Domestic Activities and Household Variation at Catawba New Town ca. 1790-1820

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ABSTRACT

THERESA MCREYNOLDS SHEBALIN: Domestic Activities and Household Variation at Catawba New Town, ca. 1790-1820
(Under the direction of Vincas Steponaitis)

The Catawba Nation's endurance to the present day can be attributed in large part to its members' creative adaptations to the dynamic sociopolitical, economic, and demographic circumstances of the eighteenth and early nineteenth centuries. Archaeological data from the New Town community indicate that during the post-Revolutionary War Federal Period (ca. 1781–1820), Catawba families employed a variety of different social and economic strategies to survive in a homeland that had become dominated by Anglo-American yeoman farmers. My research explores this evidence for intracommunity variability at New Town and its implications. It integrates archaeological and ethnohistorical evidence to reconstruct the organization and use of domestic space by individual Catawba households. The results reveal that families living in the southern hamlet at New Town embraced western social and economic ideas and practices to a greater extent than their northern neighbors, who may have intentionally emphasized or even exaggerated differences between their lifestyles and those of their Anglo-American neighbors.

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My committee chair, Vin Steponaitis, has been an extraordinary mentor since my first visit to UNC as a prospective student. He encouraged me to take advantage of my background in geology and helped me establish contacts in the Department of Geological Sciences at UNC even before I had been admitted to the graduate program. Vin provided research assistantships and other opportunities to work on projects that expanded my skills and interests. He taught me valuable computer skills and how to apply quantitative

methods to archaeological data. Vin also performed the principal components analysis and several of the correspondence analyses conducted as part of this research. Vin's integrity, fairness, and dedication to his students have given me a model that I will attempt to emulate in my own career.

Brett Riggs and Steve Davis encouraged me to join the Catawba Project soon after I arrived at UNC and have been supporting and nurturing my growth as an archaeologist ever since. In fact, this study was Brett's idea in the first place—he encouraged me to look into the feasibility of a soil chemistry analysis at New Town, and the project grew from there. Brett also secured my funding from the SC SHPO and CCPD. Steve gave me several ideas for smaller projects along the way that helped me practice GIS and other skills that I needed for this research. Brett and Steve also performed the initial analyses of the New Town data upon which this study builds.

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ultimately decided to use inductively coupled plasma spectrometry (ICP) for my analyses. Larry Benninger allowed me to work in his geochemistry lab on many different occasions, helped me learn proper laboratory techniques, and gave me helpful advice regarding analytical chemistry. Mark Roberson introduced me to Ray Coish at Middlebury College, who in turn allowed me to send my samples to his lab for ICP analysis. Mark also analyzed several of my soil samples to make sure that the results obtained from Middlebury were reliable. Lee Corbett performed all of the analyses at Middlebury and provided assistance in manipulating the raw data. Ellen Sedman spent many hours grinding and weighing soil samples with me in a dreary workspace in Wilson Library; not only did I appreciate her technical assistance, but our conversations kept my spirits up during what could otherwise have been a pretty miserable task.

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INTRODUCTION

During the eighteenth and early nineteenth centuries, Catawba Indians living in the South Carolina interior continuously adapted to dynamic sociopolitical, economic, and demographic circumstances. Ongoing ethnohistorical and archaeological investigations conducted as part of the Research Laboratories of Archaeology's Catawba Project are illuminating some of the key adaptations that contributed to the Catawba Nation's endurance to the present day (e.g., Davis and Riggs 2004; Fitts 2006; Heath 2004; Plane 2004; Riggs et al. 2006). Thus far, these studies have tended to assume a broad diachronic perspective, documenting general strategies at different periods in the Nation's history and situating them within the context of the prevailing politico-economic climate.

As detailed excavation data accumulate for individual sites, it has become possible to more fully explore Catawba lifeways during particular periods. Some of the most extensive archaeological data come from New Town, one of the Catawba Nation's primary settlements during the post-Revolutionary War Federal Period (ca. 1781–1820). These data indicate that rather than adopting a uniform set of practices, New Town families pursued a variety of social and economic strategies. Artifact assemblages from discrete cabin loci in two neighborhoods reveal socioeconomic disparities among

households and suggest domestic activities varied between neighborhoods (Davis and Riggs 2004).

The research described here explores this intracommunity variability at New Town and its implications for understanding Catawba adaptations during the Federal Period. It integrates archaeological and ethnohistorical evidence to reconstruct the organization and use of domestic space by individual households. The results reveal new aspects of daily life at New Town and the creative ways in which Catawba families both adapted to and shaped the Federal Period landscape.

Research Questions and Objectives

This study was guided by the following questions:

1. What kinds of domestic activities were conducted by the Catawba families at New Town, and how did these activities vary among households and between neighborhoods?
2. What does the study of domestic activities reveal about Catawba social, economic, and political strategies during the late eighteenth and early nineteenth centuries?

Accordingly, the main research objectives were to identify and interpret the nature and spatial organization of domestic activities at New Town. Three types of archaeological analyses were combined to identify patterns in the use of space in and around individual cabin seats: artifact functional analyses, artifact spatial distribution analyses, and soil chemical analyses. These patterns were then interpreted with the help of relevant documentary evidence.

Household Archaeology at New Town

As the basic socioeconomic unit of society, the household is an ideal unit of analysis for investigating the ways in which Catawba families engaged the social, political, and economic circumstances of the late eighteenth and early nineteenth centuries. When fine-scale spatial data from a broad excavated area are available, household-level investigations can explore the relationships between family-level strategies and community-level conditions, processes, and values (Hodder and Cessford 2004; Lightfoot et al. 1998; Marcoux 2008; Riggs 1999; Wesson 2008).

The Social Household

As an anthropological concept, the household has been defined in a number of subtly different ways (e.g., Blanton 1994; Netting et al. 1984a). Most scholars would agree, however, that it is fundamentally a task-oriented social group. In particular, a household is a group of people who together perform the essential activities of daily life. These activities typically encompass economic production and consumption, socialization, and reproduction (Wilk and Netting 1984). Individual members of a household often, but not necessarily, live together and may or may not be related (Netting et al. 1984b).

There is also consensus among anthropologists that the household is a meaningful unit of analysis. Intermediate between the individual and the community, the household is the context in which the two interconnect. As Netting et al. (1984b:xxii) point out, the household serves as the "primary arena for the expression of age and sex roles, kinship, socialization, and economic cooperation where the very stuff of culture is mediated and

transformed into action." In the household, individuals learn roles, customs, and meanings. Through daily domestic practices, schemes of perception and appreciation are enacted and reinforced (Bourdieu 1977; Hodder and Cessford 2004).

The household is thus the chief context within which individuals respond and adapt to social, economic, and political changes (Inomata and Sheets 2000; Netting et al. 1984b; Wilk and Netting 1984; Wesson 2008). At the same time, it is also a context through which such changes are effected. The routine activities performed by members of a household both produce and reproduce dispositions, relationships, and norms (Bourdieu 1977; Hodder and Cessford 2004).

It is these recursive relationships between individuals and households and between households and larger processes that make the household a significant unit of analysis, especially in archaeology where it is difficult to focus on individuals. Through the study of households and associated domestic activities, archaeologists can explore topics such as social, economic, and political relationships and inequalities; divisions of labor; identity and ethnicity; gender; factions; and sexuality (e.g., Lightfoot et al. 1998; Marcoux 2008; Meskell 2002; Riggs 1999; Wesson 2008).

The Material Household

Archaeologists necessarily study households through their material manifestations, which include artifacts, features, and other traces of activities performed by household members. In most cases, the material household also includes a dwelling or other domestic structure. Consequently, it is often possible to correlate houses with households.

Fortunately, the material household is a window to the social household. According to Deetz (1996:126),

> Vernacular [domestic] structures are the immediate product of their users and form a sensitive indicator of these persons' inner feelings, their ideas of what is or is not suitable to them. Consequently, changes in attitudes, values, and worldview are very likely to be reflected in changes in vernacular architectural forms.

Thus the features of domestic architecture which are amenable to archaeological analysis (size, quality, layout, style, etc.) convey both economic and social meaning. Perhaps even more so, activity residues also provide significant social insights, for it is "the distribution of activities and objects within the internal space of the house" that is most completely "given over in reality to the regulated improvisations of the habitus" (Bourdieu 1977:21). It follows then that intracommunity variations in the organization and use of space in and around the house can provide discernible evidence of social and economic differences among households.

Catawba Households

In the case of the Catawba Indians at New Town, the correlation between house and household is reasonable. Ethnohistoric accounts describing late eighteenth- and early nineteenth-century houses rarely mention their demographic composition, suggesting that the *typical* household conformed to the Western ideal of a nuclear family living in a discrete structure (e.g., Coke 1792; Jones 1815; Smyth 1784). These accounts also suggest that, as in Anglo-American communities, there were some cases where an extended family inhabited a single dwelling, presumably as a result of particular circumstances that made such an arrangement desirable.

New Town cabin seats and their associated material remains thus have the potential to reveal interhousehold similarities and differences with respect to social, economic, and political strategies and world view. This research analyzes these data to identify specific activities and the areas in which they were performed. The results are then interpreted with the help of documentary evidence to reveal insights into economic organization, gender roles, class differences, interpersonal relationships, and the ways in which New Town families viewed the relationship between themselves and their Anglo-American neighbors.

Activity Area Research

Activity area research encompasses a variety of methods that explore material evidence to identify specific activities and the locations in which they were performed. The research conducted for this study employs several types of analyses to examine two categories of evidence: artifacts and the chemical characteristics of soils.

Artifact Analyses

The frequencies, distributions, and associations of artifacts observed in the archaeological record are the result of a complex interplay between past human behaviors and subsequent cultural and natural formation processes. Consequently, when formation processes are adequately understood, it is often possible to infer the nature and location of past activities from spatial patterning in the artifact data (Carr 1984). The New Town site is particularly amenable to this sort of spatial analysis because it was occupied for a relatively short period of time and has experienced minimal post-occupation disturbance.

In addition, three seasons of detailed excavations have resulted in substantial horizontal exposure of the site.

Spatial patterns in the New Town artifact data are identified through visual inspection facilitated by a geographic information system (GIS) application and multivariate statistical techniques. While early examples of activity-area research employed sophisticated statistical techniques, subsequent concerns over archaeology's "misuses and outright abuses" (Thomas 1978:231) of such techniques and the concomitant maturation of geographic information science have made visual inspection of spatial data a practical alternative approach. The New Town data are manipulated, combined, and mapped in a variety of ways, using a modified version of South's (1977) scheme of historic artifact classification as a starting point. Linking arguments based on ethnohistoric research are invoked to help explain the relationship between the resulting patterns and past human behaviors.

Soil Chemistry Analyses

Activities such as waste management, food preparation, construction, and craft production may alter the chemistry of soils through the deposition or removal of particular elements or compounds. The chemical effects of these activities often persist in the soil even after the area has been cleared of all tools and debris or used for some other purpose. When the altered soil is compared to nearby off-site soils, the chemical enrichments or depletions can be detected, and the sources of any significant chemical anomalies can be ascertained through comparison with ethnoarchaeologically-documented activity signatures (Fernández et al. 2002; Middleton 2004; Middleton and

Price 1996; Myster 1994). Studies of this sort have enabled archaeologists to successfully distinguish between primary and secondary refuse to identify original activity areas (e.g., King 2008).

To complement the artifact distribution analyses, a soil chemistry study was conducted for one cabin area at New Town. Spatial patterns in the resulting chemical data are again identified using visual techniques aided by GIS-generated maps and multivariate statistical techniques. The chemical patterns are then linked to specific human activities by comparing them to activity signatures documented through ethnoarchaeological research.

Interpreting Activity Areas

The use of domestic space reflects individual choices that have been influenced by the natural environment; internal and external social, economic, and political factors; and world view (Lightfoot et al. 1998). Differences in the ways households within a given community used space presumably reveal the preferences and decisions of individual actors. Activity area data from New Town are thus well suited for revealing family-specific strategies and aspects of the local cultural context within which they were practiced.

The stories behind these data are worth telling. Faced with a new post-Revolutionary War landscape, the Catawba families at New Town made decisions about how to situate themselves socially, economically, and politically with respect to their Anglo-American neighbors and each other. These strategic decisions, and similar ones made by families that came before and after, enabled the survival of a Catawba cultural

heritage that the Nation celebrates today. The archaeological analyses summarized here bring some of the details of this fascinating but poorly documented history to light.

Organization of the Study

The next two chapters discuss pertinent background information. Chapter 2 provides a brief overview of the Catawba Nation's colonial and early post-Revolutionary War-era history. Chapter 3 focuses on the community at New Town and introduces relevant documentary and archaeological evidence.

Chapters 4–6 present the results of the archaeological analyses. Chapter 4 describes the artifact frequency and functional analyses, while Chapter 5 deals with the artifact spatial distribution analyses. Chapter 6 discusses the soil chemistry analyses.

Finally, Chapter 7 synthesizes the results of the various analyses and evaluates their implications for understanding the multifaceted lives and roles of the Catawba Indians during the Federal Period.

CHAPTER 2

THE EARLY CATAWBA NATION

> *Nation declining. during the war had 40 or 50 warriors in service. now not more than 30 in the nation. ... Women have but few children, many none. Children die - all suffer from too much whisky and too little bread. in 40 years probably extinct.* [Jones 1815]

> *The period perhaps is not remote, when the last sod will be thrown on the grave of a people who, individually and collectively, have been faithful to the land of their adoption, and in times of peril, zealous in the protection of its honor and its interests.* [Seabrook 1849:22]

> *This, as you are aware, is now but the small remnant of a once powerful and numerous tribe, reduced to penury by their roving and dissipated habits. I am informed that the whole tribe will not make more than one hundred bushels of corn this year, and there is no reason to hope that it will ever be better with them… . It is the opinion of Mr. White, the Indian Agent, that nothing short of emigration to a State more genial to their habits, will save them from utter annihilation.* [Means 1851:19–20]

Despite such grim predictions of its impending demise during the nineteenth century, the Catawba Nation today has approximately 2600 enrolled members (Catawba Indian Nation 2008). It is South Carolina's only federally recognized tribe and retains a small reservation in ancestral territory. It also boasts the only uninterrupted native pottery tradition practiced east of the Mississippi River, with more than 200 tribal members engaged in some capacity (Blumer 2004).

The Catawbas' remarkable endurance to the present day can be attributed in large part to their creative adaptations to the dynamic sociopolitical, economic, and demographic circumstances of the late seventeenth through early nineteenth centuries. As

European settlers spread out and modified the Carolina landscape to make it more amenable to an agrarian lifestyle, the Catawba Indians repositioned their communities and carved out new roles in what was becoming an increasingly unfamiliar homeland. Although disdained by many of their Anglo-American neighbors for an apparent lack of industriousness, in reality the Catawbas created unique economic opportunities for themselves. Over a century and a half, the Nation variously used trade, militarism, reservation land leases, and cottage pottery production[1] to not only ensure their survival but also secure influence and prestige among peer populations during the Colonial and post-Revolutionary periods.

The archaeological record from New Town must be interpreted within this particular historical context. Accordingly, this chapter briefly summarizes relevant aspects of the Catawba Nation's colonial history and its role within post-Revolutionary South Carolina. For more comprehensive accounts of early Catawba history, the reader is referred to Brown (1966), Hudson (1970), and Merrell (1982, 1989).

Colonial South Carolina (ca. 1670–1775)

Europeans began exploring present-day South Carolina early in the sixteenth century, but English settlement did not begin until 1670, when Charles Towne (modern Charleston) was founded on the west bank of the Ashley River (Figure 2.1). The proprietary colony initially focused on subsistence agriculture, but its setting was ideal for the growth of commercial ventures. In 1680 the town relocated to its present position at the confluence of the Ashley and Cooper rivers, where it quickly grew into a major British port city and the colonial center of commerce for the southern colonies. Early

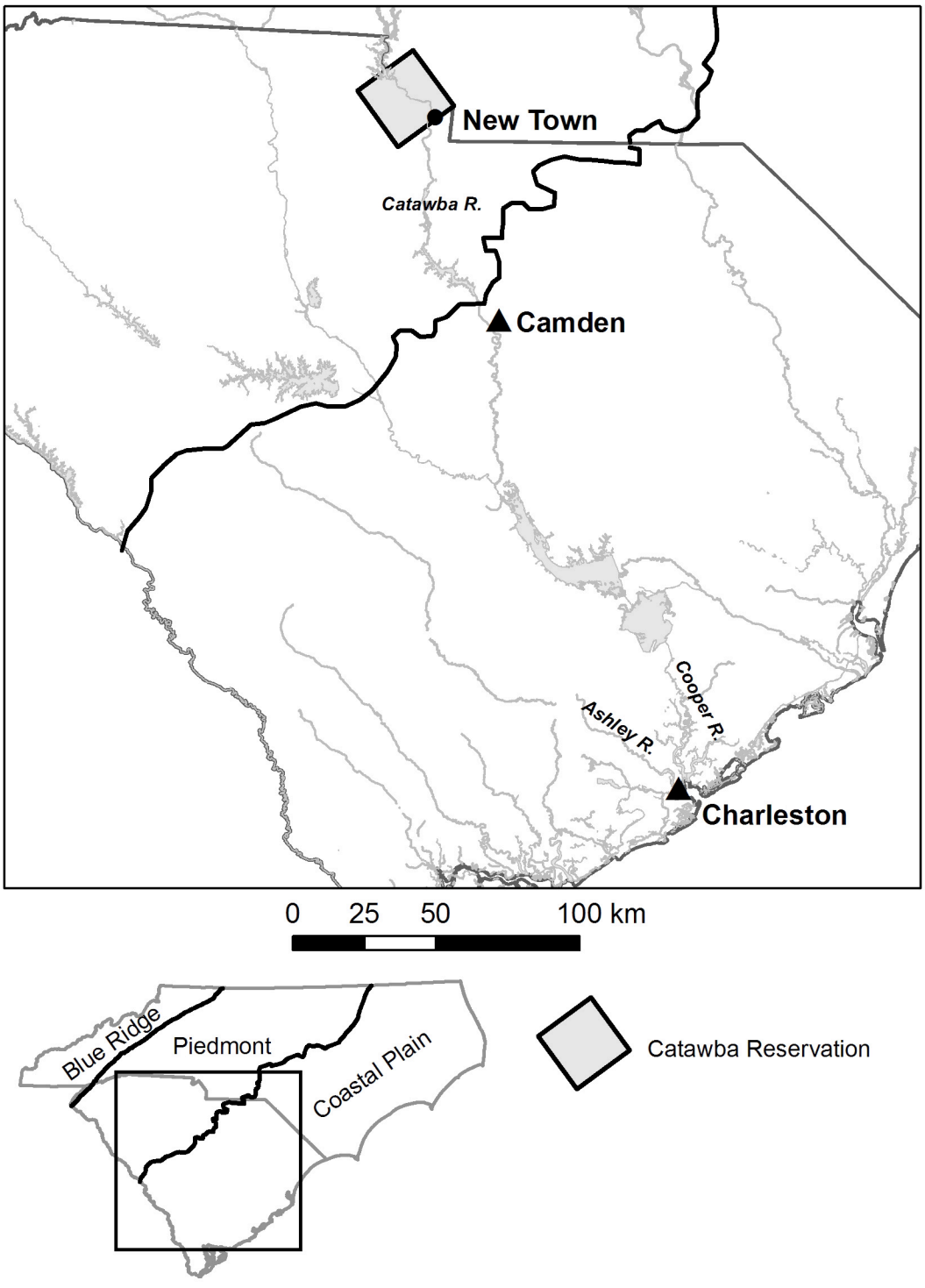

Figure 2.1. Map of South Carolina showing places mentioned in the text.

exports included skins, naval stores, timber, grain, cattle, and Indian slaves destined for European and West Indian markets (Gallay 2002; Workers of the Writers' Program of the Work Projects Administration in the State of South Carolina [SC WPA] 1941), but by 1730 plantation agriculture formed the basis of the economy. The colony's population was concentrated in swampy coastal areas, where large, dispersed plantations employed slave labor for rice and eventually indigo cultivation (Lewis 2006).

In many ways, South Carolina's prosperity and even survival depended on the colony's relationship with its indigenous neighbors. By the early eighteenth century, trade in deerskins and Indian slaves had become big business, with the Indian slave trade possibly being "the most important factor affecting the South in the period 1670 to 1715" (Gallay 2002:7). By 1707, the scale and significance of the colony's exchange with native groups prompted the Commons House of Assembly to appoint an Indian Agent and governing board to provide oversight and prevent abuses (Ramsey 2003:65).

This attempt at regulation notwithstanding, cultural misunderstandings and diplomatic blunders provoked an Indian uprising in 1715. The Yamasee War (1715–1717) claimed the lives of more than 400 colonists, forever altered the cultural landscape of the Carolina Piedmont, and brought an end to the colony's proprietary government (Ramsey 2003:44). The conflict also fundamentally changed relationships between South Carolina and its Indian neighbors by bringing an end to the Indian slave trade (Gallay 2002:338; Ramsey 2003:45). Beginning in 1716, South Carolina negotiated permanent exchange rates through treaties with individual Indian nations, and diplomatic rituals and gift-giving became annual events that were crucial to maintaining amicable trading partnerships (Ramsey 2003:74–75).

At the same time, tribal migrations and other demographic changes spurred by the Yamasee War opened the backcountry to frontier settlement. Land grants and other incentives offered by South Carolina during the 1730s drew British, German, Swiss, and French protestants into the interior (Lewis 2006). As the newcomers encroached upon their territories, Catawbas and other native groups in the interior formed new alliances with each other, their white neighbors, and colonial officials in Charles Town.

The Catawba Melting Pot

When English explorer John Lawson (1709) traveled through the Carolina Piedmont in 1701, he found a landscape thickly populated by "Waxsaws," "Esaws," "Sugerees," "Kadapaus," and other ethnically distinct groups. These peoples lived in compact agricultural villages along rivers and the Great Trading Path, with some Nations large enough to occupy multiple villages. Lawson described towns with wattle-and-daub dwellings covered in bark and "Theatres" or "State-Houses" constructed through communal labor and used for ceremonies, assemblies, and other gatherings.

The physical and cultural landscape that Lawson encountered had already been influenced by more than a century of interactions and trade between native groups and Europeans, but the next few decades brought rapid and dramatic transformations. By 1715, pressures brought about by European-introduced infectious diseases, hostile northern tribes, and the Indian slave trade had compelled many previously independent groups to join forces with others and, ultimately, the Catawba confederacy (Davis 2002; Davis and Riggs 2004; Merrell 1982). The years after the Yamasee War witnessed the coalescing of these and other groups into the "Catawba Nation" (Brown 1966). By 1720,

most groups in the North Carolina Piedmont had abandoned their villages and either moved north to join groups at Fort Christanna in Virginia or south to seek the protection of the still powerful Catawbas (Davis 2002). In 1743, James Adair (1930 [1775]) heard more than twenty different dialects spoken among the Catawbas, and by 1760 all Indian groups living in the South Carolina interior except the Cherokees were part of the Nation. Among the incorporated groups were the Cheraws, Sugarees, Waxhaws, Congarees, Santees, Pedees, Waterees, and Wateree-Chickanees. Refugees of the Shakori, Eno, Sissipahaw, Keyauwee, Sewee, Waccamaw, Woccon, Etiwaw, Tutelo, Saponi, Natchez, Coosah, and Yamasee tribes were also present (Adair 1930 [1775]; Brown 1966; Merrell 1989; Mooney 1894).

At first, these member groups ardently maintained cultural autonomy. A 1721 deerskin map believed to have been authored by a Catawba leader depicts an alliance of 11 distinct communities, none of which are designated "Catawba" (Fitts 2006:10). Ethnic distinctions quickly faded, however, as continued population loss upset the rhythm of daily life, undermined political and religious authority, and eliminated cultural knowledge. Between 1718 and 1753, the effects of raiding and five epidemics reduced Catawba population by about half. Encroachment by white settlers during the 1730s would have encouraged the weakened Catawba communities to minimize their differences in order "to present a unified front to the outside world" (Fitts 2006:12). A 1756 map suggests that an estimated 1000 or so Catawbas were by then occupying six towns along the Catawba River in the area of modern York County (Davis and Riggs 2004). The names of some of these towns (e.g., Charraw Town) indicate they still housed somewhat distinct ethnic populations, but intermingling may have been common.[2]

Following a catastrophic smallpox epidemic in 1759–1760 that reduced Catawba numbers by an estimated two-thirds to three-fourths (McReynolds 2004:Table 1; *Yorkville Enquirer*, 7 August 1879), approximately 250 surviving members of the nation of refugees embraced the corporate Catawba identity that persists to this day (Merrell 1989; Riggs et al. 2006).

A Shrinking Homeland

The second half of the eighteenth century brought major changes to the Catawbas's ancestral territory. During the 1750s and 1760s, Scots-Irish settlers flooded into the South Carolina Piedmont from Pennsylvania, Virginia, and North Carolina. During the 1760s, Pine Tree Hill (renamed Camden in 1768) emerged as the center of trade and communications in the South Carolina interior (Lewis 2006:22). Commodities, news, and people passed through the settlement en route to and from Charles Town and backcountry communities along the North Carolina-South Carolina border. By the early 1770s, frontier settlers "had made the complexion of the piedmont white and transformed its hunting grounds into plowed fields and pasturage" (Moore 2007:31).

Many of the Catawbas who survived the 1759 smallpox epidemic did so by fleeing their infected towns, and in 1760 they abandoned them for good (Merrell 1989; Riggs and Davis 2004). Families and friends regrouped at Pine Tree Hill, where women and children found protection while warriors fought alongside the British in the Anglo-Cherokee War (Brown 1966; Hudson 1970). Presumably, the Catawbas at Pine Tree Hill would have also become more familiar with British colonial lifestyles and the imported goods that arrived from Charles Town.

When the Catawbas returned upriver in 1762, they settled in two villages in the Waxhaw Old Fields (*South Carolina Gazette* 1760; Davis and Riggs 2004; Riggs 2010). In response to their concerns about the continuing influx of land-hungry Scots-Irish families and as a token of appreciation for their military service, the 1763 Treaty of Augusta secured the Nation's title to a portion of its ancestral territory in the form of a fixed 225-square-mile reservation in modern Lancaster and York counties (Blumer 2007; Booraem 2001; Brown 1966; Heath 2004; Hudson 1970). By the eve of the American Revolution, some 400–600 Catawbas had come together to form a single settlement on the east side of the Catawba River and north of Twelve Mile Creek. William Moultrie, a commissioner on the 1772 survey to establish the boundary between North and South Carolina, observed that the Catawba town was "built up in a very closs [sic] manner and the field that they plant does not exceed 100 acres" (Moultrie 1942 [1772]:553).

A New Way of Life

In contrast to the Lowcountry's large-scale commercial production of rice and indigo, the backcountry's economy was based on subsistence farming and regional exchange. Initially, families primarily produced staples such as corn, potatoes, peas, pumpkins, oats, hogs, and cattle for their own consumption (Moore 2007:46). As Pine Tree Hill grew, however, so did a new regional market for surplus agricultural products, imported goods from Charles Town, and locally manufactured leather products (Lewis 2006:18). During the 1760s, the market for wheat expanded to include the South Carolina Lowcountry and the British West Indies, but commercial production still appears to have been limited to an elite group of landowners (Lewis 2006:19; Moore 2007:45–46).

British imports were costly along the frontier, and backcountry settlers consequently relied on many locally manufactured goods. Pottery was one such local product that shows up in both documentary and archaeological records from the period. Vessels crafted by Moravian potters in central North Carolina were introduced to the backcountry in 1756 (Lewis 2006:58). Between 1772 and 1780, master potter John Bartlam produced fine earthenware or "Carolina creamware" in Camden (Lewis 2006:58–59).

As the deerskin trade waned, the Catawba Nation embraced new economic strategies suited to the backcountry market. Catawba potters began producing distinctive "colono-wares" specifically intended to appeal to British colonists (Davis and Riggs 2004; Riggs et al. 2006; Riggs 2010). By 1772, women were going door to door selling their pots and other crafts such as moccasins, baskets, and cane mats (Smyth 1784). Catawba pottery from this period has been found in archaeological contexts at Camden and other eighteenth-century sites in South Carolina (Lewis 2006; Riggs 2010).

Sometime during the 1760s, the Catawbas also began leasing out parcels of their new reservation. In the 1770s, a fresh wave of Scots-Irish families arrived from Ireland to join family members and/or take advantage of South Carolina's generous land grants (Booraem 2001). As unclaimed land became increasingly scarce in the Waxhaws area and other parts of the backcountry, yeoman farmers were attracted to suitable agricultural tracts in Catawba territory. Individual Catawba landlords issued fixed-term leases to white tenants for periods of up to 99 years (Pettus 2005:8).

Revolutionary Period South Carolina (ca. 1776–1781)

During the Revolutionary period, South Carolina settlers were divided among rebels and loyalists. Charles Town and Camden fell to the British in 1780, but backcountry rebels held out with guerilla-style combat. In 1781, a group of Patriots under Major General Nathanael Greene chased British General Charles Cornwallis and his men out of the backcountry, but not before the latter had caused significant destruction in local communities (Moore 2007). Following the battle at Guilford Courthouse in North Carolina, Cornwallis fled to Virginia, where the British were ultimately forced to surrender at Yorktown.

The Patriot Indians

By the time of the American Revolution, the Catawba Indians had been military allies of South Carolina for more than a century. Beginning in the late 1600s, Catawba warriors profited from a reputation for a "warlike disposition" and their backcountry location (Adair 1930 [1775]; Heath 2004). British officials viewed the Catawbas' territory as a valuable buttress along South Carolina's western frontier and used gifts and other incentives to retain the Nation's loyalty. At the same time, Catawba leaders "carefully manipulated colonial officials from Virginia and the Carolinas…to garner the best possible arrangements, in terms of political patronage and gift payments" (Heath 2004:84). Throughout the Colonial period, Catawba warriors served as ethnic soldiers in British clashes with other European powers and their Indian allies. Even after they could no longer field a significant contingent of warriors, the "psychological threat of their comparatively small but potentially highly lethal force, derived from their long-standing

martial mystique, allowed the Catawbas to negotiate and preserve their place as a distinctive minority in American society from a position of influence" (Heath 2004:96).

Despite this long history of collaborating with South Carolina's British government, the Catawbas switched allegiance during the Revolutionary period. In 1775, a group of Catawba warriors met with South Carolina patriots and pledged to support the American cause. Unfortunately, the returning delegation carried smallpox into the Catawba settlement (Kirkland and Kennedy 1905; Swanton 1946), and the disease appears to have reached epidemic proportions (*Fort Mill Times*, 18 June 1925:1). By the time it ran its course, about half of the town's population had succumbed (McReynolds 2004:53).

Decimated though they were, Catawba warriors distinguished themselves as "the Patriot Indians" by aiding the Americans throughout the Revolution (Heath 2004:89). During the British occupation of South Carolina in 1780, the 200 or so surviving Catawbas fled to a safer, undisclosed location in Virginia (Hudson 1970). During their absence, British troops under Lord Francis Rawdon looted and burned the abandoned settlement. The Catawbas returned in 1781 to find their "cattle, hogs, fowls, &c., all gone" (David Hutchison 1843 in Brown 1966:271).

Federal Period South Carolina (ca. 1781–1820)

The devastation wrought by the Revolutionary War temporarily impeded the South Carolina backcountry's fledgling market economy. Its recovery was accelerated by the "wheat revolution" (Moore 2007:9) of the 1790s, which fundamentally transformed the nature of production, consumption, labor, and social structure. An increase in

commercial wheat production was accompanied by an increase in slave labor, and soon the area surrounding the Catawbas resembled the Lowcountry's slaveholding society:

> By 1800 more than half of all Waxhaw households owned slaves … Slaves brought status and wealth, security and prosperity, and freedom from drudgery, ignorance, stigma, and mutual obligation. Slaves provided opportunities to increase consumption and expand production. They did the work that freed the sons of yeoman farmers to improve their prospects by attending the newly established free public schools. Moreover, while slaves and family laborers might both be bound to the authority of the patriarch, slaves represented a distinct form of unfree labor within the household, one that largely freed the father-son relationship from its economic aspects and promoted a more affective, familial bond. [Moore 2007:77]

The years after the Revolutionary War also brought changes to the relationship between backcountry farm families and the Catawba Indians. While warriors were valuable allies to the Americans during the war, the conclusion of hostilities and opening of the western frontier gradually lessened the political and economic import of Catawba militarism. At the same time, a robust postwar land market and burgeoning slave population enhanced the economic significance of land leasing and pottery sales.

Gypsy Landlords

The Catawba Nation established three new towns during the 1780s. The journal of Lieutenant William Feltman (1853) of the First Pennsylvania Regiment reveals that by December of 1781, some Catawba families were living on the west side of the Catawba River in a settlement believed to be represented by the Ayres Town archaeological site (Steve Davis and Brett Riggs, personal communication, 2010). Recent RLA excavations at the Old Town site, which represents one area of the Catawbas' Revolutionary-period settlement, suggest that other families rebuilt part of their former village and occupied it

for about a decade. By the late 1780s, the Nation had founded a third community, New Town, on the east side of the river just a few kilometers north of the Old Town site.

In 1791, Methodist Reverend Dr. Thomas Coke (1792:11, 13) described a nation "reduced to a very small number" inhabiting "a little town, which in *England* would only be called a village" (Coke 1792:11). It is unclear to which town Coke referred, but it is not unreasonable to assume that the three Catawba towns were very similar around the time of his visit. Within a decade, New Town became the Nation's primary settlement.

Anglo-American accounts from this period indicate that many nuclear and extended families lived in modest log dwellings and relied on small-scale subsistence farming, hunting, rent payments collected from their white tenants, and pottery sales (Coke 1792; Jones 1815; Liston 1796; Mills 1826; Simms 1853). Some veterans also received pensions for their service during the Revolutionary War (Heath 2004).

South Carolina officially authorized leases of Catawba reservation lands beginning in 1785, and by 1800 several hundred tenant families occupied reservation lands surrounding the fertile Kings' Bottoms area (Pettus 2005:29). Individual families collected payments for their shares in the form of dollars, horses, slaves, guns, spirits, and other goods (Jones 1815; Pettus 2005; White 1808).

Cottage pottery production was another important economic activity (Davis and Riggs 2004; Jones 1815; Riggs 2010; Riggs et al. 2006; Simms 1853). No longer valued as soldiers, the Catawbas established a new reputation as pottery-peddling itinerants (Simms 1853). By the nineteenth century, female potters were selling their wares up and down the route from New Town to Charleston, stopping along the way to make more pots. The men who accompanied them sold skins and may have helped dig clay.

The Ayres Town settlement was probably abandoned around 1800 (Brett Riggs, personal communication, 2010). A new village was established on the west side of the Catawba River, and New Town's population dwindled over the next two decades as families moved there. The New Town community faded in importance after the death of matriarch Sally New River ca. 1818–1820 (Brown 1966), although the area continued to be used as a burial ground until the middle of the nineteenth century (Speck 1939).

From Imminent Demise to Resurgent Florescence

It took but a few generations for the South Carolina backcountry to be transformed from a region populated by native groups in compact agricultural villages to a new world dominated by white yeoman farmers on dispersed farmsteads. Within only a few more decades, the area's demographics would be drastically changed again. As small-scale farmers pushed westward to Tennessee and beyond, they cleared the way for Lowcountry cotton planters and their slaves to move into the backcountry (Hudson 1970; Moore 2007). By 1840, slaves made up the majority of the area's population (Moore 2007:108).

Throughout this transition, the Catawbas held fast to a small piece of land in ancestral territory, although they inhabited but a sliver of it. With the 1840 Treaty of Nation Ford, the Catawbas finally relinquished their 144,000-acre reservation for a small cash sum and a promise to be relocated to the mountains of North Carolina. All but two or three families left South Carolina and moved near the Eastern Cherokees (Brown 1966; Hudson 1970). No parcel of land was ever purchased for them, however, and the state of North Carolina refused to allow the Catawbas to permanently settle within its

territory. Ultimately, South Carolina bestowed 630 acres of poor-quality land on a Nation that seemed to be on the verge of disappearing. By the middle of the nineteenth-century, Catawba population probably reached an all-time low (McReynolds 2004).

Like their eighteenth-century predecessors, however, the Catawba Indians responded to novel opportunities and constraints in unique ways, and their numbers slowly rebounded over the next century. Today, the Catawba Cultural Center and events such as the annual Yap Ye Iswa pottery festival celebrate the survival of Catawba cultural heritage. Ongoing archaeological investigations such as the one described in the following pages and others being conducted as part of the Research Laboratories of Archaeology's Catawba Project aim to illuminate more of the details surrounding the Nation's extraordinary resilience.

Notes

[1]Throughout this dissertation, the phrase "cottage pottery production" is used to refer to the Catawba practice of producing handmade pottery and selling it door-to-door to Anglo-American and African-American customers.

[2]A diverse assortment of pottery surface treatments observed in the archaeological record at the Nassaw Town site indicates that potters practicing distinct traditions lived within the same community (Riggs 2010:35).

CHAPTER 3

THE CATAWBA COMMUNITY AT NEW TOWN

Until recently, most of what was known about the Catawba Nation during the Federal period was pieced together from documentary sources. In particular, ethnohistorians have relied heavily on state and federal records, an early nineteenth-century lease book, and first-hand accounts by visitors.

Archaeological fieldwork conducted at the New Town site by UNC staff and students affiliated with the Catawba Project offers a new view of the Catawbas and their lifeways during a time of novel social, economic, and political opportunities and constraints. This chapter briefly highlights what is known about the Catawba community at New Town based on key documentary evidence and then describes the recent archaeological investigations and the ways in which they have the potential to expand our understanding of the Catawba town and its residents.

Ethnohistoric Evidence

The most descriptive account that can be unequivocally linked to New Town comes from Calvin Jones, a physician from North Carolina who passed through the community in 1815 and recorded his observations in a personal travel journal. Architect Robert Mills mentions the Catawba Indians in his *Statistics of South Carolina* (1826), but his data were collected in 1818, perhaps near the end of New Town's occupation. In 1843, David Hutchison, a Scots-Irish settler who lived within the boundaries of the

reservation from the late 1780s until 1845, wrote a lengthy letter to South Carolina's governor chronicling much of the Nation's Federal-period history (Brown 1966).

Several earlier accounts offer useful insights into Catawba lifeways in the years preceding New Town's founding. John Ferdinand Smyth (later John Ferdinand Smyth Stuart) visited the Catawbas' Revolutionary-period settlement in 1772, prior to its destruction by the British army. After the Revolutionary War, avid traveler and chronicler Elkanah Watson visited an unspecified Catawba settlement during the mid-1780s, and the Reverend Dr. Thomas Coke also visited an unknown Catawba community in 1792. Finally, Lady Henrietta Liston, the wife of a British diplomat, visited the community represented by the Ayres Town site in 1796.

Town Layout and Dwellings

Jones's (1815) description of New Town suggests that houses were arranged in two separate neighborhoods. A smaller neighborhood was occupied by two prominent Catawba figures: Sally New River, who was by then the widow of chief General New River, and Colonel Jacob Ayres, a headman. Jones described both Sally New River and Colonel Ayres as "industrious," suggesting they engaged in subsistence farming (Davis and Riggs 2004:37; Jones 1815). Sally New River, then 73 years old, was said to have a black slave, and it is possible that Colonel Ayres owned another slave who Jones said resided in the Nation at that time. In contrast to the other houses Jones saw at New Town, "New Rivers and Airs houses had [wooden] floors" (Jones 1815).

Jones (1815) described the other neighborhood as consisting of "6 or 8 houses facing an oblong square [i.e., rectangular central plaza]."[1] These houses had dirt floors,

and the Catawba families who occupied them engaged in cottage pottery production (Davis and Riggs 2004:37; Jones 1815). Jones's account hints that a Baptist missionary and schoolteacher may have lived amongst these families in somewhat better conditions.

Earlier Accounts. Smyth (1784:118) mentions sleeping in a Catawba wigwam on "a large bear's skin, with a blanket to cover me, and … on the ground, before the fire," but it is unclear whether his hosts had the same sleeping accommodations. A decade later, Watson (1856:257) described Catawba "wigwams" as log cabins. Lady Liston's 1796 account suggests that some families at Ayres Town lived in one-room log cabins with chimneys, while others lived in "Wigwhams" with central fires.

Coke (1792) described Catawba houses that were "not uncomfortable—far superior to the mud houses in which the poorest of the people in *Ireland* dwell." Coke and Liston both mention seeing chairs and stools, but Liston implies that such furniture at Ayres Town was probably restricted to the log-cabin dwellings. Coke claims he could not find a single table in the village he visited, and Watson's slightly earlier account likewise indicates an absence of tables when he mentions being shown kind hospitality by Sally New River, who as wife of the chief "supplied me with a meal of smoked venison, placed in a small tub upon the floor" (Watson 1856:258).

Later Accounts. Ethnographer Frank Speck interviewed Catawbas between 1913 and 1944 and offered the following description of mid-nineteenth-century Catawba houses based on the recollections of his informants:

> The Catawba house, of as early a type as could be remembered by any of the older people in their childhood, was a small structure of either plain unbarked, or of peeled and roughly squared logs. From the smallest of these houses twelve by eighteen feet in dimension intended for one small family, they ranged to those seldom more than six feet larger in mean measurements. Lacking windows, having only a door at the leeward end, with hard trodden dirt floors, they had a

> fireplace at one end, of stone construction, and slat bedsteads on the long sides to accommodate the sleepers. [Speck 1946:6]

Activities

Most visitors mention Catawba economic pursuits and leisure activities. Comparing the ways in which earlier and later accounts treat these activities suggests that many families shifted economic strategies after moving to New Town. In particular, peddling pottery in distant markets and leasing out reservation lands seems to have largely replaced small-scale cultivation (Hutchison 1843 in Brown 1966:292; Liston 1796). When itinerant potters were not traveling back and forth to Charleston or collecting rents, they were likely to be engaged in activities such as hunting, fishing, gathering, socializing, smoking, and drinking.

Women's Work. Women were said to spend their time performing domestic tasks such as cooking and making clothes, producing and selling pottery, and, at least for part of the late eighteenth century, tending crops. When John Smyth visited the Nation in 1772, he observed women engaged in small-scale farming and the sale of pottery and other crafts:

> The Indian women in general are called *Squaws,* and it is their business to cultivate the soil, as well as perform the common menial domestic services…
>
> The only manufacture that I can discover among them is that of party-coloured little baskets, table-mats, made of straw, and chips, or splits of different coloured wood; and an ill-formed kind a half-baked earthen ware.
>
> These insignificant trifles are carried about by the squaws for sale, and are purchased for the most worthless invaluable considerations. [Smyth 1784:124]

Coke's (1792:11–12) account implies that subsistence farming was still a common activity in 1791. By 1796, however, Liston claims that women cultivated corn

primarily so that they would have something to take with them on the road, since "when an Indian sets off on a journey the flour of Indian corn in a bag and pot to boil it in is all his provision" (Liston 1796). Hutchison's letter alleges that the shift away from farming occurred even earlier:

> When the Indians came home [after the Revolutionary War] they had given up all idea of farming. The women had formerly attended to this department, but they… [became] as lazy, indolent and intemperate as the men, and even more so. They spent their time in travelling about collecting their rents and lying about still-houses and grog shops. [Hutchison 1843 in Brown 1966:292]

Certainly by the time Jones visited in 1815, cultivation had been largely replaced by cottage pottery production. Jones noted

> Women making pans - Clay from the river - shape them with their hands and burn them with bark which makes the exposed side a glossy black. a pitcher a quarter of a dollar. Sell pans frequently for the full [measure] of meal. Saw some sitting on their beds and making pans.
>
> …Great scarcity of corn now. Sally New River said the lazy ones had gone to look for corn. [Jones 1815]

Many years later, Southern historian and novelist William Gilmore Simms recalled that during the early nineteenth century, Catawba women and men alike took to the road to manufacture and sell pottery:

> it was the custom of the Catawba Indians… to come down, at certain seasons, from their far homes in the interior, to the seaboard, bringing to Charleston a little stock of earthen pots and pans, skins and other small matters, which they bartered in the city for such commodities as were craved by their tastes, or needed by their condition. They did not, however, bring their pots and pans from the nation, but descending to the Lowcountry empty handed, in groups or families, they squatted down on the rich clay lands along the Edisto, raised their poles, erected their sylvan tents, and there established themselves in a temporary abiding place, until their simple potteries had yielded them a sufficient supply of wares with which to throw themselves into the market. [Simms 1853:127]

Jones, Mills, and Hutchison all emphasize rent payments, suggesting that many Catawba families gave up their fields to white tenants. Indeed, if itinerant potters were

frequently away from home for extended periods of time, cultivating fields would have proven difficult, and renting them out would have been an attractive alternative.

Men's Work. Shifts in men's occupations were more subtle. The available accounts agree that hunting, smoking, and drinking were common activities among Catawba men during the late eighteenth and early nineteenth centuries. Smoking and especially drinking appear to have increased, however, as pottery sales and rent payments increased the average family's disposable income and leisure time.

In 1772, Smyth (1784:124) described men's work as "war, hunting, fishing, fowling, and smoaking tobacco" and claimed that "some of their hunters dispose of more than one hundred pounds value of deer-skins every year." More than a decade later, Watson arrived in the Nation to find many of the men out hunting, and Liston (1796) and Jones (1815) described similar scenarios upon their arrivals.

During his visit, Watson proceeded to locate General New River and engaged him in conversation about current events, an occasion that apparently called for ceremonial smoking and drinking:

> [New River] dispatched a runner across the Catawba river, for an interpreter. In about an hour his cabin was thronged by the savage warriors… The king lit up a large pipe, and we each took three or four whiffs. I produced my bottle of rum, my only credential. We circulated the bottle and pipe alternately, drinking from the former, without the intervention of any other vessel. I observed every countenance sedate and attentive, and although they appeared warmly interested in the event, they maintained in the discussion in which they engaged, the utmost decorum, one only speaking at a time. [Watson 1856:257].

Other accounts mention drinking in non-ceremonial contexts and underscore a destructive tendency toward intoxication. Writing about Catawba men, Smyth noted the

> deleterious effects of spirituous liquors…for these unhappy wretches are one and all perfectly devoted to the immoderate use of them, when to be obtained by any

> means whatsoever in their power; and an universal inebriation constantly occasions a most dreadful carnage… .
>
> … Although every one execrates the abominable liquor, and appears to show the deepest contrition for the dreadful scene of which that alone was the sole cause, yet if they can procure as much more the very next night as will completely intoxicate them, they cannot resist the temptation, even if they were assured of as much mischief as before proceeding from it. [Smyth 1784:120–121]

Forty years later, Jones wrote that women and even children frequently consumed whisky. He drew special attention to his observation that Sally New River "drinks no spirits" and described the other residents at New Town as "almost all drunkards":

> Went to Colonel Airs… all drink whisky clear and swallow water after - children made to drink.
>
> … Gen. Scott and his woman some grog. … Widow Red Head and her daughter fond of it. … Jack Mushs wife drank often and made her sucking child drink though it seemed to dislike it. Indeed the women all made terrible faces as though they disliked it. [Jones 1815]

In all likelihood, the pervasive drinking noted by Jones and other Anglo-American observers reflects a combination of their own biased perspectives and the Catawbas' monetary income and leisure time associated with pottery sales and rent collections (Hutchison 1843 in Brown 1966; Mills 1826). Many of the Indians that Jones encountered were presumably in town for a short period to collect rents and/or take care of other obligations before heading out on the road again with their wares. It would not be surprising to find that while at home, they engaged in leisure activities such as visiting friends and family, smoking, and, thanks to their newly collected rental incomes, drinking. Indeed, Mills laments that

> these wretched Indians live in a state of abject poverty, the consequence of their indolence, and dissipated habits. They dun for their rent before it is due, and the 10 or $20 received are frequently spent in a debauch; poverty, beggary and misery follow, for a year. [Mills 1826:115]

Some rent payments may have even been received in the form of alcohol: Hutchison (1843 in Brown 1966) claims that whiskey stills were common on leased parcels, and the existing Catawba lease book documents many payments made in goods and "sundrys" (White 1808).

Clothing and Personal Adornment

Jones (1815) mentions that the Catawbas dressed like their Anglo-American neighbors in clothing made by Catawba women. According to Coke, a few men may have also purchased some of their clothing:

> In general they dressed like the white people. But a few of the men were quite luxurious in their dress, even wearing ruffles, and very showy suits of clothes made of cotton. The little money they save by their small plantations (for they are not fond of labour) they lay out, I suppose, in purchasing these things of the whites. [Coke 1792:12]

Watson (1856:257), Jones (1815), and Simms (1853:128) refer to Indians with painted skin, and most accounts mention flashy ornaments and jewelry. Watson (1856:257) describes young women wearing feathers, rings, and brooches. Coke (1792:12) wrote that "[a]lmost all the men and women wore silver nose-rings, hanging from the middle gristle of the nose; and some of them had little silver hearts hanging from the rings." According to Liston (1796), even children were "often disfigured by nose jewels." Twenty years later, Jones (1815) observed Catawbas wearing earrings, bracelets, and brooches.

Several accounts also describe men wearing military gorgets. Coke (1792:12) mentioned that General New River wore a silver breastplate, and Jones (1815) wrote of "plates on the neck with their names on them."

Between the Lines

Many Anglo-American descriptions evince a picture of the Nation as a whole similar to the one painted by Elkanah Watson:

> These Indians were extremely nasty, wallowing in dirt and filth, having coarse fare and rude accommodations. In common with every other Indian tribe in proximity to the white, they exhibited a melancholy picture of the singular and fatal ravages of the vices, with which they became contaminated from an association with their civilized neighbors. [Watson 1856:258]

Although such descriptions give the impression that most New Town residents were degenerate savages lacking industry and even their own personalities, it is far more likely that Anglo-American visitors perceived them as such because the Indians did not subscribe to a Western world view that championed hard work and notions of individualism. In the eyes of most Anglo-American visitors, itinerant potters who spent their limited time at home collecting rents, making pots, and engaging in leisure activities would no doubt have been interpreted as exhibiting "habits of indolence" (Mills 1826).

Indeed, visitors to New Town almost always single out Sally New River, who as the daughter of an Anglo-American trader was probably more accepting of Western ideals and practices than many of her neighbors. In contrast, the other families at New Town are rarely mentioned by name. Riggs (1999) and Green (2009) note a similar bias in early nineteenth-century Anglo-American descriptions of the Cherokees; such accounts tend to focus on those Cherokees who embraced Western culture (and were often, but not always of mixed Anglo-Cherokee ancestry) while understating the roles of more conservative Cherokee "fullbloods."

The Ayres, Scott, Marsh, and other unnamed families at New Town were not passively "contaminated" by their "civilized" neighbors, but rather they made strategic

decisions about how to carry out their daily lives in an Anglo-American world. By intentionally adopting specific economic, social, and political roles, these families helped the Nation maintain its cultural and political identity during a critical period in its history. Many of these decisions would have been apparent in the domestic practices of individual households and hence should be reflected in the archaeological record at New Town.

Archaeological Investigations at New Town

The archaeological remains of the New Town community were first described in 1935 by a Queens College student named Isabelle Baker. Baker visited the site with Catawba chief Samuel Blue and reported the details of her visit in a letter to University of North Carolina (UNC) archaeologist Joffre Coe (Davis and Riggs 2004:15). In 2002, Steve Davis and Brett Riggs verified the location of the New Town site (SoC 632 and SoC 635) on the east side of the Catawba River in northern Lancaster County, South Carolina (Davis and Riggs 2004). Much of the site was undisturbed, although shallow plowing and logging activities were apparent in some areas.

Subsequent metal-detecting surveys identified seven discrete concentrations of metal and ceramic artifacts (Figure 3.1; Appendix A). These artifact clusters were presumed to represent individual cabin seats and form three small hamlets. The northern hamlet contains three artifact clusters, while the central and southern hamlets each contain two clusters. Locus 4 in the southern hamlet contains the remains of two adjacent cabin structures.

Three seasons of excavations at six of the loci exposed approximately 800 sq m. Tight spatial control was achieved by excavating 1×1-m or 50×50-cm units and plotting

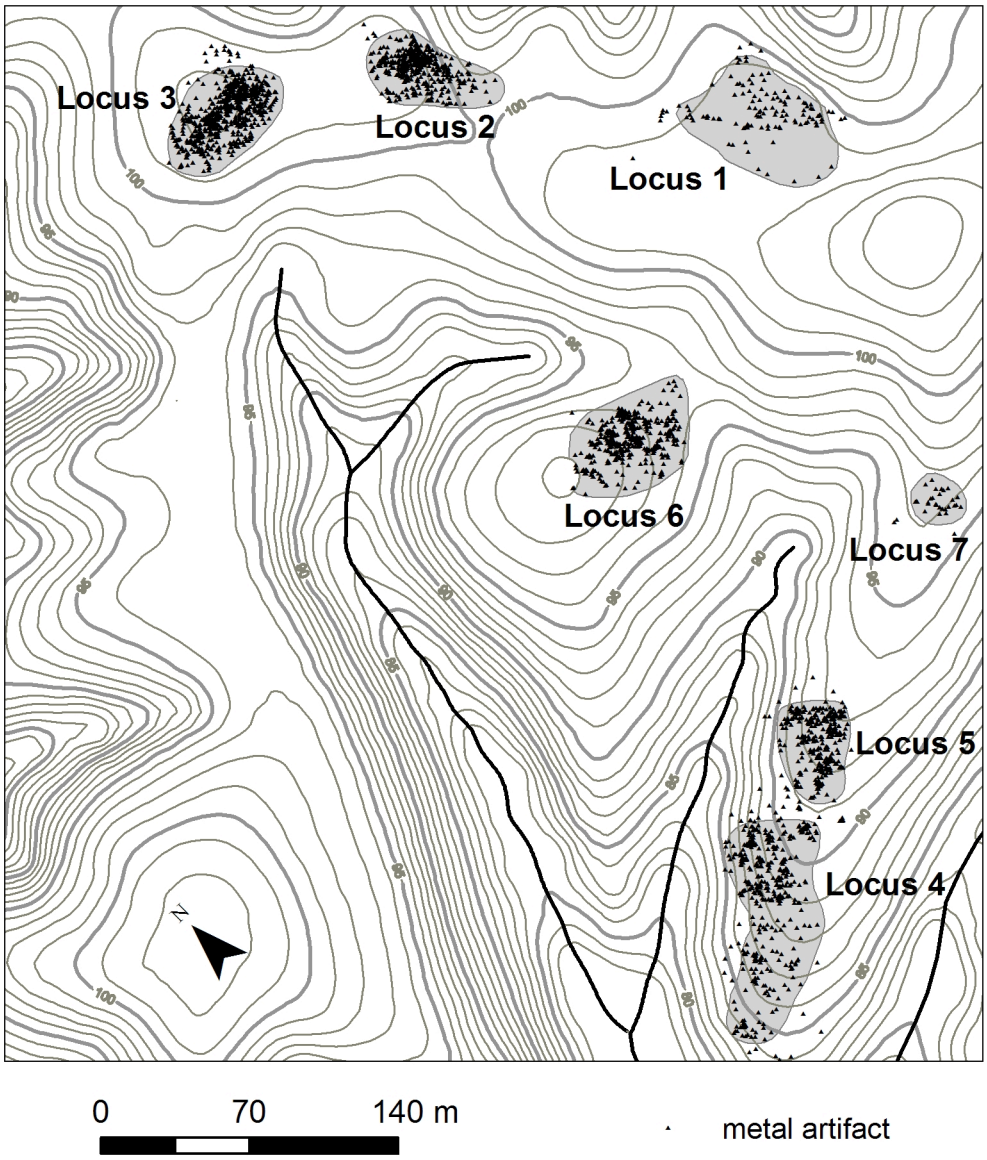

Figure 3.1. Map of New Town showing the seven discrete artifact clusters identified through metal detecting.

point provenience for most metal artifacts. General excavation fill was dry screened using 1/4-inch mesh, and feature fill was processed through wet screening (1/16-inch mesh) or flotation (Davis and Riggs 2004). The more than 86,000 artifacts that were uncovered suggest that New Town was occupied ca. 1785-1820 (Riggs et al. 2006; Appendix B).

The Northern Hamlet (SoC 632)

The three artifact clusters designated as Locus 1, Locus 2, and Locus 3 are located on top of a ridge at the northern edge of the New Town site. All three areas have been systematically surveyed using a metal detector, and UNC field school students and staff partially excavated Locus 2 and Locus 3 in 2003.

Locus 1. Locus 1 (~2900 m²) has been significantly disturbed through logging, plowing, and a modern farm road that bisects it. A systematic metal detector survey of a 2000-m² section east of the road yielded 125 metal artifacts (Table A.1). Soil sampling covered 850 m² and revealed four probable features. The area is interpreted as a cabin seat, but no excavations have been conducted at this locus given its disturbed nature.

Locus 2. Locus 2 (~1600 m²) may have been shallowly plowed a single time, but it is otherwise undisturbed (Figure 3.2). Systematic metal detecting over the entire area turned up 247 metal artifacts (Table A.2). Subsequent excavation of a purposive sample of 27 1×1-m units and a 50×50-cm unit revealed more than 3,500 artifacts (Table B.1), a cellar pit (Feature 1), a stick-and-clay chimney base (Feature 2), and a shallow pit (Feature 3), all of which are interpreted to reflect the former presence of a dirt-floored cabin (Davis and Riggs 2004:21). Mark Plane's analysis of 615 European sherds generated a mean ceramic manufacture date of 1805.8 and suggests a similar median occupation date for this locus (Mark Plane, personal communication, 2010).

Locus 3. In contrast to Locus 1 and Locus 2, Locus 3 (~2000 m²) is undisturbed (Figure 3.3). Metal detecting over the entire area identified almost 700 metal artifacts (Davis and Riggs 2004), but only 39 have been recovered (Table A.3); the rest of the

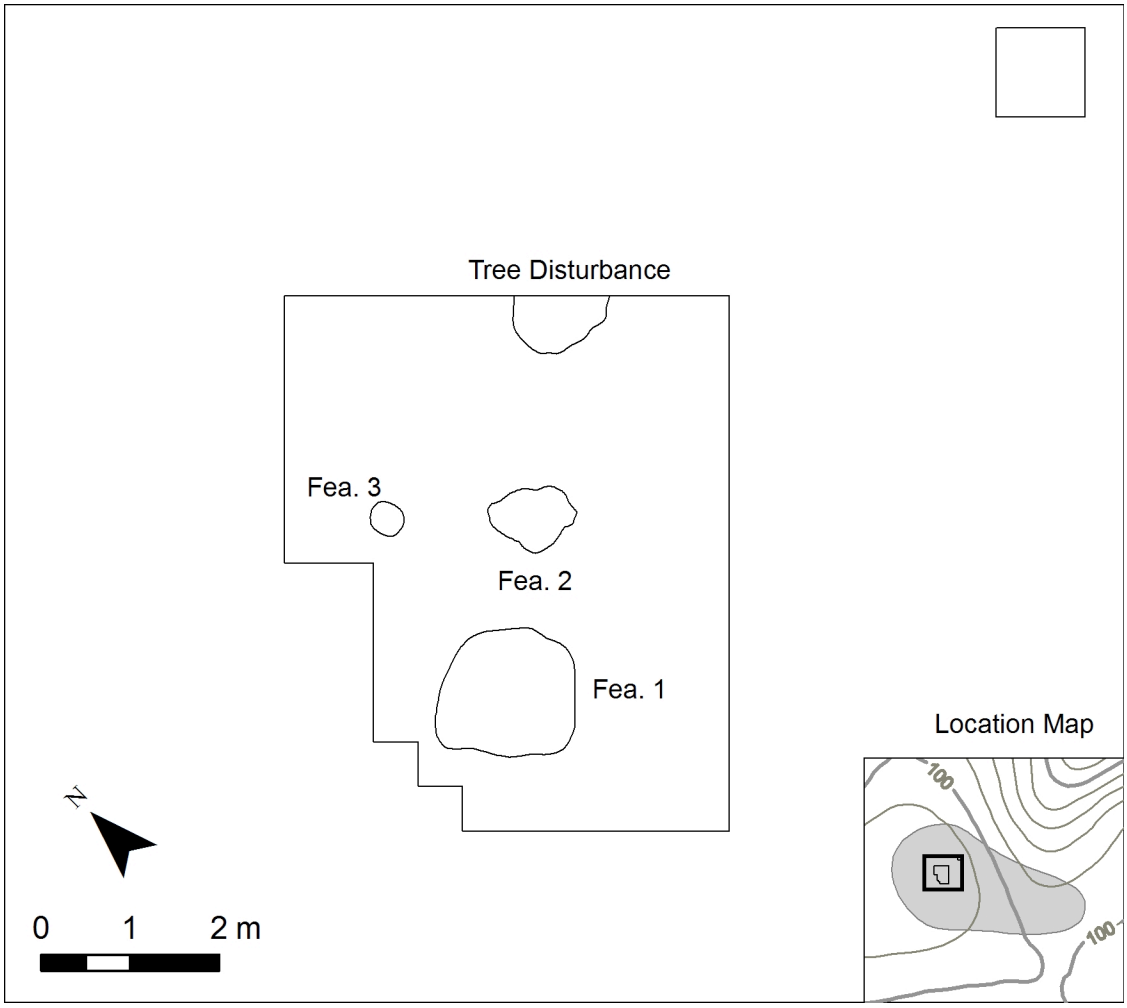

Figure 3.2. Excavation map of Locus 2.

metal artifacts were only mapped. Four areas with high concentrations of metal artifacts were selected for subsequent excavation. In total, 204 50×50-cm units (51 m²) were excavated, revealing more than 19,000 artifacts (Table B.2), four pits (Features 4–7), a stick-and-clay chimney base (Feature 8), a trash-filled stump hole (Feature 9), and two refuse deposits (Davis and Riggs 2004). The chimney base suggests a dirt-floored cabin. Plane calculated a mean ceramic manufacture date of 1803.1 based on 1,194 creamware, pearlware, porcelain, and stoneware sherds (Mark Plane, personal communication, 2010).

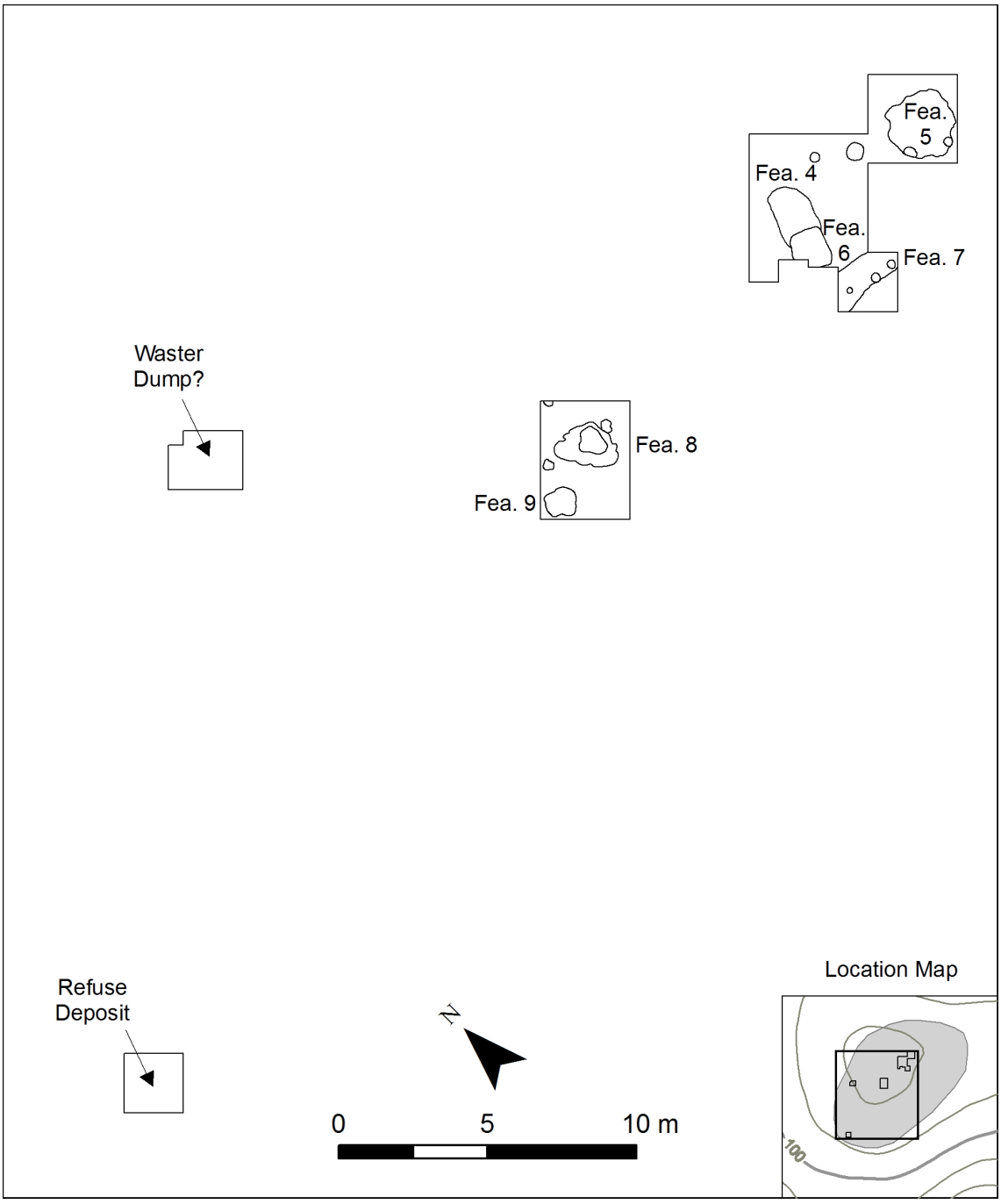

Figure 3.3. Excavation map of Locus 3.

The Southern Hamlet (SoC 635)

The two southernmost artifact clusters at New Town, designated Locus 4 and Locus 5, are located on a low ridge beside an old wagon road. Just west of these loci, a narrow footpath leads down to a spring (Davis and Riggs 2004).

The National Geographic Society sponsored UNC field school investigations of Locus 4 and Locus 5 in 2004 and 2005. Excavations at these loci covered considerably larger areas than those at Locus 2 and Locus 3.

Locus 4. Locus 4 (~3600 m²) contains the undisturbed remains of two structures (Figure 3.4). The cabins are manifest on the surface as low earthen mounds representing the remains of earth-filled chimney bases (Features 1 and 2).[2] The presence of stone supports for the chimneys suggests that the two cabins had raised, wooden floors (Davis and Riggs 2004:25).

Comprehensive metal detecting at Locus 4 revealed 428 metal artifacts (Table A.4). Subsequent excavations targeted not only areas with high concentrations of metal artifacts but also suspected "yard" areas with relatively few metal artifacts. Over the course of two field seasons, 1,020 50×50-cm units (255 m²) were exposed, yielding more than 16,000 artifacts (Table B.3), two refuse-filled pits (Features 3 and 4), a surface hearth (Feature 5), a small pit (Feature 6), and three peripheral midden deposits. Plane's analysis of 2,722 European sherds from Locus 4 yielded a mean ceramic manufacture date of 1807.6 (Mark Plane, personal communication, 2010).

Locus 5. Locus 5 (~1400 m²) represents a single cabin with a collapsed stick-and-clay chimney (Feature 10; Figure 3.5). The area has been logged and mechanically cleared, and it was surface-collected in 1970 by Steve Davis. Metal detecting in 2004 and

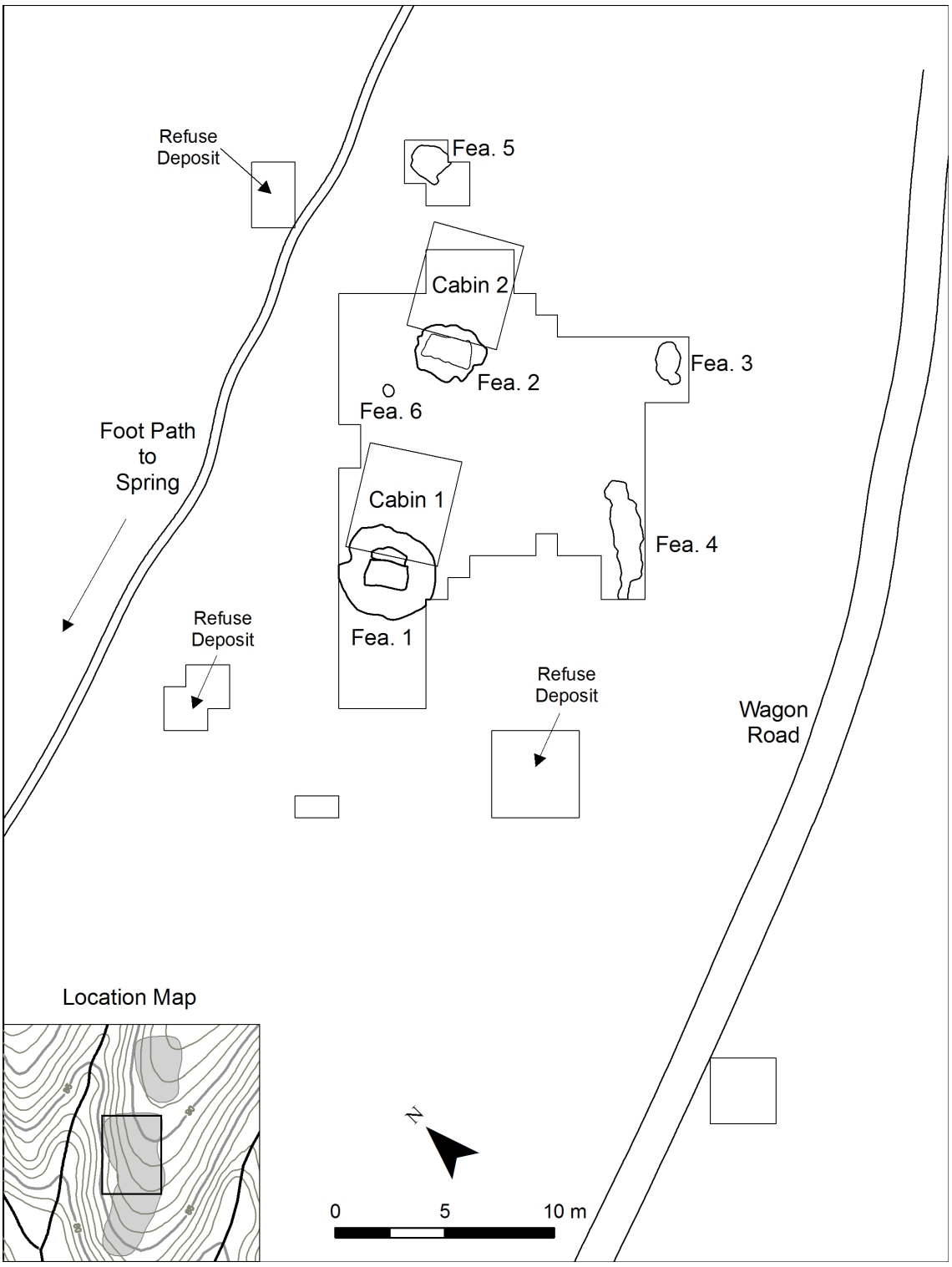

Figure 3.4. Excavation map of Locus 4.

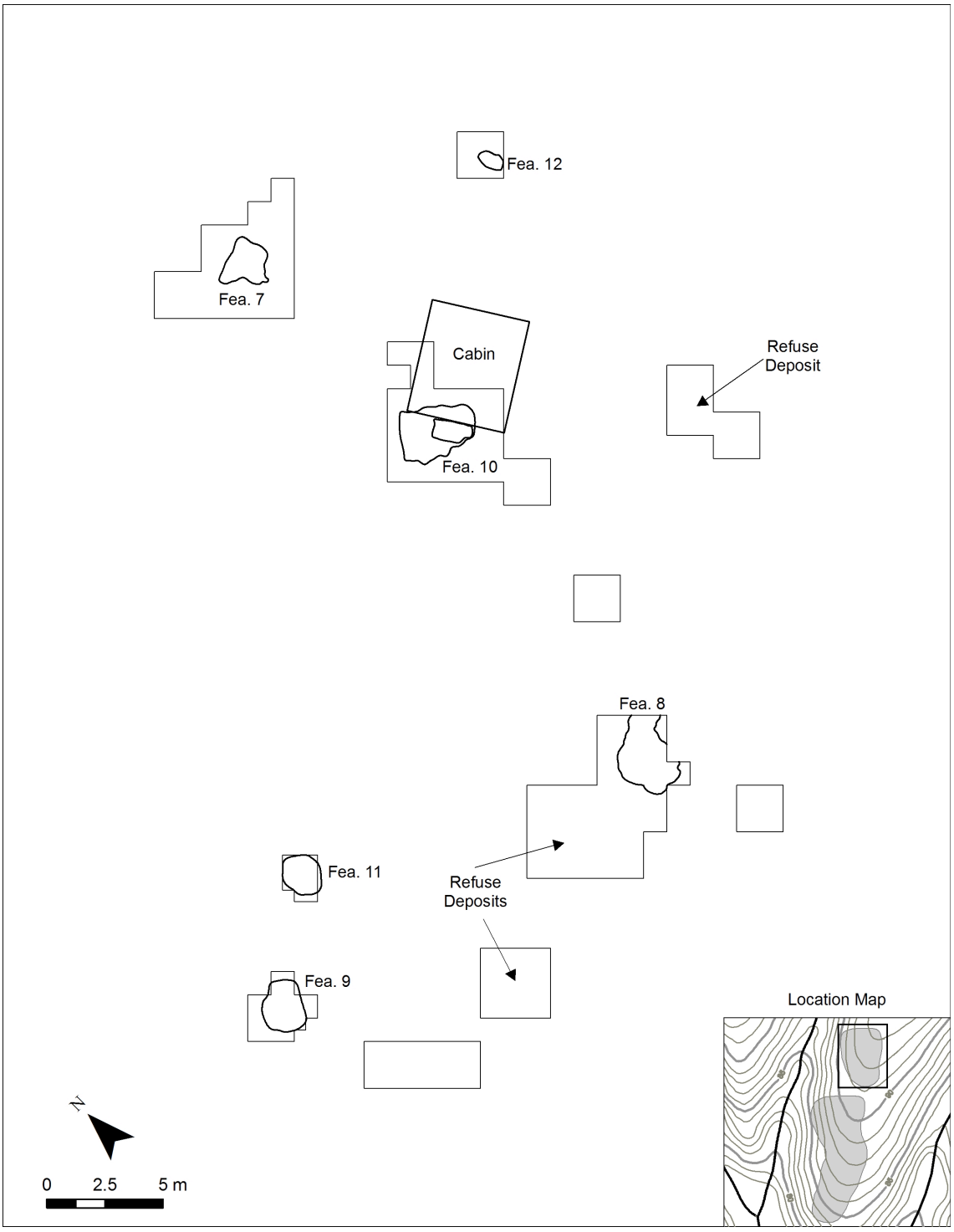

Figure 3.5. Excavation map of Locus 5.

2005 recovered 416 metal artifacts (Table A.5), and subsequent excavations focused on the areas where these artifacts were most concentrated. More than 13,000 artifacts (Table B.4) were unearthed from 544 50×50-cm units (136 m²). Other significant findings included three refuse-filled pits (Features 7–9), a refuse-filled stump hole (Feature 11), a surface hearth (Feature 12), and three midden deposits. There were no remaining stone supports in association with the chimney base, but the general lack of artifacts and features in the area presumed to represent the cabin's interior is consistent with a raised floor. If stone supports were once present, they would have been removed when the area was cleared. Plane analyzed 2,065 European sherds from Locus 5 to calculate a mean ceramic manufacture date of 1806 (Mark Plane, personal communication, 2010).

The Central Hamlet (SoC 632)

The two remaining artifact clusters at New Town, designated Locus 6 and Locus 7, are located on low ridges between the northern and southern hamlets. UNC staff and students investigated these two areas in 2005.

Locus 6. The area designated as Locus 6 (~ 2400 m²) has been logged and cleared (Figure 3.6). Systematic metal detecting over the entire area turned up 413 metal artifacts (Table A.6). As with Locus 5, subsequent excavations targeted areas with high concentrations of metal artifacts. Excavations proceeded in 50×50-cm units and exposed 211.5 m², more than 27,000 artifacts (Table B.5), a hearth (Feature 12), a refuse-filled pit, and eight peripheral midden deposits. A compact earthen layer associated with the hearth suggests that Locus 6 represents a dirt-floored cabin with a prepared floor surface. Davis

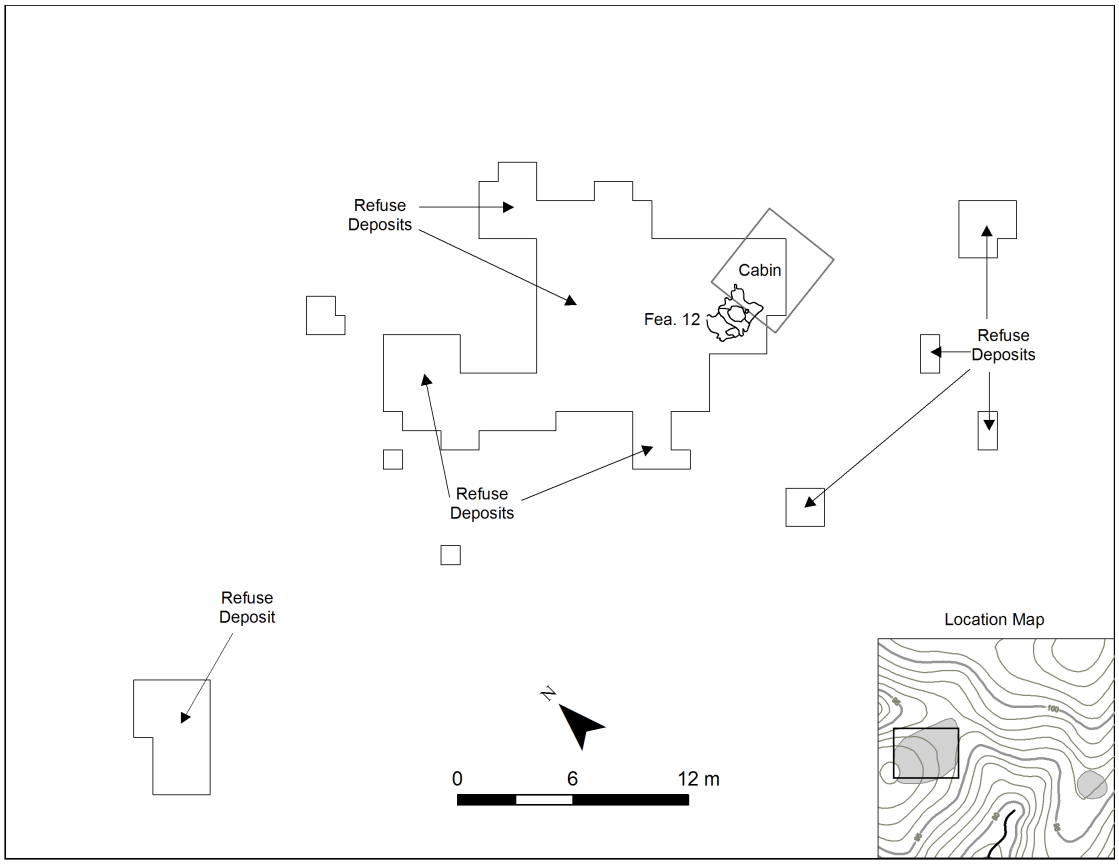

Figure 3.6. Excavation map of Locus 6.

calculated a mean ceramic manufacture date of 1803.8 based on a sample of 4,709 European sherds (Steve Davis, personal communication, 2011).

Locus 7. The artifact cluster at Locus 7 (~ 490 m²) covers a much smaller area than the other six clusters (Figure 3.7). Metal detecting covered the entire area and yielded 34 metal artifacts (Table A.7). Many metal artifacts were isolated finds (i.e., they were not found in association with sherds or other domestic refuse), suggesting that this small metal cluster may not represent a habitation site. Excavation of 5 m² revealed 315 Federal-period artifacts interpreted as a discrete dump (Table B.6).

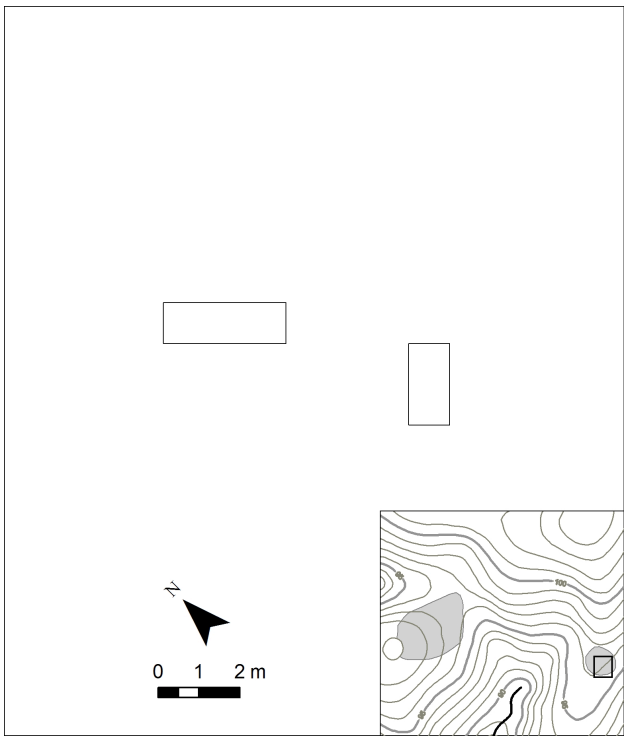

Figure 3.7. Excavation map of Locus 7.

Discussion

When the archaeological data from New Town are combined with the available ethnohistoric evidence, several of the cabin loci can be tentatively associated with specific neighborhoods (Davis and Riggs 2004). Locus 4 and Locus 5 are located along an old wagon road, somewhat separated from the other cabin areas, and differently oriented (i.e., aligned east-west with the road as opposed to north-south like the other loci). They also yielded evidence for dwellings with raised floors. Taken together, these observations suggest that Locus 4 and Locus 5 represent the smaller neighborhood visited by Jones in 1815.

The remains of earthen-floored dwellings at Locus 2, Locus 3, and Locus 6 suggest that these artifact clusters represent the larger neighborhood mentioned by Jones.

If so, Locus 1 and Locus 7 are probably associated with that neighborhood as well. The area between the northern and central hamlets is consistent with Jones's (1815) description of "an oblong square" plaza (Figure 3.1).

The approximately 86,000 artifacts recovered from these seven loci provide a large, representative sample of New Town households with the potential to offer new insights into daily life at New Town. The next two chapters discuss the results of artifact functional and spatial distribution analyses and their implications for understanding the various social, economic, and political strategies employed by Catawba families during the late eighteenth and early nineteenth centuries.

Notes

[1]Mackey's (1914:526) *Encyclopedia of Freemasonry* defines an oblong square as "a parallelogram, or four-sided figure, all of whose angles are equal, but two of whose sides are longer than the others." Jones, an esteemed Freemason who ultimately became Grand Master of the Masonic Grand Lodge of North Carolina (Haywood 1919), presumably used this term to indicate a rectangular plaza.

[2]Davis and Riggs (2004) provide the following detailed description of the excavated chimney remains at Locus 4:

> These low mounds represent the eroded remains of earth-filled, cribbed log chimney bases that elevated the hearth surfaces to the levels of the wooden cabin floors, a common construction technique. Such wooden chimney bases were cribbed from ground level as closed, earth-filled boxes to the hearth surface. Above the hearth surface, the firebox jambs, or sides, were integrated into the cribbed cabin wall, leaving the face of the fireplace open. Above the mantle log, the chimney was cribbed of smaller logs or sticks and stepped away from the cabin wall. Both chimney piles were located at the down-slope ends of their respective cabins, with the hearth surfaces elevated 30 cm above the surrounding ground level to accommodate raised cabin floors. This interpretation is supported by the presence of foundation blocks and the absence of artifacts in the floor areas. Interestingly, both chimneys were trapezoidal in shape at the base, with the chimney width increasing away from the cabin wall. Both fireplaces also had prepared clay surfaces and hearths composed of flat, tabular stone. [Davis and Riggs 2004:35]

CHAPTER 4

ARTIFACT FREQUENCY AND FUNCTIONAL ANALYSES

The ethnohistorical and archaeological evidence summarized in Chapter 3 hints that Federal-period Catawba households used material culture and space in different ways. In particular, Anglo-American accounts suggest that Catawba families differentially embraced sedentism, cottage pottery production, subsistence farming, drinking, and western modes of dress and architecture. The recent archaeological investigations at New Town have revealed evidence that supports this hypothesis, including architectural evidence for two slightly different types of dwellings (i.e., wooden-floored and dirt-floored cabins). The artifact analyses described in this chapter introduce additional archaeological data that reveal other similarities and differences in the range of activities conducted by individual households.

Most of the analyses described below examine artifacts from systematically excavated contexts only. Data from Locus 1 (which was not excavated) and Locus 7 (where excavations only exposed 5 m^2) are not considered in most analyses. Unless otherwise indicated, the analyses also exclude modern or unidentifiable artifacts, metal-detected artifacts recovered from areas that were not subsequently excavated, feature artifacts smaller than 1/4-inch in diameter,[1] and artifacts from disturbed contexts. Finally, because sampling strategies varied by locus (see Chapter 3), some analyses consider only a subset of the data; in such cases, the relevant subsampling criteria are explained.

Artifact Densities

The quantity of refuse generated in a domestic setting primarily reflects the number of people living there (household size), the amount of time they spent at home (occupation duration), and their behavior patterns. It follows that if most households used a specific artifact type in a similar fashion, then the relative density of that artifact type at a given location can serve as a proxy measure of the combined influence of household size and occupation duration. It is of course impossible to guarantee that any artifact type was used in the same fashion by everyone, but nevertheless two artifact types found at New Town can reasonably be assumed to have been used similarly by many households: buttons and locally manufactured Catawba ceramics.

Buttons are small, utilitarian items which are likely to have been accidentally lost in the course of daily activities more often than deliberately discarded in refuse deposits. Moreover, while the materials from which buttons are made may reflect relative wealth, we would not expect households with more disposable income to purchase significantly more buttons than their less affluent neighbors. The number of buttons per square meter may therefore be largely independent of interhousehold behavioral variations, and thus the more "person-days" spent at a particular location, the more buttons we can reasonably expect to find in the archaeological record.

Compared to button densities, the relative weight densities of Catawba pottery sherds (expressed as g/m^2) are less likely to be wholly independent of behavioral variations, especially if households differed with respect to their preferences for locally manufactured versus European-manufactured ceramics or their participation in cottage pottery production. Nevertheless, fragile ceramic vessels were frequently broken and

discarded, and consequently Catawba sherds dominate the artifact assemblages from all loci. Assuming ceramic breakage was unintentional, we would again expect the density of broken pottery to increase along with the number of "person-days" spent at a given location.

The Dataset

Unfortunately, the samples excavated at the various loci are not directly comparable. While most excavations targeted areas with high concentrations of metal-detected artifacts, the extensive excavations at Locus 4 also intentionally exposed areas with low concentrations of metal artifacts in an effort to identify maintained yard spaces. Consequently, Locus 4 has a higher percentage of units with very low artifact densities than any of the other loci, as Figures 4.1–4.5 demonstrate with respect to Catawba sherd weight densities.

To ensure that Locus 4's disproportionately high number of low-density areas would not skew its locus-wide densities of buttons and Catawba sherds, the densities for these artifact types were calculated in two ways: (a) using the full dataset, and (b) using a subsample of the dataset that excludes all 1×1-m units yielding less than 20 g of Catawba sherds.[2] This particular subsampling strategy was chosen because it approximated the distribution of metal artifacts at Locus 4, the criterion upon which the original sampling strategies at the other loci were based. Excluding units with less than 20 g of Catawba sherds eliminated 13.7 percent of the total excavated area at Locus 4, 3.9 percent of the area at Locus 3, 8.3 percent of the area at Locus 5, and 6.9 percent of the area at Locus 6.

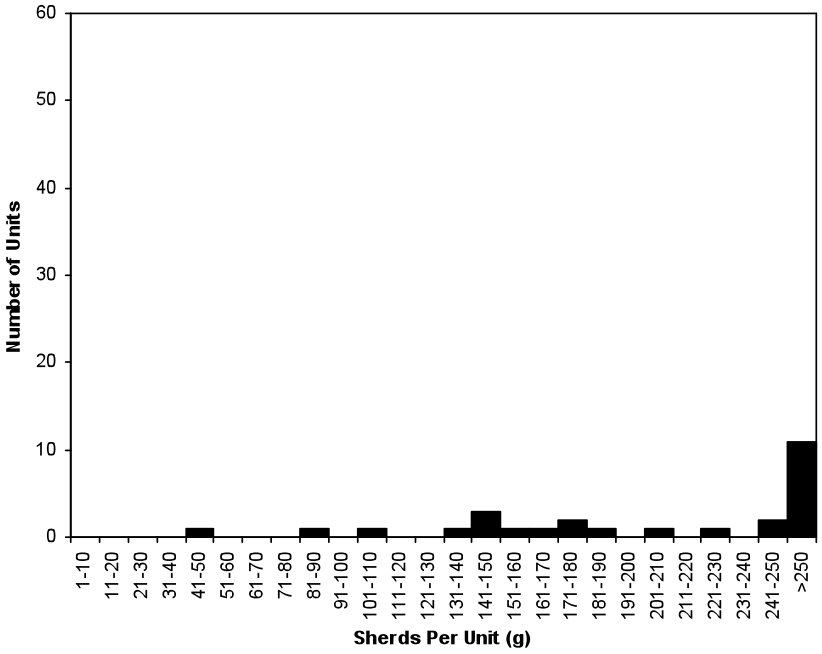

Figure 4.1. Histogram showing the distribution of Catawba sherd densities by unit at Locus 2.

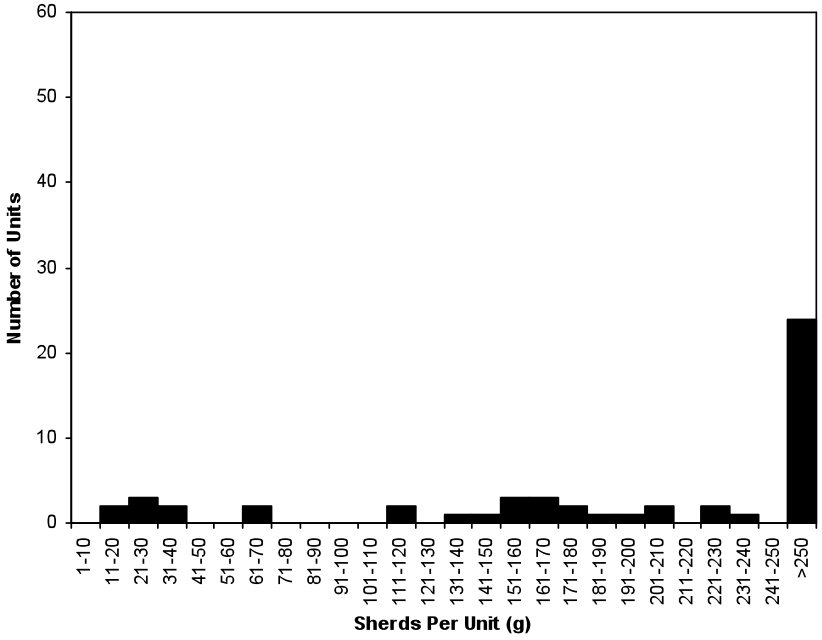

Figure 4.2. Histogram showing the distribution of Catawba sherd densities by unit at Locus 3.

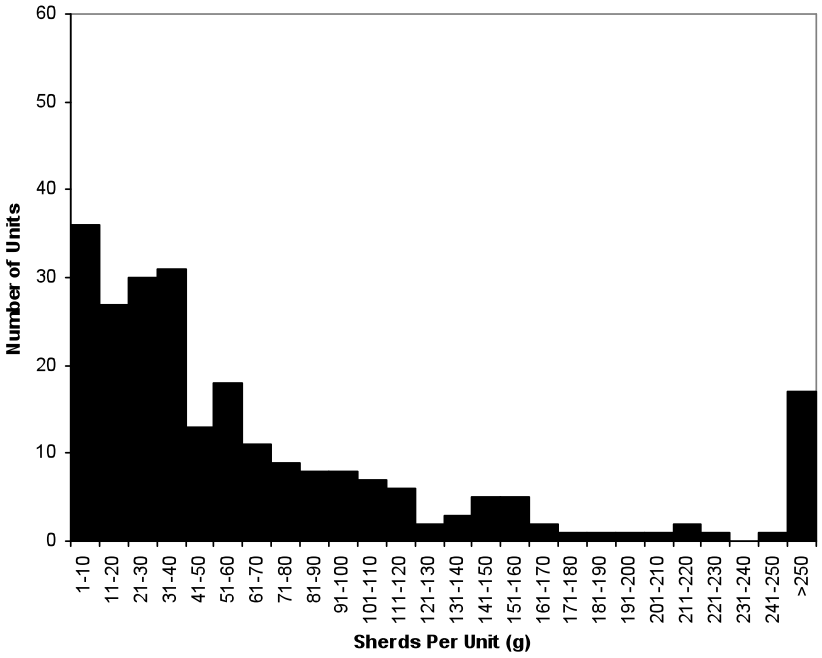

Figure 4.3. Histogram showing the distribution of Catawba sherd densities by unit at Locus 4.

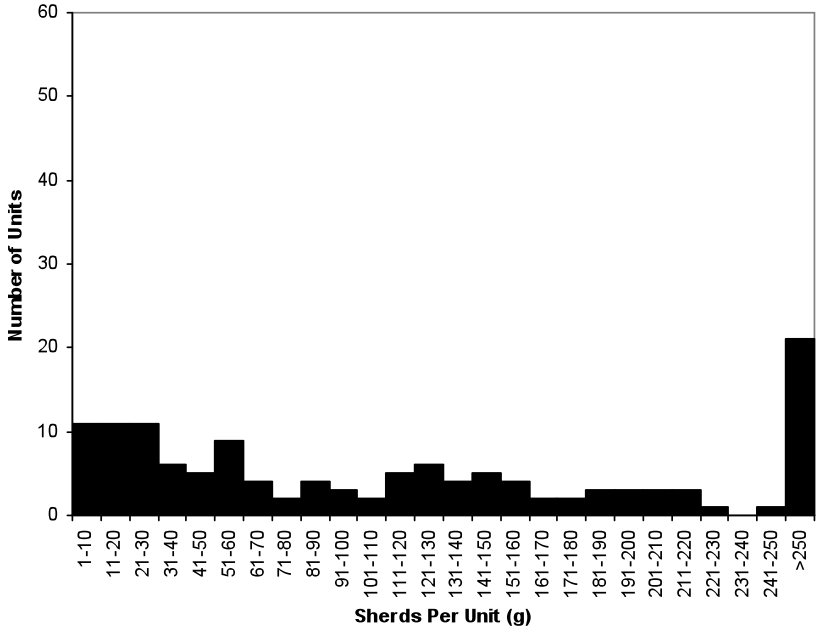

Figure 4.4. Histogram showing the distribution of Catawba sherd densities by unit at Locus 5.

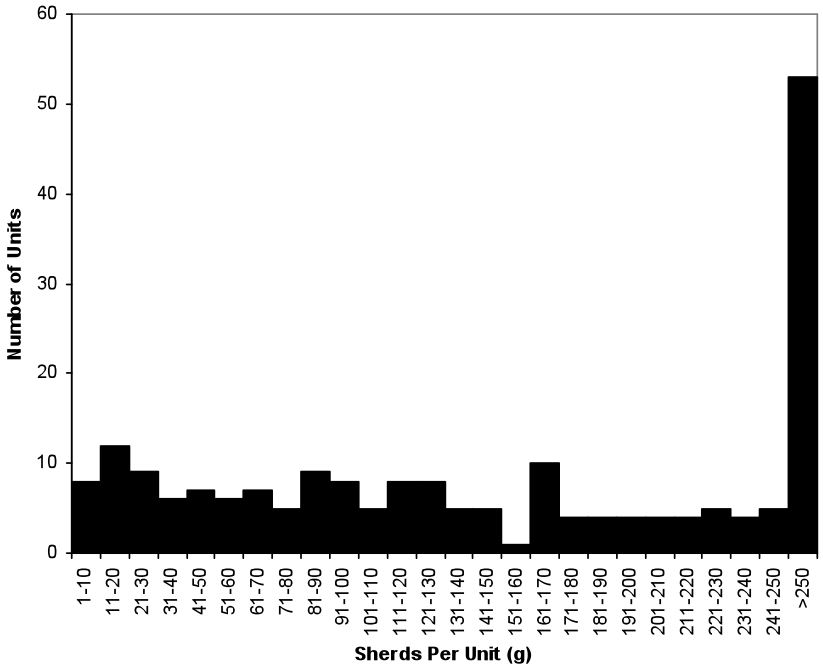

Figure 4.5. Histogram showing the distribution of Catawba sherd densities by unit at Locus 6.

Locus 2 did not have any excavated units with less than 20 g of Catawba sherds and was therefore not subsampled.

The results of density analyses based on the full and subsampled datasets are expressed side-by-side as concentration ratios, with Locus 4 serving as the baseline reference because it has the lowest densities of both buttons and Catawba sherds (Table 4.1). Thus the concentration ratios for Locus 4 are always 1.0, and the concentration ratios for the other loci indicate how much greater their densities are relative to Locus 4.

Buttons

Interestingly, Locus 7 did not yield any buttons, lending tenuous support to the hypothesis that it represents a location where domestic refuse was discarded rather than a

Table 4.1. Button and Catawba Sherd Densities and Concentration Ratios.

Density	Locus 2		Locus 3		Locus 4		Locus 5		Locus 6	
Concentration Ratio	Full Dataset	Subsample[a]	Full Dataset	Subsample[a]	Full Dataset	Subsample[a]	Full Dataset	Subsample[a]	Full Dataset	Subsample[a]
Button Density (specimens/m^2)	0.62	0.62	0.43	0.45	0.07	0.05	0.18	0.18	0.14	0.14
Button Concentration Ratio	*9.36*	*11.44*	*6.47*	*8.23*	*1.00*	*1.00*	*2.65*	*3.38*	*2.06*	*2.51*
Catawba Sherd Density (g/m^2)	279.21	279.21	623.47	648.24	91.85	101.16	213.13	229.52	177.07	192.34
Catawba Sherd Concentration Ratio	*3.04*	*2.76*	*6.79*	*6.41*	*1.00*	*1.00*	*2.32*	*2.27*	*1.93*	*1.90*

[a] Excludes data from units yielding less than 20 g of Catawba sherds.

habitation area where people spent a significant amount of time. Alternatively, the absence of buttons may be purely accidental given the extremely small area (5 m²) exposed at Locus 7.

Button densities (BD) at the other five loci vary considerably (Table 4.1). Locus 4 (BD = 0.05 buttons/m^2 when the full dataset is analyzed) has the lowest density, while Locus 2 (BD = 0.62 buttons/m^2) has the highest. Relative to Locus 4, Locus 2 has 9.4 times as many buttons per unit. Locus 3, Locus 5, and Locus 6 have 6.5, 2.7, and 2.1 times as many buttons per unit as Locus 4, respectively. When the subsamples are compared, the button concentration ratios increase for all contexts, but the relative ordering of the loci remains unchanged.

Catawba Sherds

The reliability of button density as a proxy measure for household size and occupation duration assumes that there were no differences in the ways in which individual households used buttons. To evaluate the validity of this assumption, additional comparisons were made based on Catawba sherd densities (SD).

On average, each 1×1-m unit at Locus 4 has about 92 g of Catawba sherds (Table 4.1). Locus 3 has the highest Catawba sherd density (SD = 623.5 g/m^2 when the full dataset is considered), with almost seven times the density of sherds at Locus 4 and more than double the density of sherds at Locus 2, which has the second highest density. (Of course, excavations at Locus 3 specifically targeted peripheral areas with trash-filled features whereas excavations at Locus 2 focused on the suspected cabin area.) Locus 5 and Locus 6 have Catawba sherd densities 2.3 and 1.9 times as high as Locus 4,

respectively. When the subsamples are compared, the sherd densities necessarily increase for all areas except Locus 2 and the concentration ratios decrease, but the relative ordering of the loci again remains unchanged.

Interpretations

The combined results suggest that, all other things being equal, the archaeological assemblage at Locus 4 represents the fewest "person-days." Unfortunately, it is unclear to what extent these results reflect differences in household size versus occupation duration.

Archaeologists often calculate a site's occupation span, or the period of time during which it was occupied, as an index of occupation duration. Mark Plane (personal communication 2010) evaluated the European ceramic data for Locus 2, Locus 3, Locus 4, and Locus 5 using Steponaitis and Kintigh's (1993) midpoint method of estimating site occupation spans and found that the various loci appear to have been occupied for approximately the same length of time (31.5 years for Locus 2, Locus 3, and Locus 5 and 34 years for Locus 4).[3] If all cabin areas were continuously occupied over this period, then Locus 4 appears to have had fewer occupants than any other cabin area.

Using occupation span as a measure of occupation duration is problematic for New Town, however, since some residents are believed to have spent long periods of time on the road selling pottery (which would decrease occupation *duration* without affecting occupation *span*). If Locus 4 was occupied permanently (as some of the results presented below and in later chapters imply) while some of the other habitation areas were occupied by itinerant potters who were frequently away from their homes, then the

other loci may have had even more occupants relative to Locus 4 than the button and ceramic density data suggest.

Of course, all other things were probably not equal, as indicated by the differences between the concentration ratios based on button densities and those based on sherd densities (Table 4.1). Locus 2 appears to represent the most "person-days" when button densities are evaluated, but that distinction belongs to Locus 3 when Catawba sherd densities are considered. This apparent contradiction suggests that one, if not both, of these proxy measures for household size and occupation duration also reflects behavioral variation. Indeed, the functional analyses described below illuminate some important differences in the ways in which New Town households used domestic space.

Functional Variation

To facilitate the identification of activities regularly conducted in the vicinity of individual loci, artifacts were sorted into functional categories based on assumptions about how they were used. A correspondence analysis was then performed to detect patterning that could confirm the presumed domestic nature of the assemblages and reveal similarities and differences in the types of activities represented at the various cabin seats.

Functional Classification

During the 1970s, Stanley South advocated classifying historic artifact assemblages into functional categories as a tool for pattern recognition (South 1977). Since then, archaeologists have recognized several potentially significant problems

inherent in this kind of classification scheme (Lawrence 2006; Orser 1990; South 1988; Sprague 1981). Two problems are especially relevant in the case of New Town: (a) an artifact may have served multiple functions, and (b) an artifact may have served a function entirely different than the one assumed. The latter problem is especially likely to occur when the scheme is applied to non-Anglo-American contexts (Carnes-McNaughton 1998). The former almost certainly applies in the case of Catawba sherds at New Town, which could reflect food consumption and preparation or cottage pottery production.

Nevertheless, an organizational framework based on assumed artifact function is useful when dealing with datasets as large as the one from New Town. It can facilitate pattern recognition to reveal similarities and differences among households even if the behavioral implications are not fully understood. Moreover, it complements smaller-scale spatial approaches like those discussed in the next two chapters (Lightfoot el al. 1998).

The specific functional classification scheme utilized for this analysis was based on Stanley South's (1977) original framework for the functional classification of historic artifacts. It was also influenced by Linda Carnes-McNaughton's modifications to South's scheme for application to native societies (Carnes 1988; Carnes-McNaughton 1998). The final classification framework includes 5 broad categories (Food Preparation and Consumption; Activities; Architecture and Furniture; Personal; Arms) and 17 sub-categories comprising artifact types assumed to reflect similar functions or activities. Figure 4.6 describes the composition of the categories and subcategories, and Table 4.2 summarizes their frequencies.

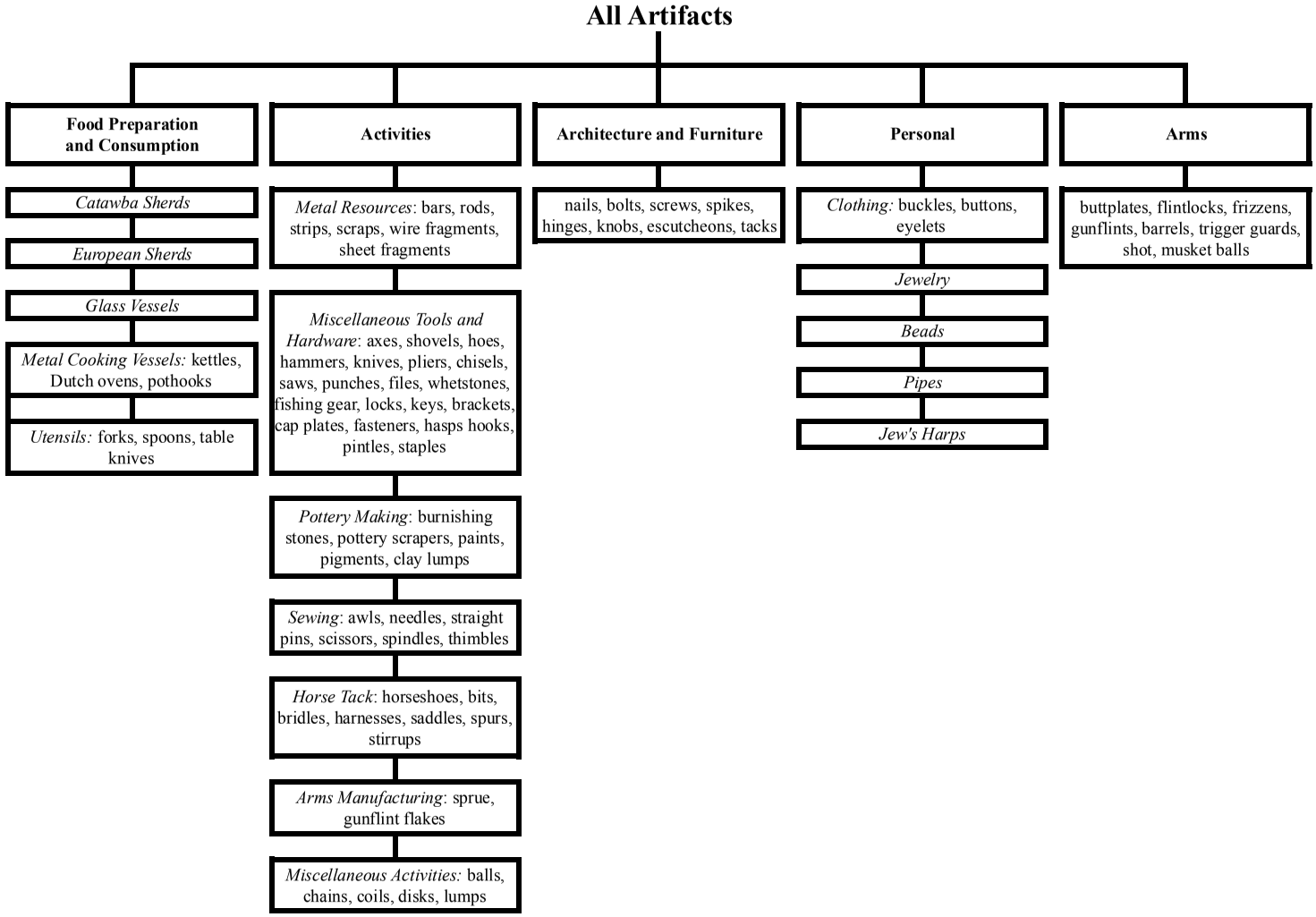

Figure 4.6. Functional classification scheme describing the composition of the categories and subcategories used in this study.

Table 4.2. Artifact Frequencies by Functional Categories and Subcategories.

Functional Category:	Count					
Functional Subcategory	Locus 2	Locus 3	Locus 4	Locus 5	Locus 6	Locus 7
Food Preparation and Consumption:						
Catawba Sherds	2144	16064	9793	11350	21250	278
European Sherds	493	1219	2470	2095	4735	17
Glass Vessels	196	104	42	65	719	4
Metal Cooking Vessels	1	1	1	3	2	0
Utensils	3	5	3	7	6	0
Activities:						
Metal Resources	142	79	44	70	29	0
Miscellaneous Tools and Hardware	6	21	11	20	12	1
Pottery Making	4	20	18	30	7	0
Sewing	7	5	3	4	9	0
Horse Tack	1	6	7	3	2	0
Arms Manufacturing	0	9	0	1	1	1
Miscellaneous Activities	3	5	0	3	13	0
Architecture and Furniture	72	123	271	101	126	4
Personal:						
Clothing	19	27	18	30	33	0
Jewelry	0	10	3	2	3	0
Beads	4	10	17	35	26	0
Pipes	67	135	53	121	169	0
Jew's Harps	0	7	2	1	3	0
Arms	6	9	8	9	10	0

Correspondence Analysis 1: All Artifacts

Correspondence analysis was used to transform the artifact frequency data into a graphical display so that patterns could be visually detected. This multivariate analytical technique was chosen because it is particularly well suited to the analysis of datasets in which some categories have significantly higher counts than others (Shennan 1997). An initial correspondence analysis based on the data summarized in Table 4.2 suggested that combining or eliminating several subcategories and excluding Locus 7 would improve the clarity of the graphs, and thus subsequent analyses were performed using a slightly modified version of the artifact frequency data (Table 4.3).

The final correspondence analysis results capture 85.7 percent of the variance on the first two dimensions (Figures 4.7–4.8). The five loci form a very loose grouping, as would be expected for habitation areas with artifact assemblages dominated by materials belonging to the Food Preparation and Consumption category. Nevertheless, Dimension 2 separates the dirt-floored cabins in the northern and central hamlets from the wooden-floored cabins in the southern hamlet, and Locus 2, Locus 3, and Locus 4 stand out for being closely associated with specific subcategories.

Locus 2. Locus 2 plots in the upper right quadrant of the correspondence plot, revealing an association with the Glass Vessels, Sewing, Pipes, and Clothing subcategories. It is thus likely that the high button density at Locus 2 (see Artifact Densities discussion above) reflects not only the occasional loss of buttons during daily activities, but also considerable sewing activity.

Interestingly, Locus 2 has a significantly lower percentage of Food Preparation and Consumption artifacts than the other five assemblages, primarily attributable to a

Table 4.3. Artifact Frequencies Used for Correspondence Analysis 1.

Functional Category:	Count				
Functional Subcategory	Locus 2	Locus 3	Locus 4	Locus 5	Locus 6
Food Preparation and Consumption:					
Catawba Sherds	2144	16064	9793	11350	21250
European Sherds	493	1219	2470	2095	4735
Glass Vessels	196	104	42	65	719
Utensils and Metal Cooking Vessels	4	6	4	10	8
Activities:					
Miscellaneous Tools and Hardware	6	21	11	20	12
Polishing Stones	4	9	6	3	2
Sewing	7	5	3	4	9
Horse Tack	1	6	7	3	2
Architecture and Furniture	72	123	271	101	126
Personal:					
Clothing	19	27	18	30	33
Jewelry	0	10	3	2	3
Pipes	67	135	53	121	169

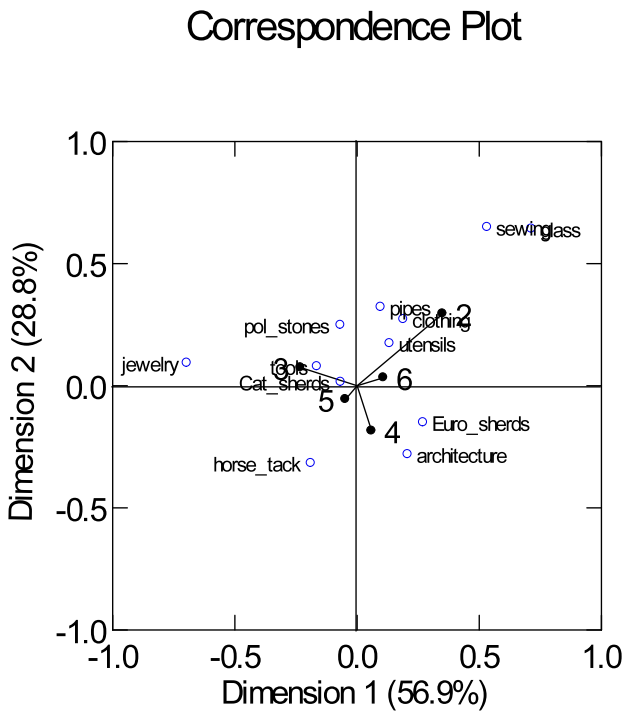

Figure 4.7. Correspondence Analysis 1 plot of loci and artifacts by functional category.

relatively low frequency of Catawba sherds. Locus 2 also has low frequencies of horse tack and jewelry.

Locus 3. Locus 3 plots in the upper left quadrant of the correspondence plot and stands out for being associated with evidence for pottery manufacturing (i.e., polishing stones and Catawba sherds) and jewelry. Although excavations at Locus 3 covered only 51 m^2, they yielded nine whole polishing stones. The Locus 3 assemblage also has more jewelry than any other assemblage.

Locus 4. Locus 4 plots in the lower right quadrant of the correspondence plot and is associated with European-manufactured pottery and architecture and furniture components. The abundance of architectural components is not surprising given that

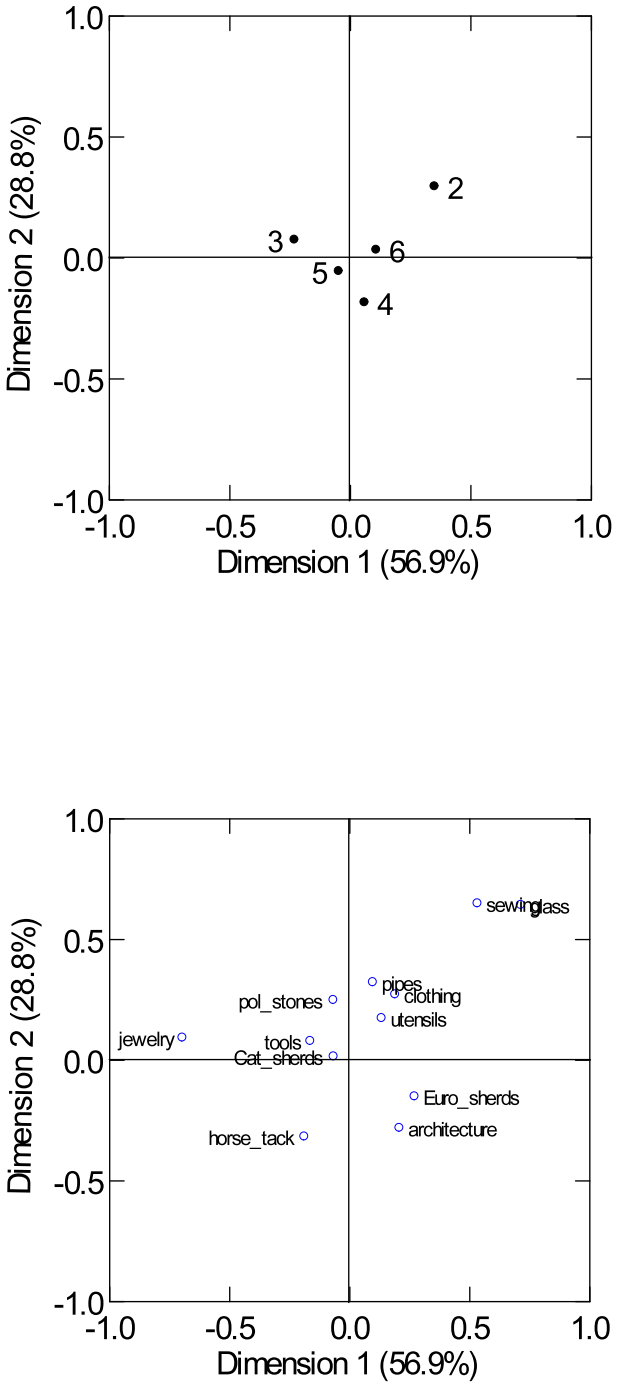

Figure 4.8. Scatterplots separating the Correspondence Analysis 1 results shown in Figure 4.7.

Locus 4 has remains from two cabins. Compared to most of its neighbors, Locus 4 appears to have less evidence for pottery production.

Correspondence Analysis 2: Metal Artifacts

Locus 1 was not included in any of the analyses described thus far because it has not been excavated. It was, however, investigated through metal detecting, and the resulting data can be compared to the metal data from the other loci. Consequently, a second correspondence analysis was performed using all metal artifacts recovered through systematic metal detecting or excavation.

As with the other analyses, modern and unidentifiable metal artifacts were excluded. The remaining metal artifacts were assigned to functional categories according to the scheme described in Figure 4.6, with the exception that artifacts assigned to the Arms and Arms Manufacturing subcategories were combined. Jew's harps and Locus 7 artifacts were ultimately excluded to improve the quality of the correspondence plot. Table 4.4 summarizes the final 2,647 metal artifacts that were used for the correspondence analysis.

The results reveal that the first two dimensions capture 68 percent of the variance in the dataset (Figures 4.9–4.10). Dimension 1 distinguishes the three loci in the northern hamlet from Locus 4, Locus 5, and Locus 6. At the same time, Locus 1, Locus 2, and Locus 3 spread out along dimension 2.

Locus 1. Locus 1 stands out in the lower left quadrant of the correspondence plot for being closely associated with artifacts in the Miscellaneous Activities and Food Preparation and Consumption categories. The latter association is explained by the

Table 4.4. Metal Artifact Frequencies Used for Correspondence Analysis 2.

Functional Category:	Count					
Functional Subcategory	Locus 1	Locus 2	Locus 3	Locus 4	Locus 5	Locus 6
Food Preparation and Consumption	20	25	13	40	18	34
Activities:						
Metal Resources	12	147	67	113	68	45
Miscellaneous Tools and Hardware	8	15	21	40	34	22
Sewing	1	21	11	8	22	9
Horse Tack	2	10	8	22	13	5
Miscellaneous Activities	12	19	9	14	5	13
Architecture and Furniture	47	207	143	463	252	250
Personal:						
Clothing	5	32	31	37	54	55
Jewelry	0	0	13	5	2	2
Arms and Arms Manufacturing	8	35	15	20	12	13

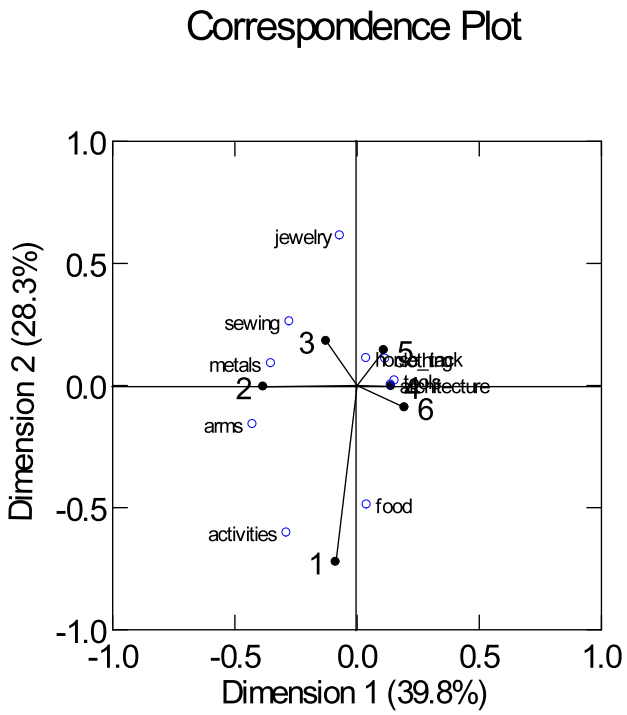

Figure 4.9. Correspondence Analysis 2 plot of loci and metal artifacts by functional category.

presence of 16 cast iron vessel fragments representing at least two different vessels. Given the absence of ceramic data from this locus (since it has not been excavated), its association with metal vessels provides a solid basis for interpreting it as a domestic habitation area.

Locus 2 and Locus 3. Locus 2 and Locus 3 also plot on the left side of the correspondence plot and are both associated with metal resources. As in the first correspondence analysis, Locus 3's frequency of jewelry sets it apart from the other loci.

Locus 4, Locus 5, and Locus 6. These three loci form a loose grouping on the right side of the correspondence plot. Locus 5 is strongly associated with clothing and horse tack. With 37 metal buttons and 22 metal artifacts related to sewing, it is likely that

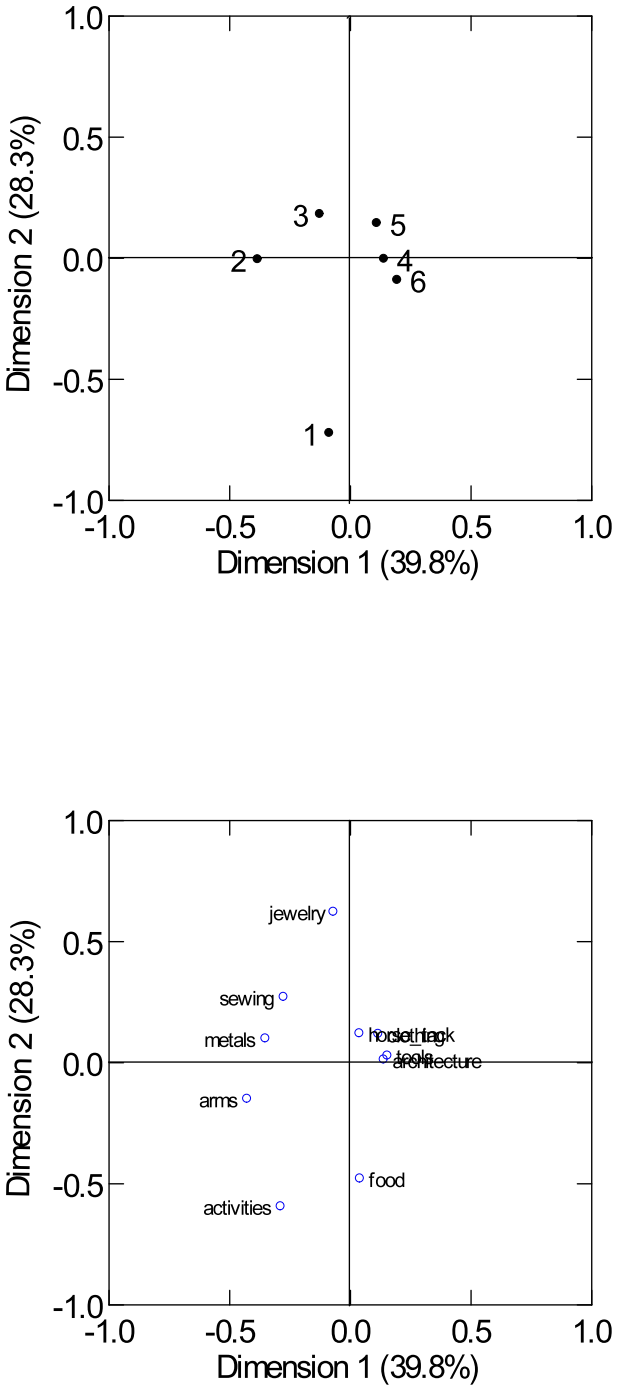

Figure 4.10. Scatterplots separating the Correspondence Analysis 2 results shown in Figure 4.9.

the residents of Locus 5 spent a significant amount of time making or repairing clothing. Additionally, they may have kept horses on a regular basis, a hypothesis that is further explored below. Locus 4 is likewise associated with horse tack as well as miscellaneous tools and architecture and furniture components.

Discussion

The combined results of the artifact density and correspondence analyses reveal both similarities and differences in the range of activities conducted by New Town households. They also support the interpretation that the northern and southern hamlets correspond to the northern and southern neighborhoods described by Calvin Jones in 1815.

The relatively close association between all of the loci and Food Preparation and Consumption artifacts confirms that the artifact scatters do indeed represent habitation areas (or, in the case of Locus 7, refuse deposits from habitation areas). However, the households in the northern hamlet appear to have engaged in larger scale pottery production than their southern neighbors. At the same time, households in the southern hamlet may have spent more time farming, collecting rental income, and caring for horses than their northern neighbors.

The Gypsy Potters

The universal presence of pottery polishing stones and decorative pigments confirms that every New Town household produced their own pottery vessels. Suitable polishing stones or "rubbing rocks" would have presumably been carefully curated

objects (Fewkes 1944:87), and comments by later potters suggest that they may have even been passed down from generation to generation (Frances Wade [1977] in Blumer 2004:56–57). Accordingly, the presence of polishing stones in the archaeological record in even very small quantities can be considered reliable evidence for pottery manufacturing activity.

Yet while pottery making appears to have been part and parcel for all New Town households, the available evidence indicates that more pottery was produced at Locus 3 than at any other cabin seat. Eighteen whole and partial polishing stones weigh a total of nearly 400 g, giving this context a polishing stone density of 7.7 g/m^2 (or 8.0 g/m^2 when the subsample is considered). Additionally, a midden area along the western edge of Locus 3 contains many highly fired Catawba sherds that may represent a waster dump (Davis and Riggs 2004: 25–26). Finally, as the Catawba sherd density analyses reveal, Locus 3 has more than twice as many Catawba sherds per unit as any other locus, possibly reflecting breakage during the manufacturing process.

Locus 2 has fewer polishing stones than Locus 3, but nevertheless pottery production still appears to have been a significant activity at this locus. Four faceted polishing stones found in the cellar pit (Feature 1; Figure 4.11) weigh a total of 156 g, giving Locus 2 a polishing stone density of 5.7 g/m^2. In contrast, the southern loci have polishing stone densities of less than 2 g/m^2, suggesting that the associated households produced pottery on a much smaller scale than those at Locus 2 and Locus 3.

At the same time, Locus 2 stands out from its neighbors for having a relatively low frequency of Catawba sherds. If the four polishing stones found in the Locus 2 cellar do indeed reflect substantial pottery production, then either Locus 2 residents had an

Figure 4.11. Faceted burnishing stones from the cellar pit (Feature 1) at Locus 2.
Photo courtesy of the Research Laboratories of Archaeology at UNC-Chapel Hill.

extremely low rate of ceramic breakage or they may have produced much of their pottery and/or consumed many meals elsewhere. As the paragraph that follows explains, the latter scenario could be consistent with the itinerant lifestyle suggested by the available documentary evidence.

If Locus 2 potters were frequently away from New Town selling their wares, much of their limited time at home might have been reserved for catching up with friends and family and relaxing. Replenishing their pottery supply, which was probably an independent and lonely endeavor for potters on the road (Simms 1853), may have functioned as both an economic and social activity at New Town. Blumer (2004) found that modern Catawba potters pool their efforts for economic and social reasons, and it seems reasonable to conclude that some aspects of pottery production at New Town could also have been cooperative affairs. If so, the available evidence suggests that Locus 3 might have been a center of production where residents from neighboring loci came together to work and visit. Such a scenario would explain not only Locus 3's abundant evidence for pottery production, but also the low frequency of Catawba sherds at Locus

2. It is also consistent with the association between Locus 2 and sewing-related artifacts, since repairing or replenishing clothing was likely to have been another common activity for returning potters, but one that may have been less cooperative than pottery production. Alternatively, the difference between the frequencies of Catawba sherds at Locus 2 and Locus 3 may be related to the difference in sampling strategies: Locus 2 excavations targeted the suspected cabin area whereas Locus 3 excavations focused on areas peripheral to the suspected cabin area.

It bears mentioning that if the potters in the northern hamlet were away from New Town for long periods at a time, then the relatively high button concentration ratios at Locus 2 and Locus 3 suggest that their associated households were large. The way Jones (1815) described the two neighborhoods at New Town also hints that households may have been larger and/or less defined in the northern hamlet: he specifically mentioned Sally New River's and Colonel Ayres' residences in the southern neighborhood but provided only a very general description of the northern neighborhood that does not associate families with specific cabins or even clarify exactly how many cabins there were. Again, this description is consistent with multiple households cooperating in the northern neighborhood.

Interestingly, Locus 3 also yielded significantly more jewelry than the other loci, even when adjustments are made to account for possible differences in household size and occupation duration. Like buttons, jewelry is more likely to be lost than intentionally discarded, and thus it seems probable that Locus 3 residents wore more personal ornaments than many of their neighbors. It is not clear, however, if they wore more

jewelry because they were better able to afford it or simply allotted a greater proportion of their income for purchasing it.

Whatever the case, wearing jewelry may have been a strategic move by Locus 3's potters. Simms's (1853) recollection hints that it may have been the exotic nature of Catawba earthenware pots as much as their economic value that attracted Anglo-American buyers:

> Their productions had their value to the citizens, and, for many purposes, were considered by most of the worthy housewives of the past generation, to be far superior to any other. I remember, for example, that it was a confident faith among the old ladies, that okra soup was always inferior if cooked in any but an Indian pot; and my own impressions make me not unwilling to take sides with the old ladies on this particular tenet. Certainly, an iron vessel is one of the last which should be employed in the preparation of this truly southern dish. [Simms 1853:361]

If Catawba pottery was in fact valued for its Indian flavor, then peddlers may have found more success in the marketplace when they donned an exotic appearance facilitated by the excessive use of nose bangles and other ornaments, especially since many Catawbas presumably had mixed Catawba-Anglo ancestry by this time (Coke 1792; Jones 1815; Smyth 1784). Indeed, the available ethnohistorical accounts frequently mention nose bangles and other jewelry (e.g., Watson 1856; Coke 1792; Jones 1815), insinuating that it stood out as somewhat excessive or unusual by Anglo-American standards. Plane (2004:70) argues that these ornaments "gave Catawba women and men a decidedly non-European appearance and represent markers of Catawba ethnicity." The archaeological evidence indicates that such ethnic markers would have been most visible among the residents of Locus 3.

In sharp contrast, Locus 2 did not yield any jewelry. If wearing jewelry was a strategy employed by Catawba potters, then this finding is somewhat surprising given

that Locus 2's residents also appear to have produced pottery on a relatively large scale. However, it is possible that the lack of evidence at Locus 2 reflects the limited scale of excavations rather than a true absence of jewelry. On the other hand, the Locus 2 potters may have had less income to spend on personal adornment or simply not bejeweled themselves to the same extent as their neighbors.

The "Industrious" Landlords

Compared to the northern hamlet, pottery production in the southern hamlet appears to have occurred on a smaller scale. Polishing stone densities are relatively low at Locus 4 (0.6 g/m^2 for the full dataset; 0.7 g/m^2 for the subsample) and Locus 5 (1.2 g/m^2 for the full dataset; 1.3 g/m^2 for the subsample), and several of the stones recovered from Locus 4 stand out for exhibiting little evidence of use. The worn and damaged surfaces of the Catawba sherds recovered from Locus 4 also suggest domestic use rather than market production (Davis and Riggs 2004:35).

These observations are consistent with Jones' 1815 account, which describes pottery production in the northern neighborhood but does not mention it in association with the southern neighborhood. Jones' (1815) lasting impression of the northern neighborhood was that of "women making pans," whereas he found Sally New River "making a sifter of reeds," presumably for use in food processing. Jones also described both Sally New River and Colonel Ayres as "industrious," implying that they put more effort into subsistence farming than their pottery-peddling northern neighbors. If so, the households in the southern neighborhood probably led a more sedentary lifestyle as well.

The existing Catawba Lease Book suggests that the New River and Ayres households may have also spent a good deal of time collecting rental income from white tenants, both for themselves and for other Catawba landlords who were presumably busy with different activities (e.g., producing and selling pottery). Jones (1815) specifically mentioned that Catawba landlords sometimes collected horses as payments, and the results of the correspondence analyses indicate that Locus 4 and Locus 5 were closely associated with horse tack.

Unfortunately, it is not clear if the residents of Locus 4 and Locus 5 kept horses for personal use or only long enough to sell them. Some of the horse tack at Locus 4 and Locus 5 may also reflect visits by Anglo-Americans. Indeed, these southernmost loci are located along an old wagon road and were probably the first cabin seats encountered by visitors approaching on horseback.

The Ambiguous Central Hamlet

Locus 6 is physically situated between the northern and southern hamlets, and it occupies a somewhat ambiguous location with respect to the correspondence analysis results as well. When all artifacts are considered (Figures 4.7–4.8), Locus 6 plots on the upper half of the correspondence plot along with Locus 2 and Locus 3, suggesting that it may be more similar to the northern households. However, when the metal artifacts are considered (Figures 4.9–4.10), Locus 6 plots closer to Locus 4 and Locus 5 and opposite of Locus 2 and Locus 3. These ambiguous results suggest that the residents of Locus 6 may have bridged not only a spatial divide between the northern and southern hamlets, but a functional one as well.

Conclusions

The results of the artifact frequency and functional variation analyses confirm that New Town households and neighborhoods engaged in a range of activities. In particular, the northern hamlet appears to have served as a home base for itinerant potters, while the families in the southern hamlet probably maintained permanent residences and focused their economic efforts on collecting lease payments and tending subsistence crops. The spatial distribution analyses described in the next chapter introduce additional evidence for intracommunity similarities and differences.

Notes

[1]Only feature fill was wet screened using 1/16-inch mesh; all other excavation fill was dry screened through 1/4-inch mesh.

[2]Catawba sherd weights were used as a proxy measure for overall artifact density because Catawba sherds are ubiquitous at New Town.

[3]These occupation span estimates assume that European ceramics entered New Town as newly manufactured goods when some may have in fact been "hand-me-downs" given as lease payments. However, it is the relative similarity in estimated length of occupation for the four loci rather than the absolute number of years that they were occupied that is relevant to the present discussion.

CHAPTER 5

ARTIFACT SPATIAL DISTRIBUTION ANALYSES

The analyses summarized in Chapter 4 reveal patterns in artifact frequencies that suggest New Town households engaged in a variety of activities. The goal of the analyses described in this chapter is to expose spatial patterns in the distribution of artifacts that may indicate where some of these activities were performed and how individual households organized and maintained their living areas.

The basic premise underlying these analyses and intrasite activity area research in general is that high- and low-density artifact clusters can shed light on the ways in which specific areas of a site were used. High-density clusters comprising a wide variety of unrelated artifact types indicate general refuse disposal, while clusters consisting of a limited number of related artifact types may reveal the location of a specific activity. Areas with abnormally low artifact densities may reflect the former location of a structure or intentional cleaning.

Of course, the spatial distribution of artifacts in the archaeological record reflects not only past human activities, but also subsequent cultural and natural formation processes (Carr 1984). Thus, one of the biggest challenges in intrasite activity area research is distinguishing between the effects of formation processes and the human behaviors that are the subject of study. Fortunately, the New Town site is remarkable for having been occupied for a relatively brief period of time and exhibiting very little

evidence of post-depositional disturbance. Consequently, the spatial distribution of artifacts is likely to be a reasonable indicator of the ways in which individual Catawba families used and maintained their habitation areas.

Methodology

As it has developed over the past four decades, activity area research has come to encompass a variety of statistical and visual techniques for identifying artifact clusters. In recent years, visual methods have been shown to have several advantages over purely statistical techniques. A number of studies have demonstrated that given the vagaries of human behaviors and formation processes, archaeological spatial data are not well-suited for the rigorous statistical tests that can be applied to data in other scientific disciplines (e.g., Carr 1984; Goodchild 1996; Thomas 1978). On the other hand, and as Goodchild (1996:242) argues, "the human eye is remarkably efficient at scanning otherwise random patterns and detecting anomalies." Moreover, the widespread availability of geographic information system (GIS) applications now allows archaeologists to manipulate and display spatial data in ways that can help the human eye readily detect the sorts of subtle patterns that are typical of archaeological data.

Accordingly, the analyses described here primarily use visual techniques to identify patterns and anomalies in the distribution of artifacts at New Town. Esri's ArcGIS software was used to combine and display the data in a variety of ways. In a few cases, quantitative techniques were used to manipulate the data so that they could be more easily interpreted through visual inspection.

Waste Management

Because it is a daily activity, the disposal of waste tends to be patterned and is one of the most readily identifiable activities in the archaeological record. To evaluate refuse disposal routines at New Town, spatial distribution maps were generated for pottery sherds, which are ubiquitous at New Town, and glass fragments and heavy metal objects, which represent hazardous materials that were especially likely to have been discarded away from areas that were used regularly. High-density concentrations of these artifacts thus tend to mark designated waste disposal areas, while low-density areas may have been deliberately maintained for other activities.

Sherd Weight Densities and Artifact Size Index. The distributions of pottery sherds were mapped in multiple ways. Weight density maps displaying the total weight of Catawba or European sherds per quadrant were created using the ArcGIS kriging function. Kriging is a geostatistical method of interpolation that can be used to predict the distribution of a variable exhibiting spatial autocorrelation (i.e., observations close together are more similar than observations farther apart). Predicted values are based on weighted moving averages of the available measurements, which minimizes small-scale variability to draw attention to robust patterns.

Additional maps showing the distribution of Catawba sherds by size were generated using a statistical method recently developed by Sara Bon-Harper and Fraser Neiman (Bon-Harper 2010). Known as "Artifact Size Index," or ASI, this method helps differentiate between maintained spaces and disposal areas. The ASI measure compares the proportion of small sherds (defined in the context of this study as those less than 2 cm

in diameter) from non-feature contexts in every quadrant to the locus-wide mean proportion of small sherds using the following formula:

$$ASI_i = \frac{(S_i - pN_i - .5)}{\sqrt{N_i p(1-p)}}$$

where S_i is the number of small sherds in the ith quadrant, N_i is the total number of sherds in the ith quadrant, and p is the locus-wide mean proportion of small sherds.

Bon-Harper's (2010) research at a Monticello slave site has demonstrated that while ASI is correlated with sherd count and weight, it can be a more reliable indicator of regular yard maintenance. Bon-Harper proposes that areas with predominantly small sherds (and hence high ASI values) represent maintained areas that have been cleared of large debris. Conversely, areas with high proportions of large sherds (and hence low ASI values) indicate areas where trash was deliberately dumped.

The ASI results for Catawba sherds are expressed as standard deviations from the locus-wide mean and were interpolated using the ArcGIS kriging function.

Glass and Heavy Metal Objects. The distributions of glass fragments and heavy metal objects were mapped as count densities (total number of artifacts per quadrant)[1] represented by proportional point symbols.

Activity Areas

To identify where other types of activities were conducted at New Town, many of the functional categories and subcategories discussed in Chapter 4 were likewise mapped as count densities represented by proportional point symbols. Separate analyses were

performed for artifacts from excavated contexts and metal artifacts recovered through systematic metal detecting. The pottery making and horse tack maps revealed potentially meaningful patterning.

Results

Because excavations at Locus 2 and Locus 3 covered such small areas, it is difficult to detect robust spatial patterns for the northern hamlet. The ASI data are particularly problematic given that the index relies on the calculated locus-wide mean proportion of small sherds, which may have been skewed by focusing primarily on areas expected to yield dense artifact concentrations. Consequently, the spatial data from the northern hamlet are only briefly explored below, whereas the data from the southern and central hamlets are examined in more detail.

Locus 2

There are no apparent patterns in the distribution of Catawba sherds at Locus 2 (Figure 5.1). The distribution of European sherds shows a high-density cluster associated with the cellar pit (Feature 1; Figure 5.2), suggesting that it was filled with refuse after it no longer served its original purpose. The ASI data indicate that refuse may also have been deliberately discarded in a tree disturbance behind the chimney (Feature 2; Figure 5.3), but these data must be interpreted very cautiously. Glass fragments are distributed throughout the excavated block, both inside and outside of the suspected cabin area (Figure 5.4).

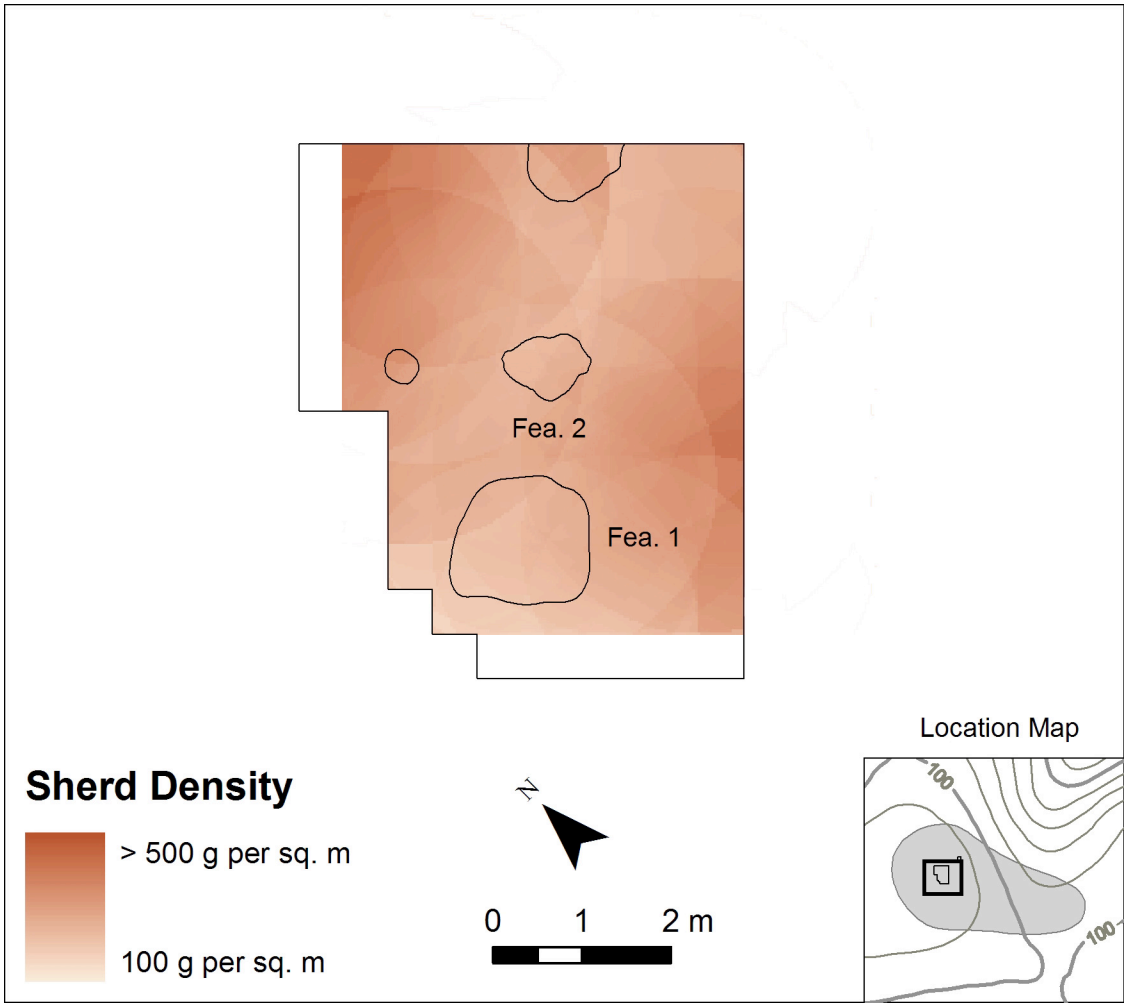

Figure 5.1. Distribution of Catawba sherd weight densities at Locus 2.

Interpretations. Unfortunately, the locations at Locus 2 where peripheral refuse deposits or maintained yard areas might be expected have not been excavated, and no other spatial patterning is apparent in the limited excavation data. When the metal-detected artifacts are mapped, it is tempting to speculate that three areas with relatively few metal artifacts may represent yard areas (Figure 5.5). This hypothesis could be tested if excavation data for these areas become available in the future.

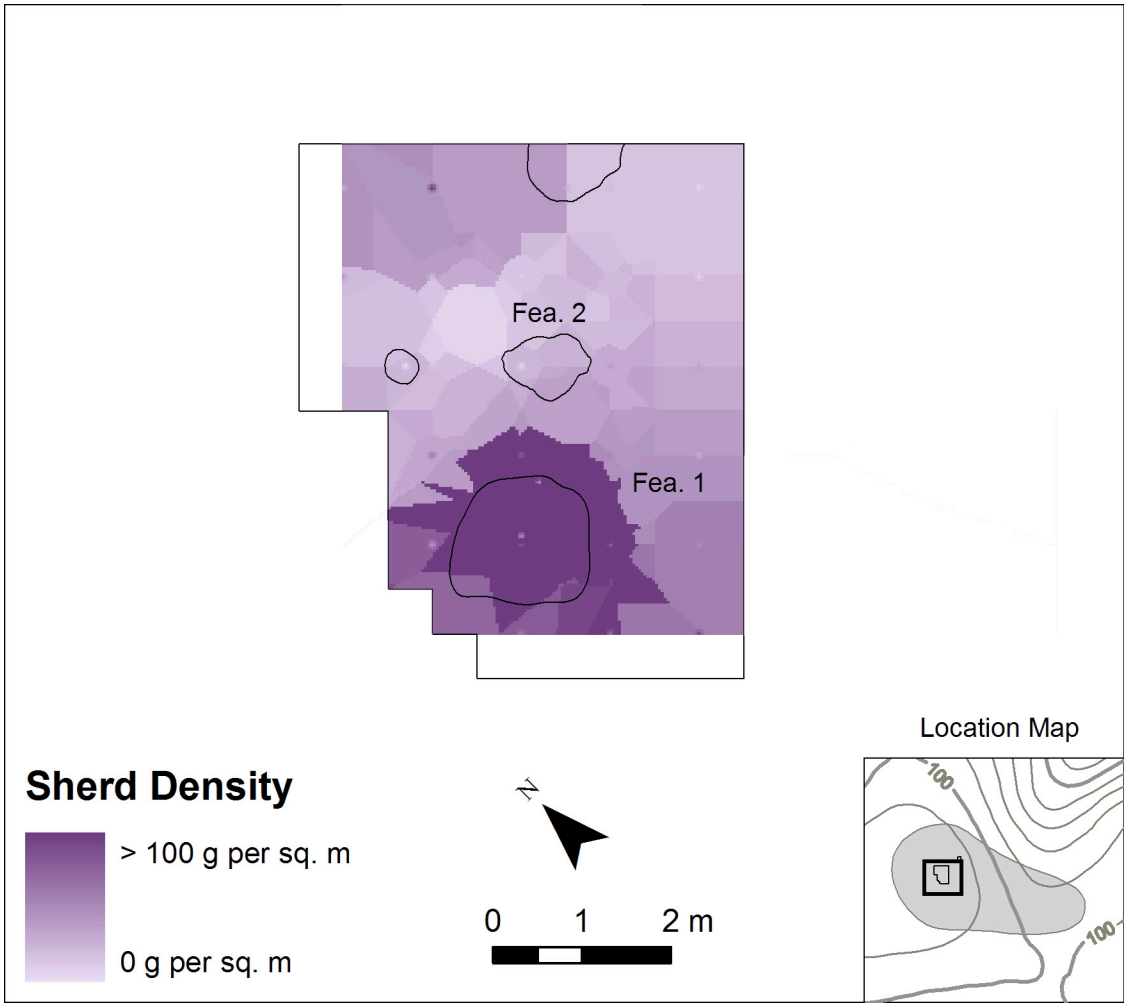

Figure 5.2. Distribution of European sherd weight densities at Locus 2.

Locus 3

The distributions of Catawba and European sherds at Locus 3 reveal high-density concentrations associated with Features 4, 5, and 6 (Figures 5.6–5.7). These observations suggest that the pits represented by these features may have ultimately served as refuse disposal sites, although they probably started out as daub (Feature 5) or cellar (Features 4 and 6) pits (Davis and Riggs 2004:24). The ASI data likewise support the hypothesis that Features 4 and 6 represent a waste disposal area and suggest that Feature 7 may have been part of it (Figure 5.8).

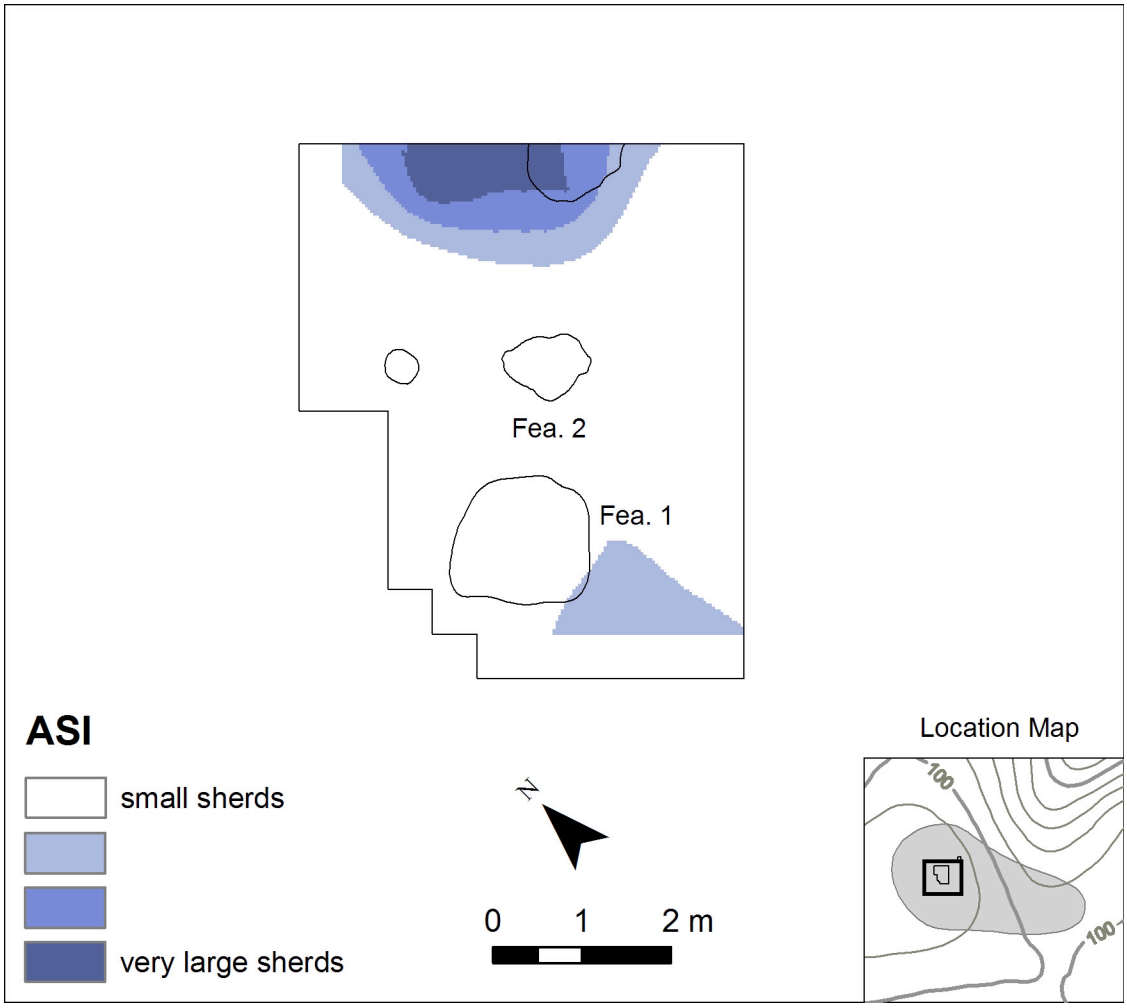

Figure 5.3. Distribution of Catawba sherd ASI values at Locus 2.

European sherds form a small cluster in the hearth area (Feature 8; Figure 5.7). Many of these sherds were burned, suggesting that they represent *in situ* debris (Davis and Riggs 2004:26). The ASI data indicate that they were also relatively large, which is consistent with *in situ* hearth debris and/or refuse accumulation behind the chimney (Figure 5.8). Smaller-than-expected sherds and an absence of glass west of the chimney may reflect a swept interior area, suggesting that the cabin was oriented so that the chimney was on its eastern end (Figures 5.8 and 5.9).

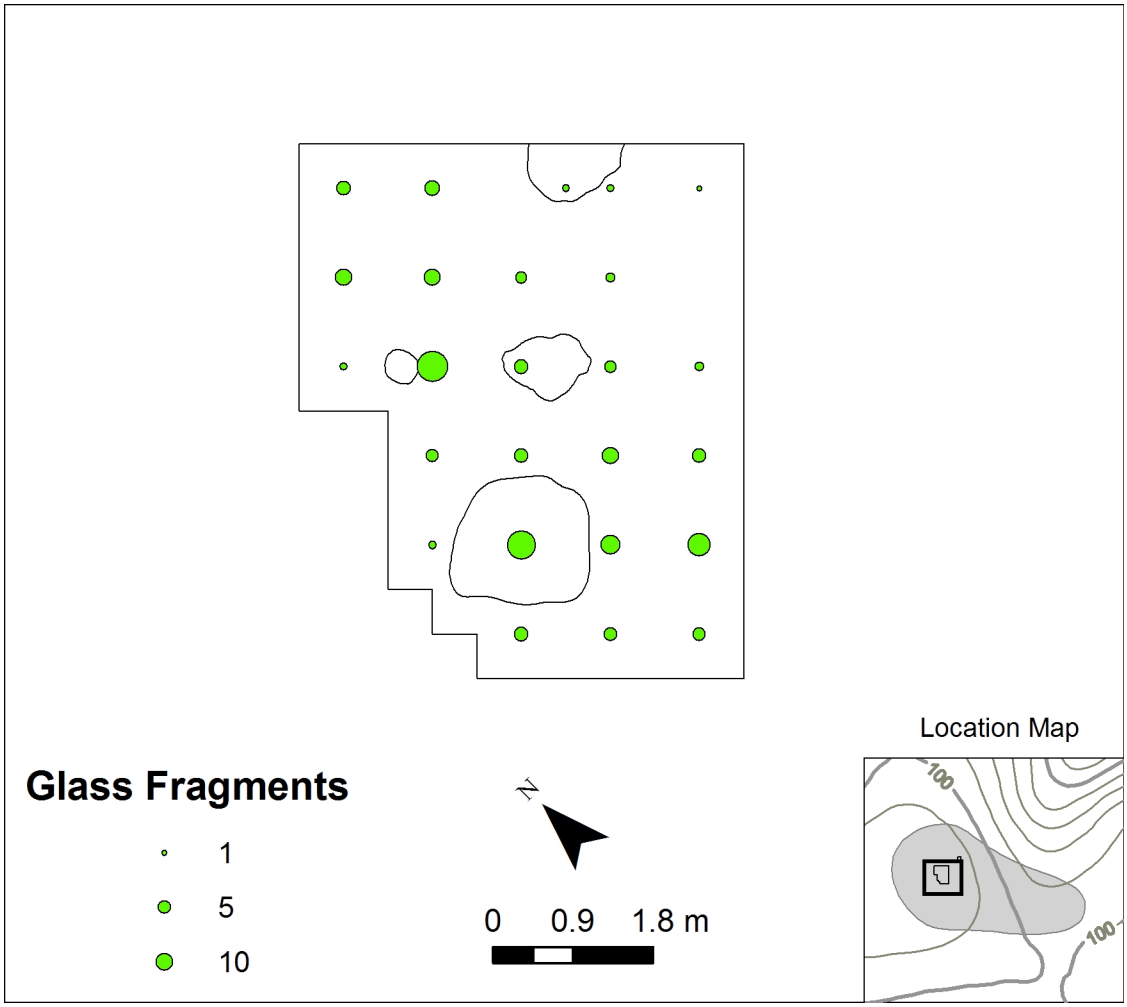

Figure 5.4. Distribution of glass fragments at Locus 2. Note that the data are mapped by 1×1-m units rather than by quadrants.

Pottery Production. As discussed in Chapter 4, there is substantial evidence for large-scale pottery production at Locus 3. Davis and Riggs (2004:26) have interpreted the westernmost excavation block as a waster dump based on the fact that many of the recovered Catawba sherds are highly fired. Catawba sherds are indeed relatively concentrated in this area (Figure 5.6), and the ASI data suggest that they are larger than expected (Figure 5.8). Moreover, European sherds are rare, and glass is notably absent (Figures 5.7 and 5.9). These observations are all consistent with a disposal area for refuse from pottery production.

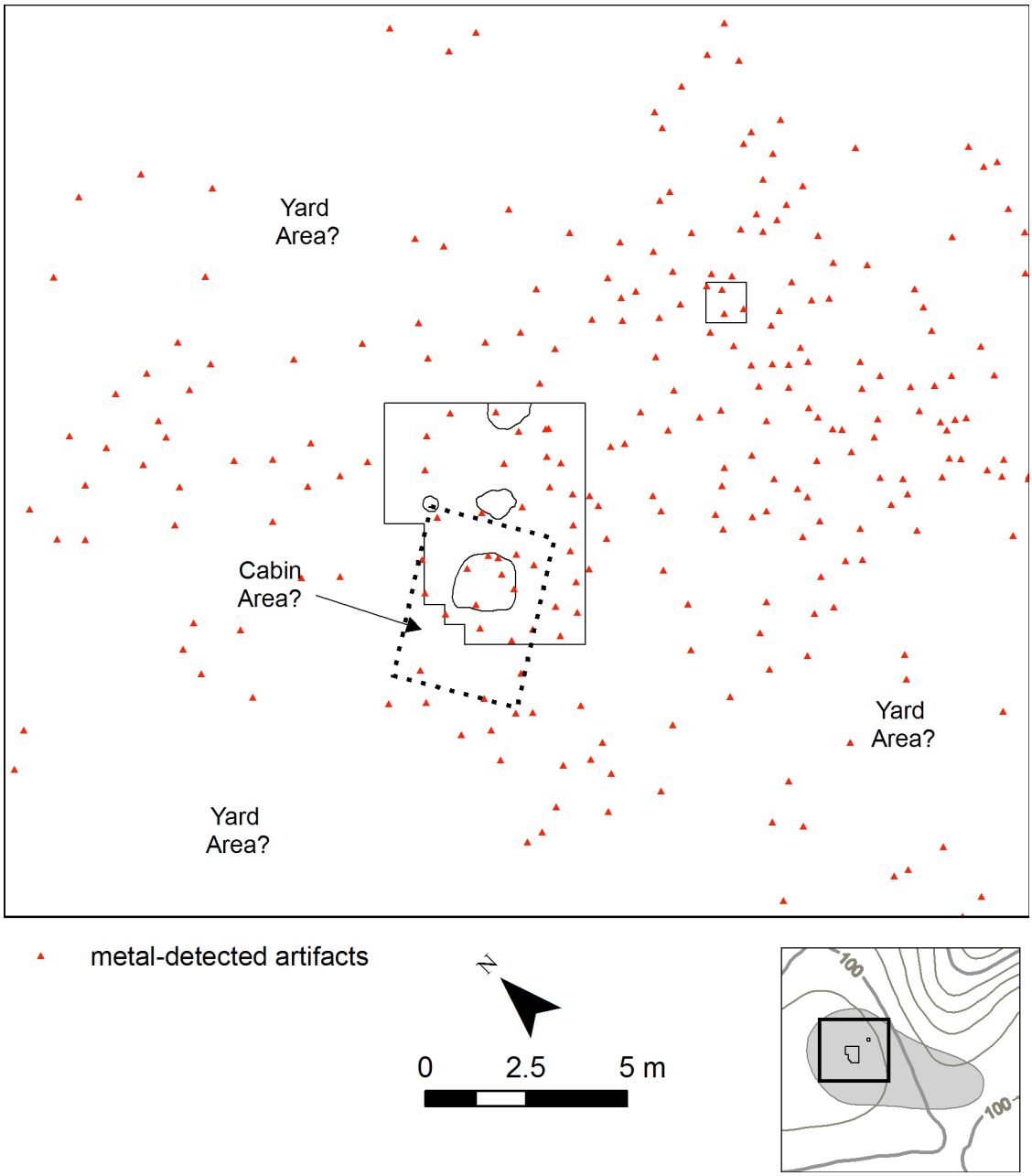

Figure 5.5. Map summarizing interpretations regarding the use of space at Locus 2 based on artifact spatial distribution analyses.

The distribution of pottery-making artifacts (i.e., burnishing stones, paint lumps, a clay coil, and two clam-shell scrapers) hints that certain aspects of production may have been carried out indoors (Figure 5.10). While most of these artifacts were found in the

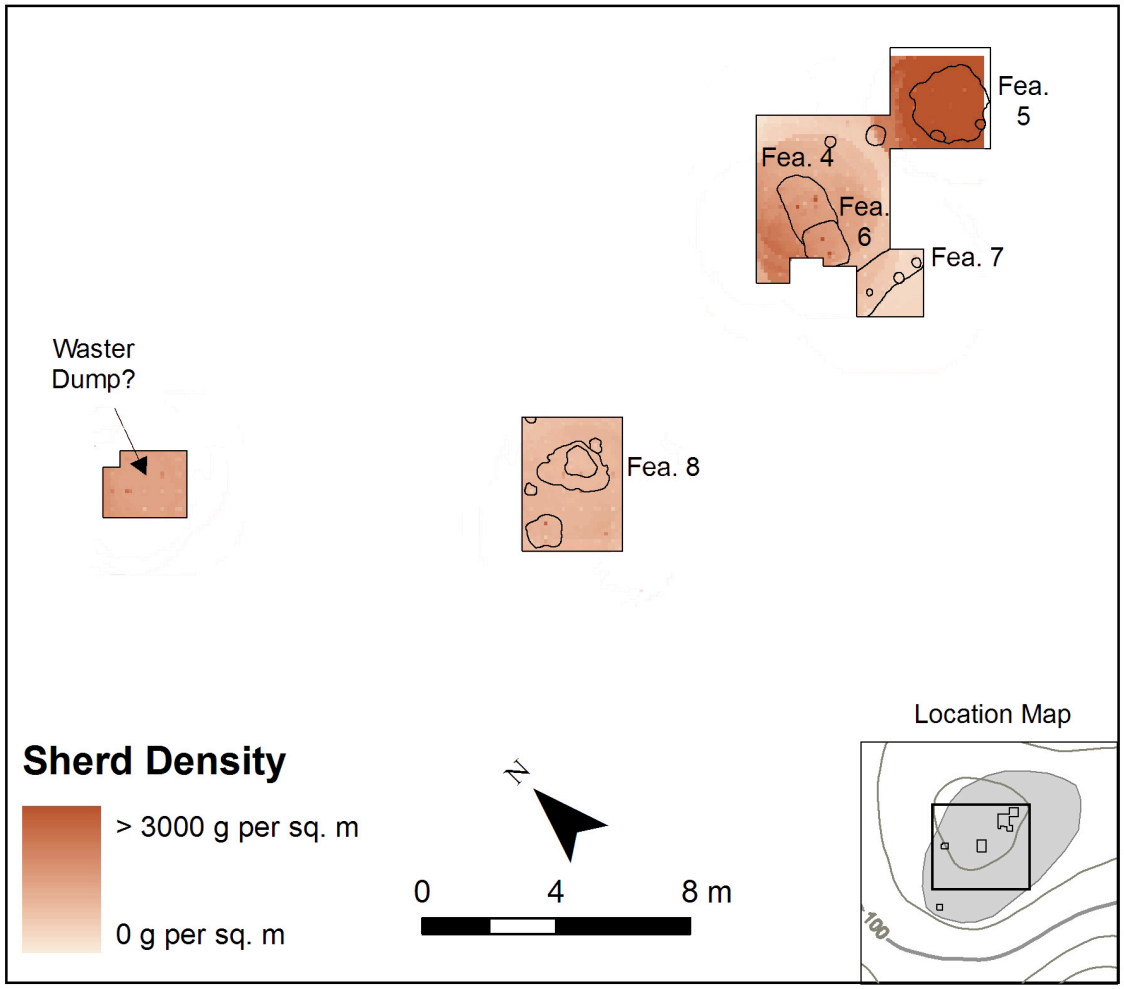

Figure 5.6. Distribution of Catawba sherd weight densities at Locus 3.

refuse deposits at Features 4, 5, 6, and 7, one polishing stone and seven polishing stone fragments were found associated with the hearth or in the area believed to represent the cabin interior.

Interpretations. The limited excavation data at Locus 3 suggest that residents deposited glass and other waste in peripheral areas outside of their immediate living space (Figure 5.11). The distributions of Catawba sherds and glass fragments also indicate that the cabin may have been oriented with the chimney at its eastern end. Relatively few metal-detected artifacts have been recovered at Locus 3, but their mapped

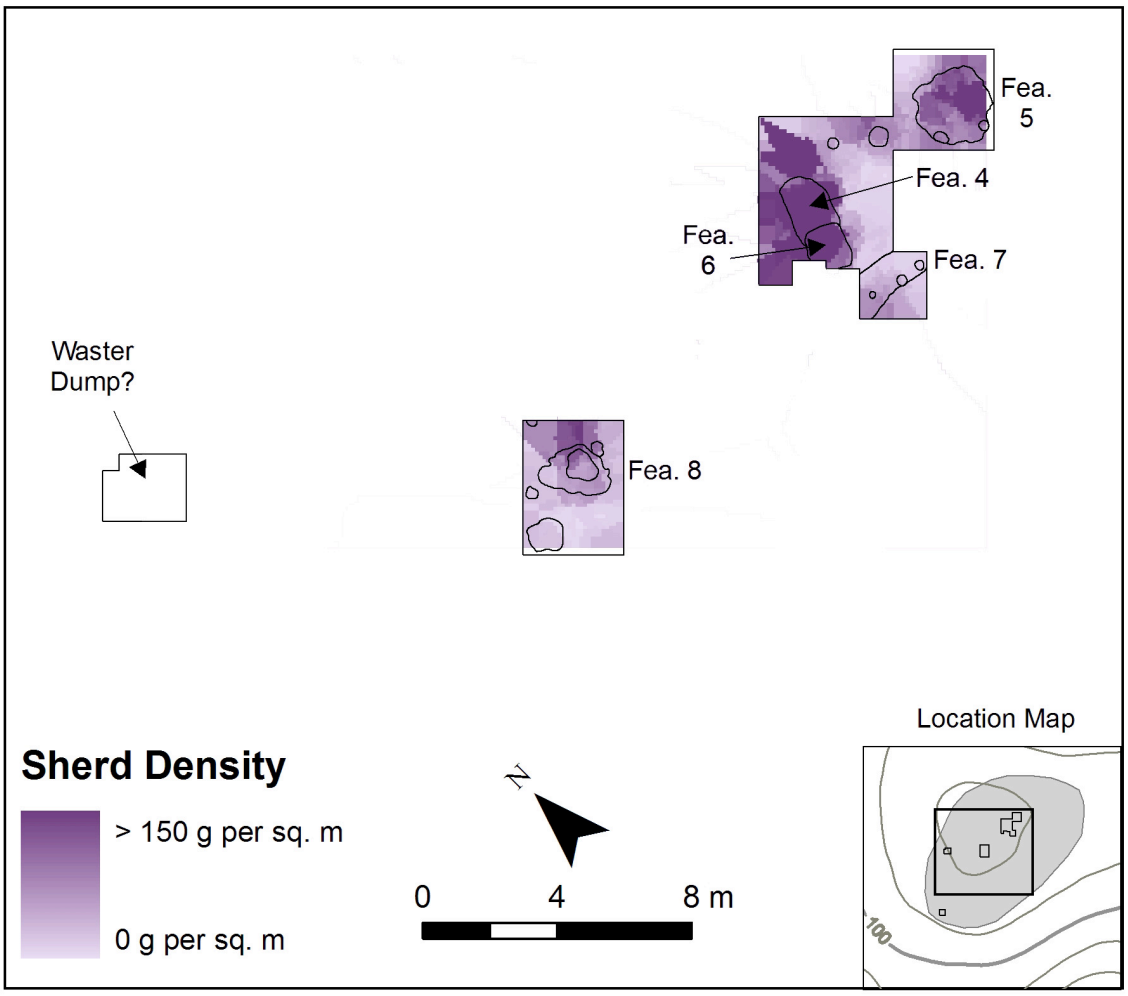

Figure 5.7. Distribution of European sherd weight densities at Locus 3.

distribution hints that if yard areas were present, they were probably located south and/or north of the probable cabin location (Figure 5.11). (Interestingly, when the hypothesized yard areas at Locus 3 are compared to the possible yard areas at Locus 2, their locations in relation to the probable cabin areas are remarkably similar.) Given the evidence for large-scale pottery production at Locus 3 and the hypothesized presence of a waster dump north of the cabin, the northern yard area(s) may have been a hub of pottery production.

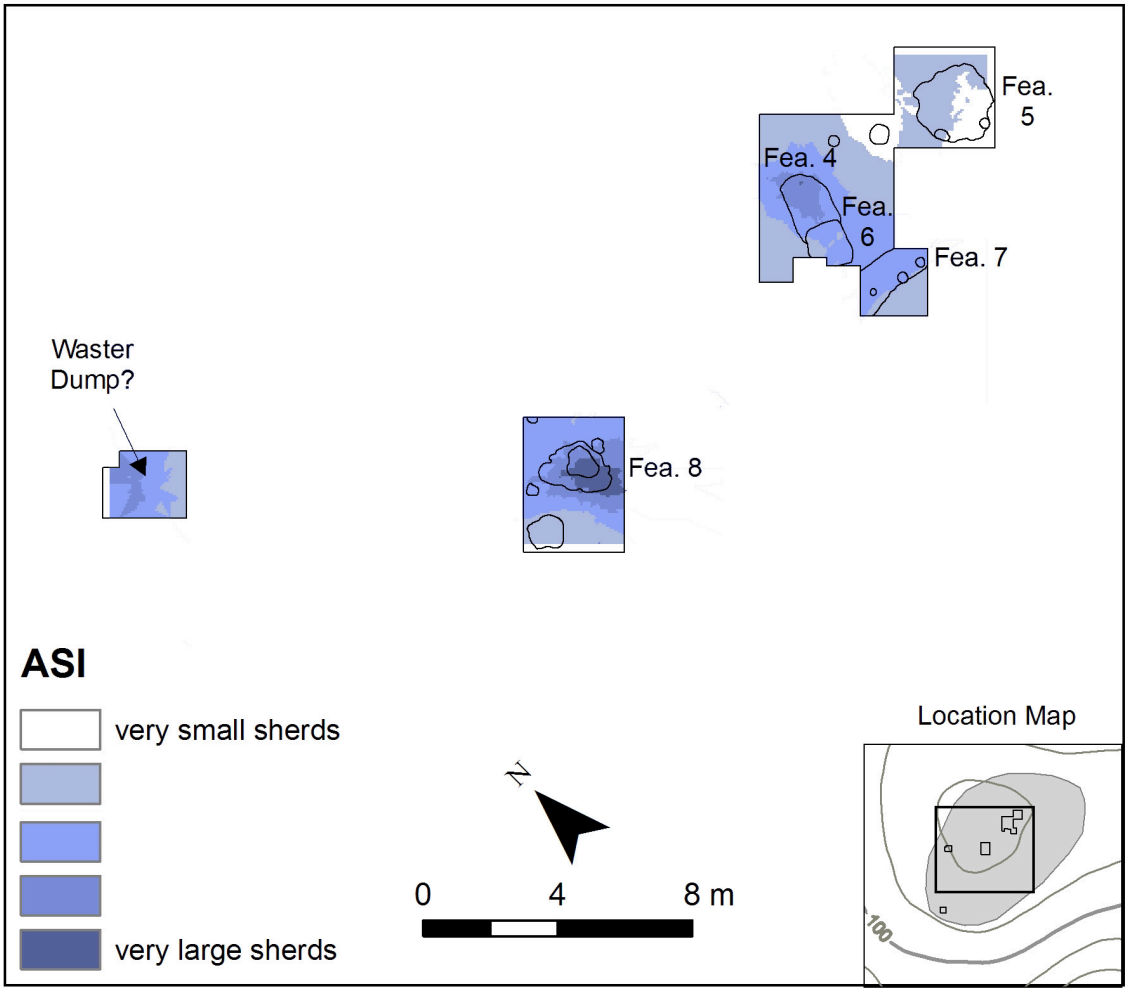

Figure 5.8. Distribution of Catawba sherd ASI values at Locus 3.

Locus 4

At Locus 4, the distributions of the various artifact types reveal several peripheral refuse deposits and an apparently maintained yard area. They also confirm the locations of the cabins.

The Catawba sherd weight map suggests that four concentrations downslope of Cabin 1 served as waste disposal areas (Figure 5.12). Three of the four concentrations are within easy tossing distance of Cabin 1, but the fourth is across the wagon road and more

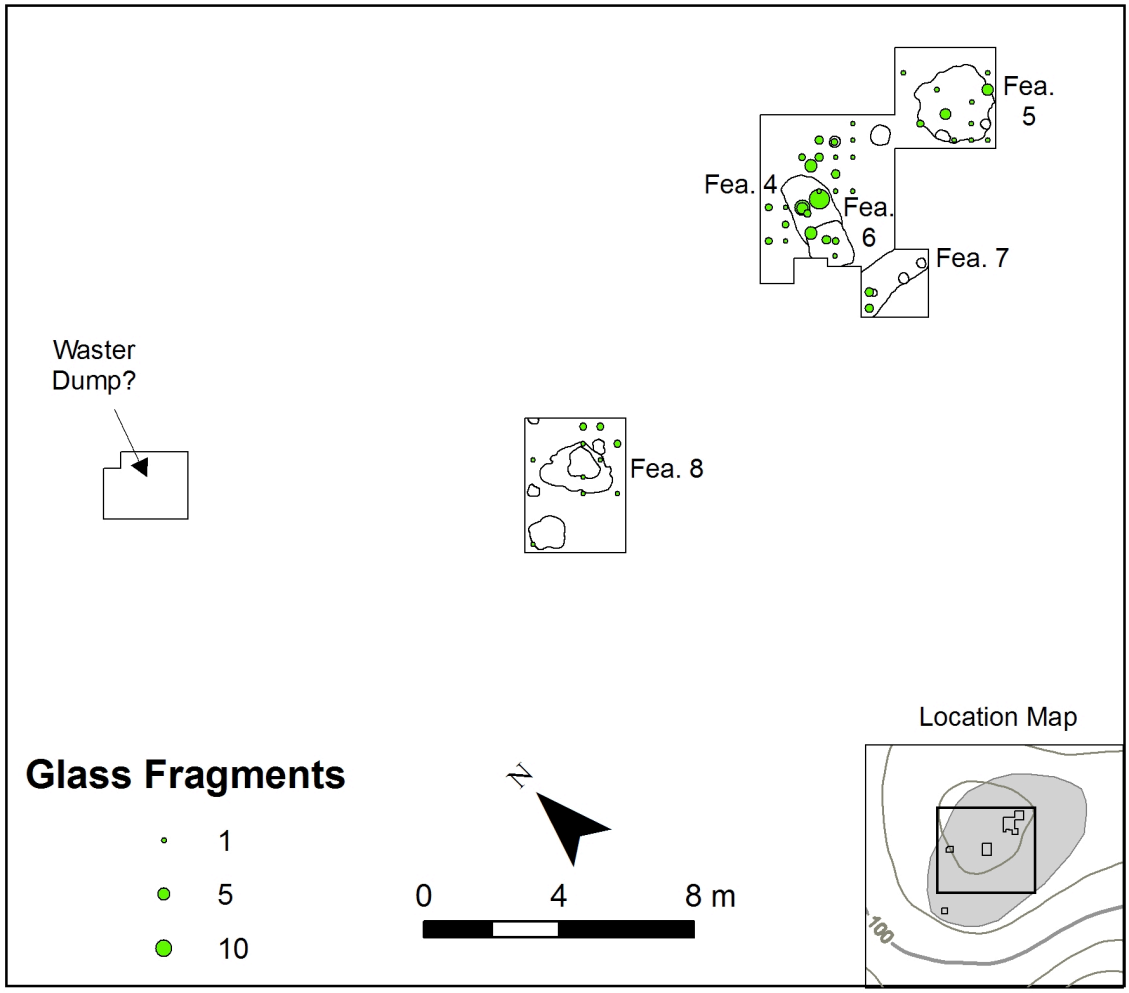

Figure 5.9. Distribution of glass fragments at Locus 3.

than 25 m away from the nearest cabin. The European sherd and ASI maps support the interpretation that these four areas are refuse deposits (Figures 5.13 and 5.14).

Several other sherd clusters are associated with recognized features. Catawba sherds associated with the chimney at Cabin 1 (Feature 1) appear to represent both *in situ* broken vessels and debris that accrued around its base (Figures 5.12 and 5.14). The high-density clusters of Catawba sherds and European sherds near the hearth at Cabin 2 (Feature 2) reflect broken vessels that were presumably left *in situ* on the hearth floor (Figures 5.12 and 5.13; Davis and Riggs 2004:32, 35). The ASI map also reveals larger-

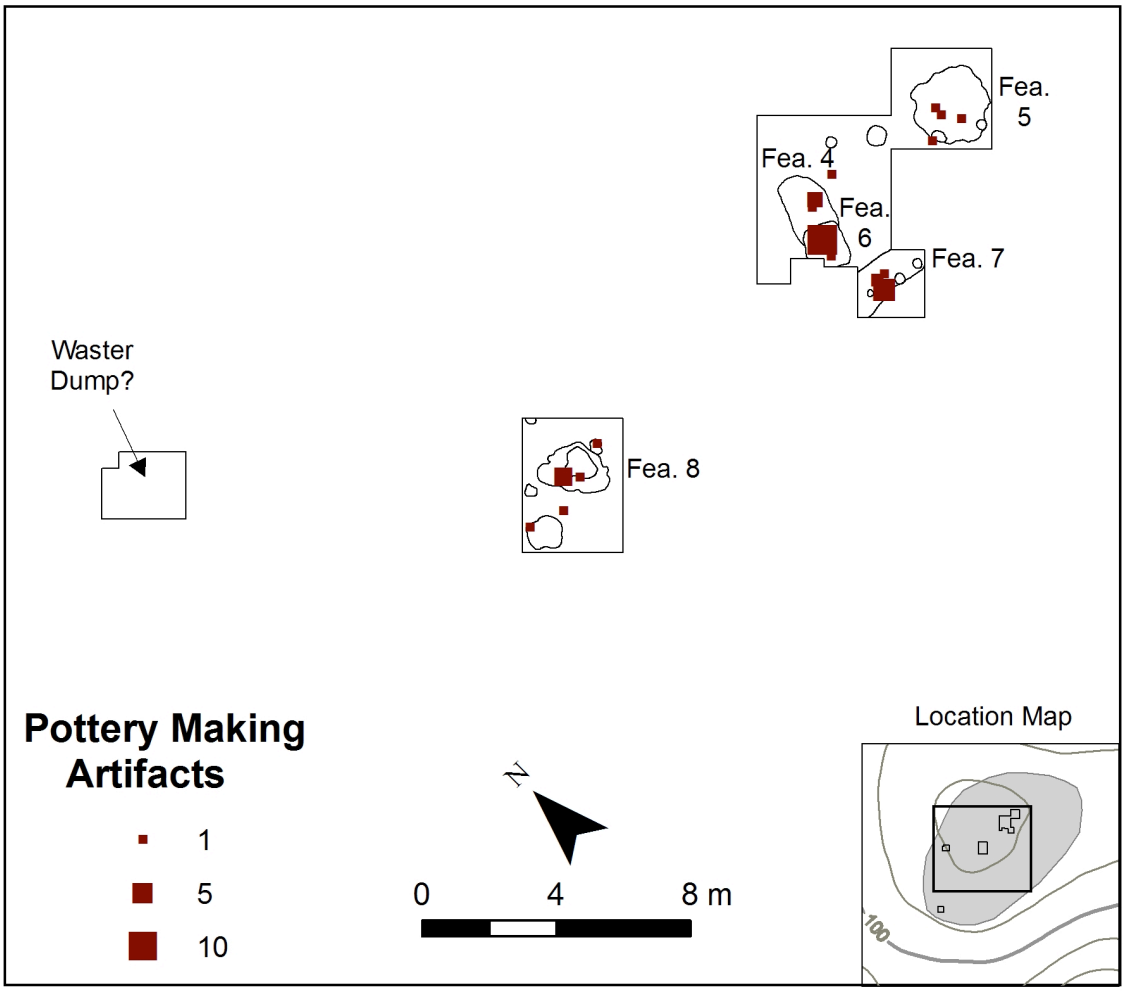

Figure 5.10. Distribution of pottery making artifacts at Locus 3.

than-expected Catawba sherds at Features 3 and 4, suggesting that they represent areas where waste was intentionally discarded.

A suspected yard area south of the cabins has several diffuse, medium-density clusters of Catawba and European sherds, but overall the density of artifacts is relatively low in this area (Figures 5.12 and 5.13). The ASI map confirms that the sherds recovered from this area were small (Figure 5.14), an observation which is consistent with a maintained yard area.

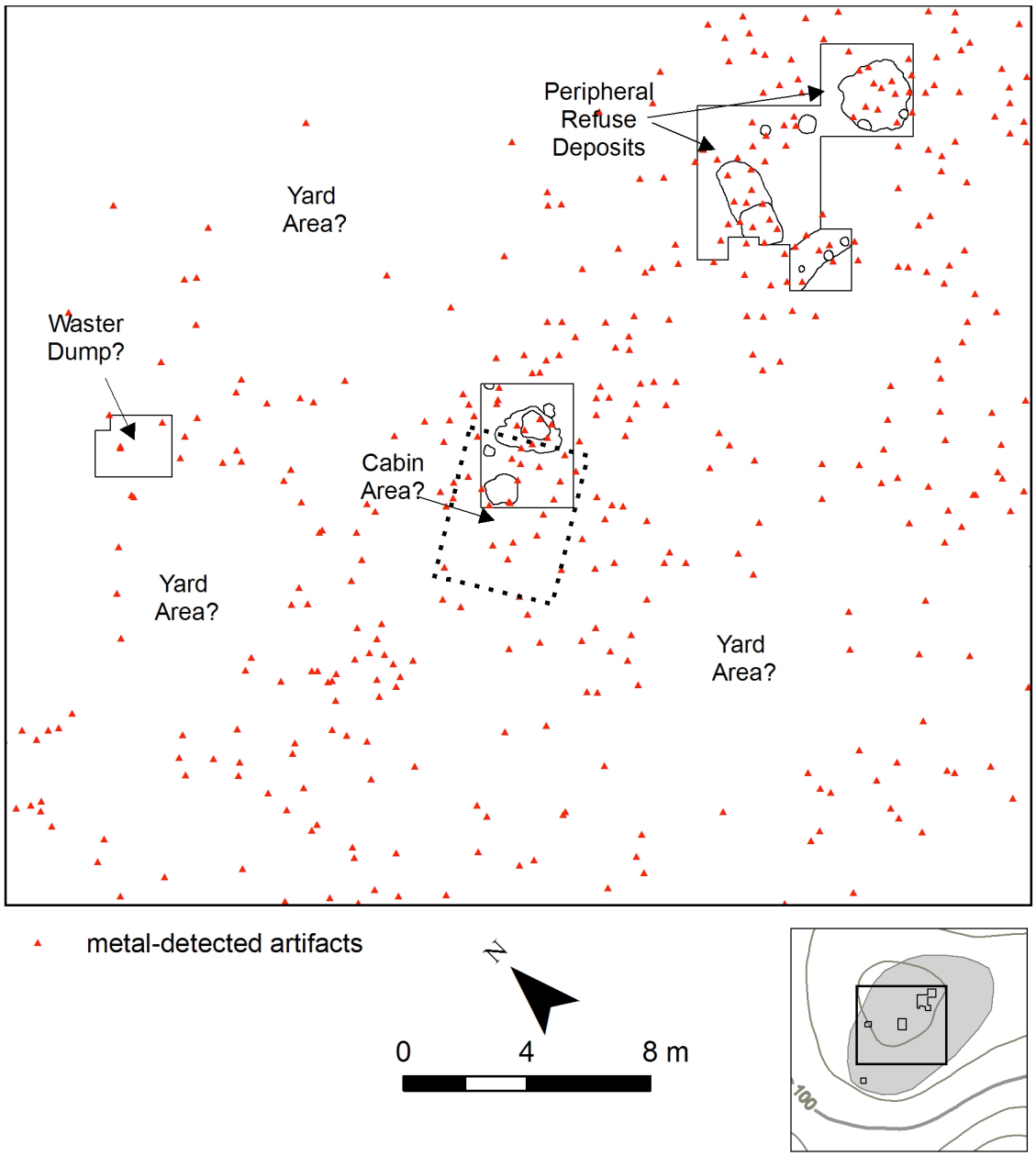

Figure 5.11. Map summarizing interpretations regarding the use of space at Locus 3 based on artifact spatial distribution analyses.

As would be expected with raised-floor structures, the areas believed to correspond with the cabins also have low sherd densities (Figures 5.12 and 5.13). In fact, approximately a quarter of the quadrants excavated in the area believed to represent Cabin 2 did not yield any sherds at all. The sherds that were found in the interiors of the

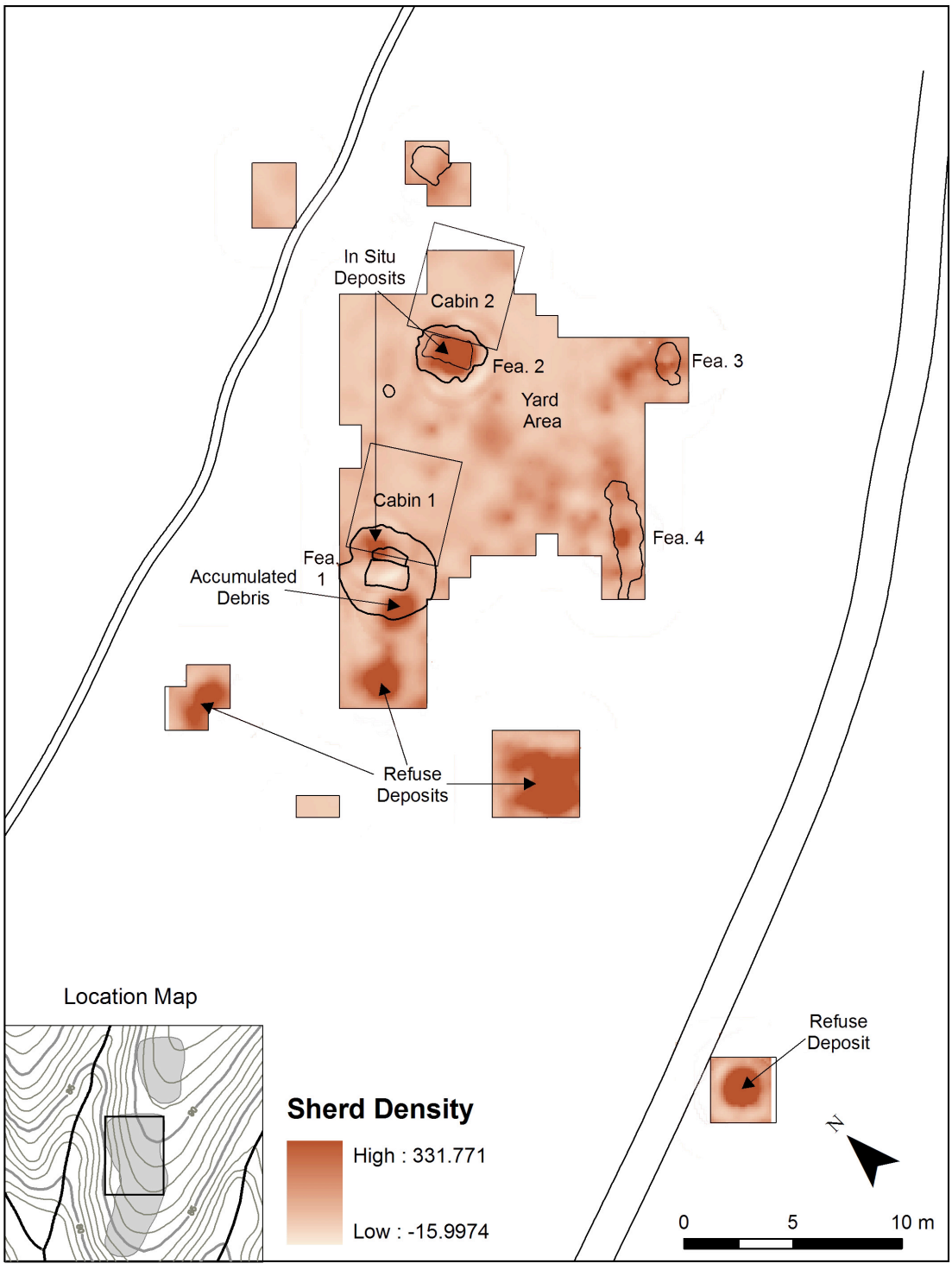

Figure 5.12. Distribution of Catawba sherd weight densities at Locus 4.

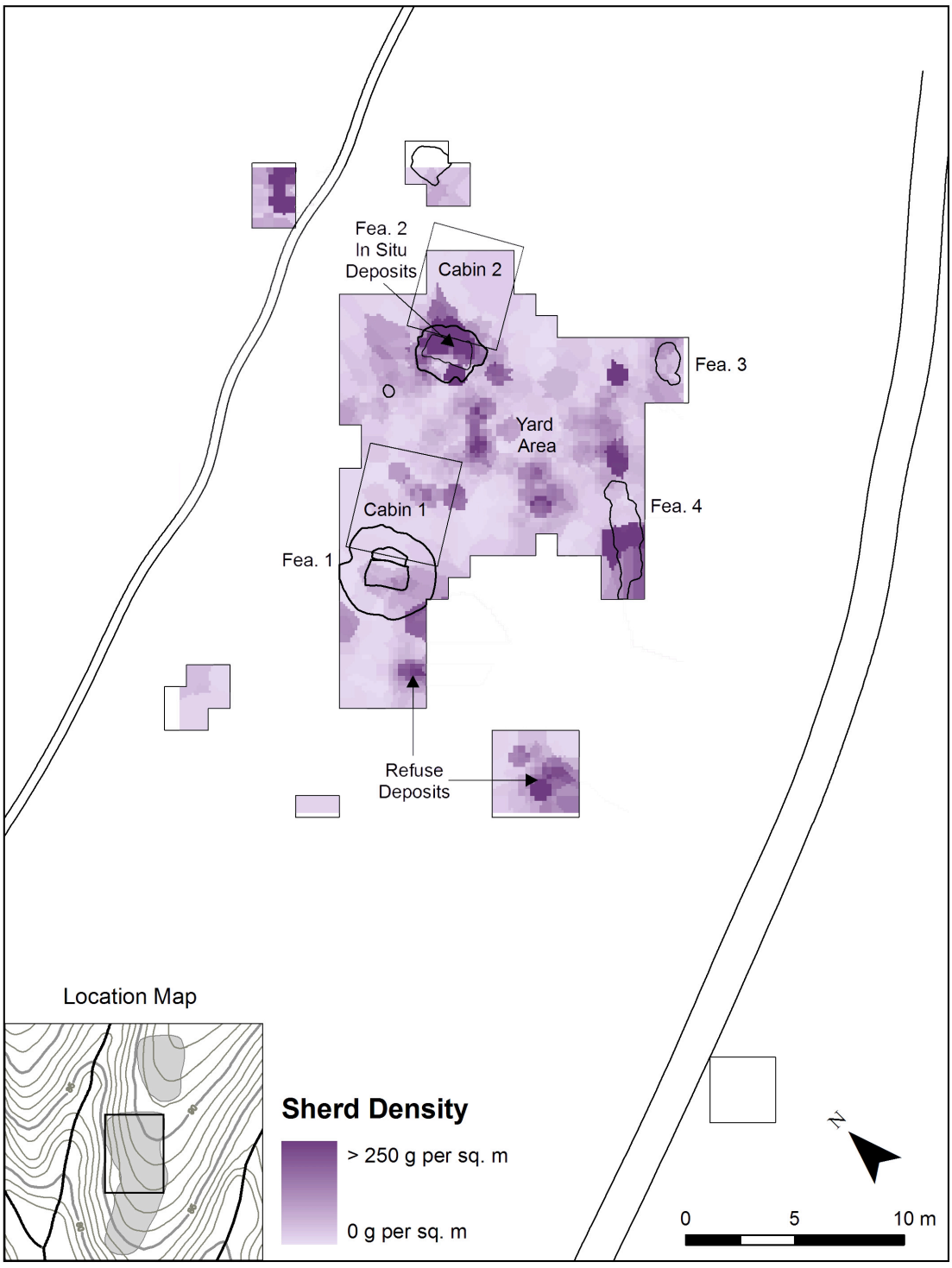

Figure 5.13. Distribution of European sherd weight densities at Locus 4.

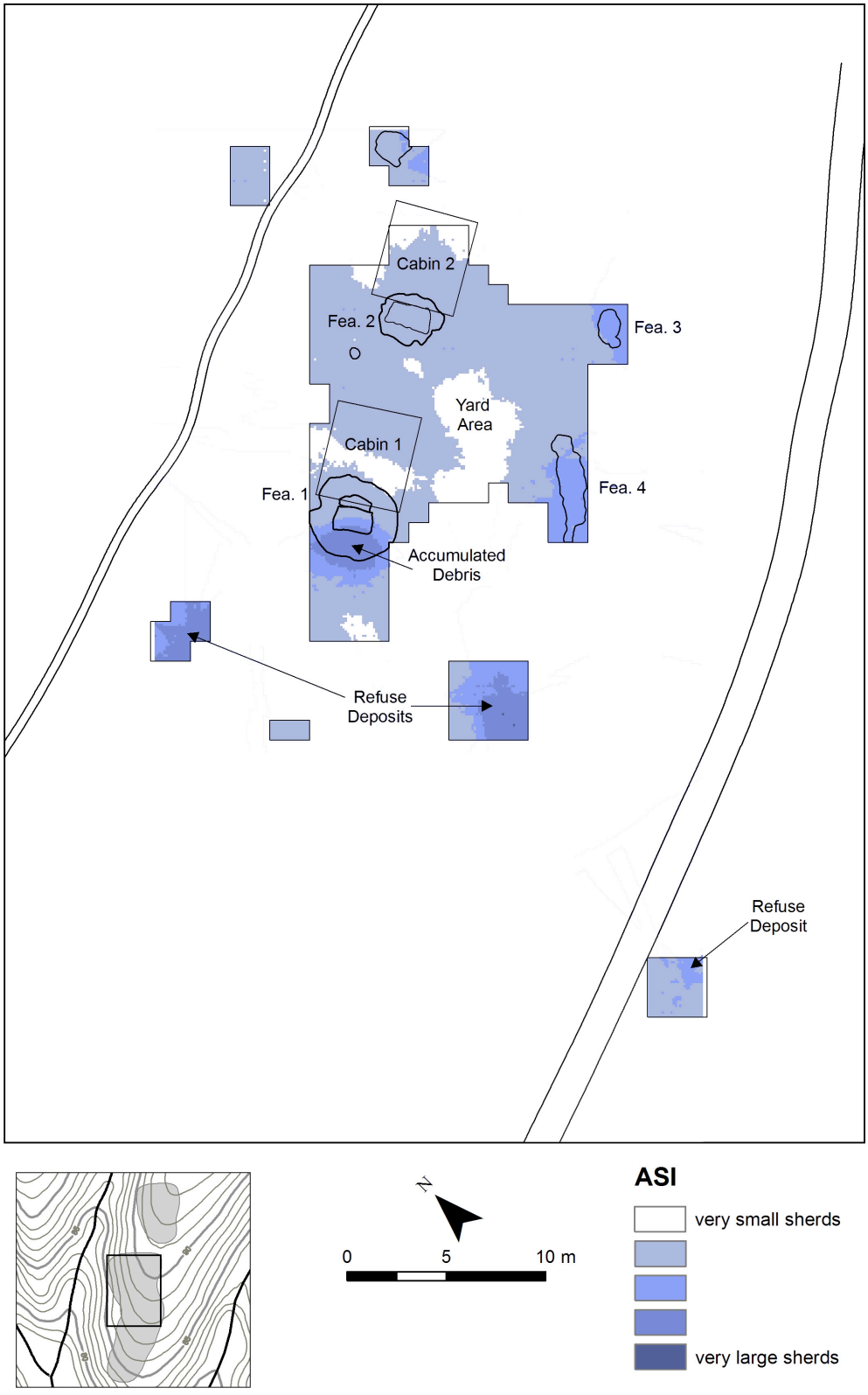

Figure 5.14. Distribution of Catawba sherd ASI values at Locus 4. The shaded areas have larger-than-expected sherds.

cabins were relatively small (Figure 5.14), suggesting that they fell through cracks in the floorboards.

Glass is conspicuously absent from Locus 4, suggesting that its occupants carefully cleared it from their living space and disposed of it elsewhere (Figure 5.15). There is a small deposit of bottle glass and stemware fragments about 30 m west of the main excavation block, but the total number of fragments in this 6-m^2 area is still only 12. This general lack of glass suggests that Locus 4 residents had a still undiscovered location for disposing of glass, although it is certainly possible that they also generated less glass waste than their neighbors in the first place.

Bulky metal objects are also uncommon in the main excavation block at Locus 4 (Figure 5.16). There is a diffuse cluster of kettle fragments north of the footpath, which suggests a heavy kettle may have been deliberately thrown down the slope behind the cabins. Heavy tools like hammers, pliers, and hoes were also found at a considerable distance from the cabins.

Horse Tack. The analyses summarized in Chapter 4 demonstrate that Locus 4 had more horse tack than any other cabin area. When these artifacts are mapped, they form a cluster approximately 15 m southeast of Cabin 2 and near the old wagon road (Figure 5.16). This would have been an ideal location for the residents of Locus 4 to keep horses, as it would have been close enough to keep an eye on them, but not so close that they would make a constant mess of the immediate living space. It could have also been a space that was shared with the residents of Locus 5. Indeed, much of the horse tack recovered from Locus 5 is found in the area between the Locus 4 and Locus 5 cabins.

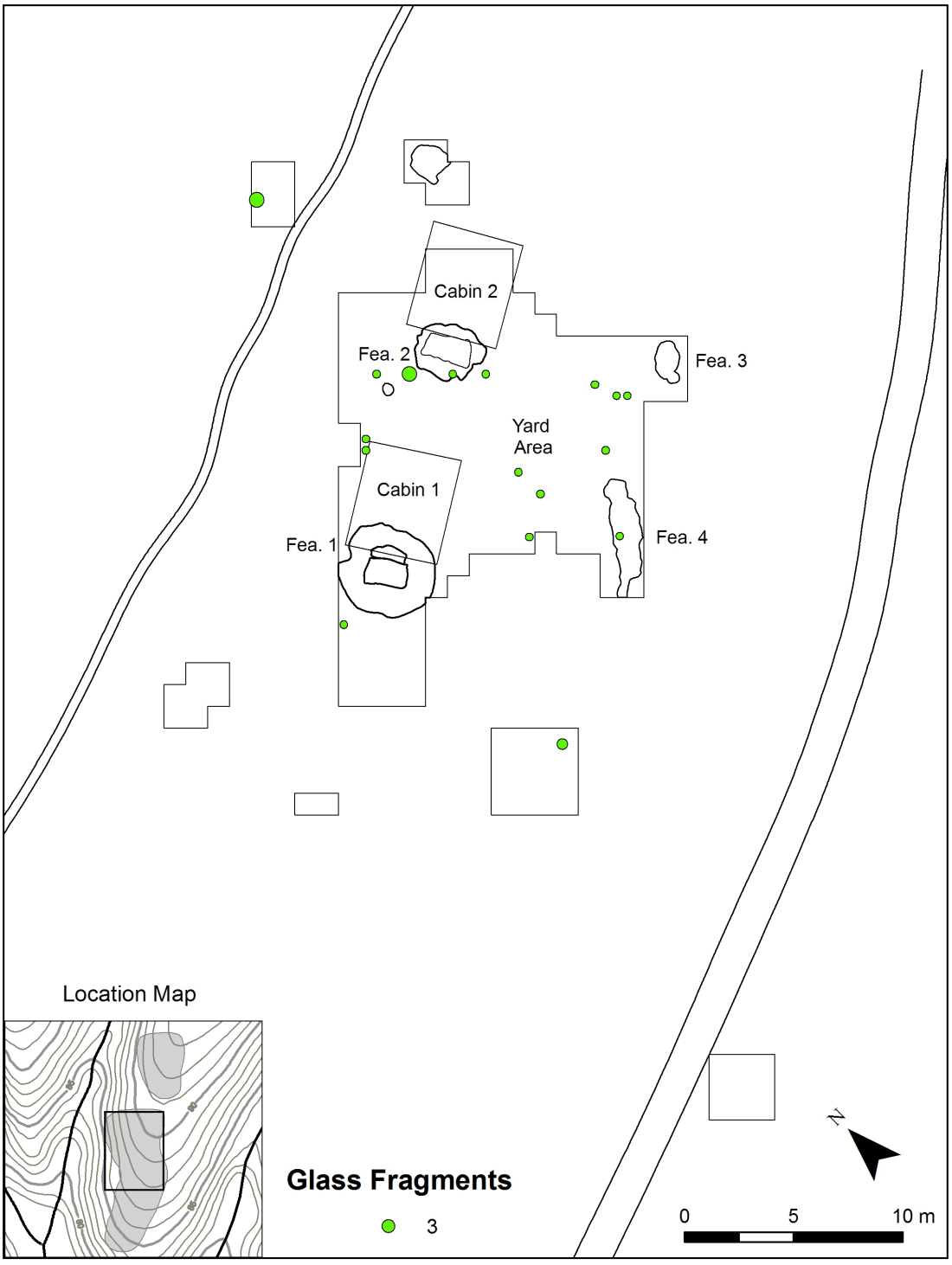

Figure 5.15. Distribution of glass fragments at Locus 4.

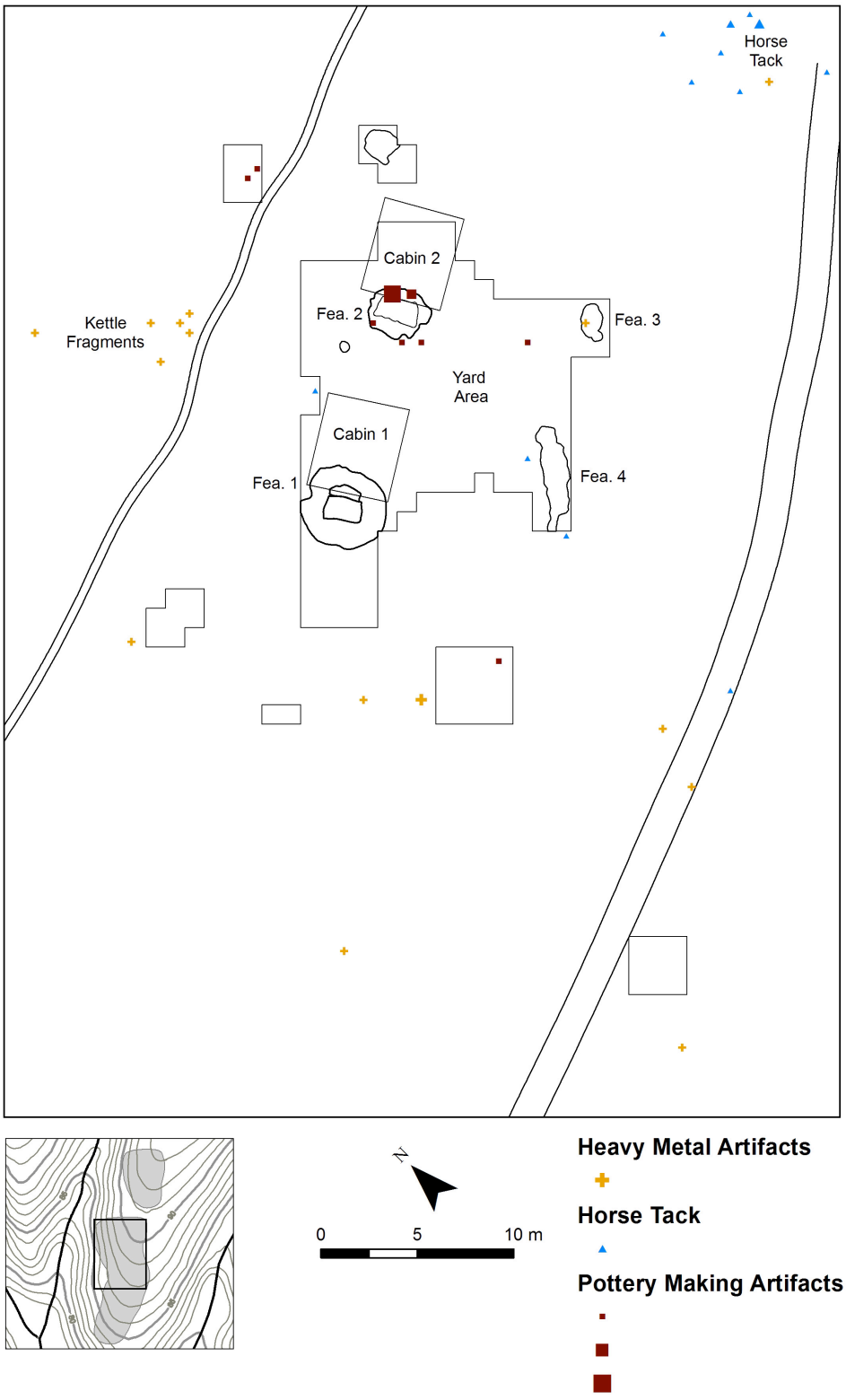

Figure 5.16. Distribution of heavy metal objects, horse tack, and pottery making artifacts at Locus 4.

Pottery Production. The evidence for pottery production at Locus 4 consists of six polishing stones and numerous fragments of red pigment (Figure 5.16). The polishing stones were found in various refuse deposits, but the pigment fragments were all found in association with the hearth at Cabin 2 (Feature 2). This observation suggests that the pottery producers at Locus 4 may have done at least some of their decorating indoors.

Interpretations. Considered together, the various maps suggest that the residents of Locus 4 deliberately maintained a yard area in front of their raised-floor cabins and discarded their trash downslope or in pits along the perimeter of the yard (Figure 5.17). Indeed, the locations of the deposits at Features 3 and 4 relative to the presumed fronts of the cabins suggest that refuse may have accumulated in the pits as people tossed it out the front door and across the yard. Hazardous trash such as glass and heavy metal objects was disposed of even farther away from the main living area. Furthermore, if Locus 4 residents retained horses for any length of time, they appear to have been kept at a safe distance from the yard and living quarters.

As at Locus 2 and Locus 3, the distribution of metal-detected artifacts hints that in addition to a carefully swept front yard, there may have been maintained backyard areas at Locus 4 as well (Figure 5.17). If so, these backyard areas appear to have extended from behind the cabins up to the path leading to the spring.

Locus 5

The distribution maps of Catawba and European sherds from neighboring Locus 5 reveal only a few high-density clusters associated with Features 7, 8, and 11 (Figure 5.18 and 5.19), but the Catawba-sherd ASI map suggests that much of the excavated area at

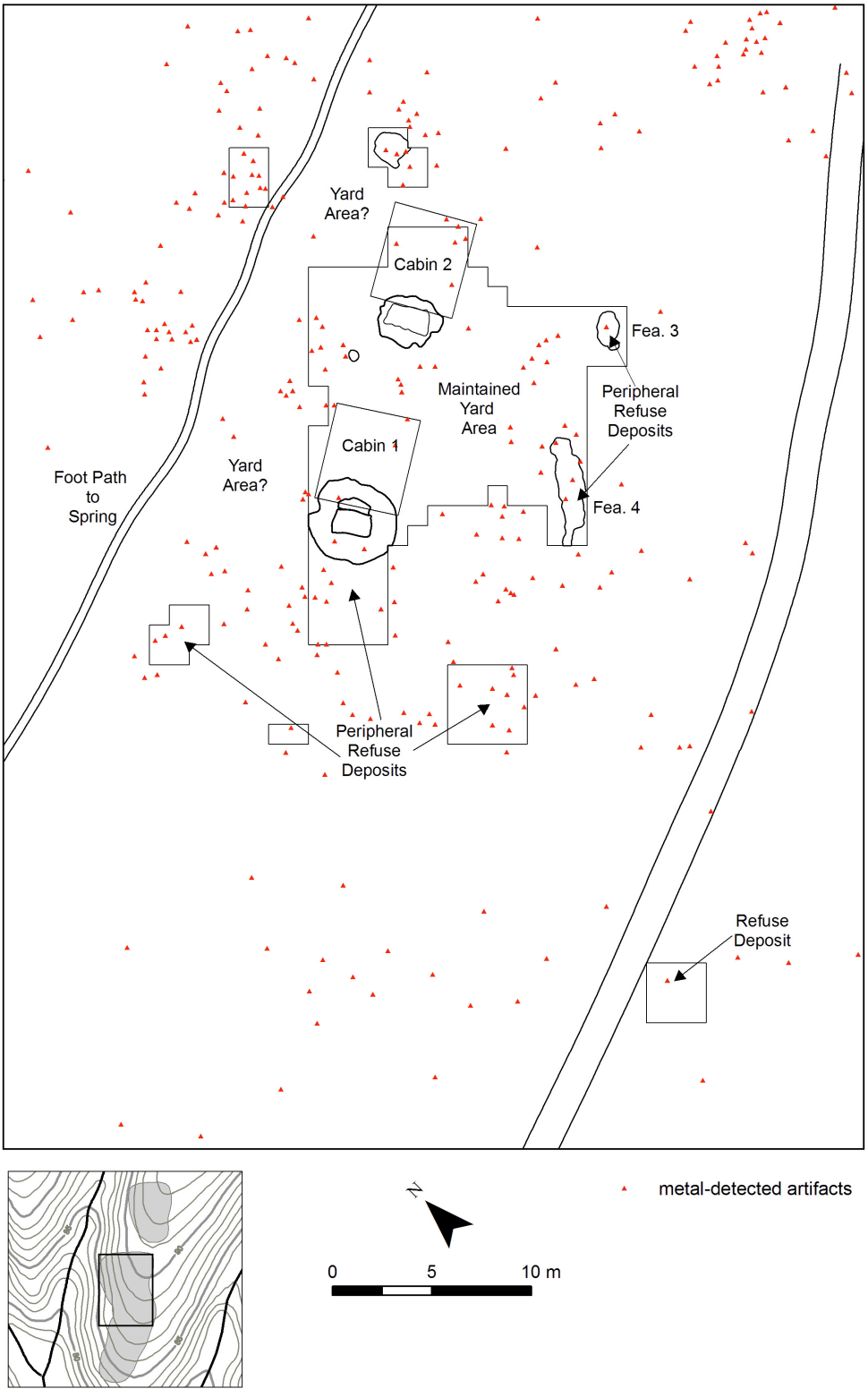

Figure 5.17. Map summarizing interpretations regarding the use of space at Locus 4 based on artifact spatial distribution analyses.

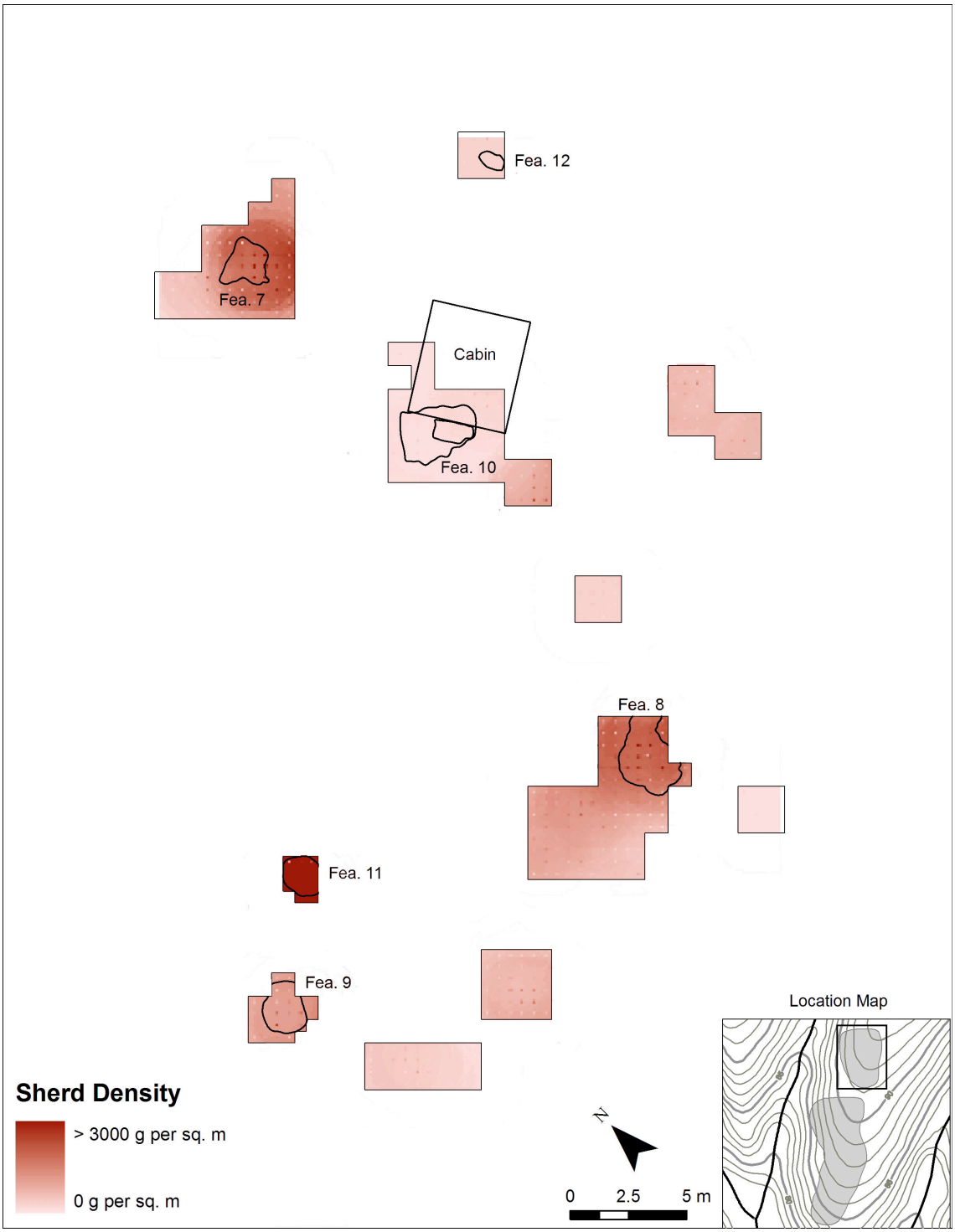

Figure 5.18. Distribution of Catawba sherd weight densities at Locus 5.

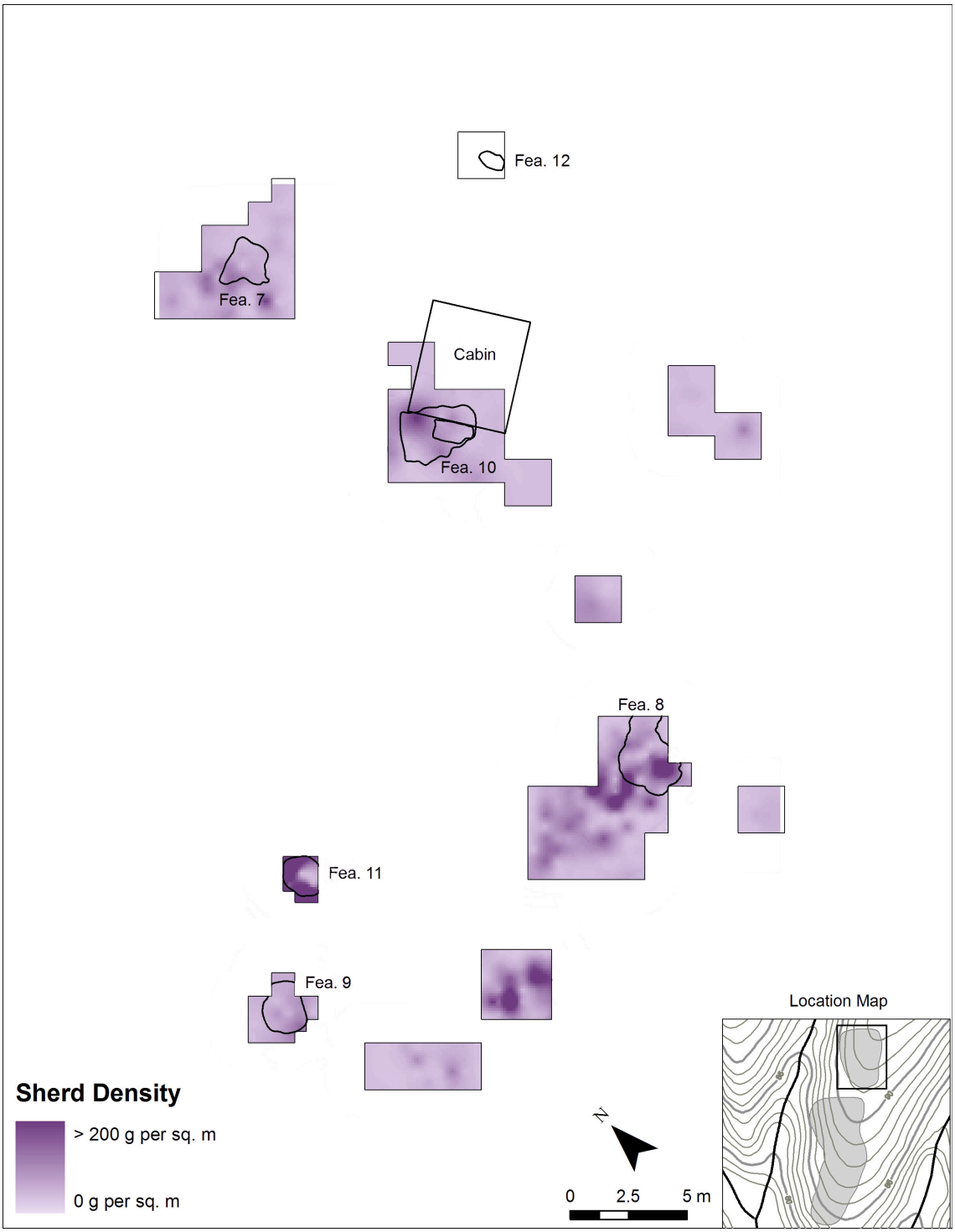

Figure 5.19. Distribution of European sherd weight densities at Locus 5.

Locus 5 represents refuse disposal areas (Figure 5.20). Very large sherds in most peripheral blocks are consistent with deliberate dumping. As at Locus 4, large sherds also appear to have accumulated behind the chimney (Feature 10). The significance of the very small sherds at Feature 7 is unclear, as the presence of a shallow refuse-filled depression with apparent hearth cleanings implies that this area was a location where waste was intentionally deposited. If Feature 7 represents a surface dump, the high ASI values may reflect trampling; indeed, the feature is close to the cabin and may have been regularly traversed during the course of daily activities.

The excavated units within and adjacent to the presumed cabin location have relatively low sherd densities and small sherds (Figures 5.18-5.20), suggesting that the immediate living space was kept clear of debris and supporting the hypothesis that the cabin had a raised, wooden floor. Locus 5 also has relatively few glass fragments and heavy metal objects, suggesting that its residents were careful to dispose of them elsewhere (Figures 5.21 and 5.22). The few places that glass does occur are typically associated with areas identified as secondary refuse deposits.

Unfortunately, the locations where maintained yards might be expected have not been excavated.

Horse Tack. The horse tack recovered from Locus 5 did not reveal any spatial patterning (Figure 5.22). However, it is certainly possible that Locus 4 and Locus 5 residents both kept horses in the area between the two loci (Figure 5.16).

Pottery Production. All of the evidence for pottery making at Locus 5 comes from exterior contexts. Two polishing stones and 42 pigment fragments were distributed among five peripheral refuse areas (Figure 5.22).

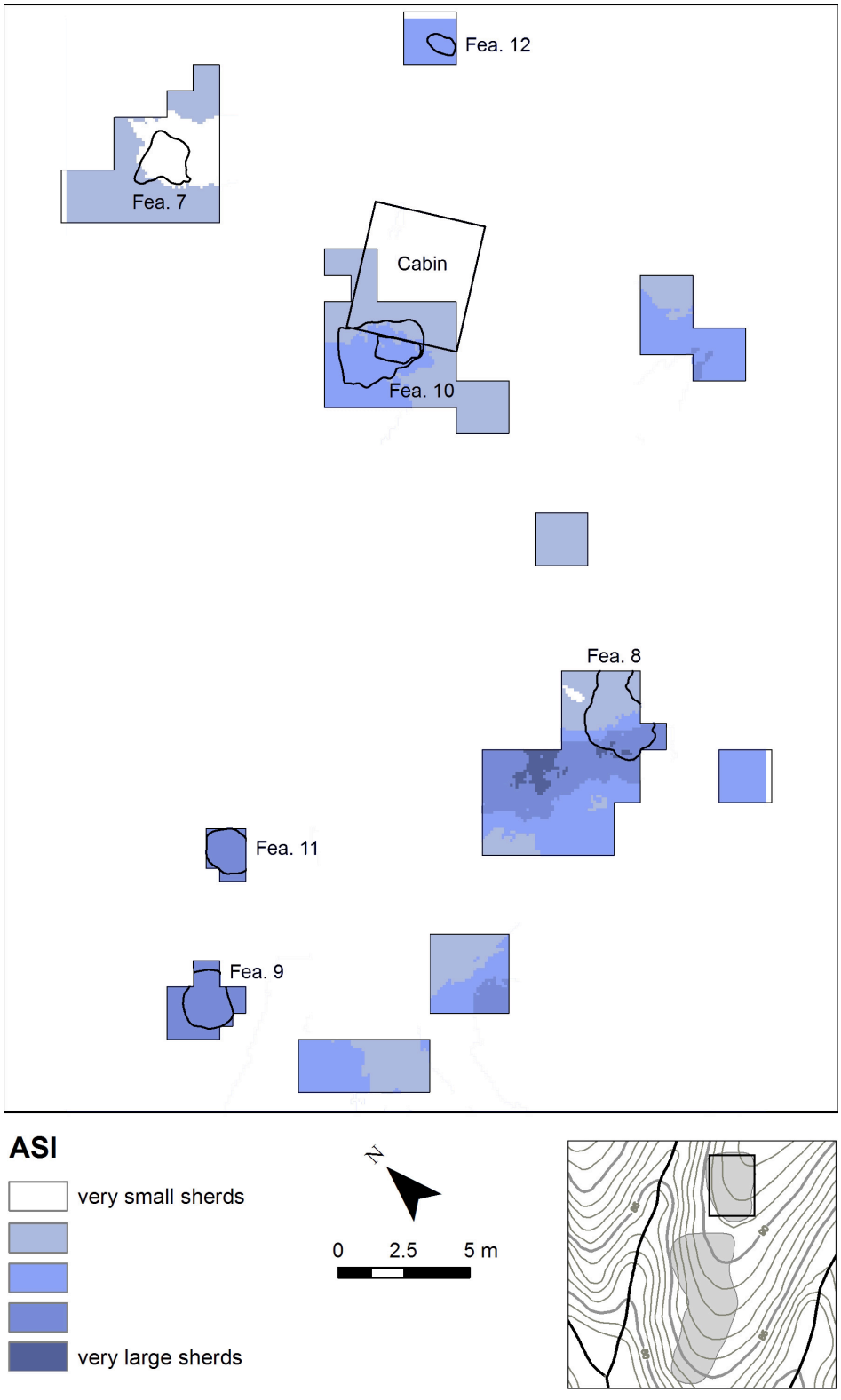

Figure 5.20. Distribution of Catawba sherd ASI values at Locus 5. The shaded areas have larger-than-expected sherds.

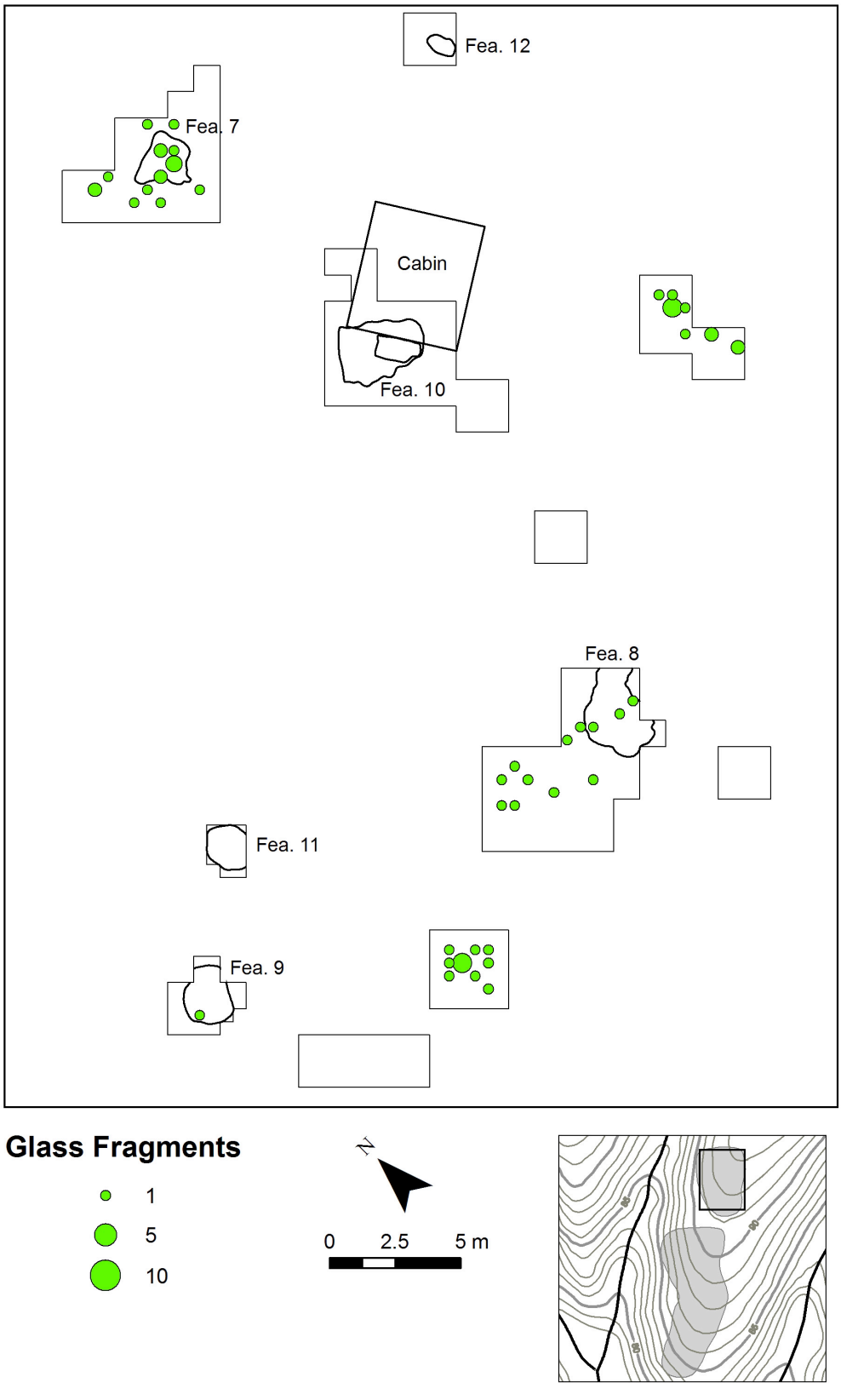

Figure 5.21. Distribution of glass fragments at Locus 5.

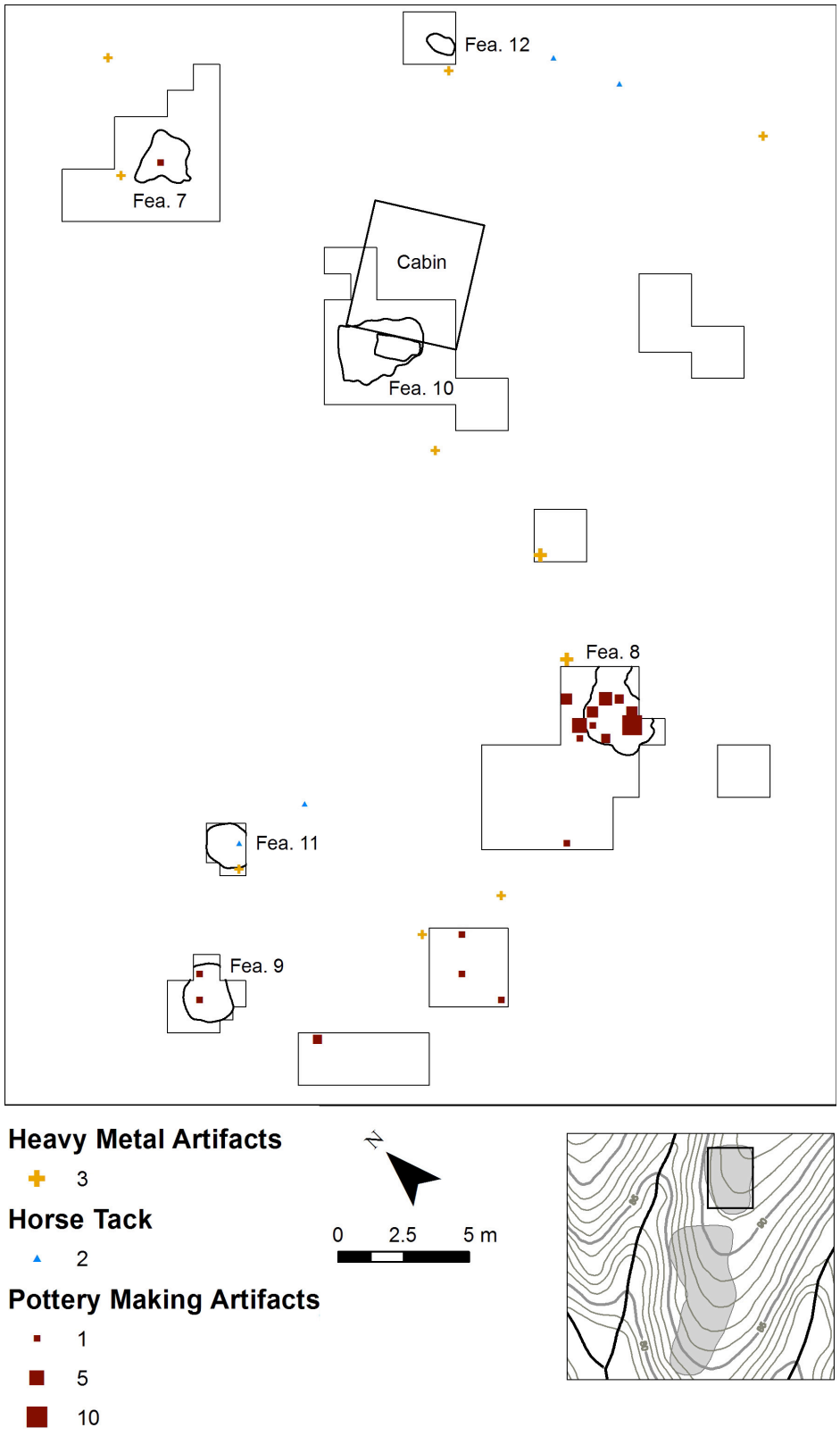

Figure 5.22. Distribution of heavy metal objects, horse tack, and pottery making artifacts at Locus 5.

Interpretations. The evidence from Locus 5 suggests that its residents discarded their trash downslope of the cabins or in peripheral pits (Figure 5.23). The distribution of metal-detected artifacts suggests that there may have been both a front and back yard associated with the cabin, but it is not clear how well these areas were maintained since they have not been excavated.

Locus 6

At Locus 6, the distribution maps of Catawba and European sherds expose numerous high-density concentrations, although not necessarily in the same locations on both maps (Figure 5.24 and 5.25). The ASI data indicate that many of these areas yielded relatively large Catawba sherds (Figure 5.26), supporting the interpretation that they represent refuse disposal areas. This large number of sherd clusters and the absence of discrete pit features indicates that waste management practices were not as highly patterned at Locus 6 as they were at Locus 4 and Locus 5.

The sherd distribution maps also reveal a low-density zone around the collapsed chimney (Feature 12) that helps define the presumed location of the cabin (Figures 5.24 and 5.25). Large sherds in the cabin's interior are consistent with a dirt floor, since they would have been unlikely to pass through the cracks in a wooden floor (Figure 5.26).

It is tempting to speculate that the very small sherds found northwest of the cabin reflect a maintained backyard (Figure 5.26), but the Catawba sherd weight data suggest that the sherd densities in this area were high (Figure 5.24). Consequently, the very small sherds at Locus 6 are interpreted as evidence for trampling, which could be consistent with an *unmaintained* yard that was used for many activities. If the area was frequently

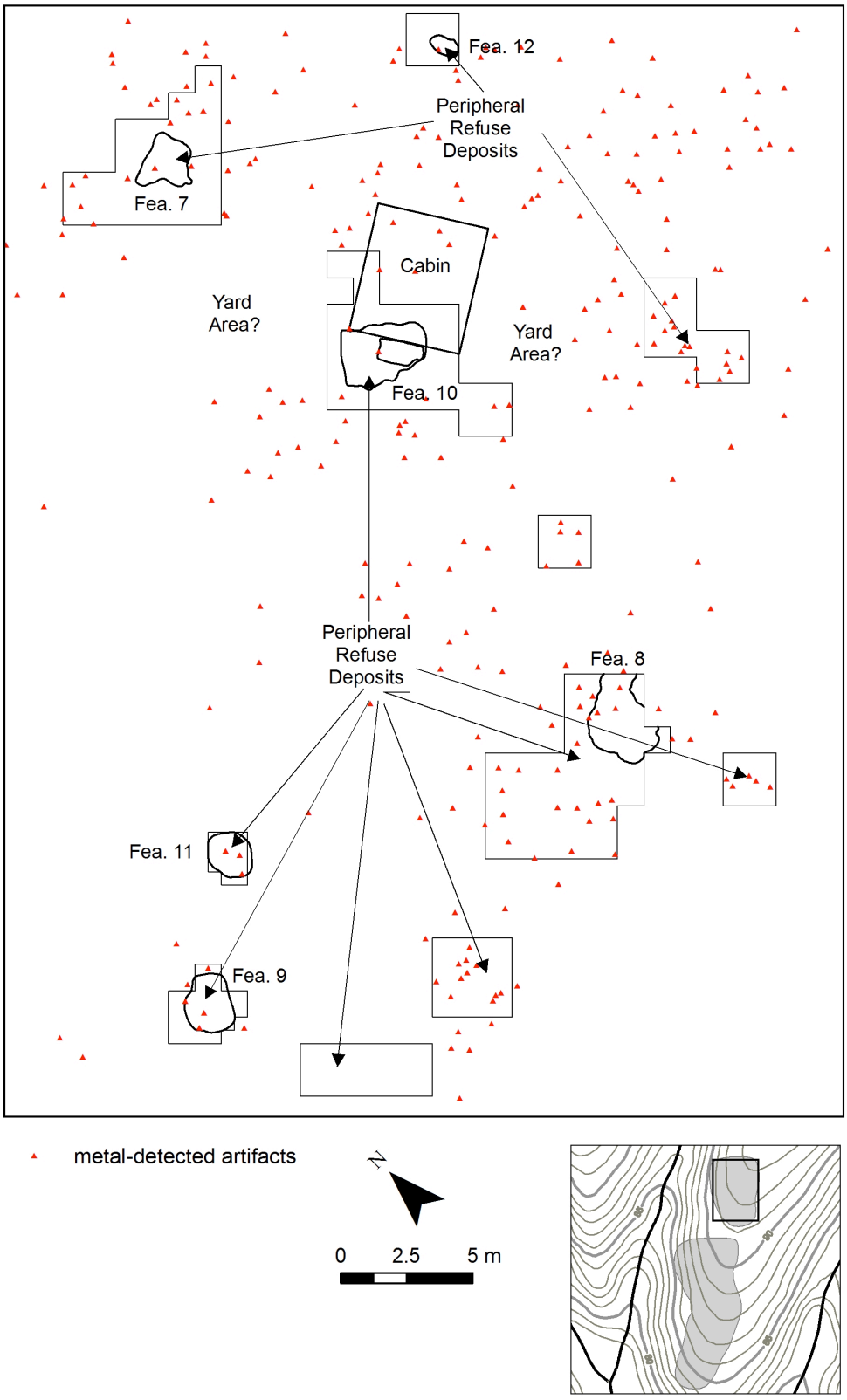

Figure 5.23. Map summarizing interpretations regarding the use of space at Locus 5 based on artifact spatial distribution analyses.

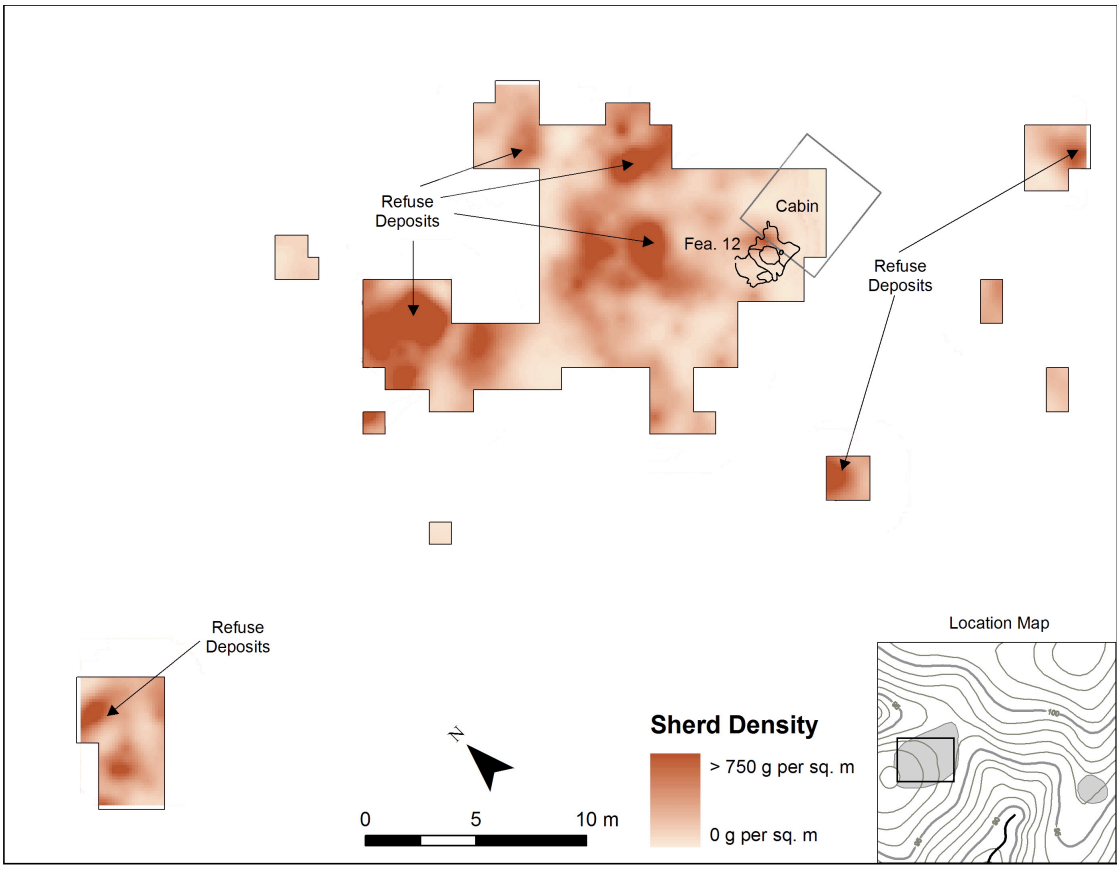

Figure 5.24. Distribution of Catawba sherd weight densities at Locus 6.

used but sherds and other debris were not regularly cleared away, the sherds would likely get trampled during subsequent activities and end up smaller than those found in most other areas.

Glass is widely distributed at Locus 6, hinting that it may have been allowed to accumulate as well (Figure 5.27). However, it is noticeably absent in the area believed to represent the cabin interior, suggesting that Locus 6 residents either took the time to regularly remove hazardous glass fragments from the dirt floor of their dwelling or were particularly careful not to break glass indoors in the first place. They also appear to have

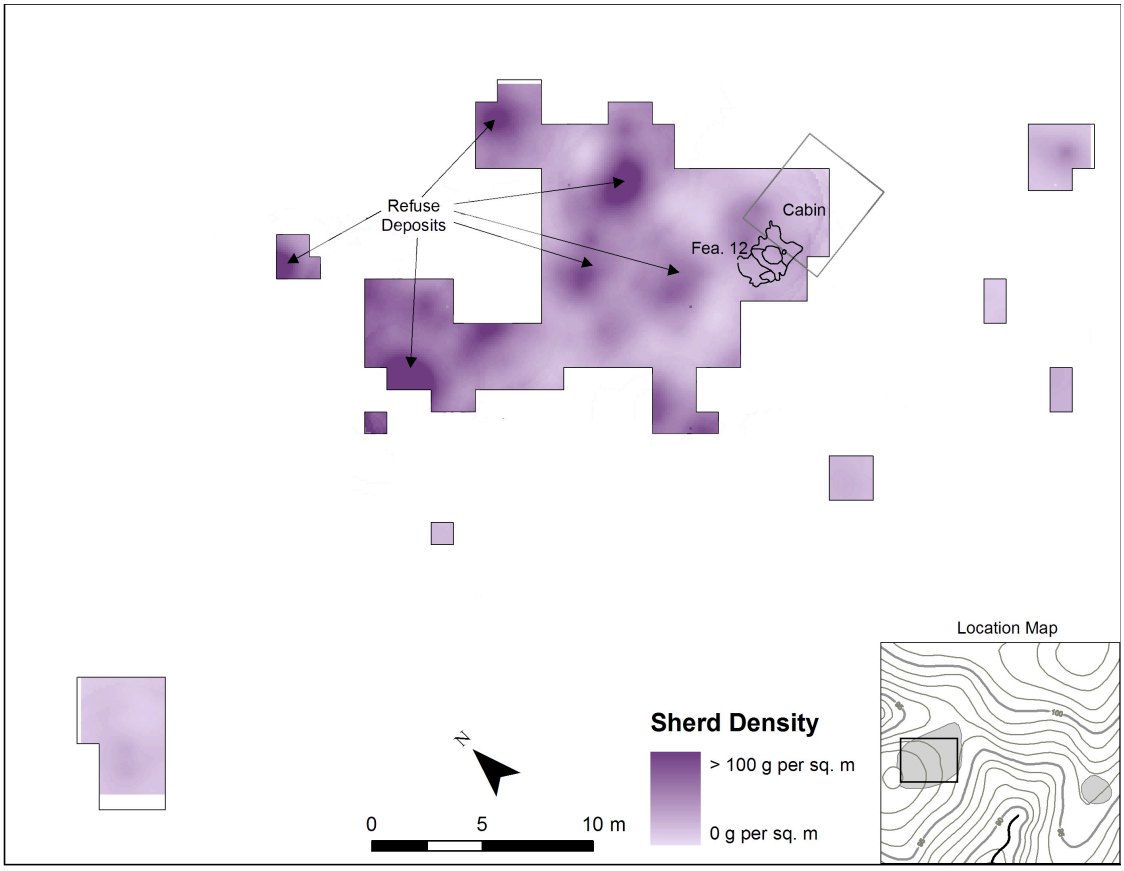

Figure 5.25. Distribution of European sherd weight densities at Locus 6.

discarded heavy metal objects at some distance from the cabin seat, as there were surprisingly few heavy metal artifacts recovered in the excavated area (Figure 5.28).

Pottery Production. As at Locus 5, all of the evidence for pottery making at Locus 6 comes from exterior contexts. Three polishing stone fragments, two lumps of potter's clay, and some red paint fragments were found scattered around the main excavation block (Figure 5.28).

Interpretations. The numerous, scattered concentrations of sherds and possible evidence for trampling at Locus 6 suggest that its residents put relatively little effort into clearing accumulated debris from their living space. The distribution of metal-detected

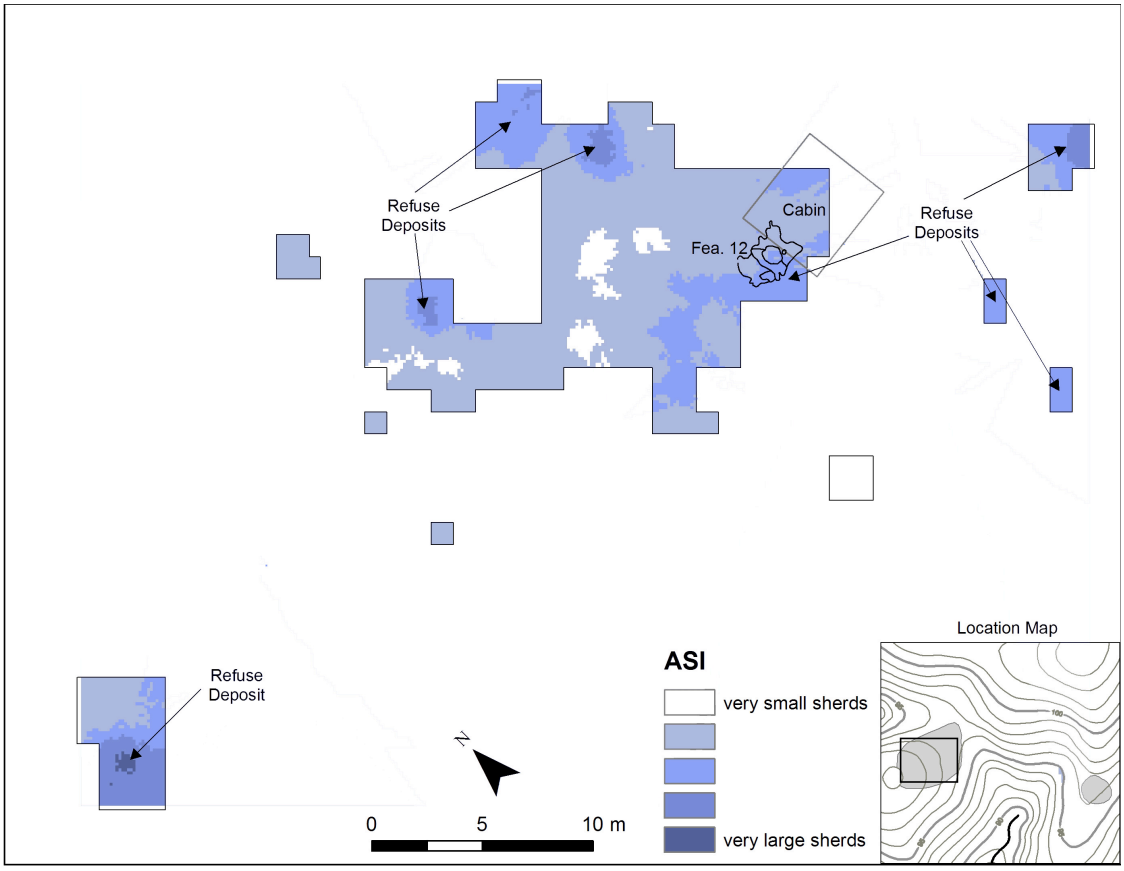

Figure 5.26. Distribution of Catawba sherd ASI values at Locus 6. The shaded areas have larger-than-expected sherds.

objects hints that there may be a yard area south of the cabin (Figure 5.29), but without excavation data it is impossible to know if it was maintained or not.

Discussion

The results of the artifact spatial distribution analyses suggest that all of the houses at New Town shared one characteristic: they had south-facing yard areas, presumably to take advantage of the winter sun. Assuming that these areas were front yards, the backyard(s) were typically located east and/or west of the cabins (as opposed

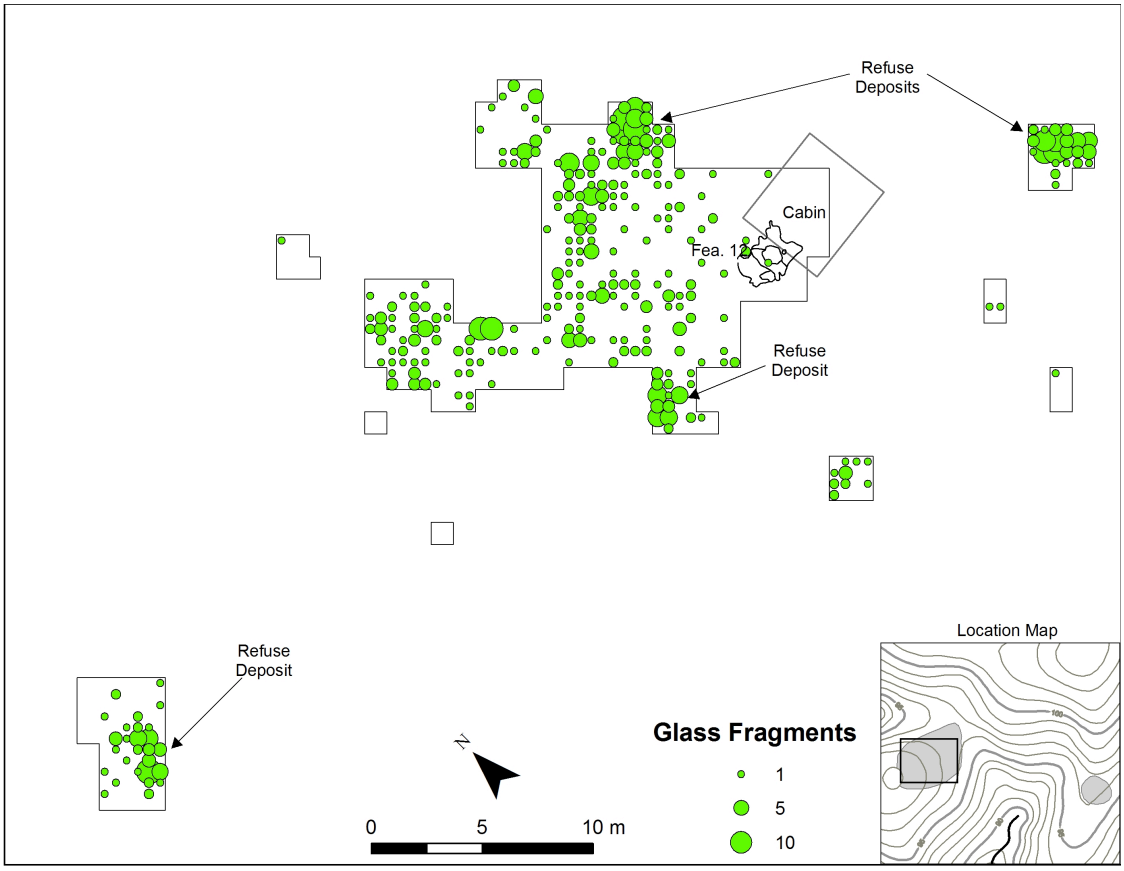

Figure 5.27. Distribution of glass fragments at Locus 6.

to directly behind them), again probably to take advantage of unobstructed winter sunlight.

The collective sherd and glass data also suggest that Catawba households frequently discarded refuse behind their chimneys. Indeed, the occurrence of larger-than-expected sherds associated with collapsed stick-and-clay chimneys is so consistent that their absence behind Cabin 2's chimney at Locus 4 begs for an explanation (Figure 5.14). One possibility is that this area between Cabin 1 and Cabin 2 was maintained as yard space. Alternatively, it may have been a covered porch area. A third possibility is that it represents a "dogtrot" breezeway connecting the two "cabins." Nineteenth-century "dogtrot cabins" consisting of two adjacent pens or rooms connected by a covered

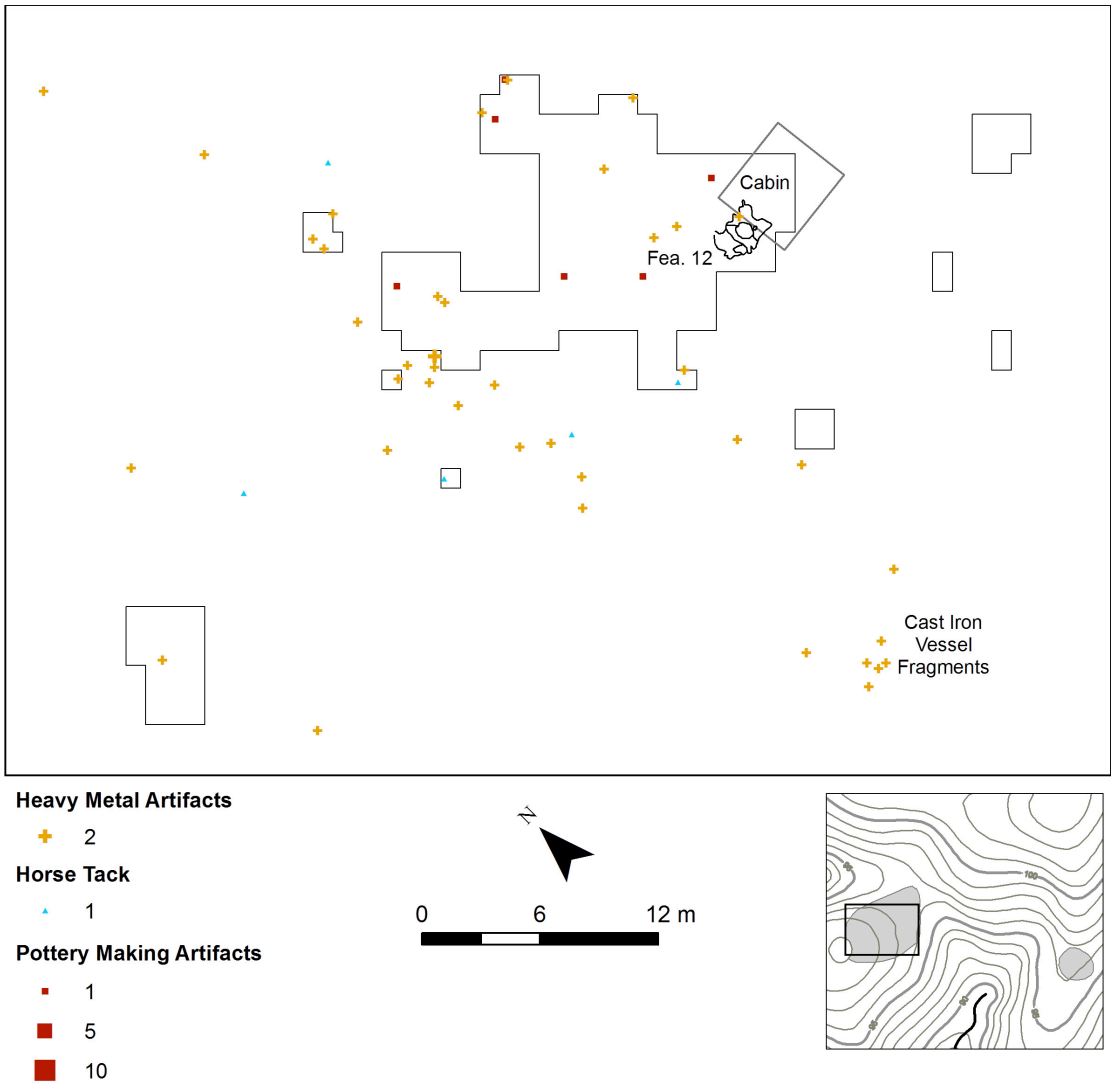

Figure 5.28. Distribution of pottery making artifacts at Locus 6.

breezeway are found in many areas of the southeast and were built by Anglo-Cherokee households in western North Carolina and Southeastern Indian groups living in present-day Oklahoma prior to the Civil War (Greiner 2007; Riggs 1999). However, the structure at Locus 4 would have been an atypical dogtrot cabin in that it would have had an unusually wide breezeway adjoining a chimney; dogtrot cabins with double chimneys usually have them on the far ends like an I-house.

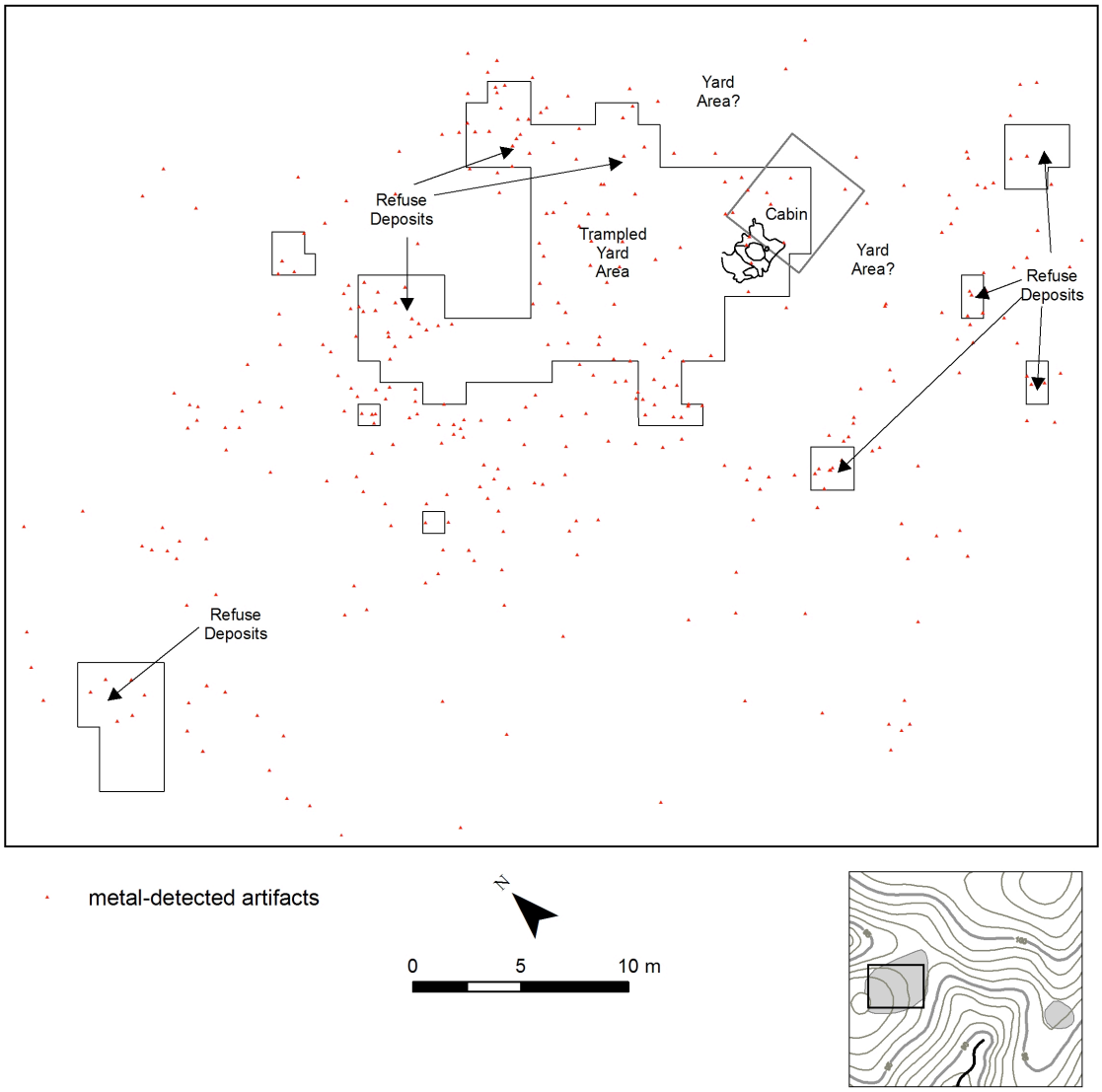

Figure 5.29. Map summarizing interpretations regarding the use of space at Locus 6 based on artifact spatial distribution analyses.

The results further illustrate that households within the same hamlet may have organized their living areas in similar ways, but there were noticeable differences between the ways in which households in the northern and southern neighborhoods used and maintained domestic space.

At one end of the spectrum, the residents of Locus 4 in the southern neighborhood painstakingly maintained their living space by sweeping at least the front yard area and

intentionally depositing waste in designated areas along the periphery. Because they put so much care into keeping the south yard clear of clutter, the residents of Locus 4 presumably used and reused it for a variety of activities. However, especially messy activities such as keeping horses appear to have been conducted at a comfortable distance from the cabins.

At the other end of the spectrum, the residents of Locus 6 in the northern neighborhood seem to have put very little care into maintaining a tidy living space. In the backyard, waste from daily activities was apparently allowed to accumulate until it was trampled in the course of other activities, and little effort seems to have been expended clearing the habitation area of glass debris. Yet even though the evidence suggests that waste materials were not intentionally managed, the distribution of artifacts nevertheless does not reveal any obvious activity areas that might reflect patterned practices.

The other cabin seats were not excavated as extensively as Locus 4 and Locus 6. Nevertheless the available evidence suggests that their waste management practices fall between the two ends of the spectrum and along neighborhood lines. Like their Locus 4 neighbors, the residents of Locus 5 had designated refuse disposal areas and kept their habitation area relatively free of glass fragments and other hazardous materials. The widespread distribution of glass fragments at Locus 2 and Locus 3 suggests that these two loci more closely resembled Locus 6, although their cabin interiors and yard areas were not excavated.

Conclusions

The results of the artifact spatial distribution analyses complement the artifact frequency analyses described in Chapter 4. The tidy and patterned lifestyle manifest at Locus 4 is consistent with year round occupation, while the relatively untidy and unpatterned lifestyle evident at Locus 6 is consistent with itinerant potters who spent too little time at home to become bothered by clutter or set in their routines.

If daily activities at Locus 4 were as highly patterned as the artifact distribution analyses suggest, another type of archaeological evidence, the chemical characteristics of soils, may reveal the original locations of some of these activities even in the absence of any associated artifacts. Accordingly, the next chapter describes the results of a multi-element soil chemistry study conducted at Locus 4.

Notes

[1]Because Locus 2 was excavated in 1×1-m units rather than quadrants, its artifact distribution maps display count densities representing the total number of artifacts per 1×1-m unit.

CHAPTER 6

SOIL CHEMISTRY ANALYSES

The analyses summarized in Chapter 5 indicate that the residents of Locus 4 deliberately cleaned up debris from activities conducted in the yard area adjacent to the two cabins. The goal of the analyses described in this chapter is to identify the location and nature of some of those activities based on their chemical effects on the underlying sediments.

Soil Chemical Analysis

Chemical residues in sediments can reflect human activities that are not apparent from standard artifact distribution analyses. Many activities permanently alter the chemical characteristics of soils by depositing or removing organic and inorganic materials. Activities such as refuse disposal, storage, and food processing tend to concentrate specific elements in the soil, while removing vegetation through harvesting or grazing may deplete them. At sites occupied during the eighteenth or nineteenth centuries, structures may protect underlying sediments from the deposition of atmospheric trace metals (Myster 1994).

For almost 90 years, archaeologists have been using and modifying techniques of soil chemistry analysis to detect relative enrichments or depletions of specific elements in sediments from archaeological contexts. The data from such analyses have been used to

identify sites and determine their boundaries (e.g., Konrad et al. 1983; Haslam and Tibbett 2004; Sjoberg 1976), define building dimensions (e.g., Myster 1994), detect features and other activity areas (e.g., Conway 1983; Craddock et al 1985; Bethell and Carver 1987; Middleton 2004; Wells 2004a), and investigate the impacts of agriculture on soils and landscapes (e.g., Sandor et al. 1986).

Phosphate Analysis

Phosphate analysis is the oldest and most common type of archaeological soil chemistry analysis. It was pioneered during the 1920s by Swedish chemist Olof Arrhenius, who discovered that phosphate concentrations in soils from ancient human habitation sites were elevated in comparison to undisturbed soils (Wells 2004b:2).

Phosphates are concentrated in plants and the bodies and waste of animals that consume plants. When these organic materials decay, the phosphates they contained are incorporated back into the soil, where they remain chemically stable under most soil conditions (Cerreto 1986; Eidt 1973). Consequently, human habitation sites typically have elevated soil phosphate levels that can reflect occupation as long ago as 2500 years (Chaya 1996:131).

Archaeological phosphate analyses typically involve colorimetric techniques, which have the advantages of being portable and rapid but can only provide qualitative or semi-quantitative results that may mask subtle variations. Moreover, because phosphates are associated with many different behaviors involving organic materials, it is difficult to characterize specific activities on the basis of phosphate evidence alone. This weakness may explain why, even though phosphate analysis has been used as a prospecting

technique for locating sites and promising areas for excavation (e.g., Cavanagh, Buck, and Litton 1988; Cavanagh, Hirst, and Litton 1988; Cerreto 1986; Chaya 1996; Eidt 1973, 1977), very few studies use it to characterize the nature of activity areas (although see Conway 1983 for a notable exception).

Multi-element Soil Chemistry Analysis

Multi-element soil chemistry analysis is a more promising approach for activity area research. Like phosphate, elements such as iron, potassium, magnesium, and sodium can bond to sediments and reflect the presence of specific materials long after their removal or decay. The spectrometric methods used to detect these elements are neither portable nor rapid, but they yield semi-quantitative data suitable for statistical analyses. Furthermore, because multi-element analyses are concerned with suites of elements rather than a single element, they are ideal for distinguishing between different types of human activities (Entwistle et al. 2000). While they are still relatively uncommon in the southeastern United States, multi-element analyses are frequently used by archaeologists working in Mesoamerica and Europe to detect and characterize domestic and ritual activities (e.g., Barba et al. 1996; Bethell and Smith 1989; Entwistle and Abrahams 1997; Entwistle et al. 2000; King 2007; Middleton 2004; Middleton and Price 1996; Robin 2002; Hutson and Terry 2006; Wells 2004a; Wells et al. 2000).

This study employs multi-element soil chemistry analyses to detect patterns in the chemical characteristics of sediments at Locus 4. These patterns are then interpreted based on ethnoarchaeological evidence from published sources and a small study conducted at a modern campsite in North Carolina (Shebalin 2011).

Methodology

Soil samples were collected at 1-m intervals across Locus 4 using a basic hand auger. Samples were collected from each grid-unit's center prior to excavation and consisted of the soil immediately below the root mat to a depth of 10–15 cm, depending on the depth to subsoil. Samples were also collected from several features during excavation, and an additional eight off-site samples were collected to use as control samples. All samples were sealed in individual plastic bags and transported to the Research Laboratories of Archaeology (RLA) at UNC-Chapel Hill, where 279 samples were selected for multi-element analyses (Figure 6.1). The selected samples represent either excavated units or units within 1–2 m of the margins of the main excavation block (the latter were included to improve the accuracy of the interpolated maps).

Sample Preparation

In the laboratory, the selected sediment samples were transferred to wax paper and allowed to air dry for a minimum of seven days. The air-dried samples were then ground with a porcelain mortar and pestle and passed through a 2 mm (U.S. #10) brass sieve. For each sample, a 3.00 g aliquot of sieved sediment was measured into a previously unused 50 mL polypropylene centrifuge tube and set aside for multi-element analyses. A 12 g aliquot of sediment was measured into a glass scintillation vial and oven-dried for 24 hours at 105°C. After cooling, the oven-dried specimen was reweighed to determine its original moisture content, and a moisture correction factor was calculated. Color was determined by comparing the oven-dried specimen to Munsell soil color charts (Appendix C).

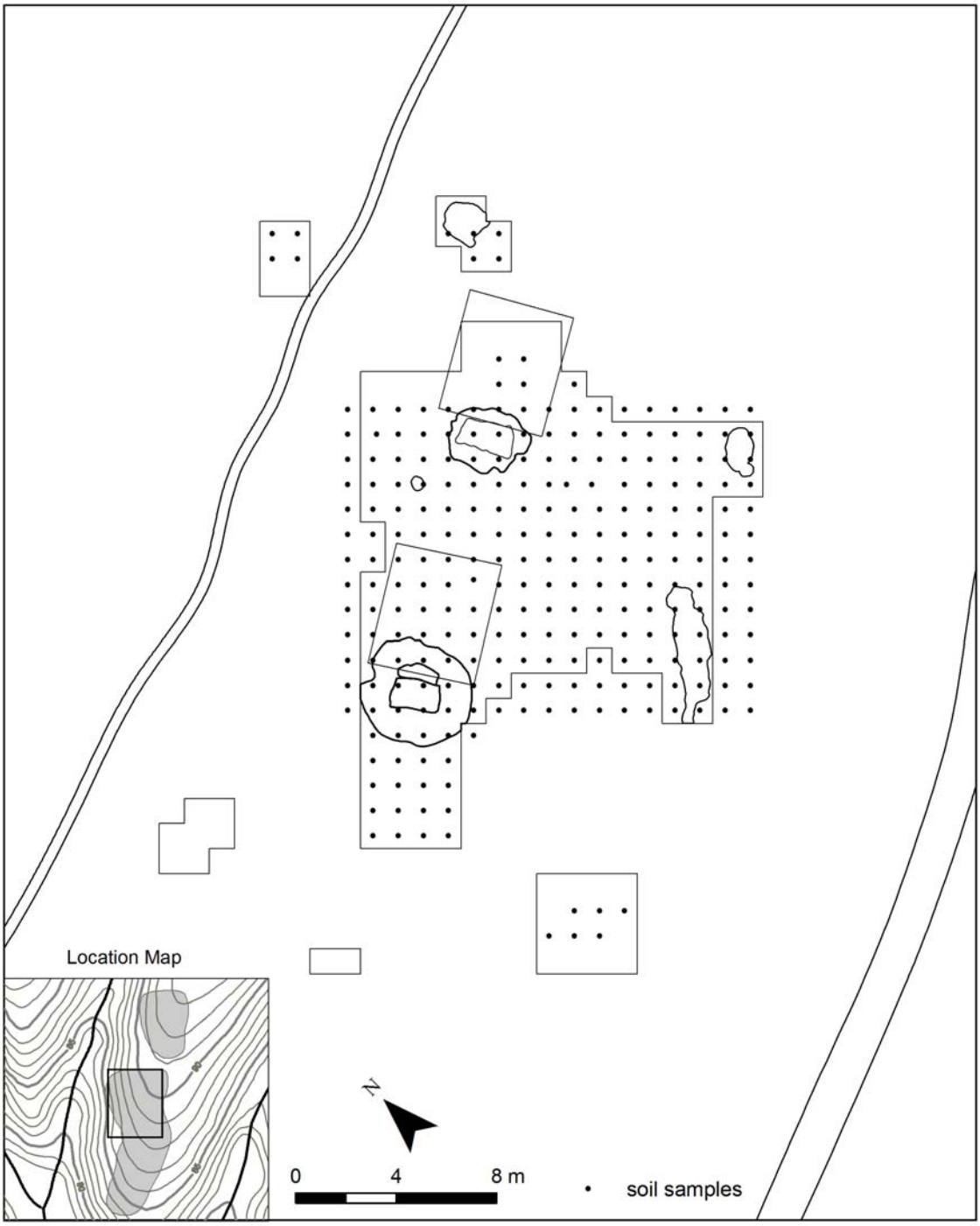

Figure 6.1. Locations of Locus 4 soil samples.

The 3.00 g air-dried specimens were prepared for chemical analysis in the Department of Geological Sciences at UNC-Chapel Hill following the weak double acid extraction protocol developed by Lewis et al. (1993). Their "archy extract" mixture of 0.6 molar HCl, 0.16 molar HNO_3, and distilled water extracts anthropogenic geochemical components (i.e., those deposited as a consequence of human activity) without dissolving the parent sediment.

Thirty milliliters of archy extract were added to the sediment in the centrifuge tube. The tube was shaken for 30 minutes and centrifuged for 5 minutes at approximately 2500 rpm. The supernatant was passed through quantitative ashless filter paper into a new centrifuge tube and sealed; the solid residue was discarded. Blanks consisting of archy extract only were prepared following the same procedure. The specimens and blanks were refrigerated until they were shipped to the Geology Department at Middlebury College in Vermont for semi-quantitative, simultaneous multi-element analysis by inductively coupled plasma atomic emission spectrometry (ICP-AES).

ICP-AES Analyses

ICP-AES measures the type and intensity of optical radiation emitted when atoms and ions in a liquid sample are excited. The liquid analyte is aspirated into an argon plasma and heated to 6000–8000 K. As atoms absorb the plasma's energy, their electrons become excited and move from their ground states to higher energy orbitals. When the electrons return to their original low-energy states, they emit light radiation with wavelengths characteristic of their specific elements. The instrument separates the

different wavelengths and measures their intensities to determine the concentrations of constituent elements (Potts 1987).

ICP-AES was used to determine the concentrations of 17 soluble elements in the Locus 4 samples: aluminum (Al), barium (Ba), calcium (Ca), cadmium (Cd), cobalt (Co), chromium (Cr), copper (Cu), iron (Fe), potassium (K), magnesium (Mg), manganese (Mn), sodium (Na), nickel (Ni), phosphorus (P), lead (Pb), strontium (Sr), and zinc (Zn). All analyses were performed by a laboratory technician in the Geology Department at Middlebury College in Vermont. The instrument was calibrated using multi-element aqueous standards and a reagent blank. Quality controls were run after every 5 specimens to calculate machine drift, and the machine was fully recalibrated every 9–15 samples. Five elements (Cd, Co, Cr, Ni, Pb) were not present in concentrations sufficient to be accurately detected by the ICP and will not be considered further. The concentrations of the remaining 12 elements were corrected for drift and moisture content and are reported as ppm (Appendix C).

To test for precision, eight samples were run a total of four times on two different days, and mean concentrations and coefficients of variation (CV) were calculated for each element. Following the example of Entwistle and Abrahams (1997), 11 elements with mean CV $\leq$15% were considered to be sufficiently precise (Al, Ba, Ca, Cu, Fe, K, Mg, Mn, Na, Sr, Zn). Phosphorus had a mean CV >15% and was not included in subsequent analyses.

pH and Salinity Analyses

The pH and salinity of the oven-dried samples were measured in a 1:2.5 soil/distilled water suspension. The mixture was gently agitated and allowed to stand for 30 minutes (Forster 1995). Measurements were made with a calibrated Oakton Multi-Parameter PCSTestr 35 pocket pH meter with automatic temperature compensation. The instrument was monitored for drift and recalibrated after every five samples. The pH and salinity of the samples are presented in Appendix C.

Principal Components Analysis

Principal components analysis was used to search for patterns within the chemical data that might reveal correlations between elements. This multivariate analytical technique was chosen because it is well suited to the analysis of datasets containing continuous measurements (Shennan 1997). The principal components analysis was performed using a correlation matrix of the log-transformed values of the chemical data.

Results

Principal components analysis exposes several correlations within the Locus 4 dataset (Figure 6.2), and ethnoarchaeological evidence suggests that these correlations have interpretive significance. Sodium, Mg, Mn, Ba, Ca, and Sr are highly intercorrelated and may be associated with *in situ* burning and ash disposal (Entwistle et al. 1998; Entwistle et al. 2000; Heidenreich and Konrad 1973; King 2007; Middleton and Price 1996; Rapp and Hill 1998; Shebalin 2011). Aluminum, Fe, Cu, and Zn are also correlated and may reflect refuse rich in industrial metals and fish remains (Hamond 1985; Shebalin

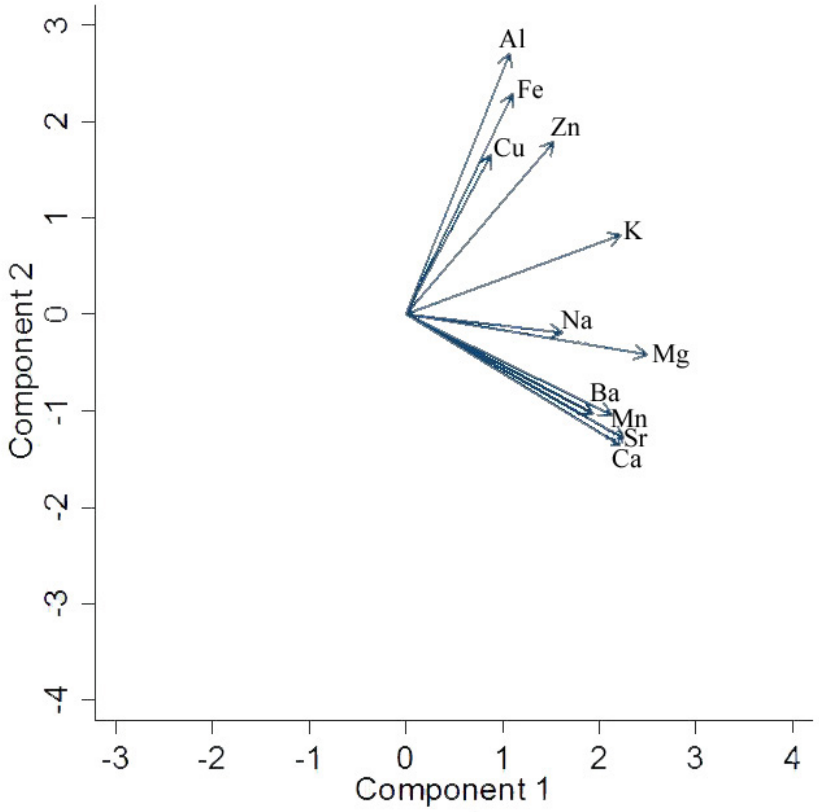

Figure 6.2. Graph of 11 elements on principal components 1 and 2. These two components account for 65% of the total variance in the dataset.

2011). Potassium is weakly correlated with both groups and tends to be elevated in sediments rich in ash, food scraps, and excrement (Entwistle et al. 2000; Fernández et al. 2002; Shebalin 2011).

When representative elements (namely Ca, Mg, K, Fe, and Cu) from the correlated groups are mapped using ArcGIS's kriging function, the resulting figures display clear, intrasite patterning that reveals refuse deposits, yard areas, and possibly even the former locations of structures (Figures 6.3–6.7).

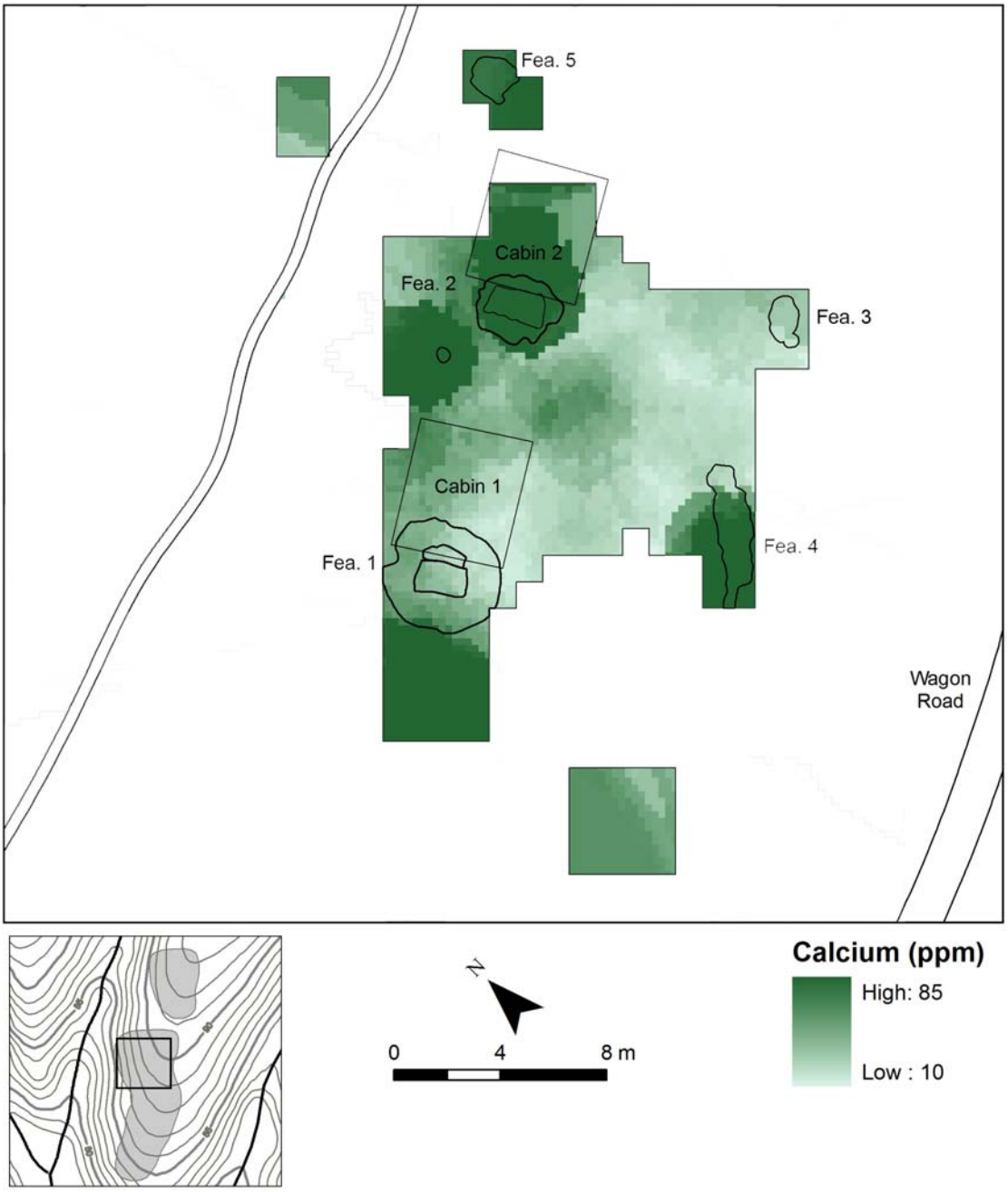

Figure 6.3. Calcium concentrations at Locus 4.

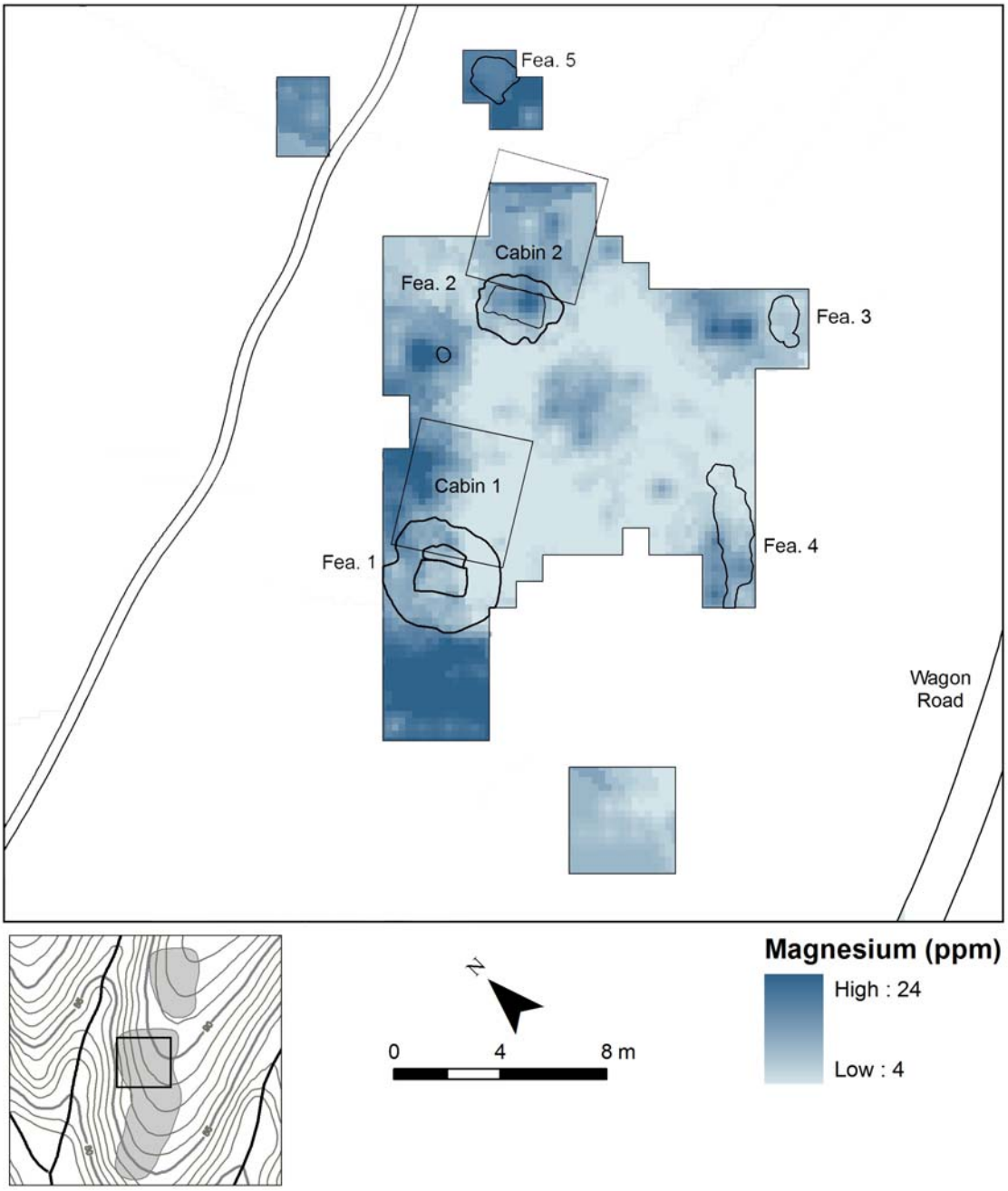

Figure 6.4. Magnesium concentrations at Locus 4.

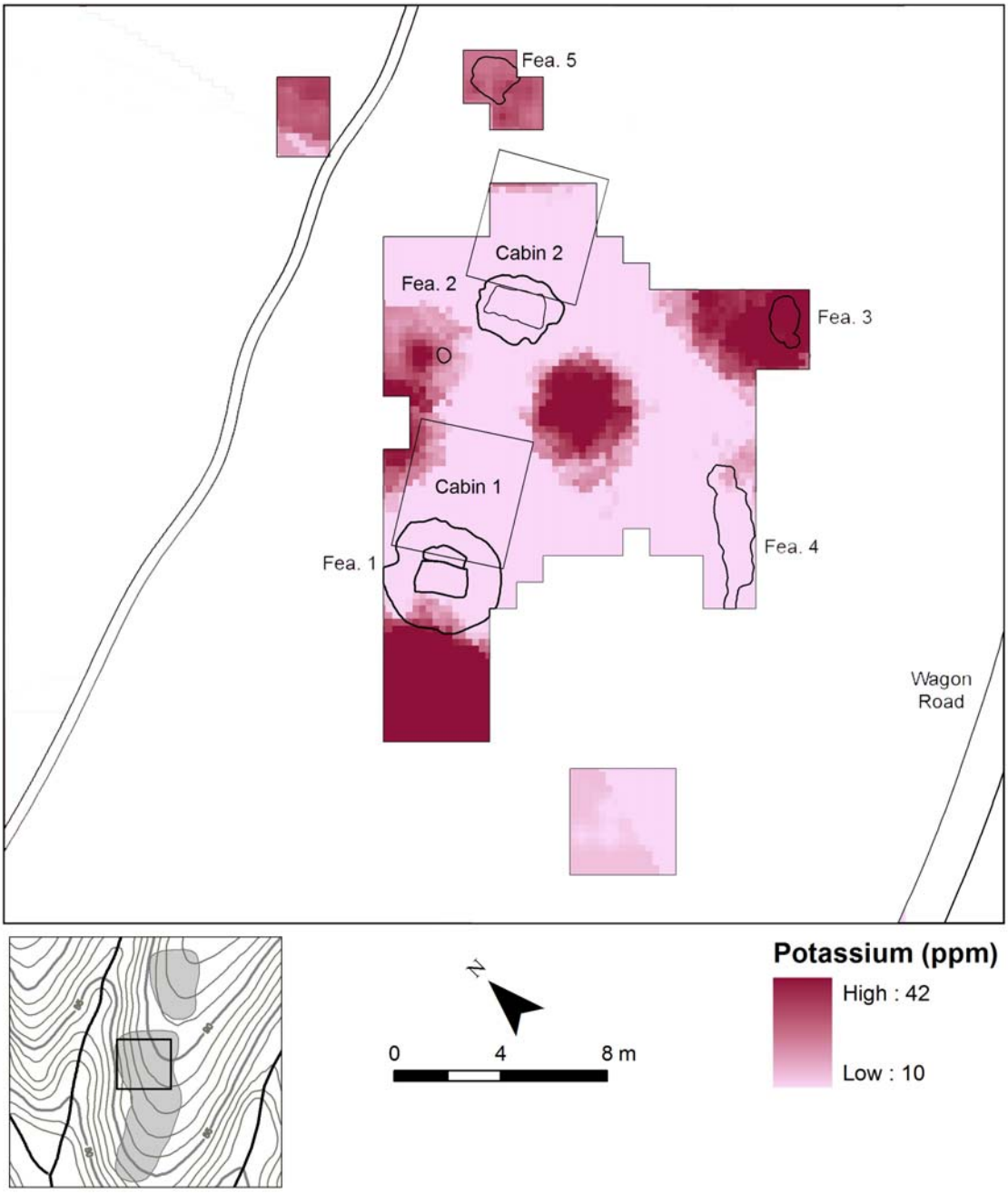

Figure 6.5. Potassium concentrations at Locus 4.

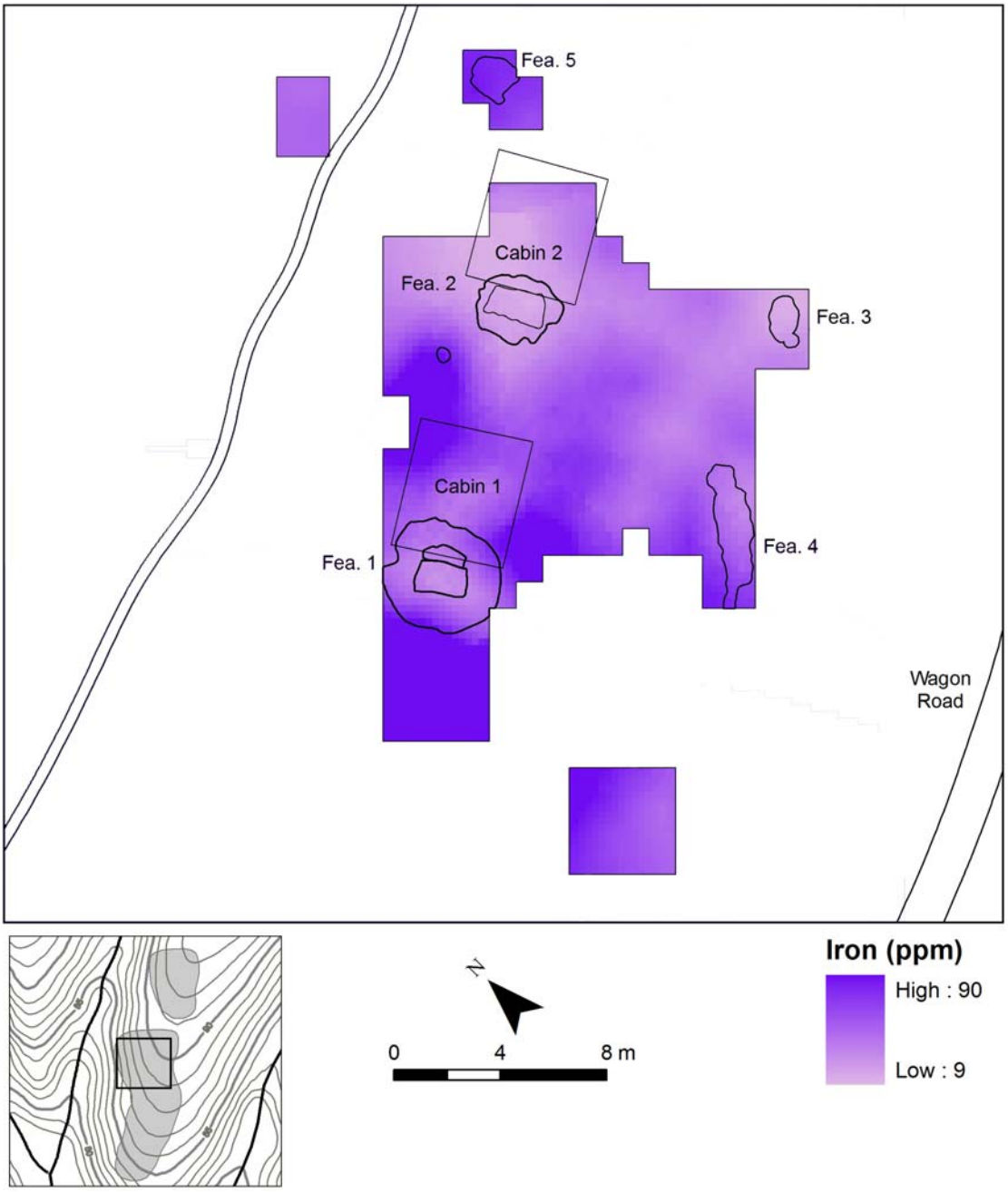

Figure 6.6. Iron concentrations at Locus 4.

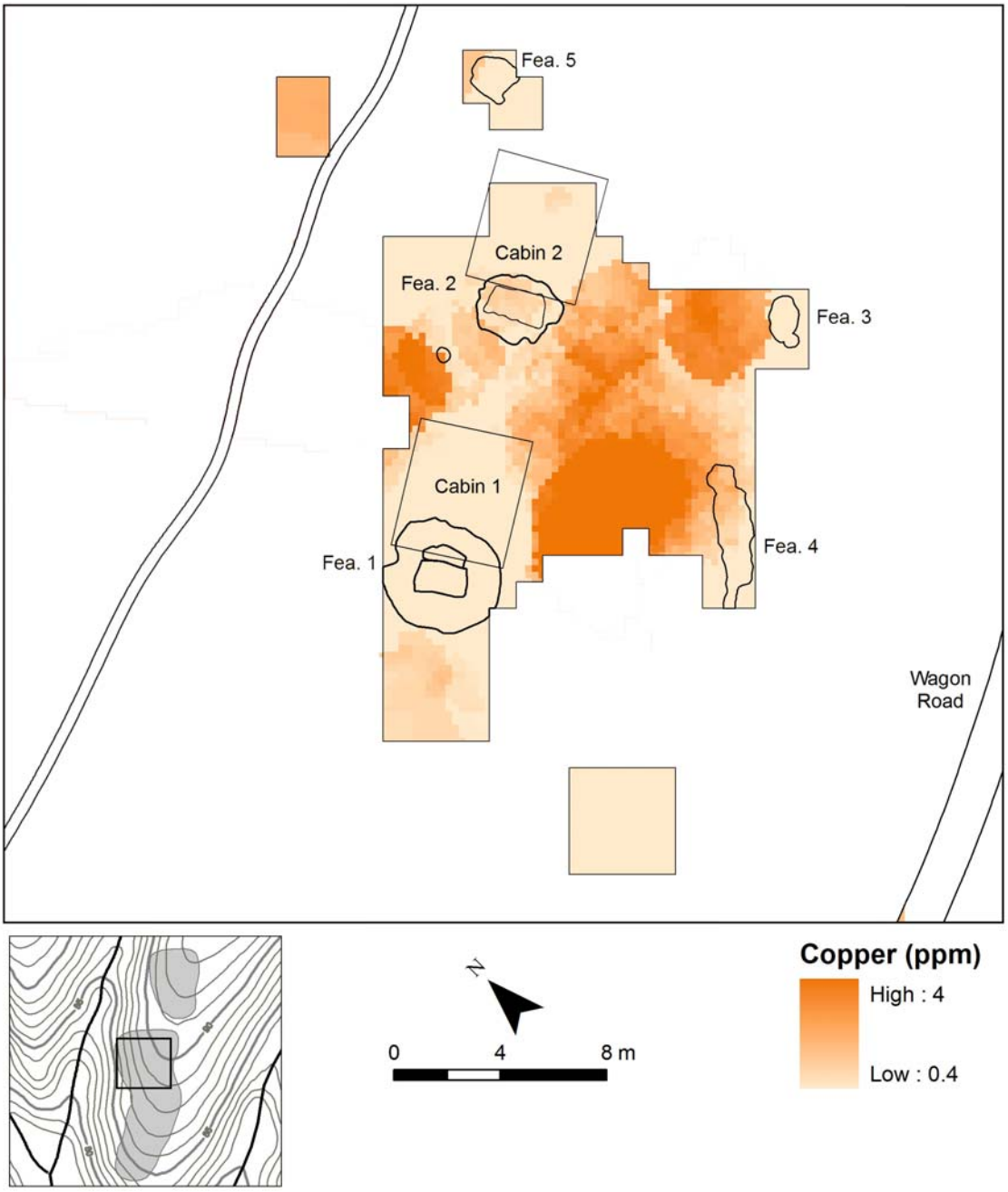

Figure 6.7. Copper concentrations at Locus 4.

Refuse Deposits

Four locations identified as waste disposal areas based on the artifact spatial distribution analyses described in Chapter 5 also have chemically enriched sediments indicative of general midden deposits. Two such deposits located downslope of Cabin 1 have elevated Ca and Mg (Figures 6.3 and 6.4), suggesting that Locus 4's residents dumped hearth cleanings in these areas. The deposit directly behind Cabin 1's chimney (Feature 1) also has high concentrations of K, which may represent food waste or perhaps excrement (Figure 6.5); if Locus 4 residents used chamber pots, the area behind the chimney may have been a more logical place to empty them than in the refuse pits in front of the cabins. Relatively high concentrations of Fe in this same area presumably reflect some of the other refuse discarded in this deposit, which includes iron artifacts (Figure 6.6).

The excavation notes and artifact distribution analyses indicate that Features 3 and 4 represent refuse-filled pit features with hearth cleanings, and the chemical characteristics of their underlying soils are consistent with this interpretation. At the same time, the two areas are chemically different enough to suggest that Locus 4's residents used them for different kinds of refuse. Feature 4 has elevated Ca, but low K (Figures 6.3 and 6.5). In contrast, Feature 3 has high K (Figure 6.5). This chemical evidence suggests that Feature 4 represents a midden with perhaps very little food waste (hence the low K), whereas Feature 3 may have held considerable food waste (hence the very high K).

Front Yard Area

The artifact spatial distribution analyses suggest that Locus 4's residents kept the area south of the cabins clear of debris, and the chemical characteristics of the underlying sediments confirm that they deliberately maintained this part of their habitation area. The chemical data suggest that while residents may have kept much of their front yard tidy through relatively light use, they extensively utilized a small part that would have been "shared" by the two cabins.

Much of the presumed front yard has relatively low concentrations of most elements (Figures 6.3–6.5), suggesting that residents cleaned up most activities before their chemical by-products had time to become fixed in the soil. In sharp contrast, the shared area between Cabin 1 and Cabin 2 has elevated concentrations of all 11 elements and salinity, indicating that this space was extensively used for a variety of activities. Interestingly, it most clearly stands out from its surroundings based on its concentrations of K, Mn, and Zn, all of which are associated with food processing: K is associated with plant and animal products; Mn is associated with fish remains (Knudson et al. 2004); and Zn is associated with nuts and shellfish, fish, and other animals (Hamond 1985). Fish remains also contain Cu and Fe, both of which are slightly elevated in this area. It therefore seems probable that Locus 4's residents processed food in this shared part of the yard, and fish and/or shellfish may have been regular items on their menu.

If the front yard area between Cabin 1 and Cabin 2 was indeed used for food processing, it makes sense that Locus 4's residents would have cleaned it regularly. Food remains, especially from fish, would have been messy and attractive to animals.

Moreover, Feature 3 would have offered a nearby place to dispose of the messy refuse, which could explain its very high K concentrations.

Interestingly, the yard area directly in front of Cabin 1 exhibits relatively high concentrations of Fe and Cu (Figures 6.6–6.7). In fact, the entire front yard area is enriched in Cu, while areas representing the cabins and most waste disposal areas have noticeably low Cu concentrations. One possible explanation is that the Fe- and Cu-enrichment in the area in front of Cabin 1 reflects horse excrement. Iron enrichment in soil is a commonly cited effect of manuring (O'Hallorans et al. 2004), and a significant amount of the dietary copper consumed by a horse makes its way into the animal's waste (Cymbaluk et al. 1981).

Back Yard Area

A back yard area behind Cabin 1 and 2 also contains chemical evidence for activities. This area does not stand out based on any of the artifact distribution analyses, but it has elevated concentrations of all elements except for Mn (Figures 6.3–6.7). It is unclear what specific activities were performed here, but they were apparently conducted regularly and cleaned up afterwards. It is also possible that the elevated chemical concentrations reflect non-equine animal waste (human or otherwise).

Structures

As would be expected, most elements exhibit low concentrations in the area believed to represent the footprint of Cabin 1, which was presumably protected by a wooden floor (Figures 6.3–6.7). For the most part, Cabin 2 also has low concentrations of

the measured elements, but it has surprisingly high concentrations of Ca, an observation further explored below.

Significantly, the area behind Cabin 2's chimney (Feature 2) also has low concentrations of most elements and clearly stands out chemically from the adjacent areas of the front and back yards. These observations suggest that this area was also protected by a floor, consistent with a raised porch or a floored dogtrot breezeway.

The presence of a dogtrot cabin at Locus 4 could point to a possible explanation for the discrepancy between Ca concentrations in the two cabins: Cabin 2 may have served as the kitchen. A kitchen hearth would have presumably generated ash year round, while the hearth in the other pen would probably have been used primarily for heat during cool months. Consequently, the hearth at Cabin 2 may have generated more ash, some of which likely settled through the floorboards. Indeed, similarly elevated Ca concentrations in the Cabin 2 chimney area supports the hypothesis that the Ca in the cabin's interior area reflects ash. Moreover, the chemical evidence suggesting that the Feature 3 refuse deposit contained more food waste than the Feature 4 deposit would fit well with this scenario, since Feature 3 would have been the nearest place to dispose of waste coming from the kitchen.

The presence of pigment fragments in the Cabin 2 hearth area (Chapter 5) suggests it may also have been associated with certain aspects of pottery production. It is not known when Catawba potters began firing their products inside, but they were certainly doing so when M. R. Harrington observed them in 1908 (Harrington 2006). Firing pottery in Cabin 2, even if only at a household scale, would have also generated ash that could help account for the elevated Ca concentrations.

Surface Hearth

Finally, as would be expected, the surface hearth (Feature 5) east of Cabin 2 exhibits relatively high Ca, Mg, K, and Fe, presumably reflecting ash mixed with food waste. The presence of both Catawba and European sherds in small quantities suggests that this hearth may have been used for cooking during warm weather.

Discussion

The results of the soil chemistry analyses reveal some activities at Locus 4 that were not evident from the artifact spatial distribution data. Concentrations of Ca, Mg, Fe, Cu, and K appear to be especially useful for discriminating between different activities and suggest that residents regularly conducted certain tasks in specific areas (Figure 6.8).

Like the artifact spatial distribution analyses, the chemical analyses indicate that Locus 4's residents discarded refuse in peripheral areas. They also hint that they had designated places for specific types of refuse. In particular, K concentrations suggest that the deposits at Feature 3 and the area behind Feature 1 contained more food waste (or, in the case of the area behind Feature 1, perhaps excrement) than other deposits.

The soil chemistry findings further suggest that activities conducted in the "shared" section of the front yard created messy debris that was regularly cleared. The concentrations of K, Mn, Zn, Cu, and Fe indicate that fish processing may have been one activity regularly conducted in this area, which seems likely given the proximity of the site to the Catawba River. Documentary accounts suggest that fishing was indeed a common activity for Catawba men (Jones 1815; Smyth 1784), but archaeological investigations have not recovered any fish remains.

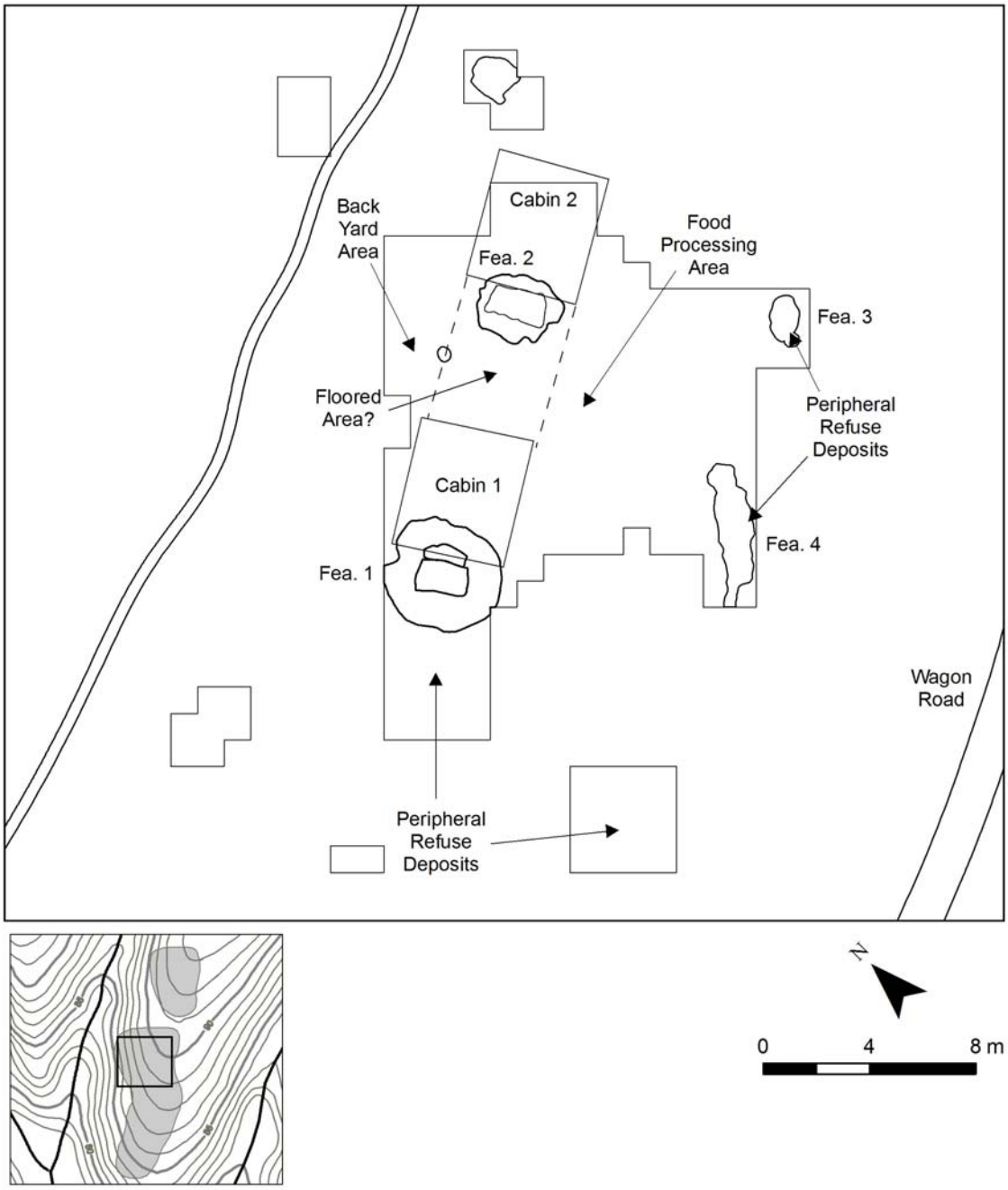

Figure 6.8. Map summarizing interpretations regarding the use of space at Locus 4 based on soil chemical characteristics.

In contrast, other areas of the front yard may have been used less frequently and/or for less messy activities. However, the Cu concentrations do suggest that some activity occurred throughout the front yard, and it may have had something to do with horse manure. It is possible that Locus 4 residents kept their horses in the yard, although the cluster of horse tack southeast of Cabin 2 (Figure 5.16) and the other evidence for meticulous yard maintenance imply that horses were kept away from the main habitation area. It seems more probable that visitors approaching Locus 4 on horseback brought their horses into the yard area; indeed, Locus 4 was located near an old wagon road and would have been the first cabin seat encountered by visitors approaching from the south, making it a likely place to dismount and perhaps care for tired animals. A third possibility is that horse manure was used for some other activity, such as fertilization.

Perhaps the most significant finding of the soil chemistry analyses is that the area behind Cabin 2's chimney is chemically more similar to the cabin interiors than to the area behind Cabin 1's chimney or to the yard areas. The ASI data (Chapter 5) also imply that the spaces behind the two chimneys at Locus 4 were maintained differently, and the chemical data indicate that the cabins themselves may have even been used for different activities. Taken together, these observations suggest that the two "cabins" at Locus 4 may in fact represent two pens of a single dogtrot cabin with a floored breezeway. However, it would have been an unusual dogtrot cabin with a very wide breezeway and an interior chimney that would have largely negated the thermal advantages of the breezeway during warm months (Gentry and Lam 1998). On the other hand, the breezeway roof would have protected Cabin 2's stick-and-clay chimney from erosion (Brett Riggs, personal communication 2011).

Conclusions

The results of the Locus 4 soil chemistry analyses complement the artifact spatial distribution analyses described in Chapter 5 and suggest that similar chemical analyses at the other New Town loci could shed new light on the ways in which their residents utilized and maintained domestic spaces. Sediment samples were collected from Locus 2, Locus 3, Locus 5, and Locus 6 and could be analyzed in the future. Moreover, analyzing sediment samples from unexcavated contexts at all loci could help predict which areas were extensively used (either for specific activities or refuse disposal) and which ones were lightly used or quickly cleaned after use.

The final chapter integrates the soil chemistry results with those discussed in previous chapters to offer an interpretive reconstruction of daily life at Locus 4 and within the New Town community as a whole. It also explores the implications of this interpretation for understanding the multifaceted lives and roles of the Catawba Indians during the Federal Period.

CHAPTER 7

SUMMARY AND CONCLUSIONS

The analyses described in the preceding chapters reveal intracommunity similarities and differences with respect to the organization and use of domestic space at New Town. This final chapter summarizes and explores some of the variability among households and between neighborhoods, using Calvin Jones' account as a starting point and embellishing it based on the archaeological evidence presented in Chapters 3–6.

Household Variability at New Town

Jones' 1815 description offers a rare, Anglocentric glimpse of what New Town may have been like on a hot July day toward the end of its occupation. When his account is considered alongside the archaeological evidence, the picture becomes just a little bit clearer, although it is still viewed through a distant and distorted lens.

****

> *Visited the Catawba towns. first went to Sally New Rivers - 73 years old - daughter of the Indian trader Toole. Mother half-white - rings in her ears - making a sifter of reeds. drinks no spirits – pointing to her Nephews. ... has a negro and is industrious and respectable.* [Jones 1815]

The passage above implies that the cabin belonging to Sally New River may have been the first one encountered by most visitors to New Town. Sally New River is consistently mentioned in ethnohistoric descriptions from the early nineteenth century and was by all accounts a notable and influential character.

Sally New River's father was an Anglo-American trader, and some historians propose that she traced her Catawba ancestry to King Hagler, the Nation's celebrated leader from ca. 1749–1763 (Brown 1966). What is certain is that Sally married a famed warrior, General New River, who ultimately became head of the Nation. If General New River is the "General Scot" mentioned by John Drayton (1802), then he was probably himself descended from King Hagler.

General New River was much older than his wife. When Elkanah Watson visited the General in the mid-1780s, he described him as an "old king, on his crutches" who "commanded respect, and evinced powerful traits of mind and character" (Watson 1856:257–258). Watson wrote the following about Sally:

> The wife of the chief fed my horse, and supplied me with a meal of smoked venison, placed in a small tub upon the floor. She did all in her power to render me comfortable, if not with the grace of a Parisian lady, undoubtedly with equal kindness of heart. [Watson 1856:258]

Like her husband, Sally New River seems to have garnered a good deal of respect, both from the Catawbas and from their Anglo-American neighbors and visitors. As wife of the chief, she was probably the most influential female at New Town. After her husband's death ca. 1804, Sally played an even greater role. Only a few ethnohistoric descriptions specify who served as chief and headmen after General New River's death, but Sally is described in almost every visitor's account and appears to have been the Nation's gatekeeper. She also purportedly spent a lot of time with the Spratt family, Anglo-American neighbors of the Catawbas (Brown 1966:285). Thomas "Kanawha" Spratt was agent and friend to the Nation, and Sally was said to have "frequently remained for weeks and months" at the home of his son, James (Spratt 1876 in Brown 1966:285).

Several stories about Sally New River suggest that she was extremely shrewd and stood out from her neighbors. In 1796 when white lessees were eager to obtain the reservation's best plats, she set aside approximately 500 acres of the prime riverfront land known as the King's Bottoms for the women of the Catawba Nation and their heirs (Pettus 1999, 2005). (Unfortunately, the women leased away that tract only a few years after Sally's death [Pettus 2005:32].) Sally collected rents from eight tenants and, unlike many other Catawba landlords who spent their rent payments "in a debauch" (Mills 1826:773), may have been able to subsist almost entirely on the income from her leased land (Merrell 1989:231). Jones (1815) wrote that she "drinks no spirits … and is industrious and respectable," implying that she engaged in subsistence farming.

The available documentary and archaeological evidence suggest that Locus 4 may represent Sally New River's residence. Assuming that Jones approached New Town from the south[1] via the wagon road that runs near the southern hamlet, then Locus 4 would have been the first cabin seat that he would have encountered. Jones also mentions that Sally New River's house had a wooden floor, which appears to be reflected in the architectural and soil chemical evidence at Locus 4. Finally, the nature and distribution of refuse and other artifacts recovered at Locus 4 suggest that it was occupied year round, a finding consistent with Jones' description of Sally New River's lifestyle.

On his way to Sally New River's front door, Jones presumably passed through the front yard reflected in the artifact and soil chemistry distribution maps for Locus 4. Perhaps Sally watered and fed his horse there, as documentary (Watson 1856) and soil chemistry evidence suggest that she did for other visitors. On the particular day that Jones visited, he found Sally making a sifter of reeds and possibly keeping an eye on some

children. On another day she might have been engaged in a different activity, such as making pottery for her own use, processing food in the front yard area shared by the two cabins or pens, sweeping the resulting debris, or tending her own horse(s). Alternatively, Sally might have been temporarily away from home, visiting the Spratt family or collecting rents for herself or one of her neighbors (Brown 1966; White 1808).

****

> *Went to Colonel Airs. A girl with painted cheeks and tooth ache. all drink whisky clear and swallow water after - children made to drink… . Col. Airs industrious. [Jones 1815]*

Jones' next stop appears to have been a neighboring cabin occupied by Colonel Ayres and his family, which may be represented by Locus 5. Ayres also worked hard and built a raised-floor for his family's cabin, but their lifestyle nevertheless stood out to Jones as being different from Sally New River's in several ways. His wife or daughter donned a more exotic appearance with "painted cheeks." The whole family appears to have consumed whisky, although they may have done so in moderation since Ayres was nevertheless "industrious" (Jones 1815).

Relatively high Catawba sherd densities throughout the excavated area at Locus 5 and evidence for trampling in one spot suggest that general refuse may have been allowed to accumulate to a greater extent than at Locus 4, although suspected yard areas need to be excavated to corroborate this hypothesis. Like their neighbors to the south, the Ayres family probably spent a good deal of time collecting rental income and may have had horses. Cottage pottery production, on the other hand, does not appear to have been a significant aspect of their economic strategy. Jones does not mention seeing any pottery

making activities at Ayres' cabin seat, and relatively few polishing stones show up in the household's refuse.

****

> *Next to Newtown - 6 or 8 houses facing an oblong square. Men gone hunting and fishing. Women making pans - Clay from the river - shape them with their hands and burn them with bark which makes the exposed side a glossy black. a pitcher a quarter of a dollar. Sell pans frequently for the full [?] of meal. Saw some sitting on their beds and making pans. ... Great scarcity of corn now. Sally New River said the lazy ones had gone to look for corn. ... The women make clothes tho they do not spin. [Jones 1815]*

After leaving the southern hamlet, Jones entered a larger neighborhood, or New Town proper. Some of the cabins that he saw surrounding a rectangular central plaza are presumably represented by the remains at Locus 1, Locus 2, Locus 3, and Locus 6.

Despite insinuating that the residents of these cabins were lazy, Jones found the men off in search of food and the women busy producing pottery for the market. The available archaeological evidence supports the idea that these women were indeed producing pottery on a large scale: the 13 polishing stones recovered from Locus 2 and Locus 3 would not have been carelessly discarded. Moreover, if the potters were frequently on the road selling their wares, they may have discarded other worn-out polishing stones at temporary camps along the route between New Town and Charleston.

The presence of polishing stones and pigments in interior cabin areas at several of the loci suggests that at least some aspects of pottery production may have occurred inside the cabins. Jones (1815) describes women "sitting on their beds and making pans," and in 1908 M. R. Harrington documented Catawba potters firing their products inside the home (Harrington 2006). Ethnographic research indicates that Catawba pottery making was a family affair during the early twentieth century (Blumer 2004; Harrington

2006), so it is not difficult to imagine adults and children alike sitting around the fire and rubbing pots a century earlier. As Blumer (2004:25) maintains, "the tedious task of rubbing pottery is less burdensome when accompanied by conversation."

In fact, some aspects of pottery production in the northern neighborhood may have even been multi-family affairs. The substantial evidence for pottery production at Locus 3 suggests that potters from several different households may have come together to fashion and/or fire vessels together. Indeed, the layout of the cabins around an open, central area suggests that other activities may have been conducted in a corporate manner as well, and Jones' account gives the impression that he was unable to associate individual cabins with specific families.

****

> *Most of the Indians a little mixed. … Wear plates on the neck with their names on them and bracelets 3 inches wide. Jenny Red Head had red in her head where the hair was parted on the top. … One woman with only a shift and a dozen brooches around the bosom. [Jones 1815]*

Jones emphasized the appearances of many New Town residents, which presumably stood out by Anglo-American standards. Many Catawbas were by this time of mixed ancestry, and they may have intentionally donned flashy jewelry and other exotic decorations to keep up an "Indian" air, especially when they were in the company of Anglo-Americans. Such ornamentation may have even been a marketing strategy for potters, since the "Indian" nature of Catawba vessels appears to have been a major draw for some Anglo-American buyers. This hypothesis is supported by archaeological evidence demonstrating that Locus 3 (which had the most evidence for pottery production) also had more jewelry than any other locus at New Town.

****

> *Almost all drunkards. Gen. Scott and his woman some grog. ... Widow Red Head and her daughter fond of it. ... at Newton Jack Mushs wife drank often and made her sucking child drink though it seemed to dislike it. Indeed the women all made terrible faces as though they disliked it. ...*
>
> *Nation declining. ... Women have but few children, many none. Children die - all suffer from too much whisky and too little bread. in 40 years probably extinct. [Jones 1815]*

Jones alleged that to the detriment of most households, whisky flowed freely for adults and children alike. At the same time, he drew attention to the fact that Sally New River "drinks no spirits." It seems possible that by emphasizing this distinction between Sally New River and her neighbors, Jones was also subtly intimating that there was a distinction in terms of the orderliness and decorum (by Anglo-American standards) with which the various parties conducted themselves.

Indeed, the ceramic and glass evidence from Locus 6 indicates that much of the habitation area may have resembled a sheet midden, with so much refuse in some areas that it was trampled during the course of daily activities. It is more difficult to evaluate the degree to which debris was allowed to accumulate at Locus 2 and Locus 3 since they have been less extensively excavated, but the widespread distribution of glass suggests that waste disposal practices were not particularly orderly. On the other hand, the artifact distribution data and soil chemical data from Locus 4 demonstrate that its residents purposely discarded refuse in peripheral deposits, carefully maintained a front yard, and performed specific activities in designated areas.

The ways in which households organize and use domestic space reflect individual choices influenced by the natural environment; internal and external social, economic, and political factors; and world view (Lightfoot et al. 1998). By exploring the differences between neighborhoods and households at New Town with respect to the built environment, the use of space for specific activities, and waste disposal routines, some of the preferences and decisions made by individual actors come to light.

Brett Riggs (1999) has demonstrated that among Removal-era Cherokees, different experiences with western enculturation resulted in a cultural continuum with respect to the incorporation of western goods and lifeways by individual households. At New Town, the ways in which households organized and used domestic space likewise appear to reflect a spectrum in terms of acceptance of Anglo-American ideas and practices. They also reflect different strategies for adapting to the South Carolina backcountry's sociopolitical and economic landscape during the late-eighteenth and early-nineteenth centuries.

Locus 4

Compared to habitation areas in the central and northern hamlets, the use of space at Locus 4 was highly patterned, with discrete activity areas, designated refuse-disposal locations, and evidence for regular cleaning and sweeping. This patterning suggests that Locus 4's residents readily embraced certain Anglo-American practices and ideas about the use of space. During the late eighteenth century, Anglo-American architectural preferences and domestic practices became increasingly standardized and segmented, and

refuse disposal habits reflect a new concern with order that has persisted in Anglo-America to the present day (Deetz 1996).

Architectural Preferences. Locus 4 clearly stood apart from most other New Town loci in terms of architecture. Whereas archaeological evidence indicates that houses in the northern neighborhood had dirt floors, Locus 4 had architecture with raised, wooden floors. Moreover, the soil chemistry evidence hints that the dwelling at Locus 4 may have been approximately twice at large as any of the other cabins at New Town. If the remains at Locus 4 do in fact represent a single domicile with separate pens for sleeping (Cabin 1) and cooking (Cabin 2), then they reflect architectural segmentation with respect to function.

More importantly, the architectural remains at Locus 4 represent a conspicuous departure from the typical structure found at all other loci. Given that house form both shapes and is shaped by daily practices and the ideas and values with which they are associated (Bourdieu 1990; Deetz 1996; Hodder and Cessford 2004), such a blatant difference between neighbors would have bespoken a real distinction in world view. (At the same time, the fact that Jones did not note such a blatant difference cautions us to remember that the existence of a dogtrot cabin at Locus 4 is only one possible explanation for the observed chemical characteristics.)

Domestic Practices and Refuse Disposal. Artifacts and chemical evidence reveal other activity areas at Locus 4, including a food processing area located near the presumed kitchen, a maintained yard in front of the dwelling, and peripheral deposits containing specific types of refuse. These activity areas imply that daily tasks and waste management practices followed set routines. In particular, food processing seems to have

been closely linked to the overall organization of space at Locus 4, with the processing area located near the suspected cooking facility (Cabin 2) as well as close to a designated refuse deposit (Feature 3) along the periphery of the maintained yard. Another refuse deposit located behind the chimney of Cabin 1 yielded chemical evidence similar to that of Feature 3, but its association with the presumed sleeping pen hints that its chemical characteristics may reflect excrement rather than food waste.

Implications. These observations, in turn, imply that residents occupied Locus 4 on a year-round basis and subscribed in some part to nineteenth-century Anglo-American ideals regarding the segmentation of space, hard work, and orderliness. If, as proposed above, Locus 4 represents Sally New River's habitation area, then documentary evidence suggests that its female head of household may have also adhered to certain western ideals of virtue and appearance.

Indeed, Sally New River seems to have played the role of the Nation's gatekeeper, and she may have believed that adopting certain Anglo-American ideas, practices, and appearances would give the Nation the best chance of survival in a world that seemed to favor those who pursued a sedentary, agricultural lifestyle. Her decision to reserve the fertile King's Bottoms land for the Catawba women in perpetuity implies that she viewed agriculture as crucial to the Nation's economic well-being (albeit women's work, which certainly was not the way her Anglo-American neighbors viewed it). She may have likewise believed that adopting other western notions of "civilization," including those about the use and organization of domestic space, was a sound strategy for avoiding removal and retaining reservation lands.

Locus 5

In terms of accepting Anglo-American lifeways, the residents of Locus 5 appear to have fallen somewhere between their southern neighbors at Locus 4 and their northern neighbors at Locus 2, Locus 3, and Locus 6. Locus 5 had a floored cabin like Locus 4, but it consisted of only a single pen like the cabins in the northern neighborhood. Without more extensive excavations or chemical analyses, it is not possible to fully evaluate the extent to which there might have been discrete activity areas at Locus 5, but the distribution of artifacts does not reveal any refuse deposits that appear to have been consistently associated with specific activities. However, the data do suggest that Locus 5 residents removed waste less frequently and/or completely than their Locus 4 neighbors.

Implications. Locus 5's geographic situation between Locus 4 and the northern loci may be more than an interesting coincidence. It seems likely that Locus 5 represents the cabin seat occupied by Colonel Jacob Ayres, who Jones implies may have bridged a divide between Sally New River and the families in the larger neighborhood at New Town. Although Ayres probably did not accept Anglo-American ideals as fully as Sally New River, who claimed some Anglo ancestry, he may have served as the Nation's de facto gatekeeper whenever she was away. At such times, he appears to have come off as somewhat industrious and respectable by Anglo-American standards (Jones 1815). At the same time, he and other members of his household presumably shared a penchant for drinking and other interests in common with their northern neighbors.

Locus 2, Locus 3, and Locus 6

The families in the northern neighborhood at New Town clearly stood out from Sally New River in Jones' mind, and the archaeological evidence from Locus 2, Locus 3, and Locus 6 demonstrates that they carried out their daily lives in a very different way. They occupied single-pen houses with dirt floors. They do not appear to have had patterned waste management routines, and the limited excavation data do not reveal any discrete activity areas; indeed, at Locus 6 residents appear to have trampled sherds and other debris as they went about their daily activities.

If any activity structured the organization of space in the northern neighborhood, the artifact assemblages suggest that it would have been cottage pottery production, particularly at Locus 3. Some aspects of ceramic production may have been family or even multi-family affairs, and other domestic activities may have been corporate in nature as well. The abundance of jewelry at Locus 3 dovetails with ethnohistoric descriptions of Catawba potters with flashy ornaments and painted skin. Such descriptions also tend to emphasize destructive drinking.

Implications. Overall, the archaeological evidence from the northern and central hamlets is consistent with the itinerant lifestyle that documentary accounts suggest many Federal-period Catawba families pursued. Compared to the New River and Ayres households, then, the Marsh, Scott, Brown, Redhead, and other families in the northern neighborhood incorporated fewer Anglo-American ideas into their own practices. Certainly a gypsy-like lifestyle was about as far from the settled, agrarian lifestyle of their Anglo-American neighbors as it could possibly be.

On the other hand, the evidence for cottage pottery production implies that households in the northern neighborhood chose to take advantage of South Carolina's market-based economy, as their deerskin-trading ancestors had in fact begun doing more than a century before. Mark Plane (2004) argues that cottage pottery production combined the features of a traditional Catawba industry with an Anglo-American notion of individualization. He maintains that "through the ceramic trade, Catawba women … doubtlessly became familiar with the concepts of private industry and individual gain that govern production and distribution within capitalism" (Plane 2004:75). Indeed, the fictional narrative by Simms (1853) hints that some aspects of early-nineteenth-century pottery production occurred within the context of individual households. Nevertheless, the archaeological evidence implies that pottery production at New Town retained a community aspect that in some ways persists even to this day (Blumer 2004).

Conclusions

The archaeological evidence examined by this study reveals that New Town families adopted different strategies for surviving in Federal-period South Carolina that are reflected in the geographic configuration of the community. Households in the southern hamlet appear to have embraced western social and economic ideas and practices to varying extents, although they seem to have done so with an eye toward retaining a distinctive Catawba political identity. In contrast, many of the households in the central and northern hamlets may have intentionally emphasized or even exaggerated differences between their lifestyles and those of their Anglo-American neighbors. Rather than settling down to pursue a lifestyle based on cultivation, these families took to the

road like bejeweled gypsies and leased away the Kings Bottoms as soon as Sally New River died.

No one will ever know what would have happened had these Federal-period Catawba families chosen a different strategy, but by 1840 they had given up their valuable reservation for a small amount of cash and a never-to-be-fulfilled promise for relocation. The Nation's numbers dwindled over the next decade, but Catawba potters never gave up their craft. Eventually the population rebounded, and today the Catawba Indians celebrate their uninterrupted and distinctive pottery tradition. In many respects, it is this tradition, reflected in the archaeological record of the northern neighborhood at New Town, which continues to hold the Nation together.

Notes

[1]The day before Jones (1815) reached New Town, he visited the old Waxhaw Presbyterian Church cemetery, which is located south of the Catawba settlement.

Appendix A. Metal Detecting Data

Metal-detecting surveys identified seven discrete concentrations of metal artifacts at New Town. Tables A.1–A.7 list the metal artifacts recovered from each concentration.

Table A.1. Locus 1 Metal Artifacts Recovered During Metal Detecting.

Material Description	Count
Aluminum	
Disk	1
Brass	
Button	4
Tack	1
Thimble	1
Object	2
Iron	
Bale Lug	1
Bar Fragment	1
Blade and Tang	1
Bolt (Hand-Wrought)	1
Buckle Fragment (?)	1
Chain Link Fragment	3
Dutch Oven Fragment	1
Fork Fragment	2
Hook	1
Jew's Harp	1
Kettle Fragment	1
Key	2
Key Finial (?)	1
Knife Blade	1
Muleshoe	2
Nail (Cut)	20
Nail (Wrought)	4
Nail Fragment	20
Plow Fragment	1
Rod Fragment	2
Snaffle Bit	2
Spike	1
Spoon/Strainer	1
Strap	2
Strap Hinge Fragment (?)	2
Vessel Fragment	14
Wire Fragment	3
Object	4
Fragment	2
Lead	
Ball (Flattened)	1
Bar (Flattened)	1
Sheet Fragment	4
Shot	6
Shot (Flattened)	1

Table A.1. Locus 1 Metal Artifacts Recovered During Metal Detecting (continued).

Material Description	Count
Pewter	
Spoon Handle	1
Fragment	1
Silver	
Sheet Fragment	1
Indeterminate Metal	
Key ?	1
Knife Tang (?)	1
Total	**125**

Table A.2. Locus 2 Metal Artifacts Recovered During Metal Detecting.

Material Description	Count
Brass	
Button	4
Button (with Silver Wash)	1
Fleam (Blood-Letting Instrument)	1
Tack	1
Thimble	5
Fragment (with Silver Wash)	2
Copper	
Large Cent Piece (1796-1807)	1
Iron	
Bar Fragment	2
Boot Shoe	1
Buckle Fragment	6
Chain Link Fragment	4
Curb Bit	1
Dutch Oven Fragment	5
Fish Gig Fragment	1
Flintlock Mainspring	1
Frying Pan Fragment	1
Hook	2
Horseshoe	3
Kettle Fragment	8
Knob Fragment	1
Nail (Cut)	125
Needle	1
Pot Hook	2
Ring	1
Rod Fragment	2
Shears	1
Scissors Fragment	2
Singletree Clip	2
Snaffle Bit	1
Spike	1
Staple	1
Stirrup	1
Strap Fragment	9
Table Knife Blade	2
Tack	1
Triangular File (?)	1
Two-tined Fork Fragment	1
Wagon Hub	1
Wire Fragment	6
Object	3
Fragment	3

Table A.2. Locus 2 Metal Artifacts Recovered During Metal Detecting (continued).

Material Description	Count
Lead	
Rod	1
Sheet Fragment	1
Sheet Fragment (Rolled)	1
Shot	4
Shot (Flattened)	3
Shot (Flattened and Rolled)	1
Object	1
Fragment (Flattened)	2
Pewter	
Button	3
Disk Fragment	1
Spoon-like Object	1
Fragment	4
Silver	
Bridle (?) Ring (Silver plated)	1
Indeterminate Metal	
Jew's Harp	3
Padlock	1
Spoon	1
Total	**247**

Table A.3. Locus 3 Metal Artifacts Recovered During Metal Detecting.

Material Description	Count
Brass	
Button	4
Iron	
Butcher Knife	1
Chain Link Fragment	1
Door Lock Bolt (?)	1
Flintlock (Gun Lock)	1
Harness Buckle	1
Hoe	1
Horseshoe	1
Kettle Fragment	2
Nail (Cut)	16
Rod Fragment	1
Snaffle Bit	2
Table Knife	1
Two-tined Fork	1
Object	1
Lead	
Shot	1
Fragment (Flattened)	1
Pewter	
Button	1
Tin	
Crushed Kettle (?)	1
Total	**39**

Table A.4. Locus 4 Metal Artifacts Recovered During Metal Detecting.

Material Description	Count
Brass	
Button	15
Cap Plate	1
Chain	1
Coin	2
Cufflink Face	1
Disk	1
Escutcheon Plate	1
Mirror Back (?)	1
Musket Buttplate Fragment	2
Spoon Bowl	1
Strip	1
Tack	6
Thimble	3
Wire Fragment	1
Bronze	
Bell	1
Iron	
Bar Bit and Rings	1
Bar Fragment	2
Bar Fragment (Flattened)	1
Bracket	1
Buckle	4
Chain Fragment	1
Chain Fragment (from Snaffle Bit)	6
Chain Link Fragment (Large)	2
Clevis	1
Dutch Oven Fragment	1
Finial (?)	1
Fork	1
Fork Fragment	1
Hammer	1
Hinge	1
Hoe	1
Hook	3
Hook and Chain	1
Horseshoe	2
Jew's Harp	2
Kettle Fragment	10
Knife (?)	1
Knife Blade	2
Knife Fragment	3
Lancet (?)	1
Loop	2
Lug	1

Table A.4. Locus 4 Metal Artifacts Recovered During Metal Detecting (continued).

Material Description	Count
Musket Barrel Piece	1
Nail	1
Nail (Cut)	207
Nail (Wrought)	2
Padlock	2
Pin (Large)	1
Pin and Hook	2
Pintle	2
Plating	1
Pliers	1
Pot Hook	3
Punch	1
Punch (Large)	1
Riding Bit	1
Rod Fragment	7
Rod Fragment (Wrought)	2
Scissors	2
Scissors Handle Fragment	1
Sheet Fragment	2
Singletree Clip	2
Singletree Clip and Ring	3
Snaffle Bit	7
Spike	2
Spindle	1
Staple	2
Staple (Wrought)	1
Strap Fragment	4
Strap Fragment (Folded)	1
Table Knife	2
Triangular File	1
Vessel Fragment	16
Object	15
Fragment	4
Lead	
Ball	2
Bar Fragment	2
Sheet Fragment	1
Sheet Fragment (Folded)	1
Sheet Fragment (Rolled)	2
Shot	11
Shot (Flattened)	2
Sprue	3
Fragment	1

Table A.4. Locus 4 Metal Artifacts Recovered During Metal Detecting (continued).

Material Description	Count
Pewter	
Button	2
Spoon Handle	2
Fragment	1
Silver	
Bangle	1
Sheet Fragment	1
Triangle (Cut)	1
Object	1
Indeterminate Metal	
Button (Britannia)	1
Total	**428**

Table A.5. Locus 5 Metal Artifacts Recovered During Metal Detecting.

Material Description	Count
Brass	
Button	35
Knife Hilt Plate	1
Latch (?)	1
Nose Bangle	1
Spoon Fragment	2
Tack	2
Thimble	5
Fragment	1
Iron	
Agricultural Implement	1
Axe Head	1
Band	1
Bar Fragment	1
Blade	2
Buckle	4
Chain Fragment	2
Chain Link Fragment	1
Chisel	1
Fork	3
Fork Fragment	3
Harness Buckle	1
Harness Hardware	2
Horseshoe	3
Horseshoe Fragment	1
Key	1
Knife Blade	5
Knife Blade and Handle	1
Knife Fragment	4
Nail (Cut)	210
Padlock	3
Pocketknife	1
Pocketknife Blade	1
Rod Fragment	3
Scissors	2
Scissors Fragment	12
Sheet Fragment	41
Snaffle Bit	2
Spike	3
Spur (Silver-Plated)	1
Stirrup	2
Strap Fragment	1
Tang (?)	1
Triangular File	2
Vessel Fragment	6

Table A.5. Locus 5 Metal Artifacts Recovered During Metal Detecting (continued).

Material Description	Count
Wire Fragment	1
Object	12
Fragment	5
Lead	
Ball	4
Sheet Fragment	3
Shot	2
Fragment	1
Pewter	
Button	2
Spoon	1
Spoon Handle	1
Fragment	2
Silver	
Cufflink	1
Sheet Fragment	1
Spoon	1
Fragment	1
Steel	
Needle	1
Total	**416**

Table A.6. Locus 6 Metal Artifacts Recovered During Metal Detecting.

Material Description	Count
Brass	
Button	32
Chain Link Fragment	1
Cone (Flattened)	1
Jews Harp	1
Loop	1
Screw	2
Strip	1
Strip (Silver Plated)	1
Swingle	1
Object	1
Copper	
Coin	1
Iron	
Bar Bit	1
Bar Fragment	2
Bit	2
Bolt	2
Bolt and Plate	1
Buckle	8
Buckle Fragment	1
Chain	1
Chain Link Fragment	1
Cotter Pin	1
File Fragment	2
Fish Spear	2
Fork	3
Fork Tine	1
Gun Mainspring	1
Hasp (?)	1
Horseshoe	3
Jacknife	1
Jacknife Spring	1
Jews Harp	1
Kettle Lug (?)	1
Key	1
Knife	1
Knife Hilt	1
Lock Plate	2
Nail (Cut)	220
Padlock	1
Pin (Large)	1
Pot Hook	1
Rod Fragment	7
Scissors Fragment	4

Table A.6. Locus 6 Metal Artifacts Recovered During Metal Detecting (continued).

Material Description	Count
Shears	1
Sheet Fragment	3
Snaffle Bit	1
Square Stock	2
Strap	1
Strip	2
Tack	1
Tine (Large)	1
Triangular File Fragment	3
Two-tined Fork Fragment	1
Vessel Fragment	22
Wire Fragment	11
Wire Hook	1
Wire Ring Fragment	1
Object	8
Lead	
Ball	2
Musket Ball	1
Sheet Fragment	4
Sheet Fragment (Flattened)	1
Sheet Fragment (Rolled)	3
Shot	7
Object	1
Fragment	4
Pewter	
Button	3
Spoon Fragment	4
Fragment	2
Silver	
Coin (1742, Spanish 1 real)	1
Fragment	2
Total	**413**

Table A.7. Locus 7 Metal Artifacts Recovered During Metal Detecting.

Material Description	Count
Brass	
Bead Necklace Segment	1
Button	5
Jews Harp	1
Iron	
Buckle	1
Horseshoe	1
Knife Blade	1
Musket Barrel	1
Nail (Cut)	13
Spike	1
Vessel Fragment	1
Lead	
Ball	2
Lump (Chewed)	1
Sheet Fragment	1
Pewter	
Spoon	2
Fragment	2
Total	**34**

Appendix B. Excavation Data

Between 2003 and 2005, UNC field-school students under the direction of Steve Davis and Brett Riggs excavated approximately 800 sq. m at six New Town loci. General excavation fill was dry screened using 1/4-inch mesh, and feature fill was processed through wet screening (1/16-inch mesh) or flotation (Davis and Riggs 2004). Tables B.1–B.6 list the Federal-period artifacts recovered from each locus.

Table B.1. Locus 2 Artifacts Recovered from Excavated Contexts.

Material Description	Count
Bone	
Animal Bone Fragment	17
Brass	
Buckle	1
Button	13
Coin (1793 French 2-Sol)	1
Tack	1
Thimble	1
Object	1
Charcoal	
Fragment	9
Fragment (bag)	17
Chipped Stone	
Gunflint	3
Clay/Ceramic	
Catawba Sherd	2145
Clay Pipe Fragment	66
Clay Ball	1
Clay Sphere (Incised)	1
European Sherd	621
Fired Clay Fragment	95
Fired Clay Hearth Fragment (bag)	1
Kaolin Pipe Fragment	1
Pottery Disk (Half)	1
Fabric	
Fabric Fragment (from Brass Button)	1
Glass	
Bead	75
Faceted Ornament	1
Mirror Glass Fragment	1
Fragment	200
Groundstone	
Polishing Stone	4
Iron	
Buckle Fragment	1
Fork Handle	1
Harness Bit	1
Hook	1
Nail (Cut)	76
Needle Fragment	5
Pot Lid (Pedestaled)	1

Table B.1. Locus 2 Artifacts Recovered from Excavated Contexts (continued).

Material Description	Count
Rod Fragment	8
Scissors Fragment	5
Sheet Fragment	131
Spike	1
Strap Fragment	1
Triangular File	1
Object	2
Fragment	14
Lead	
Button	1
Sheet Fragment	2
Shot	26
Fragment	2
Paint	
Orange Paint Lumps (vials)	2
Pewter	
Button	3
Spoon Bowl	1
Spoon Handle	1
Shell	
Mussell Shell Fragment	2
Silver	
Earring Clasp	1
Sheet Fragment (Engraved)	1
Indeterminate Material	
Knife Handle	1
Total	**3570**

Table B.2. Locus 3 Artifacts Recovered from Excavated Contexts.

Material Description	Count
Bone	
Animal Bone Fragment	249
Bone Awl Fragment	1
Brass	
Buckle Fragment (?)	2
Button	15
Chain Link	3
Escutcheon Plate	1
Eyelet	1
Jew's Harp	2
Lock	1
Lump	1
Ring	1
Scrap	1
Strip (Silver-plated)	1
Tack	5
Thimble	1
Trigger Guard	1
Fragment (with Silver Wash)	2
Charcoal	
Fragment	95
Fragment (bag)	38
Chipped Stone	
Gunflint	2
Gunflint Flake	9
Strike-a-Light Flint	1
Tabular Rock	1
Clay/Ceramic	
Catawba Bottle	1
Catawba Bottle Stopper	1
Catawba Cup	1
Catawba Sherd	16062
Ceramic Object	1
Clay Ball	2
Clay Coil	1
Clay Pipe Fragment	137
Clay Pipe Fragment (Toy)	2
Daub Fragment	1
European Sherd	1233
Fired Clay Fragment	277
Fired Clay Fragment (bag)	7
Fired Clay Hearth Fragment (bag)	6
Fired Clay Object	2

Table B.2. Locus 3 Artifacts Recovered from Excavated Contexts (continued).

Material Description	Count
Kaolin Pipe Fragment	2
Pottery Disk	1
Glass	
Bead	330
Button	2
Stopper	1
Fragment	109
Fragment (Cobalt)	2
Groundstone	
Polishing Stone	9
Polishing Stone Flake	4
Polishing Stone Fragment	5
Iron	
Bar Fragment	1
Bent Rod (Staple?)	1
Buckle	3
Butcher Knife	1
Butcher Knife Blade	3
Chain Link Fragment	1
Door Lock Bolt (?)	1
Dutch Oven Pode	1
Flintlock (Gun Lock)	1
Frizzen	1
Hasp	1
Hook	1
Horseshoe	2
Jew's Harp	5
Key	1
Knife Blade	4
Nail	9
Nail (Cut)	99
Nail (Wrought)	1
Needle Fragments	6
Padlock	1
Padlock Faceplate	1
Pistol Barrel	1
Rod Fragment	4
Saddle Brace	1
Saw Blade Fragment	2
Scissors Fragment	3
Sheet Fragment	49
Shovel Head	1
Snaffle Bit	3

Table B.2. Locus 3 Artifacts Recovered from Excavated Contexts (continued).

Material Description	Count
Spike	2
Spindle	1
Spoon Handle	1
Strap	2
Strike-a-Light (?)	1
Table Knife	1
Table Knife Blade	1
Tack	9
Two-tined Fork	1
Wire Fragment	10
Object	18
Object (with leaf spring)	1
Fragment	35
Lead	
Sheet Fragment	4
Sheet Fragment (Rolled)	2
Shot	10
Sprue	2
Fragment	2
Paint	
Orange Paint Lumps	17
Pewter	
Button	3
Scrap	2
Spoon	1
Shell	
Clam Shell (Pottery Scraper Fragment?)	2
Mussel Shell Fragment	19
Silver	
Brooch	1
Button	1
Chain	1
Cuff Link	1
Ear Ornament	6
Hoop	1
Nose Bangle	2
Ornament Fragment	1
Scrap	1
Sheet Fragment	1
Fragment	1

Table B.2. Locus 3 Artifacts Recovered from Excavated Contexts (continued).

Material Description	Count
Tar	
Wad (Dried)	1
Indeterminate Metal	
Coin	1
Button (Britannia)	1
Total	**19009**

Table B.3. Locus 4 Artifacts Recovered from Excavated Contexts.

Material Description	Count
Bone	
Animal Bone Fragment	10
Animal Bone Fragment (vial)	18
Brass	
Buckle	1
Button	16
Cap Plate	1
Chain Fragment	1
Jews Harp	1
Musket Buttplate Fragment	1
Screw	2
Tack	18
Thimble	2
Fragment (with Silver)	1
Charcoal	
Charred Peachpit	1
Fragment	320
Fragment (bag)	40
Chipped Stone	
Gunflint	6
Clay/Ceramic	
Catawba Sherd	10083
Clay Pipe Fragment	71
Clay Pipe (Toy)	1
Daub Fragment	9
Decorated Ceramic Object	1
European Sherd	2761
Fired Clay Fragment	2270
Fired Clay Fragment (bag)	28
Fired Clay Object	6
Kaolin Pipe Fragment	1
Glass	
Bead	32
Bottle Fragment	10
Mirror Fragment	2
Stemware Fragment	3
Stopper	2
Stopper Fragment	1
Fragment	23
Iron	
Bar Fragment	1
Bar Fragment (Flattened)	1

Table B.3. Locus 4 Artifacts Recovered from Excavated Contexts (continued).

Material Description	Count
Chain Fragment (from Snaffle Bit)	6
Chain Link Fragment (Large)	2
Finial (?)	1
Fork (with Bone Handle)	1
Fork Fragment	1
Hook	1
Jew's Harp Fragment	1
Kettle Lug	1
Knife (?)	1
Knife Fragment	2
Knife Blade Fragment	5
Lug	1
Nail (Cut)	265
Rod Fragment	1
Rod Fragment (Curved)	1
Snaffle Bit	1
Sheet Fragment	89
Spindle	1
Strap Fragment	1
Tack	9
Wire Fragment	1
Object	11
Fragment	88
Lead	
Button	1
Sheet Fragment	1
Sheet Fragment (Folded)	1
Sheet Fragment (Rolled)	2
Shot (Flattened)	1
Sprue	1
Paint	
Red Pigment Fragment	12
Pewter	
Button	3
Spoon Handle	1
Silver	
Finger Ring	1
Nose Bangle	2
Sheet Fragment	1
Triangle (Cut)	1
Fragment (Cut)	1

Table B.3. Locus 4 Artifacts Recovered from Excavated Contexts (continued).

Material Description	Count
Stone	
Polished Pebble	2
Polishing Stone	4
Quartz Crystal	1
Total	**16272**

Table B.4. Locus 5 Artifacts Recovered from Excavated Contexts.

Material Description	Count
Bone	
Animal Bone Fragment	95
Animal Bone Fragment (bag)	11
Animal Bone Fragment (calcined)	2
Animal Bone Fragment (pig tooth)	2
Button	1
Knife Handle Fragment	1
Brass	
Buckle	1
Button	18
Coin (half-pence)	1
Fastener	1
Jews Harp	1
Spoon Fragment	2
Straight Pin	2
Tack	3
Thimble	1
Charcoal	
Charred Peachpit	2
Fragment	67
Fragment (bag)	57
Chipped Stone	
Gunflint	3
Gunflint Flake	1
Clay/Ceramic	
Catawba Sherd	10010
Ceramic Object	1
Clay Pipe Fragment	128
Clay Pipe Fragment (Glazed)	1
Clay Pipe Fragment (Re-worked)	1
Daub Fragment	13
European Sherd	1866
Fired Clay Fragment	372
Fired Clay Fragment (bag)	40
Ground Clay Disk	1
Glass	
Bead	38
Bottle Fragment	11
Mirror Fragment	1
Fragment	50
Groundstone	
Whetstone	1

Table B.4. Locus 5 Artifacts Recovered from Excavated Contexts (continued).

Material Description	Count
Iron	
Band	1
Bar Fragment	1
Blade	2
Buckle	3
Fish Spear Tip	1
Fork	2
Fork Handle	1
Hook	3
Horseshoe	1
Knife Fragment	2
Knife Blade	3
Nail (Cut)	88
Nail (Wrought)	1
Pocketknife	1
Rod Fragment	4
Scissors	1
Snaffle Bit	3
Sheet Fragment	57
Spike	2
Spoon Bowl	1
Triangular File	1
Vessel Fragment	3
Wire Fragment	1
Wire Coil Fragment	1
Object	6
Fragment	11
Lead	
Ball	1
Button	2
Sheet Fragment	1
Shot	6
Paint	
Orange Paint Lump	2
Red Pigment Fragment	40
Pewter	
Button	3
Object	1
Fragment	3
Shell	
Eggshell Fragment	3
Eggshell Fragment (vial)	2

Table B.4. Locus 5 Artifacts Recovered from Excavated Contexts (continued).

Material Description	Count
Snail Shell (bag)	1
Fragment	8
Silver	
Cufflink	1
Spoon	1
Fragment	6
Fragment (Cut)	1
Stone	
Polished Stone	1
Polishing Pebble (?)	1
Indeterminate	
Burnt Object	1
Total	**13092**

Table B.5. Locus 6 Artifacts Recovered from Excavated Contexts.

Material Description	Count
Bone	
Animal Bone Fragment	66
Animal Bone Fragment (bag)	15
Animal Bone Fragment (calcined)	64
Animal Bone Fragment (cow tooth)	1
Animal Bone Fragment (pig tooth)	1
Bone Button	3
Brass	
Button	22
Cone (Flattened)	1
Escutcheon	1
Jacknife Bolster	1
Jews Harp	3
Knife Hilt Plate	1
Loop	1
Straight Pin	2
Swingle	1
Tack	1
Thimble	1
Cut Strip Fragment	1
Wire Ring Fragment	1
Charcoal	
Charred Nutshell	1
Charred Peachpit	2
Fragment	149
Fragment (bag)	20
Chipped Stone	
Gunflint	3
Gunflint Flake	1
Hoe	1
Clay/Ceramic	
Catawba Sherd	21071
Clay Ball Fragment	1
Clay Marble	2
Clay Pipe Fragment	168
Daub Fragment	11
European Sherd	4657
Fired Clay Fragment	521
Fired Clay Fragment (bag)	16
Fired Clay Fragment (painted)	5
Fired Clay Object	17
Fired Clay Wad	1
Ground Pottery Disk	1

Table B.5. Locus 6 Artifacts Recovered from Excavated Contexts (continued).

Material Description	Count
Kaolin Pipe Fragment	1
Potter's Clay Lump	2
Glass	
Ball (Blue)	1
Bead	27
Bottle Fragment	17
Mirror Fragment	5
Stemware Fragment	1
Stopper	2
Tube	1
Fragment	691
Groundstone	
Polishing Stone	2
Polishing Stone Fragment	1
Iron	
Bar Bit	1
Bar Fragment	1
Bolt	1
Bolt and Plate	1
Buckle	4
Fish Spear	1
Fork	3
Hasp (?)	1
Hook	1
Jacknife	1
Jacknife Blade	1
Key	1
Nail (Cut)	118
Rod Fragment	5
Scissors Fragment	4
Shears	1
Sheet Fragment	8
Spoon	1
Square Stock	2
Tack	1
Triangular File Fragment	3
Vessel Fragment	1
Wire Fragment	4
Object	4
Fragment	7
Lead	
Ball	2

Table B.5. Locus 6 Artifacts Recovered from Excavated Contexts (continued).

Material Description	Count
Musket Ball	1
Sheet Fragment (Rolled)	2
Shot	4
Paint	
Red Pigment Fragment	1
Pewter	
Button	4
Spoon Fragment	2
Fragment	3
Shell	
Eggshell Fragment	2
Scallop Shell Fragment	2
Fragment	7
Silver	
Earring	1
Nose Bangle	1
Sheet Fragment	1
Sheet Fragment (Rolled)	1
Sheet Fragment (Rolled and Flattened)	1
Sheet Fragment (Triangle shaped)	1
Fragment	3
Stone	
Quartz Crystal	1
Total	**27802**

Table B.6. Locus 7 Artifacts Recovered from Excavated Contexts.

Material Description	Count
Charcoal	
Fragment	1
Fragment (bag)	1
Clay/Ceramic	
Catawba Sherd	278
European Sherd	17
Fired Clay Fragment	7
Glass	
Mirror Fragment	1
Fragment	4
Iron	
Chain Fragment	1
Nail (Cut)	4
Lead	
Sprue	1
Total	**315**

Appendix C. Physical and Chemical Characteristics of the Locus 4 Sediment Samples.

Sample ID	Munsell Value	Munsell Description	pH	Salinity (ppm)	Element											
					Al (ppm)	Ba (ppm)	Ca (ppm)	Cu (ppm)	Fe (ppm)	K (ppm)	Mg (ppm)	Mn (ppm)	Na (ppm)	P (ppm)	Sr (ppm)	Zn (ppm)
605R1170	10YR 7/2	light gray	3.8	79	257.13	3.99	10.73	0.86	35.33	17.62	8.26	1.23	11.24	2.29	0.21	1.20
605R1171	10YR 6/2	light brownish gray	3.7	76	237.73	5.48	48.58	0.43	31.93	18.32	10.12	3.94	5.17	3.15	1.01	1.69
605R1172	10YR 6/2	light brownish gray	3.6	121	212.27	8.75	24.92	0.66	37.46	19.49	10.96	6.97	5.60	3.68	0.43	1.14
606R1170	10YR 7/2	light gray	3.7	86	195.71	3.64	16.61	0.93	18.04	13.74	9.68	1.87	6.61	1.72	0.27	1.07
606R1171	10YR 6/2	light brownish gray	3.7	143	273.31	8.31	106.72	1.46	42.57	60.86	29.62	30.66	14.31	8.49	1.30	3.42
606R1172	10YR 6/2	light brownish gray	3.7	93	198.85	5.19	33.52	0.52	38.34	26.25	12.14	6.27	8.26	3.82	0.48	1.12
619R1190	10YR 8/2	very pale brown	4.1	39	180.41	3.75	4.87	1.16	14.68	6.72	2.00	0.93	4.53	0.00	0.08	0.41
619R1191	10YR 8/2	very pale brown	4.2	41	199.30	3.40	6.59	1.10	7.93	12.50	3.08	1.51	7.80	0.00	0.07	0.57
619R1192	10YR 7/2	light gray	3.8	71	234.66	4.98	57.99	1.01	31.04	18.24	9.96	11.50	4.31	2.42	0.54	1.38
620R1190	10YR 7/2	light gray	3.8	50	204.00	3.75	11.75	0.88	22.39	13.52	5.04	1.61	9.12	0.00	0.19	0.75
620R1191	10YR 7/2	light gray	4.0	67	216.30	3.27	7.90	8.55	14.23	18.18	4.38	2.67	6.01	0.00	0.11	1.13
620R1192	10YR 7/2	light gray	4.1	47	230.99	3.89	4.07	0.76	11.99	8.80	2.32	0.54	3.82	0.00	0.05	0.42
621R1190	10YR 7/2	light gray	3.7	81	206.73	4.30	34.06	0.45	45.74	16.82	11.80	3.72	5.75	3.11	0.48	1.12
621R1191	10YR 7/2	light gray	3.9	92	211.05	4.12	33.94	0.23	38.41	10.58	7.32	3.84	3.85	1.86	0.40	0.60
621R1192	10YR 6/2	light brownish gray	3.8	86	237.83	4.27	10.65	0.65	25.37	18.90	8.28	1.02	8.76	2.84	0.23	1.13
634R1180	10YR 7/2	light gray	3.8	70	187.68	3.23	21.88	0.46	37.36	16.84	8.68	2.45	5.70	1.96	0.28	0.93
634R1181	10YR 8/2	very pale brown	4.2	48	140.06	4.36	19.02	0.35	22.00	14.33	7.08	1.04	12.46	0.00	0.21	0.42
634R1182	10YR 6/2	light brownish gray	3.7	86	301.44	5.73	41.98	0.34	29.90	19.06	7.52	2.14	6.01	1.86	0.40	1.05
635R1181	10YR 7/2	light gray	3.8	64	206.52	2.75	8.60	0.61	38.07	14.38	5.47	0.45	12.08	1.99	0.12	0.94
635R1182	10YR 7/3	very pale brown	4.0	45	219.06	2.59	5.75	0.72	24.05	11.35	3.10	0.34	5.58	0.00	0.06	0.67
635R1183	10YR 8/2	very pale brown	4.0	56	239.50	3.22	8.93	0.66	15.27	10.93	2.85	0.82	6.07	0.00	0.10	0.49
638R1173	10YR6/1	gray	3.6	88	236.02	3.49	15.28	0.33	64.12	18.29	6.75	3.23	7.70	3.58	0.32	0.96
638R1174	10YR 6/2	light brownish gray	3.5	126	226.93	4.63	27.34	0.48	68.16	29.47	11.81	2.34	12.85	3.99	0.58	1.07
638R1175	10YR 7/2	light gray	3.9	92	157.62	4.07	75.68	0.88	30.26	19.85	10.48	17.11	12.29	3.05	0.71	1.14
638R1176	7.5YR 7/1	light gray	3.8	85	184.04	3.43	49.33	0.47	54.13	19.23	11.92	5.03	8.72	2.76	0.59	1.23
639R1173	10YR 7/2	light gray	3.4	120	446.20	7.80	29.55	1.29	98.01	32.66	17.61	2.44	12.04	7.21	0.74	2.86
639R1174	10YR 6/2	light brownish gray	3.6	103	498.41	10.63	30.04	0.78	137.53	54.23	22.29	3.83	40.69	4.64	0.77	1.70
639R1175	10YR 6/1	gray	3.8	93	449.26	8.79	46.07	0.44	108.17	38.07	18.62	10.78	33.35	4.40	0.54	1.47
639R1176	10YR 7/2	light gray	4.0	66	624.14	15.57	29.60	1.04	142.70	52.41	33.06	2.68	93.63	0.00	0.73	1.48
640R1173	10YR 6/1	gray	3.5	151	268.80	7.21	54.60	2.29	69.02	54.92	26.56	7.17	14.27	9.70	1.15	3.02
640R1174	10YR 6/1	gray	3.6	136	312.77	10.86	111.35	0.64	83.17	59.16	29.28	18.62	17.22	9.84	1.72	3.52
640R1175	10YR 7/1	light gray	3.6	89	178.17	5.73	20.85	3.66	47.74	32.35	10.42	2.16	18.48	0.00	0.34	1.94
640R1176	10YR 7/1	light gray	3.8	87	191.43	5.51	31.16	0.92	42.35	25.74	14.24	1.85	20.52	3.88	0.51	1.50
641R1173	10YR7/2	light gray	3.5	114	164.40	5.99	62.79	0.57	45.87	36.42	16.74	7.62	11.81	6.01	1.12	2.05
641R1174	10YR 7/1	light gray	3.7	102	257.23	6.21	40.55	1.06	52.94	35.90	13.49	5.35	23.34	5.07	0.63	2.12
641R1175	10YR 6/1	gray	3.5	156	325.86	7.65	64.89	1.04	63.65	52.54	25.08	3.77	18.20	10.04	1.23	3.89
641R1176	10YR 7/2	light gray	4.0	64	157.25	10.66	30.48	1.17	27.56	30.03	24.82	1.83	51.94	0.00	0.69	1.02

Appendix C. Physical and Chemical Characteristics of the Locus 4 Sediment Samples (continued).

Sample ID	Munsell Value	Munsell Description	pH	Salinity (ppm)	Element											
					Al (ppm)	Ba (ppm)	Ca (ppm)	Cu (ppm)	Fe (ppm)	K (ppm)	Mg (ppm)	Mn (ppm)	Na (ppm)	P (ppm)	Sr (ppm)	Zn (ppm)
642R1173	2.5Y7/2	light gray	3.8	74	186.30	4.96	11.43	0.53	50.68	18.18	9.52	1.74	11.09	2.91	0.24	1.22
642R1174	10YR 7/2	light gray	3.8	74	171.20	5.48	31.74	0.48	43.99	21.76	12.45	4.04	22.31	0.00	0.41	1.45
642R1175	10YR8/2	very pale brown	3.7	85	207.80	6.13	45.67	0.89	20.69	20.36	7.73	3.61	14.33	0.00	0.85	1.45
642R1176	10YR 7/2	light gray	3.9	66	85.31	1.54	20.34	0.22	17.55	6.26	2.79	2.63	6.26	0.00	0.26	0.45
642R1177	10YR7/2	light gray	3.9	84	101.29	2.91	7.86	0.30	20.61	9.35	4.64	1.21	9.50	0.00	0.17	0.39
643R1172	2.5Y8/1	white	3.9	86	117.36	4.42	11.20	0.48	35.44	13.13	8.40	1.60	4.87	0.00	0.24	0.72
643R1173	10YR 7/2	light gray	3.7	89	150.76	6.68	27.57	1.12	15.26	17.13	8.85	8.22	8.30	0.00	0.53	1.42
643R1174	2.5Y 7/2	light gray	3.8	64	252.97	7.19	26.37	0.49	20.20	34.45	11.07	26.14	9.78	0.00	0.35	1.78
643R1175	10YR 8/1	white	4.3	28	135.44	13.52	14.82	0.61	11.29	18.23	15.33	32.05	20.31	0.00	0.30	0.66
643R1176	2.5Y 7/2	light gray	3.8	60	151.17	2.68	8.03	0.23	16.80	10.93	4.97	1.31	3.45	0.00	0.16	0.48
643R1177	10YR 7/2	light gray	3.9	64	136.12	5.15	7.81	0.22	17.40	10.48	9.89	0.99	13.25	0.00	0.28	0.34
643R1178	2.5Y8/1	white	3.9	79	195.01	5.94	12.86	0.56	35.09	20.55	10.74	1.06	26.29	0.00	0.26	0.79
643R1179	10YR 7/2	light gray	4.0	63	228.62	7.71	9.93	2.02	46.26	21.11	15.64	0.92	45.37	0.00	0.33	0.74
643R1180	10YR 6/2	light brownish gray	3.7	69	273.49	4.73	8.45	0.94	36.37	22.58	7.53	0.93	7.27	1.64	0.16	1.02
643R1181	10YR 6/2	light brownish gray	3.7	115	273.61	3.27	7.73	1.69	42.04	17.86	5.38	0.67	5.55	0.00	0.09	0.81
643R1182	10YR 7/2	light gray	3.6	87	258.57	2.73	16.84	1.50	36.02	22.06	8.55	1.15	9.29	2.13	0.30	1.39
643R1183	10YR 6/2	light brownish gray	3.7	109	210.37	2.89	10.54	0.79	34.31	15.24	8.83	0.91	6.54	2.07	0.23	1.13
643R1184	10YR 6/2	light brownish gray	3.6	88	193.70	3.17	23.66	0.51	35.17	15.51	8.67	1.42	6.96	2.34	0.31	0.80
643R1185	10YR 7/2	light gray	3.7	111	215.67	9.64	89.02	0.41	50.70	31.63	21.90	10.36	10.89	2.76	0.90	0.99
643R1186	10YR 7/2	light gray	3.8	67	194.75	5.13	16.21	0.77	29.50	12.58	6.55	3.93	7.31	0.00	0.21	0.71
643R1187	10YR 7/2	light gray	3.7	113	205.76	5.39	41.55	0.33	20.71	18.96	11.60	4.91	8.04	2.43	0.80	1.06
643R1188	10YR 7/2	light gray	3.8	100	164.27	5.71	89.13	0.37	43.59	13.53	8.19	2.61	3.85	1.65	0.99	0.61
644R1172	2.5Y8/2	pale yellow	4.0	88	150.56	9.42	43.86	0.40	15.78	19.52	34.42	3.43	43.18	0.00	1.16	0.66
644R1173	10YR 7/2	light gray	3.9	81	115.27	3.09	14.15	0.12	7.80	9.07	5.25	9.13	4.56	0.00	0.21	0.57
644R1174	10YR 7/2	light gray	4.1	71	210.29	12.80	7.46	1.29	13.47	19.19	10.42	5.97	17.73	0.00	0.16	0.82
644R1175	10YR8/3	very pale brown	3.9	78	280.93	14.48	22.19	0.81	12.53	30.14	12.12	7.38	12.40	0.00	0.23	0.93
Fea. 1 Zone	7.5YR6/4	light brown	3.9	49	274.10	14.53	9.03	0.22	5.61	39.73	12.25	3.71	17.60	0.00	0.12	2.44
Fea. 1 Zone	10YR 7/3	very pale brown	3.9	43	145.39	9.70	9.25	0.40	5.84	27.74	14.00	0.99	13.23	0.00	0.14	0.32
644R1176	10YR 7/2	light gray	3.8	58	108.95	1.18	2.23	0.18	15.45	4.52	2.03	0.22	5.64	0.00	0.05	0.43
644R1177	10YR 7/2	light gray	3.9	61	88.71	0.89	7.91	0.20	31.22	8.06	2.44	0.22	2.34	0.00	0.08	0.27
644R1178	10YR 7/2	light gray	3.8	87	173.17	5.18	22.24	1.09	56.90	20.82	8.36	1.47	6.87	1.92	0.41	0.94
644R1179	2.5Y 7/2	light gray	4.1	56	142.28	4.41	18.07	1.70	35.69	26.06	10.00	3.30	14.57	0.00	0.22	0.73
644R1180	10YR 6/2	light brownish gray	3.8	72	201.55	3.45	22.25	5.53	31.93	17.72	8.47	2.57	7.65	1.80	0.26	0.86
644R1181	10YR 7/2	light gray	3.9	74	209.93	2.23	7.08	1.72	32.08	11.76	3.85	0.42	4.70	0.00	0.06	0.57
644R1182	10YR 6/2	light brownish gray	3.7	90	292.17	3.81	12.95	0.71	31.10	21.75	11.23	1.46	5.80	2.80	0.21	0.85
644R1183	10YR 7/2	light gray	3.9	68	197.46	2.29	5.15	1.02	31.50	15.30	4.81	0.40	8.90	0.00	0.03	0.55
644R1184	10YR 6/2	light brownish gray	3.8	63	196.49	2.95	11.07	1.44	30.90	14.75	7.65	0.96	4.82	0.00	0.16	0.61

Appendix C. Physical and Chemical Characteristics of the Locus 4 Sediment Samples (continued).

Sample ID	Munsell Value	Munsell Description	pH	Salinity (ppm)	Element											
					Al (ppm)	Ba (ppm)	Ca (ppm)	Cu (ppm)	Fe (ppm)	K (ppm)	Mg (ppm)	Mn (ppm)	Na (ppm)	P (ppm)	Sr (ppm)	Zn (ppm)
644R1185	10YR 7/2	light gray	4.0	75	162.17	26	94.15	0.94	40.65	19.64	18.52	3.67	33.65	0.00	1.10	0.00
644R1186	10 YR 6/2	light brownish gray	4.1	75	93.82	25.84	272.59	1.26	8.76	18.20	17.94	36.77	47.09	9.69	2.50	0.96
644R1187	10YR 7/2	light gray	3.7	90	190.29	3.35	14.61	0.57	41.63	18.32	6.65	1.87	6.39	1.70	0.26	0.55
644R1188	10YR 7/2	light gray	3.8	72	197.43	3.51	20.01	0.21	29.85	18.72	7.60	2.36	4.39	0.00	0.27	0.57
645R1172	10YR 7/2	light gray	4.0	55	159.07	7.14	31.30	0.67	44.57	23.07	13.43	5.59	10.97	0.00	0.33	0.64
645R1173	10YR 7/2	light gray	3.9	87	197.52	7.59	51.27	0.28	37.94	28.45	17.58	6.27	12.26	0.00	0.78	1.44
645R1174	10YR8/2	very pale brown	4.1	65	135.91	4.86	25.93	0.52	21.24	17.09	9.60	9.06	10.49	0.00	0.24	0.74
645R1175	10YR 7/2	light gray	3.9	72	192.65	7.84	26.35	2.08	25.20	19.04	19.20	1.84	15.87	0.00	0.52	1.18
645R1176	10YR 7/2	light gray	3.8	70	160.72	3.13	8.42	1.16	43.89	10.24	6.64	0.43	6.92	0.00	0.19	0.70
645R1177	10YR 6/1	gray	3.6	106	208.92	2.65	26.33	0.52	57.81	24.48	12.73	1.01	8.75	4.37	0.52	1.35
645R1178	10YR 7/1	light gray	3.7	107	227.54	4.00	12.63	1.05	41.22	20.53	8.94	0.87	12.65	2.79	0.23	0.89
645R1179	10YR 7/2	light gray	3.8	89	221.15	3.37	9.95	1.02	80.11	20.82	6.77	0.74	5.48	1.74	0.15	0.74
645R1180	10YR 7/2	light gray	4.1	44	167.60	3.60	12.19	6.30	25.48	14.72	7.03	1.76	7.62	0.00	0.18	0.51
645R1181	10YR 7/2	light gray	3.8	74	255.67	3.35	22.70	3.52	31.90	21.13	8.98	0.66	10.58	2.15	0.30	0.83
645R1182	2.5Y 7/1	light gray	3.7	112	168.23	1.73	14.99	2.54	36.03	28.73	10.00	1.49	4.84	2.71	0.22	1.30
645R1183	10YR 7/2	light gray	3.8	62	206.58	2.51	8.88	0.58	24.69	16.85	8.08	0.78	6.65	0.00	0.11	0.86
645R1184	10YR 6/2	light brownish gray	3.8	73	213.26	2.77	8.13	1.91	48.36	16.85	7.34	0.61	8.92	0.00	0.14	0.73
645R1185	2.5Y7/2	light gray	4.0	96	126.93	19.16	168.82	0.84	23.39	15.87	19.53	32.72	76.04	0.00	2.74	1.18
645R1186	10YR 7/2	light gray	4.5	53	112.84	17.92	116.93	0.48	5.86	11.19	8.98	50.59	19.47	0.00	1.23	0.41
645R1187	10YR 7/2	light gray	4.0	77	152.79	3.93	32.89	0.44	51.01	19.71	9.56	3.43	9.75	0.00	0.30	0.41
645R1188	10YR 6/2	light brownish gray	3.9	67	177.16	4.42	62.15	0.49	24.77	19.72	13.39	5.07	6.47	1.78	0.54	0.69
646R1172	10YR 7/2	light gray	4.1	64	166.57	3.81	11.00	0.48	21.80	18.01	4.85	0.90	8.87	0.00	0.10	1.85
646R1173	10YR 7/2	light gray	4.1	67	141.56	7.89	31.72	1.39	17.75	22.13	21.81	3.83	43.64	0.00	0.58	0.69
646R1174	10YR 7/1	light gray	4.0	62	142.48	4.74	14.58	0.75	25.47	12.05	7.93	1.20	21.76	0.00	0.22	0.52
646R1175	10YR 7/2	light gray	4.1	65	59.48	2.69	10.84	0.10	8.62	5.81	6.65	0.47	17.14	0.00	0.18	0.34
646R1176	10YR 7/2	light gray	3.9	74	112.94	2.03	14.25	0.20	27.19	8.76	4.87	0.56	2.31	0.00	0.20	0.40
646R1177	10YR 7/2	light gray	4.0	65	129.89	3.34	7.15	0.44	15.95	6.54	5.58	1.03	16.51	0.00	0.17	0.57
646R1178	10YR 7/2	light gray	3.8	70	195.20	3.86	11.71	1.27	47.14	17.18	6.91	0.75	9.36	0.00	0.24	0.75
646R1179	10YR 7/2	light gray	3.9	89	160.53	3.50	18.41	1.52	27.99	19.90	8.36	1.53	10.24	1.67	0.30	0.69
646R1180	10YR8/2	very pale brown	3.9	75	144.92	3.45	28.06	7.87	20.26	12.25	6.59	4.71	10.83	0.00	0.29	0.88
646R1181	10YR 7/2	light gray	4.1	76	148.84	3.12	30.09	3.66	19.26	32.47	12.77	2.44	14.36	2.59	0.32	1.23
646R1182	10YR 7/2	light gray	4.0	45	157.85	2.53	6.53	2.48	13.21	13.17	4.69	0.80	8.53	0.00	0.07	0.64
646R1183	10YR 7/3	very pale brown	4.0	55	176.90	2.14	6.47	1.63	16.34	18.03	5.98	0.74	7.28	0.00	0.07	0.40
646R1184	10YR 7/2	light gray	3.9	85	234.66	3.43	13.12	2.76	37.66	17.59	6.80	3.87	8.98	0.00	0.16	0.84
646R1185	10YR 7/2	light gray	4.1	66	178.14	9.41	29.19	1.43	25.36	21.23	10.61	5.63	39.37	0.00	0.46	1.03
646R1186	10YR 6/2	light brownish gray	4.5	49	165.73	9.91	14.56	0.53	9.03	15.22	6.23	76.87	6.30	0.00	0.28	0.67
646R1187	10YR 7/2	light gray	3.9	68	179.05	3.59	7.94	1.77	24.82	17.31	5.53	1.23	7.80	0.00	0.12	1.00

Appendix C. Physical and Chemical Characteristics of the Locus 4 Sediment Samples (continued).

Sample ID	Munsell Value	Munsell Description	pH	Salinity (ppm)	Element											
					Al (ppm)	Ba (ppm)	Ca (ppm)	Cu (ppm)	Fe (ppm)	K (ppm)	Mg (ppm)	Mn (ppm)	Na (ppm)	P (ppm)	Sr (ppm)	Zn (ppm)
646R1188	10YR 7/2	light gray	4.0	57	179.39	3.76	10.41	0.93	17.82	28.31	6.63	1.35	7.35	0.00	0.12	0.54
647R1172	10YR 7/2	light gray	4.0	78	193.99	5.12	11.69	0.83	30.64	19.72	8.83	1.32	24.27	0.00	0.19	0.64
647R1173	10YR 7/2	light gray	4.0	65	163.01	6.98	18.08	0.72	17.69	23.44	14.94	1.77	28.52	0.00	0.30	0.65
647R1174	10YR 7/2	light gray	4.0	85	186.44	9.71	38.12	1.77	49.33	25.66	25.08	4.24	48.84	0.00	0.64	0.92
647R1175	10YR 7/2	light gray	4.1	63	83.15	3.77	14.81	0.21	11.02	6.83	8.66	0.90	28.06	0.00	0.28	0.23
647R1176	10YR 7/2	light gray	3.8	77	111.85	1.45	10.78	0.22	15.33	8.55	4.14	1.24	4.02	0.00	0.11	0.47
647R1177	10YR 7/2	light gray	3.8	90	70.24	1.40	11.35	0.15	11.18	5.55	3.46	0.85	7.38	0.00	0.12	0.61
647R1178	10YR 7/2	light gray	4.1	40	177.42	4.92	9.01	1.23	31.64	23.10	8.14	0.95	20.13	0.00	0.14	0.58
647R1179	10YR 7/2	light gray	4.0	54	170.40	3.10	9.41	1.19	26.91	21.13	6.03	0.68	9.37	0.00	0.11	0.41
647R1180	10YR 7/2	light gray	3.8	80	189.02	3.91	26.76	1.19	41.93	26.90	9.89	8.08	11.36	2.01	0.40	0.72
647R1181	10YR 7/2	light gray	3.9	76	228.71	4.85	14.45	8.57	25.95	28.69	9.54	2.64	12.72	2.52	0.22	1.40
647R1182	10YR 8/2	very pale brown	4.0	39	227.95	3.78	8.46	4.89	17.67	16.60	6.87	1.02	17.91	0.00	0.11	0.37
647R1183	2.5Y 7/2	light gray	3.7	122	286.99	7.00	31.93	1.23	29.84	26.01	18.34	6.98	9.43	5.12	0.61	1.81
647R1184	10YR 7/2	light gray	3.9	83	191.41	3.08	16.18	2.02	31.97	25.33	9.46	1.44	8.74	1.79	0.18	0.91
647R1185	2.5Y 7/2	light gray	4.1	47	172.53	6.37	12.38	0.82	22.59	20.50	7.93	7.03	20.03	0.00	0.13	0.87
647R1186	10YR7/2	light gray	3.9	74	152.01	4.26	15.97	0.21	15.71	18.63	6.25	9.10	8.14	0.00	0.20	0.60
647R1187	10YR 7/2	light gray	4.1	83	166.65	4.33	12.20	1.14	13.15	36.67	11.86	9.16	11.36	0.00	0.12	0.58
647R1188	10YR 7/2	light gray	3.8	66	177.00	2.65	7.24	1.33	21.61	19.59	5.06	1.09	8.70	0.00	0.09	0.59
648R1172	2.5Y 7/2	light gray	4.0	81	175.35	5.84	14.30	0.92	37.35	26.74	14.12	1.57	22.67	0.00	0.29	0.22
648R1173	10YR 6/2	light brownish gray	4.1	93	196.40	26.00	20.70	1.18	38.86	30.43	19.13	28.92	31.36	2.23	0.46	0.56
648R1174	10YR 7/2	light gray	3.9	83	234.33	7.46	49.68	1.89	43.78	28.95	24.66	5.92	54.44	4.75	0.73	1.77
648R1175	10YR 7/2	light gray	3.8	94	224.55	8.68	39.10	0.34	20.57	29.92	17.05	6.08	11.32	0.00	0.58	1.33
648R1176	10YR 7/2	light gray	3.9	62	174.00	5.13	32.93	0.33	34.82	20.96	9.67	4.93	7.99	0.00	0.48	0.96
648R1177	10YR 6/2	light brownish gray	3.7	106	239.18	5.68	23.83	0.36	36.40	24.15	10.90	9.64	9.05	0.00	0.50	1.16
648R1178	10YR 7/1	light gray	3.8	93	179.07	4.25	15.86	1.59	25.28	20.97	7.08	5.09	9.44	0.00	0.24	0.71
648R1179	10YR 7/2	light gray	3.7	92	156.80	3.13	24.18	2.54	44.78	21.89	8.12	1.95	10.72	0.00	0.24	0.75
648R1180	10YR 7/2	light gray	3.8	68	171.80	2.86	13.96	0.71	39.02	17.55	7.02	2.82	8.13	2.57	0.16	0.70
648R1181	10YR 7/2	light gray	3.8	67	179.28	3.09	8.00	1.46	36.21	19.36	7.26	2.01	4.96	0.00	0.12	0.74
648R1182	10YR 7/2	light gray	4.0	56	226.90	3.61	7.57	1.83	24.43	16.50	7.22	0.87	5.50	0.00	0.09	0.90
648R1183	10YR 7/2	light gray	4.0	44	208.04	3.58	7.12	2.87	20.45	15.66	4.97	1.05	4.71	0.00	0.07	1.09
648R1184	10YR 7/2	light gray	3.9	49	169.79	3.49	8.91	2.06	21.56	20.75	9.37	1.08	10.24	1.67	0.13	1.24
648R1185	10YR 7/2	light gray	4.0	66	189.20	3.27	8.27	1.67	19.70	15.56	5.85	1.29	8.15	0.00	0.10	0.80
648R1186	10YR 7/1	light gray	3.8	60	177.71	6.58	17.72	1.72	20.01	29.39	8.76	4.45	9.75	0.00	0.23	0.53
648R1187	10YR 7/2	light gray	4.0	59	192.11	5.14	17.54	1.17	22.70	34.19	13.36	8.21	10.93	1.81	0.24	0.72
648R1188	10YR 7/2	light gray	3.9	67	181.68	2.73	7.90	0.92	29.68	29.34	7.99	0.96	6.20	1.82	0.14	0.61
649R1172	10YR 7/1	light gray	3.8	70	175.39	5.07	19.13	1.69	40.11	34.63	15.11	1.97	19.09	2.16	0.40	1.08
649R1173	10YR 6/2	light brownish gray	3.5	140	160.23	4.63	77.11	0.78	46.49	52.32	28.08	8.91	16.54	7.79	1.10	1.44

Appendix C. Physical and Chemical Characteristics of the Locus 4 Sediment Samples (continued).

Sample ID	Munsell Value	Munsell Description	pH	Salinity (ppm)	Element											
					Al (ppm)	Ba (ppm)	Ca (ppm)	Cu (ppm)	Fe (ppm)	K (ppm)	Mg (ppm)	Mn (ppm)	Na (ppm)	P (ppm)	Sr (ppm)	Zn (ppm)
649R1174	10YR 7/2	light gray	3.9	65	177.00	5.16	23.56	0.77	49.01	20.21	8.67	3.06	12.95	0.00	0.31	0.83
649R1175	10YR 6/2	light brownish gray	3.7	73	230.73	6.46	35.98	1.12	60.61	18.80	13.44	2.60	26.42	2.42	0.59	1.23
649R1176	10YR 7/2	light gray	3.9	51	176.04	5.38	12.97	2.25	33.40	13.90	7.50	1.16	20.35	0.00	0.23	0.71
649R1177	10YR 7/2	light gray	3.9	57	179.20	4.61	10.74	1.22	31.86	14.64	7.22	1.63	13.53	0.00	0.15	0.59
649R1178	10YR 7/2	light gray	4.1	55	158.66	3.95	7.55	1.90	18.10	16.09	6.57	1.25	14.26	0.00	0.12	0.67
649R1179	10YR 7/2	light gray	3.8	68	198.05	3.80	8.75	1.88	21.68	12.20	5.02	1.45	6.54	0.00	0.13	0.66
649R1180	10YR 6/2	light brownish gray	3.7	172	380.60	7.49	58.93	1.13	23.76	54.10	18.80	43.01	15.47	7.18	0.82	2.09
649R1181	10YR 7/2	light gray	3.8	67	175.12	3.91	22.15	3.40	28.47	25.03	10.48	2.23	7.24	0.00	0.25	0.99
649R1182	10YR 7/2	light gray	3.9	86	262.08	5.39	19.36	0.69	22.12	17.56	8.76	1.23	8.22	0.00	0.23	1.27
649R1183	10YR 8/1	white	4.0	37	135.34	3.27	14.91	1.29	12.24	24.14	7.64	1.34	9.69	0.00	0.09	0.64
649R1184	10YR 8/2	very pale brown	4.1	62	172.61	3.09	27.62	1.58	13.15	15.66	4.88	4.32	4.93	0.00	0.25	0.60
649R1185	10YR 6/2	light brownish gray	3.9	62	248.32	6.10	22.37	0.80	25.35	26.24	12.02	9.47	14.67	0.00	0.27	0.68
649R1186	10YR 7/2	light gray	4.0	56	178.41	3.98	13.34	1.21	36.91	22.86	7.36	1.57	6.35	0.00	0.16	0.67
649R1187	10YR 7/2	light gray	4.0	60	133.61	4.35	9.70	1.04	18.19	12.67	4.75	2.42	10.36	0.00	0.10	0.40
649R1188	10YR 7/2	light gray	3.8	64	187.23	4.16	13.37	0.47	29.19	17.67	7.16	3.38	4.38	0.00	0.20	0.75
650R1172	10YR 7/1	light gray	3.7	96	249.24	5.84	23.19	2.52	34.86	28.42	11.96	2.57	15.80	2.41	0.38	1.13
650R1173	10YR 7/1	light gray	3.7	111	267.57	4.85	35.88	1.37	53.85	35.32	13.08	6.71	17.97	3.93	0.49	1.52
650R1174	10YR 7/2	light gray	3.8	74	210.13	3.90	14.65	0.59	44.15	18.33	9.33	2.28	13.91	1.69	0.20	0.22
650R1175	10YR 7/2	light gray	3.8	94	176.43	5.60	18.54	0.74	24.60	16.75	8.04	2.31	23.43	2.44	0.28	1.12
650R1176	10YR 6/2	light brownish gray	3.7	71	109.64	2.02	14.19	1.17	16.69	10.50	4.25	0.67	5.24	0.00	0.18	0.75
650R1177	10YR 7/1	light gray	3.9	122	196.58	5.89	68.09	0.46	28.29	19.92	13.97	6.62	2.38	0.00	0.80	0.69
650R1178	10YR 7/2	light gray	3.8	108	155.92	4.08	28.40	0.46	21.49	23.60	7.37	18.23	5.56	2.77	0.45	0.98
650R1179	10Yr 7/1	light gray	3.7	98	293.28	8.68	39.33	2.41	42.31	48.85	17.61	20.19	17.66	5.86	0.65	1.53
650R1180	2.5Y 7/1	light gray	3.9	115	252.84	7.68	49.85	0.98	30.43	51.35	16.39	78	12.22	4.69	0.76	1.97
650R1181	10YR 7/1	light gray	3.8	98	250.64	6.57	19.63	0.94	22.52	29.23	8.05	10.50	8.26	2.42	0.29	0.90
650R1182	2.5Y 7/1	light gray	3.8	87	189.68	4.15	14.11	1.68	17.91	21.53	7.95	1.98	8.34	2.23	0.22	0.78
650R1183	10YR 7/2	light gray	3.8	75	208.71	4.04	14.51	1.47	21.76	21.38	8.93	1.28	7.61	1.74	0.22	0.85
650R1184	10YR 7/2	light gray	3.9	54	209.76	3.05	17.25	1.25	19.94	17.06	11.08	1.59	10.02	1.81	0.23	0.51
650R1185	10YR 7/2	light gray	3.9	89	183.17	4.28	19.61	1.12	24.65	29.55	9.54	2.93	14.60	0.00	0.23	0.76
650R1186	10YR 7/2	light gray	3.9	59	203.67	6.58	18.50	0.92	25.32	18.39	7.58	4.03	9.24	0.00	0.28	0.71
650R1187	10YR 7/2	light gray	4.0	56	150.33	2.83	8.10	0.65	28.39	15.77	5.70	2.68	3.74	0.00	0.10	0.78
650R1188	10YR 7/2	light gray	3.9	67	201.77	5.29	8.54	0.56	10.50	18.63	6.47	2.41	8.66	0.00	0.10	0.31
651R1172	10YR 7/2	light gray	3.9	76	225.56	7.62	21.71	0.83	32.62	25.22	12.89	1.88	16.58	0.00	0.32	0.65
651R1173	10YR 6/2	light brownish gray	3.7	78	200.61	3.76	50.22	8.38	36.72	25.49	15.79	5.94	9.37	3.81	0.52	1.34
651R1174	10YR 6/2	light brownish gray	3.5	127	324.33	6.86	32.64	0.44	45.97	25.51	14.00	3.05	11.16	5.41	0.55	1.39
651R1175	2.5Y 7/2	light gray	3.7	101	327.83	16.26	13.15	0.66	70.53	18.11	8.57	1.58	34.39	2.95	0.26	1.59
651R1176	10YR 7/2	light gray	3.8	82	156.37	3.84	8.88	0.24	23.40	10.36	4.31	1.32	9.29	0.00	0.18	0.41

Appendix C. Physical and Chemical Characteristics of the Locus 4 Sediment Samples (continued).

Sample ID	Munsell Value	Munsell Description	pH	Salinity (ppm)	Element											
					Al (ppm)	Ba (ppm)	Ca (ppm)	Cu (ppm)	Fe (ppm)	K (ppm)	Mg (ppm)	Mn (ppm)	Na (ppm)	P (ppm)	Sr (ppm)	Zn (ppm)
651R1177	10YR 7/2	light gray	3.9	71	132.24	3.41	20.60	0.98	19.17	19.88	6.60	1.67	1.72	0.00	0.33	0.48
651R1178	10YR 7/1	light gray	3.9	73	249.07	5.60	23.45	0.73	22.37	24.82	7.59	7.67	3.54	0.00	0.37	0.88
651R1179	10YR 7/1	light gray	3.9	106	392.59	26	56.02	2.71	23.90	50.05	16.83	61.47	16.66	7.27	0.90	3.31
651R1180	10YR 6/2	light brownish gray	3.7	87	171.81	4.33	19.87	0.66	27.18	27.09	11.54	2.58	10.95	4.10	0.24	0.88
651R1181	10YR 6/1	gray	3.6	135	244.11	10.92	25.14	3.20	34.20	37.76	12.73	5.73	13.55	4.87	0.52	1.77
651R1182	10YR 7/2	light gray	3.7	71	252.70	8.05	24.95	0.26	45.92	23.90	14.97	1.70	13.78	0.00	0.47	0.94
651R1183	10YR 8/2	very pale brown	3.9	76	176.65	3.85	9.10	1.39	20.20	22.61	6.48	0.91	5.68	0.00	0.10	1.19
651R1184	10YR 7/2	light gray	3.9	40	195.39	3.65	12.18	1.63	19.00	13.98	6.42	0.73	9.06	0.00	0.14	0.68
651R1185	10YR 8/2	very pale brown	4.0	58	184.16	3.73	7.89	0.59	18.82	17.75	9.06	0.89	8.28	0.00	0.12	0.56
651R1186	10YR 7-3	very pale brown	3.9	51	230.79	3.19	6.91	0.83	17.00	16.03	5.52	0.69	9.58	0.00	0.10	0.50
651R1187	10YR 7/2	light gray	3.9	46	202.18	5.86	15.75	1.25	10.73	23.71	8.53	7.92	9.60	0.00	0.15	0.95
651R1188	10YR 7/2	light gray	3.9	62	266.97	5.61	13.29	0.19	19.66	18.00	7.71	1.96	7.08	0.00	0.23	0.64
652R1172	2.5Y 6/1	gray	3.5	116	186.48	4.71	20.58	1.59	20.75	24.23	13.37	1.13	10.24	5.46	0.53	1.35
652R1173	10YR 7/1	light gray	3.8	79	184.41	2.43	7.67	1.41	18.34	12.62	4.73	0.86	9.39	0.00	0.13	0.29
652R1174	7.5 YR 6/1	gray	3.6	112	345.21	12.36	234.13	0.88	53.90	78.13	40.35	31.63	24.16	12.10	2.51	3.30
652R1175	10YR 6/2	light brownish gray	3.7	97	282.87	10.77	70.75	4.79	44.78	31.99	21.23	18.54	20.62	5.78	0.92	1.47
652R1176	10YR7/2	light gray	3.7	89	162.31	3.56	6.80	0.25	11.48	7.09	3.18	1.08	7.22	0.00	0.17	0.35
652R1177	10YR 7/2	light gray	3.8	79	86.97	1.90	10.53	0.13	5.56	4.19	2.80	0.64	6.86	0.00	0.10	0.86
652R1178	2.5Y 7/2	light gray	3.8	66	173.21	3.17	5.75	0.37	15.82	8.47	3.28	1.93	4.23	0.00	0.13	0.48
652R1179	2.5Y7/2	light gray	3.8	68	188.24	5.92	15.20	0.97	18.62	13.24	6.87	1.08	16.16	0.00	0.20	1.59
652R1180	10YR7/2	light gray	3.7	90	224.65	6.18	15.90	1.74	24.99	29.68	9.32	1.77	10.01	3.09	0.25	0.47
652R1181	10YR 6/2	light brownish gray	3.6	82	227.42	6.18	21.42	2.58	23.72	20.49	9.34	2.06	9.64	2.46	0.49	1.16
652R1182	10YR 7/3	very pale brown	3.8	72	160.71	3.82	12.34	1.31	16.37	9.11	4.34	0.85	3.11	0.00	0.22	0.55
652R1183	10YR 7/2	light gray	3.8	57	267.43	4.75	10.29	0.99	28.35	21.45	8.52	0.99	10.50	0.00	0.13	1.47
652R1184	10YR 7/3	very pale brown	4.0	44	199.78	3.05	5.90	1.80	18.31	16.20	6.95	0.66	7.00	0.00	0.11	0.56
652R1185	10YR 7/2	light gray	4.1	45	190.49	3.98	7.22	0.66	12.37	15.76	5.59	2.97	6.32	0.00	0.13	0.38
652R1186	10YR 7/2	light gray	3.8	54	253.85	5.70	13.29	1.60	21.75	35.05	10.65	1.08	11.84	3.14	0.18	1.26
652R1187	2.5Y8/2	pale yellow	4.0	79	252.43	5.35	16.16	1.83	25.35	52.02	13.32	6.39	11.05	2.52	0.20	0.73
652R1188	10YR 7/2	light gray	3.8	75	328.87	6.87	16.93	1.39	28.57	41.03	11.30	1.82	9.61	0.00	0.22	1.12
653R1172	10YR 7/2	light gray	3.8	59	188.89	5.39	11.89	0.97	23.76	20.23	10.18	1.22	19.70	0.00	0.23	0.42
653R1173	10YR 7/2	light gray	4.0	62	170.50	4.02	7.38	0.60	18.56	13.74	6.51	0.54	23.80	0.00	0.14	0.37
653R1174	10YR 7/2	light gray	3.7	57	202.13	6.19	29.16	0.80	25.44	12.67	11.02	1.38	14.40	0.00	0.45	1.28
653R1175	10 YR 6/1	gray	3.5	115	242.10	6.98	36.50	1.10	23.33	31.93	14.78	3.44	14.31	3.30	0.51	1.14
653R1176	10YR 6/2	light brownish gray	3.7	74	203.89	6.07	46.15	0.94	24.83	20.65	11.81	3.62	10.58	2.74	0.70	0.89
653R1177	10YR 7/3	very pale brown	4.1	76	201.38	9.78	10.26	3.47	13.55	22.92	7.89	49.79	10.41	0.00	0.20	1.11
653R1178	2.5Y7/2	light gray	3.8	86	209.84	8.84	22.59	2.07	20.51	22.72	11.38	16.61	9.46	1.79	0.39	1.13
653R1179	2.5Y7/2	light gray	3.7	103	172.81	5.11	6.66	0.31	19.71	9.21	5.52	1.56	1.72	0.00	0.18	1.01

Appendix C. Physical and Chemical Characteristics of the Locus 4 Sediment Samples (continued).

Sample ID	Munsell Value	Munsell Description	pH	Salinity (ppm)	Element											
					Al (ppm)	Ba (ppm)	Ca (ppm)	Cu (ppm)	Fe (ppm)	K (ppm)	Mg (ppm)	Mn (ppm)	Na (ppm)	P (ppm)	Sr (ppm)	Zn (ppm)
653R1180	10YR 7/2	light gray	3.7	82	256.13	5.30	12.98	0.33	12.92	17.49	9.01	1.13	3.83	0.00	0.35	1.11
653R1181	10YR 7/2	light gray	3.6	93	221.57	4.15	27.10	5.64	34.89	24.15	6.86	1.15	7.95	2.05	0.50	0.75
653R1182	10YR 7/2	light gray	3.6	87	108.54	3.23	19.03	0.37	13.82	8.55	4.56	0.63	3.88	0.00	0.32	0.70
653R1183	10YR 7/2	light gray	3.9	50	271.79	5.09	9.70	1.04	18.19	26.01	7.72	0.64	11.96	0.00	0.12	1.35
653R1184	10YR 7/2	light gray	3.9	58	228.73	3.23	7.02	0.97	18.89	24.98	7.23	0.67	8.58	0.00	0.12	0.44
653R1185	10YR 7/2	light gray	3.9	86	213.25	9.10	36.23	7.22	18.46	33.15	24.35	4.88	10.48	4.84	0.69	2.61
653R1186	10YR 7/2	light gray	3.9	60	254.19	6.12	34.82	0.98	14.17	55.36	30.38	22.44	12.00	2.71	0.46	2.50
653R1187	2.5Y 8/2	pale yellow	4.4	61	161.18	6.42	6.47	0.35	4.77	24.56	6.75	21.36	1.67	0.00	0.11	0.67
653R1188	10YR 7/2	light gray	4.0	52	179.21	3.82	12.83	0.40	13.17	22.24	8.24	7.65	1.87	0.00	0.22	0.68
654R1172	2.5Y7/2	light gray	3.8	66	243.07	6.86	13.07	0.97	19.80	22.32	11.17	0.77	12.07	0.00	0.28	0.57
654R1173	10YR 6/1	gray	3.5	107	257.21	8.07	28.75	0.79	21.25	23.82	13.02	1.57	12.49	4.02	0.62	1.20
654R1174	10YR 7/2	light gray	3.8	51	217.49	5.27	18.52	0.42	16.95	22.99	8.60	1.23	17.88	2.58	0.26	1.06
654R1175	10YR 7/2	light gray	3.7	88	147.03	9.78	52.28	0.32	12.54	19.95	10.39	7.40	4.22	0.00	0.77	0.99
654R1176	10YR 6/2	light brownish gray	3.8	76	108.65	4.08	36.80	0.30	11.58	6.96	4.91	1.56	5.86	0.00	0.56	0.76
654R1177	10YR 7/2	light gray	3.9	109	237.80	13.17	74.02	1.09	18.59	29.83	16.78	47.09	12.55	3.40	0.84	0.76
654R1178	10YR 6/2	light brownish gray	7.1	176	0.00	22.00	273	0.12	0.03	15.66	31.50	6.34	14.43	12.68	3	0.00
654R1179	10YR 7/2	light gray	3.9	55	150.72	3.15	9.51	0.34	12.22	11.87	6.81	1.29	3.54	0.00	0.20	0.71
654R1180	10YR 7/2	light gray	3.7	67	219.39	3.66	5.07	0.28	18.05	8.77	4.15	0.48	5.75	0.00	0.14	0.55
654R1181	10YR 7/2	light gray	3.9	55	233.39	5.10	13.89	0.89	14.53	27.07	8.99	2.00	7.74	1.84	0.18	0.86
654R1182	10YR 6/2	light brownish gray	3.8	88	165.71	4.32	17.58	0.19	17.02	15.07	6.69	2.80	2.73	0.00	0.26	0.85
654R1183	10YR8/2	very pale brown	4.1	40	192.24	5.21	11.09	1.41	16.54	29.53	9.87	0.59	13.74	0.00	0.11	1.20
654R1184	10YR7/2	light gray	3.8	91	187.57	5.56	31.72	1.64	23.68	27.34	14.67	3.31	8.25	1.91	0.48	1.36
654R1185	10YR 7/2	light gray	3.8	78	221.41	4.31	31.28	0.84	32.52	34.44	15.19	3.03	6.47	2.09	0.33	0.70
654R1186	2.5Y 7/3	pale yellow	4.0	46	264.59	5.42	18.29	2.08	21.36	26.72	10.76	3.18	15.14	0.00	0.29	1.84
654R1187	10YR 7/2	light gray	4.0	69	140.00	2.37	3.47	0.20	12.19	19.82	4.05	6.80	0.81	0.00	0.08	0.53
654R1188	10YR 7/3	very pale brown	4.3	54	157.24	3.72	9.46	0.18	2.48	18.52	3.61	8.65	6.29	0.00	0.09	0.59
655R1172	10YR 7/2	light gray	3.9	58	310.99	9.52	17.43	0.87	22.74	29.96	18.34	1.78	10.99	2.25	0.37	0.77
655R1173	10YR 7/2	light gray	4.0	47	197.33	5.95	10.35	1.27	14.00	19.35	10.12	0.57	12.02	0.00	0.21	0.55
655R1174	2.5Y 7/1	light gray	3.8	51	194.89	5.67	22.59	0.91	13.30	17.98	7.54	1.47	10.81	0.00	0.37	0.43
655R1175	10YR 7/2	light gray	3.7	53	140.52	1.90	6.71	0.25	14.96	5.76	4.25	0.55	6.93	0.00	0.17	0.45
655R1176	10YR 7/2	light gray	3.8	79	108.05	2.26	14.01	0.48	10.56	10.34	5.26	1.68	2.69	0.00	0.20	0.43
655R1177	10YR 7/2	light gray	4.0	88	205.46	14.26	28.89	2.09	10.29	24.59	11.22	77.46	9.10	0.00	0.40	0.83
655R1178	10YR 7/2	light gray	3.9	81	230.63	22.05	47.46	1.74	16.55	35.45	19.63	62.80	9.15	2.96	0.91	1.73
655R1179	10YR 7/2	light gray	3.9	72	237.76	5.39	16.20	0.85	17.41	16.50	10.22	0.89	7.35	0.00	0.25	0.70
655R1180	10YR 7/2	light gray	4.0	52	198.86	4.91	22.72	1.11	16.13	19.26	10.53	5.44	6.67	1.70	0.31	0.93
655R1181	10YR 7/2	light gray	3.9	52	229.56	4.18	8.10	3.25	14.18	18.97	7.43	1.36	7.57	0.00	0.10	0.67
655R1182	10YR 6/2	light brownish gray	3.7	79	162.15	3.68	5.95	0.39	19.12	10.48	7.34	0.83	2.01	0.00	0.19	0.86

Appendix C. Physical and Chemical Characteristics of the Locus 4 Sediment Samples (continued).

Sample ID	Munsell Value	Munsell Description	pH	Salinity (ppm)	Element											
					Al (ppm)	Ba (ppm)	Ca (ppm)	Cu (ppm)	Fe (ppm)	K (ppm)	Mg (ppm)	Mn (ppm)	Na (ppm)	P (ppm)	Sr (ppm)	Zn (ppm)
655R1183	10YR 7/2	light gray	3.9	65	225.47	4.75	12.92	0.88	25.56	22.02	12.52	1.18	8.01	1.73	0.25	0.72
655R1184	10YR 7/2	light gray	3.9	54	187.94	5.77	25.97	2.00	22.72	29.99	14.30	3.64	7.94	1.84	0.51	1.37
655R1185	10YR 7/3	very pale brown	4.0	47	227.41	3.79	10.54	1.30	20.71	22.00	6.04	1.19	7.93	0.00	0.12	0.56
655R1186	10YR 7/3	very pale brown	4.1	44	228.92	4.23	10.24	1.06	13.59	19.96	11.09	0.76	7.59	0.00	0.24	0.84
655R1187	10YR 7/2	light gray	3.9	65	282.93	2.93	12.90	0.68	12.60	22.10	6.38	0.64	7.46	0.00	0.25	0.52
655R1188	10YR 7/2	light gray	3.9	92	215.44	4.19	69.06	1.21	19.04	48.18	16.70	11.77	7.96	3.05	0.74	1.55
656R1178	10YR 7/2	light gray	3.8	67	155.21	2.54	32.64	0.73	13.13	15.13	6.53	2.08	7.28	0.00	0.27	1.07
656R1179	10YR 6/2	light brownish gray	3.7	70	144.89	3.27	30.13	0.25	16.22	18.86	11.25	3.40	7.62	0.00	0.43	1.31
656R1181	10YR 6/2	light brownish gray	3.7	91	236.88	6.44	42.36	0.79	39.48	23.09	17.53	7.72	6.83	2.84	0.48	1.50
657R1178	10YR 7/2	light gray	4.0	47	90.84	1.90	7.76	0.13	8.94	5.61	4.23	0.71	1.62	0.00	0.18	0.52
657R1179	10YR 6/2	light brownish gray	3.7	100	146.60	6.53	62.76	0.23	19.35	22.32	17.97	10.39	5.10	3.03	0.81	1.86
661R1169	10YR 7/2	light gray	4.0	60	242.12	14.53	34.87	3.83	26.54	19.90	14.49	8.30	9.38	1.66	0.41	1.19
661R1170	10YR 7/2	light gray	3.9	51	196.77	5.79	16.01	1.14	26.96	20.34	7.55	9.95	7.35	0.00	0.19	0.58
661R1177	10YR 6/2	light brownish gray	3.9	131	265.40	13.96	100.89	1.02	38.25	44.74	36.24	52.46	14.37	4.08	1.16	2.08
661R1178	10YR 7/3	very pale brown	4.0	71	204.89	3.67	10.04	1.09	21.43	19.51	7.60	14.64	7.94	0.00	0.20	0.60
662R1169	10YR 7/2	light gray	4.0	82	259.53	12.94	12.36	1.74	22.84	19.07	10.25	47.39	7.72	1.68	0.17	1.11
662R1170	10YR 8/2	very pale brown	4.1	46	186.01	6.80	20.27	2.08	15.80	30.12	9.26	12.47	5.10	1.02	0.19	0.95
662R1176	10YR 5/2	grayish brown	3.7	121	256.74	6.89	24.01	0.64	49.10	39.19	22.23	14.72	10.08	2.20	0.47	1.25
662R1177	10YR 6/3	pale brown	4.0	84	280.18	7.69	31.96	1.19	26.14	36.34	15.43	13.71	9.49	2.02	0.41	0.91
662R1178	10YR 6/1	gray	3.6	90	201.48	7.52	86.80	0.70	35.97	33.04	27.95	16.69	8.29	5.48	1.15	1.81

BIBLIOGRAPHY

Adair, James
1930 [1775] *The History of the American Indians*. Reprinted in *Adair's History of the American Indians*, edited by Samuel Cole Williams. The Watauga Press, Johnson City, Tennessee.

Barba, L. A., A. Ortiz, K. F. Link, L. López Luján, and L. Lazos
1996 Chemical Analysis of Residues in Floors and the Reconstruction of Ritual Activities at the Templo Mayor, Mexico. In *Archaeological Chemistry: Organic, Inorganic, and Biochemical Analysis*, edited by M. V. Orna, pp. 139–156. ACS Symposium Series 625. American Chemical Society, Washington, DC.

Bethell, P. and M. Carver
1987 Detection and Enhancement of Decayed Inhumations at Sutton Hoo. In *Death, Decay, and Reconstruction: Approaches to Archaeology and Forensic Science*, edited by A. Boddington, A. Garland, and R. Janaway, pp. 10–21. Manchester University Press, Manchester.

Bethell, P. H. and J. U. Smith
1989 Trace-element Analysis of an Inhumation from Sutton Hoo, Using Inductively Coupled Plasma Emission Spectrometry: An Evaluation of the Technique Applied to Analysis of Organic Residues. *Journal of Archaeological Science* 16:47–55.

Blanton, Richard E.
1994 *Houses and Households: A Comparative Study*. Plenum Press, New York.

Blumer, Thomas J.
2004 *Catawba Indian Pottery: The Survival of a Folk Tradition*. The University of Alabama Press, Tuscaloosa.

2007 *Catawba Nation: Treasures in History*. History Press, Charleston.

Bon-Harper, Sara
2010 Yard Space: Comparisons of General Activity Areas between Historic Period Social Groups. Poster presented at the 75th Anniversary Meeting of the Society for American Archaeology, St. Louis, Missouri.

Booraem, Hendrik
2001 *Young Hickory: The Making of Andrew Jackson*. Taylor Trade Publishing, Dallas.

Bourdieu, Pierre
1977 *Outline of a Theory of Practice*. Translated by Richard Nice. Cambridge University Press, Cambridge.

1990 *The Logic of Practice*. Stanford University Press, Stanford.

Brown, Douglas Summers
1966 *The Catawba Indians: The People of the River*. The University of South Carolina Press, Columbia.

Carr, Christopher
1984 The Nature of Organization of Intrasite Archaeological Records and Spatial Analytic Approaches to Their Investigation. *Advances in Archaeological Method and Theory* 7:103–222.

Carnes, Linda F.
1988 Historic Artifacts. In Archaeology of the Historic Occaneechi Indians, edited by H. Trawick Ward and R. P. Stephen Davis, Jr., *Southern Indian Studies* 36–37:64–75.

Carnes-McNaughton, Linda
1998 European Trade Artifacts. In *Excavating Occaneechi Town: Archaeology of an Eighteenth-Century Indian Village in North Carolina*, edited by R. P. Stephen Davis, Jr., Patrick C. Livingood, H. Trawick Ward, and Vincas P. Steponaitis. Electronic document, www.rla.unc.edu/dig/, accessed August 22, 2010.

Catawba Indian Nation
2008 About Us. Electronic document, http://www.catawbaindiannation.com/content.php?title=About Us, accessed May 18, 2010.

Cavanagh, W. G., C. E. Buck, and C. D. Litton
1988 The interpretation of noisy data from archaeological field survey: phosphate analysis. *Environmental Geochemistry and Health* 10(3/4):92–95.

Cavanagh, W. G., S. Hirst, and C. D. Litton
1988 Soil Phosphate, Site Boundaries, and Change Point Analysis. *Journal of Field Archaeology* 15:67–83.

Cerreto, Richard
1986 Chemical Testing in Site Interpretations: pH, Phosphate, and the Eidt Field Test. *Pacific Coast Archaeological Society Quarterly* 22:70–80.

Chaya, Henry J.
1996 Studies of Soils from an Aleutian Island Site. In *Archaeological Chemistry: Organic, Inorganic, and Biochemical Analysis*, edited by Mary Virginia Orna. ACS Symposium Series No. 625. American Chemical Society, Washington, DC.

Coke, Thomas
1792 *A journal, of the Rev. Dr. Coke's fourth tour on the continent of America.* G. Paramore, London.

Conway, J. S.
1983 An Investigation of Soil Phosphorus Distribution within Occupation Deposits from a Romano-British Hut Group. *Journal of Archaeological Science* 10:117–128.

Craddock, P. T., D. Gurney, F. Pryor, and M. J. Hughes
1985 The Application of Phosphate Analysis to the Location and Interpretation of Archaeological Sites. *Archaeological Journal* 142:361–376.

Cymbaluk, N. F., H. F. Schryver, and H. F. Hintz
1981 Copper Metabolism and Requirement in Mature Ponies. *The Journal of Nutrition* 111:87–95.

Davis, R. P. Stephen, Jr.
2002 The Cultural Landscape of the North Carolina Piedmont at Contact. In *The Transformation of the Southeastern Indians, 1540–1760*, edited by Robbie Ethridge and Charles Hudson, pp. 135–154. University Press of Mississippi, Jackson.

Davis, R. P. Stephen, Jr. and Brett H. Riggs
2004 An Introduction to the Catawba Project. *North Carolina Archaeology* 53:1–41.

Deetz, James
1996 *In Small Things Forgotten*. Expanded and Revised Edition. Anchor Books, New York.

Drayton, John
1802 *A View of South Carolina, as Respects her Natural and Civil Concerns*. W. P. Young, Charleston.

Eidt, Robert C.
1973 A Rapid Chemical Field Test for Archaeological Site Surveying. *American Antiquity* 38:206–210.

1977 Detection and Examination of Anthrosols by Phosphate Analysis. *Science* 197:1327–1333.

Entwistle, Jane A. and Peter W. Abrahams
1997 Multi-element Analysis of Soils and Sediments from Scottish Historical Sites. The Potential of Inductively Coupled Plasma-Mass Spectrometry for Rapid Site Investigation.
Journal of Archaeological Science 24:407–416.

Entwistle, Jane A., Peter W. Abrahams, and R. A. Dodgshon
1998 Multi-elemental Analysis of Soils from Scottish Historical Sites: Interpreting Land-Use History Through the Physical and Geochemical Analysis of Soil. *Journal of Archaeological Science* 25: 53–68.

2000 The Geoarchaeological Significance and Spatial Variability of a Range of Physical and Chemical Soil Properties from a Former Habitation Site, Isle of Skye. *Journal of Archaeological Science* 27:287–303.

Feltman, William
1853 *The Journal of Lieutenant William Feltman, of the First Pennsylvania Regiment, 1781–82*. The Historical Society of Pennsylvania, Philadelphia.

Fernández, Fabián G., Richard E. Terry, Takeshi Inomata and Markus Eberl
2002 An Ethnoarchaeological Study of Chemical Residues in the Floors and Soils of Q'eqchi' Maya Houses at Las Pozas, Guatemala. *Geoarchaeology* 17:487–519.

Fewkes, Valdimir J.
1944 Catawba Pottery-Making, with Notes on Pamunkey Pottery-Making, Cherokee Pottery-Making, and Coiling. *Proceedings of the American Philosophical Society* 88(2):69–124.

Fitts, Mary Elizabeth
2006 Mapping Catawba Coalescence. *North Carolina Archaeology* 55:3–59.

Forster, J.
1995 Determination of Soil pH. In *Methods in Applied Soil Microbiology and Biochemistry*, edited by Kassem Alef and Paolo Nannipieri, p. 55. Academic Press, London.

Fort Mill Times [Fort Mill, South Carolina]
1925 Remnant of the Catawbas: Once Powerful Indian Tribe Now Dwindled to Less Than Hundred. 18 June:1. Fort Mill, South Carolina.

Gallay, Alan
2002 *The Indian Slave Trade: The Rise of the English Empire in the American South, 1670 - 1717*. Yale University Press, New Haven.

Gentry, Aaron and Sze Mun Lam
1998 Dog Trot: A Vernacular Response. Electronic document, http://arch.ced.berkeley.edu/vitalsigns/bld/Casestudies/dogtrot_high2.pdf, accessed March 14, 2011.

Goodchild, Michael F.
1996 Geographic Information Systems and Spatial Analysis in the Social Sciences. In *Anthropology, Space, and Geographic Information Systems*, edited by Mark Aldenderfer and Herfert D. G. Maschner. Oxford University Press, New York.

Green, Lance
2009 A Struggle for Cherokee Community: Excavating Identity in Post-Removal North Carolina. Unpublished Ph.D. dissertation, Department of Anthropology, University of North Carolina, Chapel Hill.

Grenier, Alyson L.
2007 Folk Architecture. In *Encyclopedia of Oklahoma History & Culture*. Oklahoma Historical Society. Electronic document, http://digital.library.okstate.edu/encyclopedia, accessed March 14, 2011.

Hamond, F. W.
1985 Chemical Analysis of Soils. In *Excavations at Mount Sandel 1973–77*, edited by P. C. Woodman, pp.83–98. Northern Ireland Archaeological Monographs Number 2, Department of the Environment for Northern Ireland, HMSO, Dublin.

Harrington, M. R.
2006 Catawba Potters and their Work. Reprinted. *North Carolina Archaeology* 55:89-102. Originally published 1908, *American Anthropologist* 10:399-407.

Haslam, R. and M. Tibbett
2004 Sampling and Analyzing Metals in Soils for Archaeological Prospection: A Critique. *Geoarchaeology* 19:731–751.

Haywood, Marshall DeLancey
1919 *Calvin Jones, Physician, Soldier and Freemason, 1775–1846: Being an Account of His Career in North Carolina and Tennessee*. Reprint issued by James W. Jones, Bolivar, Tennessee.

Heath, Charles L.
2004 Catawba Militarism: An Ethnohistorical and Archaeological Overview. *North Carolina Archaeology* 53:80–120.

Heidenreich, C.E., and V.A. Konrad
1973 Soil Analysis at the Robataille Site Part II: A Method Useful in Determining the Location of Longhouse Patterns. *Ontario Archaeology* 21:33–62.

Hodder, Ian, and Craig Cessford
2004 Daily Practice and Social Memory at Çatalhöyük. *American Antiquity* 69:17–40.

Hutchison, David
1843 Letter written at the request of Governor James Hammond. Published in *The Palmetto State Banner* and cited in Brown 1966.

Hudson, Charles M.
1970 *The Catawba Nation*. University of Georgia Press, Athens.

Hutson, Scott R., and Richard E. Terry
2006 Recovering Social and Cultural Dynamics from Plaster Floors: Chemical Analyses at Ancient Chunchucmil, Yucatan, Mexico. *Journal of Archaeological Science* 33:391–404.

Inomata, Takeshi and Payson Sheets
2000 Mesoamerican Households Viewed from Rapidly Abandoned Sites: An Introduction. *Mayab* 13:5–10. Publicación especial. Sociedad Espanola de Estudios Mayas.

Jones, Calvin
1815 Travel Journal. Unpublished manuscript, Southern Historical Collection, University of North Carolina, Chapel Hill.

Kirkland, Thomas J. and Robert M. Kennedy
1905 *Historic Camden*. State Company, Columbia, South Carolina.

King, Stacie M.
2007 The spatial organization of food sharing in Early Postclassic households: an application of soil chemistry in Ancient Oaxaca, Mexico. *Journal of Archaeological Science* 35:1224–1239.

Kelly J. Knudson, Lisa Frink, Brian Hoffman and T. Douglas Price
2004 Chemical Characterization of Arctic Soils: Activity Area Analysis in Contemporary Yup'ik Fish Camps Using ICP-AES. *Journal of Archaeological Science* 31:443–456.

Konrad, Victor A., Robson Bonnichsen, and Vickie Clay
1983 Soil Chemical Identification of Ten Thousand Years of Prehistoric Human Activity Areas at the Munsungan Lake Thoroughfare, Maine. *Journal of Archaeological Science* 10:13–28.

Lawrence, Susan
2006 Artifacts of the Modern World. In *Archaeology in Practice: A Student Guide to Archaeological Analyses*, edited by Jane Balme and Alistair Paterson, pp.362–388. Blackwell Publishing, Malden, Massachusetts.

Lawson, John
1709 *A New Voyage to Carolina*. London.

Lewis, Kenneth E.
2006 *Camden: Historical Archaeology in the South Carolina Backcountry*. Thomson Wadsworth, Belmont, California.

Lewis, R. J., J. E. Foss, M. W. Morris, M. E. Timpson and C. A. Stiles
1993 Trace Element Analysis in Pedo-Archaeology Studies. In *Proceedings of the First International Conference on Pedo-Archaeology*, edited by J. Foss, M. E. Timpson and M. W. Morris, pp. 81–88. Agricultural Experiment Station Special Publication 93-03. The University of Tennessee, Knoxville.

Lightfoot, Kent G., Antoinette Martinez, and Ann M. Schiff
1998 Daily Practice and Material Culture in Pluralistic Social Settings: An Archaeological Study of Culture Change and Persistence from Fort Ross, California. *American Antiquity* 63:199–222.

Liston, Henrietta
1796 *Tour to the Southern States: Virginia, North & South Carolina's* [sic]. National Library of Scotland, Edinburgh.

Mackey, Albert G.
1914 *An Encyclopedia of Freemasonry and Its Kindred Sciences*. Masonic History Company, New York.

McReynolds, Theresa E.
2004 Catawba Population Dynamics During the Eighteenth and Nineteenth Centuries. *North Carolina Archaeology* 53:42–59.

Marcoux, Jon Bernard
2008 Cherokee Households and Communities in the English Contact Period, A.D. 1670–1740. Unpublished Ph.D. dissertation, Department of Anthropology, University of North Carolina, Chapel Hill.

Means, John H.
1851 Message No.1 of November 25, 1851. *Journal of the House of Representatives South Carolina* (November 24–December 16, 1851):14–20.

Merrell, James H.
1982 *Natives in a New World: The Catawba Indians of Carolina, 1650–1800*. Ph.D. dissertation, The Johns Hopkins University, Baltimore.

1989 *The Indians' New World: Catawbas and Their Neighbors from European Contact through the Era of Removal*. The University of North Carolina Press, Chapel Hill.

Meskell, Lynn
2002 *Private Life in New Kingdom Egypt*. Princeton University Press, Princeton.

Middleton, William D.
2004 Identifying Chemical Activity Residues on Prehistoric House Floors: A Methodology and Rationale for Multi-elemental Characterization of a Mild Acid Extract of Anthropogenic Sediments. *Archaeometry* 46:47–65.

Middleton, William D. and T. Douglas Price
1996 Identification of Activity Areas by Multi-element Characterization of Sediments from Modern and Archaeological House Floors Using Inductively Coupled Plasma-atomic Emission Spectroscopy. *Journal of Archaeological Science* 23:673–687.

Mills, Robert
1826 *Statistics of South Carolina, Including a View of its Natural, Civil, and Military History, General and Particular.* Hurlbut and Lloyd, Charleston, South Carolina.

Mooney, James
1894 The Siouan Tribes of the East. *Bulletin of the Bureau of American Ethnology*, No. 22. U.S. Government Printing Office, Washington, D.C.

Moore, Peter N.
2007 *World of Toil and Strife: Community Transformation in Backcountry South Carolina, 1750–1805*. The University of South Carolina Press, Columbia.

Moultrie, William
1942 [1772] The Journal of William Moultrie While a Commissioner on the North and South Carolina Boundary Survey, 1772. Edited by Charles S. Davis. *The Journal of Southern History* 8:549–555.

Myster, James E.
1994 Soil Chemical Signatures of Past Activities on Historic Farmsteads in the Upland South. Unpublished Master's Thesis, The University of Tennessee, Knoxville.

Netting, Robert McC., Richard R. Wilk, and Eric J. Arnould (editors)
1984a *Households: Comparative and Historical Studies of the Domestic Group*. University of California Press, Berkeley.

Netting, Robert McC., Richard R. Wilk, and Eric J. Arnould
1984b Introduction. In *Households: Comparative and Historical Studies of the Domestic Group*, edited by Robert McC. Netting, Richard R. Wilk, and Eric J. Arnould, pp. xiii–xxxviii. University of California Press, Berkeley.

O'Hallorans, J. M., W. C. Lindemann, and R Steiner
2004 Iron Characterization in Manure Amended Soils. *Communications in Soil Science and Plant Analysis* 35:2345–2356.

Orser, Charles E., Jr.
1990 On Plantations and Patterns. *Historical Archaeology* 23(2):28–40.

Pettus, Louise
1999 Sally New River. Electronic document, http://www.rootsweb.ancestry.com/~sclancas/records/bios/bio_newriver.htm, accessed January 12, 2009.

2005 *Leasing Away a Nation: The Legacy of Catawba Indian Land Leases*. Palmetto Conservation Foundation, Spartanburg, South Carolina.

Plane, Mark R.
2004 Catawba Ethnicity: Identity and Adaptation on the English Colonial Landscape. *North Carolina Archaeology* 53:60–79.

Potts, P. J.
1987 *A Handbook of Silicate Rock Analysis.* Blackie & Son Limited, Glasgow.

Ramsey, William L.
2003 "Something Cloudy in Their Looks": The Origins of the Yamasee War Reconsidered. *The Journal of American History* 90:44-75.

Rapp, George (Rip), Jr., and Christopher L. Hill
1998 *Geoarchaeology: The Earth-Science Approach to Archaeological Interpretation.* Yale University Press, New Haven.

Riggs, Brett H.
1999 Removal Period Cherokee Households in Southwestern North Carolina: Material Perspectives on Ethnicity and Cultural Differentiation. Unpublished Ph.D. dissertation, Department of Anthropology, University of Tennessee, Knoxville.

Riggs, Brett H., R. P. Stephen Davis, Jr., and Mark R. Plane
2006 Catawba Pottery in the Post-Revolutionary Era: A View from the Source. *North Carolina Archaeology* 55:60-88.

2010 Temporal Trends in Native Ceramic Traditions of the Lower Catawba River Valley. *Southeastern Archaeology* 29:31–43.

Robin, Cynthia
2002 Outside of Houses: The Practices of Everyday Life at Chan Noohol, Belize. *Journal of Social Archaeology* 2:245–268.

Sandor, J. A., Gersper, P. L., and Hawley, J. W.
1986 Soils at Prehistoric Agricultural Terracing Sites in New Mexico. *Soil Science Society of America Journal 50*:166–180.

Seabrook, Whitemarsh B.
1949 Message No. 1, November 27, 1849. *Journal of the House of Representatives South Carolina* (November 26–December 19, 1849):11–28.

Shebalin, Theresa McReynolds
2011 Soil Chemistry Analysis of the Devil's Tramping Ground: An Ethnoarchaeological Case Study. Unpublished manuscript in possession of the author.

Shennan, Stephen
1997 *Quantifying Archaeology*. Second Edition. Edinburgh University Press, Edinburgh.

Simms, William Gilmore
1853 Caloya; or, The Loves of the Driver. In *The Wigwam and the Cabin: or, Tales of the South*, pp 127–195. Lippincott, Grambo, and Co., Philadelphia.

Sjoberg, A.
1976 Phosphate Analysis of Anthropic Soils. *Journal of Field Archaeology* 3: 447–454.

Smyth, John F. D,
1784 *A Tour in the United States of America*. G. Perrin, Dublin.

South Carolina Gazette [Charleston, South Carolina]
1760 Charles-Town. 3 May:2–3. Charleston, South Carolina.

South, Stanley
1977 *Method and Theory in Historical Archeology*. Academic Press, New York.

1988 Whither Pattern? *Historical Archaeology* 22(1):25–28.

Speck, Frank G.
1939 Catawba Religious Beliefs, Mortuary Customs, and Dances. *Primitive Man* 12(2):21–57.

Sprague, Roderick
1981 Functional Classification of Artifacts from 19th and 20th Century Sites. *North American Archaeologist* 2(3):251–261.

Spratt, Thomas Dryden
1876 Recollections of the Spratt Family. Unpublished manuscript cited in Brown 1966.

Steponaitis, Vincas P. and Keith W. Kintigh
1993 Estimating Site Occupation Spans from Dated Artifact Types: Some New Approaches. In *Archaeology of Eastern North America: Papers in Honor of Stephen Williams*, edited by James B. Stoltman, pp. 349–361. Archaeological Report 25. Mississippi Department of Archives and History, Jackson.

Swanton, John Reed
1946 *The Indians of the Southeastern United States*. U.S. Government Printing Office, Washington, D.C.

Thomas, David Hurst
1978 The Awful Truth about Statistics in Archaeology. *American Antiquity* 43:231–244.

Watson, Winslow C. (editor)
1856 *Men and times of the Revolution; or, Memoirs of Elkanah Watson, including journals of travels in Europe and America, from 1777 to 1842, with his correspondence with public men and reminiscences and incidents of the Revolution*. Dana and Company, New York.

Wells, E. Christian
2004a Investigating Activity Patterns in Prehispanic Plazas: Weak Acid-Extraction ICP-AES Analysis of Anthrosols and Classic Period El Coyote, Northwestern Honduras. *Archaeometry* 46:67–84.

2004b A Brief History of Archaeological Soil Chemistry. *Newsletter of the Commission on the History, Philosophy, and Sociology of Soil Science, International Union of Soil Sciences* 11(1):2–4.

Wells, E. Christian, Richard E. Terry, J. Jacob Parnell, Perry J. Hardin, Mark W. Jackson, and Stephen D. Houston
2000 Chemical Analyses of Ancient Anthrosols in Residential Areas at Piedras Negras, Guatemala. *Journal of Archaeological Science* 27:449–462.

Wesson, Cameron B.
2008 *Households and Hegemony: Early Creek Prestige Goods, Symbolic Capital, and Social Power*. University of Nebraska Press, Lincoln.

White, Hugh E.
1808 Surveyor's Plat Book and Indian Commissioner's Rent Book with an Index compiled by Nan W. Carson. Photostatic copies of manuscript. South Carolina Department of Archives and History, Columbia, and Rock Hill Public Library, Rock Hill, SC.

Wilk, Richard R., and Robert McC. Netting
1984 Households: Changing Forms and Function. In *Households: Comparative and Historical Studies of the Domestic Group,* edited by Robert McC. Netting, Richard R. Wilk, and Eric J. Arnould, pp. 1–28. University of California Press, Berkeley.

Workers of the Writers' Program of the Work Projects Administration in the State of South Carolina [SC WPA]
1941 *South Carolina: A Guide to the Palmetto State*. Oxford University Press, New York.

Yorkville Enquirer [York, South Carolina]
1879 Biographical Sketch: George W. Williams. 7 August:1. York, South Carolina.