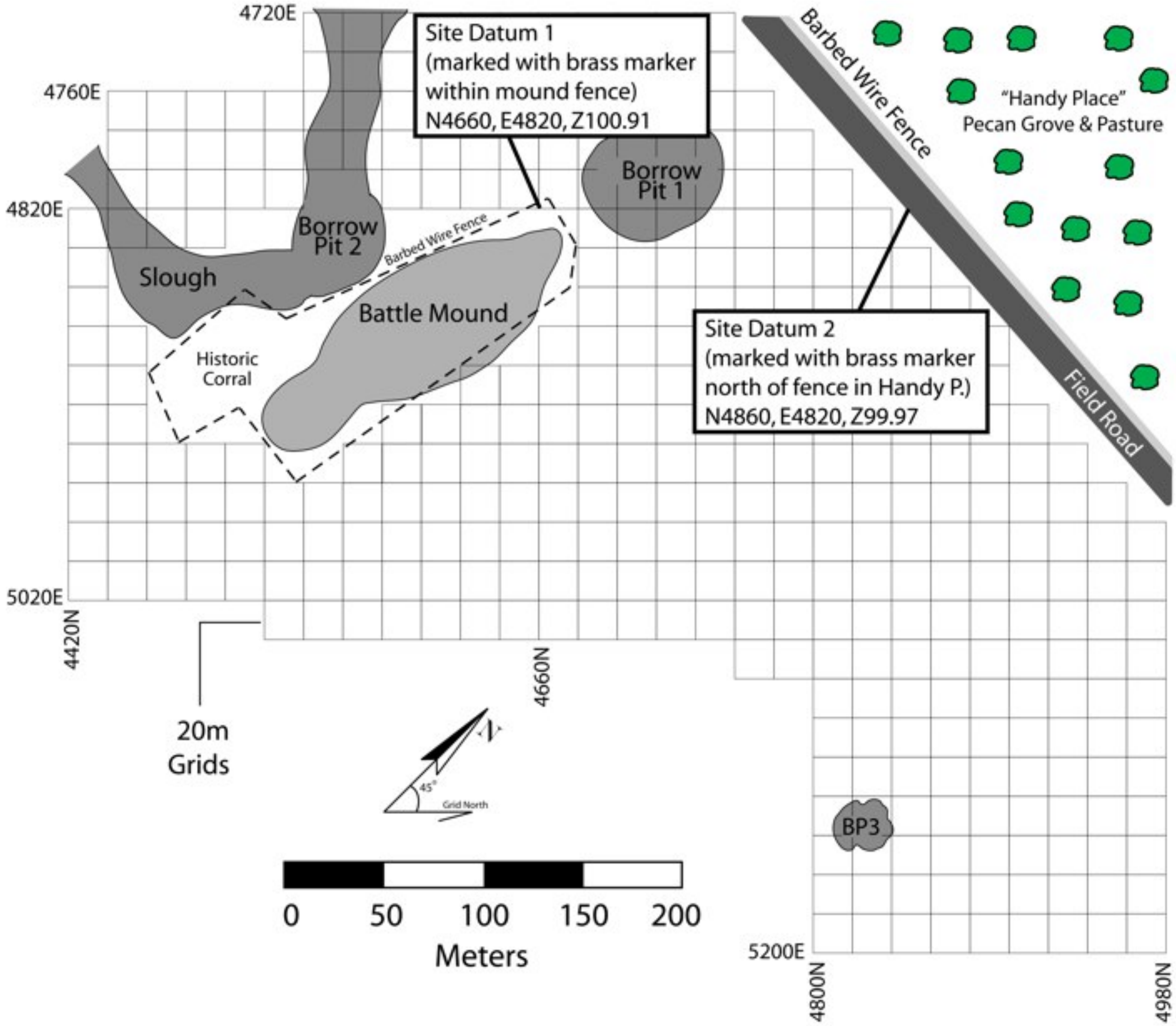


Figure 6.43. Two lightning-induced remanent magnetism anomalies producing interesting linear patterns of dipolar polarity situated perpendicular along the long axis of the anomaly.

APPENDIX G – GRID DATUM LOCATIONS




DATUM 2
N4860
E4820
Z99.97
DATUM 1
N4660
E4820
Z100.91

APPENDIX H: UNIVERSITY OF ARKANSAS MUSEUM PERMISSION FORM

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UNIVERSITY OF ARKANSAS
BIOMASS RESEARCH CENTER 123
FAYETTEVILLE, ARKANSAS 72701

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Applicant: Duncan P. McKinnon Date: April 12, 2013

Institution: University of Arkansas – Department of Anthropology

Address: Old Main 330, University of Arkansas

City, State, Zip Code: Fayetteville, AR 72701

Telephone: Work: 479-575-2508 Fax:

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The Applicant may request, and the Museum reserves the right, to modify the terms of this agreement. All such modifications must be in writing, and must be attached to, and be considered a part of, this agreement.

SIGNED:

Applicant: ______ ______ Date: 4/12/13

Museum Approved: ______ Date: 4/12/2013

Distribution: Registrar ___ Applicant ✓ Curator ___ Jan. 1997

APPENDIX I: ARKANSAS ARCHEOLOGICAL SURVEY PERMISSION FORM

REQUEST FOR PERMISSION TO PUBLISH OR QUOTE MATERIALS
PRODUCED BY THE ARKANSAS ARCHEOLOGICAL SURVEY

Please indicate specifically the material that you wish to publish or quote from:

Author/Title/Date of Publication: ______________________

____

Pages as they appear in the Survey publication: ______________________

Negative Number of Survey Illustration: 714100, 714163, 714239, 714229, 902337, 733912, 694091, 714186, 714206, 670304, 712361, 733142, 733901, 733265, 714058, 693992, 694054, 80-CO-1719, 682146, 80-CO-1718

Give the following information about the proposed publication venue.

Author (editor): __Duncan P. McKinnon______________________

Title: ___Battle Mound: Exploring Space, Place, and History of a Red River Caddo Community in Southwest Arkansas

Publisher: ___University of Arkansas - Dissertation

Projected publishing date: ___May 2013______________________

Print run: ______________ CD/DVD: ______________ Web: ______________

Projected retail price: ______________________

Intended audience: ______________________

Person requesting permission: ____Duncan P. McKinnon______________________

Signature: ______________________

Address: __126 Valley View Street, West Fork, Arkansas, 72774____________

Phone, e-mail, FAX number: __duncanm@uark.edu

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DATE: 4/12/13__________ APPROVED BY: ______