Contract Publication Series 06-096

# ARCHAEOLOGICAL MONITORING OF GEOTECHNICAL BORINGS FOR THE PROPOSED KENNEDY BRIDGE INTERCHANGE AREA OF THE OHIO RIVER BRIDGES PROJECT IN JEFFERSON COUNTY, KENTUCKY: PHASES 1 THROUGH 5 (ITEM NO. 5-118.00)

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April 10, 2007

Lead Agency: Federal Highway Administration
Kentucky Transportation Cabinet Item Number 5-118
Statewide Contract No. M-04237412, Letter Agreement No. 36-WLR and
Statewide Contract No. M-06171826, Letter Agreement 3-WLR

# ABSTRACT

Cultural Resource Analysts, Inc., personnel completed the archaeological monitoring of geotechnical borings for the Kennedy Bridge Interchange Area of the Louisville Southern Indiana Ohio River Bridges project (Item No. 5-118.00) between March 21 and July 12, 2006 in Jefferson County, Kentucky. This work was conducted at the request of the Kentucky Transportation Cabinet. The monitoring was conducted prior to proposed road improvements to Interstate 64, Interstate 65, Interstate 71, and a few nearby secondary roads. Methods consisted of the monitoring of augers that were being used by engineers to collect soil data within the project footprint. Sanborn maps were also consulted to identify the location of historic deposits within the project footprint.

Within the project right-of-way, which encompassed approximately 133 ha (329 acres), 57 bore holes were monitored for the presence or absence of archaeological deposits. Each of the bore holes was considered to be representative of subsurface deposits within that parcel of the right-of-way, which varied in area from about 1–15 acres. Areas of high archaeological potential were noted in 23 bore holes; 34 bore holes revealed areas of low archaeological potential, and approximately 2.1 ha (5.2 acres) of area were considered too hazardous to investigate fully. The remaining areas were not assessed during monitoring because pre-field research (previous geomorphic studies and historic maps) suggested that these areas were not as likely to contain intact archaeological deposits.

More specifically, 34 of the bore holes revealed that their surrounding areas have a low potential to contain intact archaeological deposits, historic and/or prehistoric, and no further work is recommended in these areas. Eleven of the bore holes revealed areas with a high potential to contain both prehistoric and historic archaeological sites. In addition, ten of the bore holes revealed areas with a high potential to contain only intact historic deposits and two of the bore holes revealed areas with a high potential to contain just intact prehistoric deposits. Most of the historic deposits appear to relate either to the late 1800s or the early 1900s, although earlier and later materials were also recovered. Diagnostic artifacts were not recovered from the prehistoric deposits, so dates for these deposits are not available.

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# Chapter 1. Introduction

Cultural Resource Analysts, Inc. (CRAI), personnel completed the archaeological monitoring of geotechnical borings for the Kennedy Bridge Interchange Area of the Louisville Southern Indiana Ohio River Bridges project (LSIORB, Item No. 5-118.00) between March 21 and July 12, 2006 in Jefferson County, Kentucky (Figure 1.1). This work was conducted at the request of the Kentucky Transportation Cabinet (KYTC). Richard Herndon, Paul Bundy, and Tanya Faberson conducted the monitoring, which was necessary prior to proposed road improvements to Interstate 64, Interstate 65, and Interstate 71 (Figure 1.2). These road improvements will consist of bridge and highway widening projects, the widening and/or relocation of existing ramps, and the construction of two new bridges across the Ohio River. The proposed improvements are intended to provide the Louisville Metro area with more efficient and safer transportation routes that would accommodate current and future growth within the city.

## Project Description, Purpose, and Need

The Ohio River, one of the greatest assets of the Jefferson County/southern Indiana region, has defined and shaped the development of the greater Louisville metropolitan area. Because the Ohio River creates a natural barrier, locations for crossing the river by motorized and non-motorized transport are limited. Existing traffic crossings at Interstate 64, Interstate 65, and U.S. 31 have, over the years, become congested and have created deficiencies in the overall transportation system throughout the Metropolitan Area.

Additional cross-river transportation access is needed to address the existing and future transportation needs of the Metropolitan Area.

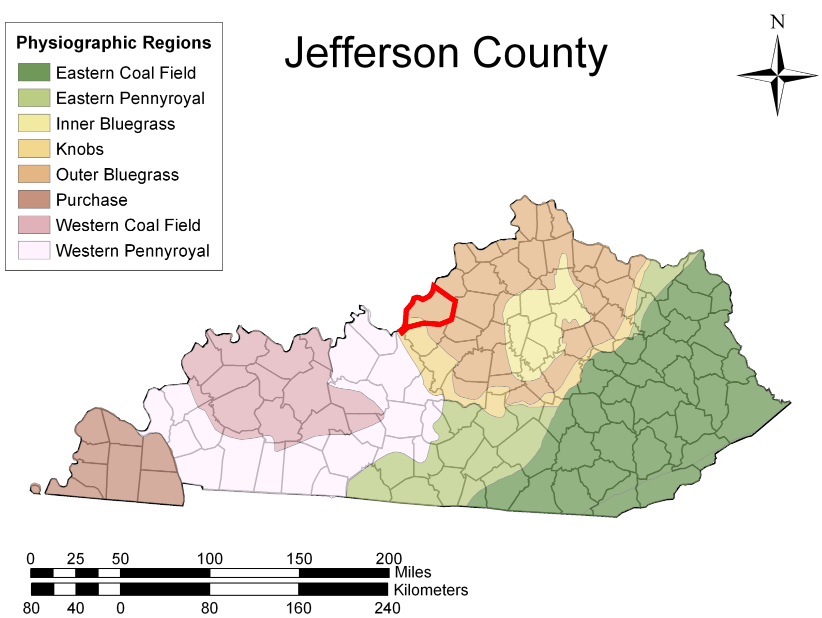


**Figure 1.1. Map of Kentucky showing the location of Jefferson County.**

The LSIORB project is designed to:

- Upgrade the Metropolitan Area transportation system by providing additional cross-river transportation access between Jefferson County, Kentucky, and Clark County, Indiana;
- Improve traffic flow, level of service, and safety in downtown Louisville, Kentucky and Jeffersonville, Indiana, by reducing traffic congestion and crash rates at the Kennedy Interchange and Kennedy Bridge and on Interstate 65 in Indiana immediately north of the Ohio River; and
- Accommodate existing and future growth and improve transportation accessibility and interstate highway system linkage in eastern Jefferson County, Kentucky, and Clark County, Indiana.

The scale of proposed construction and realignments of the existing interstate system is immense. Starting on the east side of Louisville near Harrod's Creek and Prospect is the East End Bridge section of the LSIORB project. This area of the project footprint includes a proposed bridge over the Ohio to 265/KY 841 (Gene Synder) in Kentucky with State Road 265 at its interchange with State Road 62 in Indiana. The majority of the proposed construction, however, is in and around Louisville, including the Interstate 65 Accelerated section along Brook and Floyds Streets (substations 620+00 to 645+00). Archaeological investigations associated with either of these two sections of the project area are discussed in separate reports.

This report focuses on the remaining portions of the LSIORB project including Interstate 65 from substation 645+00 to 667+00 and from substation 203+50 to 230+00, along Interstate 64 from substation 450+00 to 330+00, and along Interstate 71 from substation 565+00 to 523+00. Each of these interstates will be widened to accommodate additional lanes of traffic, but most of the widening will be restricted to existing right-of-way (ROW). In addition to the interstate widening, some of the secondary roads that intersect the interstates will also be modified by new on-ramps or exit ramps as well as additional lanes, as with, for example, Story Avenue or River Road.

## Purpose of Archaeological Study and Previous Investigations

Section 106 of the National Historic Preservation Act of 1966, as amended, requires federal agencies to consider the effects of their undertakings on historic properties eligible for or listed in the National Register of Historic Places (NRHP) and provide the Advisory Council on Historic Preservation (ACHP) an opportunity to comment. Section 106 of the Act is implemented by 36 CFR Part 800, regulations promulgated by the ACHP. An "undertaking" is defined by the regulations as a project, activity, or program funded in whole or in part under the direct or indirect jurisdiction of a federal agency, including those carried out by or on behalf of a federal agency; those carried out with federal financial assistance; those requiring a federal permit, license or approval; and those subject to state or local regulation administered pursuant to a delegation or approval by a federal agency.

Since the LSIORB project is partially funded with federal money, the lead Federal agency, which is the Federal Highway Administration (FHWA), is required to establish an Area of Potential Effect (APE) before construction activities can begin. Archaeological investigations have already started for two sections within the project area, East End Bridge (Herndon and Bundy 2006; Reynolds et al. 2001) and Interstate 65 Accelerated (Herndon 2006). Since previous archaeological work associated with the downtown section of this project has not progressed further than some preliminary shovel testing or bucket augering (Reynolds et al. 2001), the current monitoring project was developed to identify the presence or absence of archaeological deposits at select points (bore holes) within the downtown ROW. The selected monitoring of bore holes was based on their potential to have buried prehistoric deposits as determined by landform or historic deposits based on old maps (e.g., Sanborn Insurance maps). See Figure 1.3 for the location of each of the monitored bore holes.

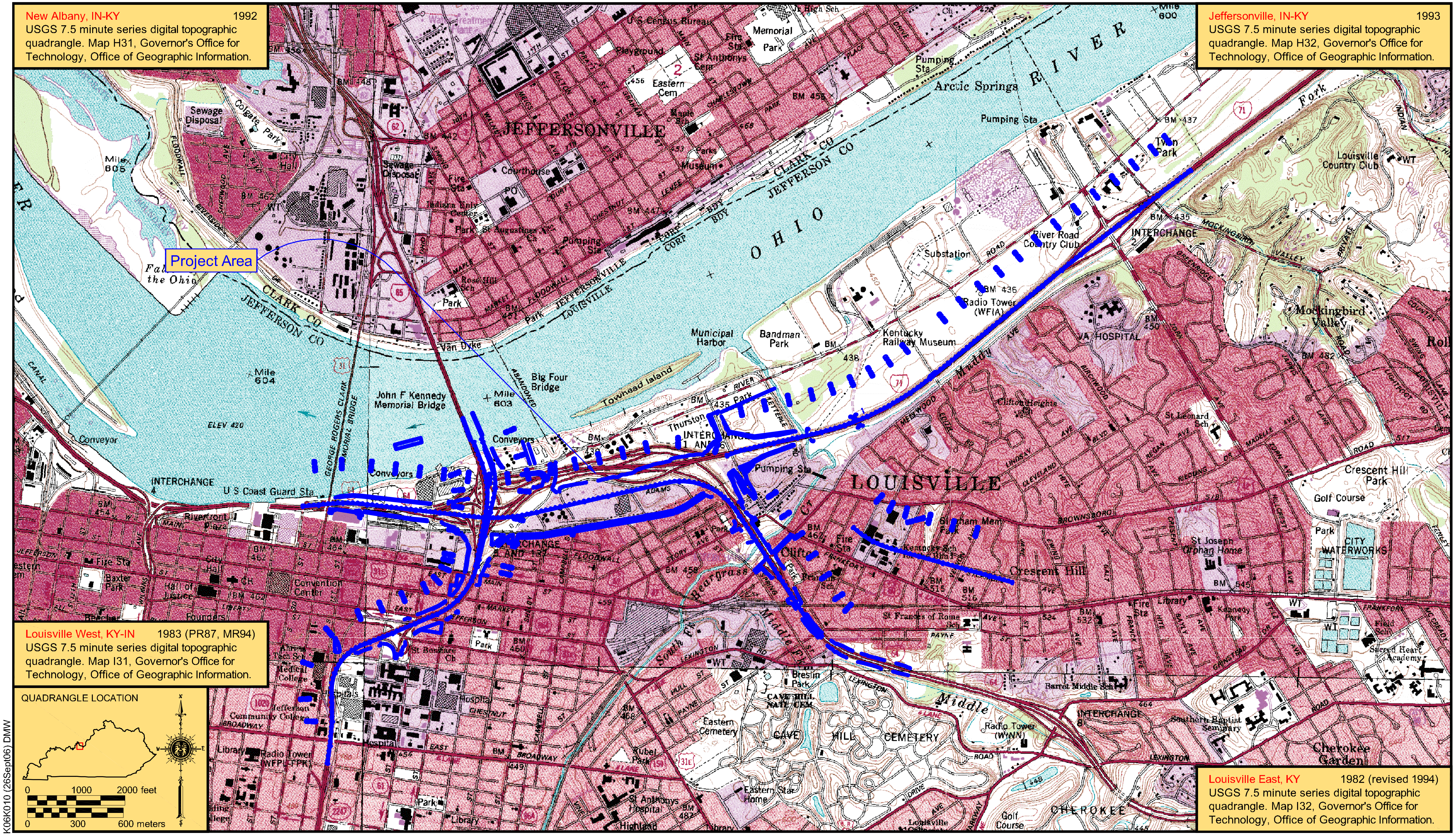


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Figure 1.2. Location of project area on topographic quadrangle.

As previously noted, the current study is aimed at the initial identification of cultural deposits at selected points within the project footprint based on the potential of that area to produce intact deposits. As requested by KYTC, site numbers were not sought nor given for the monitoring stage of this archaeological assessment. Instead, archaeological resources were identified with the idea of returning to promising areas for further work at which time site numbers will be assigned and National Register eligibility will be assessed. With this in mind, an attempt was made to do the following during the monitoring:

1. identify prehistoric and historic archaeological resources located within or near the project area;
2. determine, to the extent possible, the age and cultural affiliation of the resources,
3. establish the vertical, and if possible, horizontal boundaries of the resource; and
4. establish the degree of integrity and potential for intact cultural deposits to be present.

If it appeared that integrity was good and that intact cultural deposits were present, then the area was coded as having a high potential. If the integrity appeared compromised or cultural deposits were lacking, then the area was coded as having a low potential. This coding format will help guide future archaeological work associated with the LSIORB project.

## Summary of Findings

Within the right-of-way (ROW), which totaled approximately 133 ha (329 acres), 57 geotechnic bore holes were monitored. These bore holes were grouped into 17 localities (see Figure 1.3). The soil characteristics and archaeological materials recovered from each bore hole were recorded, and the results were used to assess the potential of that area to produce intact historic and prehistoric deposits. Each of these bore holes was considered to be representative of subsurface deposits within the parcel in which it was located. Archaeological potential was identified as high or low depending on the amount of disturbance in the area as well as the amount and type of artifacts recovered.

Areas with a low potential to contain intact cultural deposits included a total of 34 bore holes. Eleven bore holes revealed areas with a high potential to contain intact historic and prehistoric archaeological deposits. In addition, 10 bore holes revealed areas with a high potential to contain just intact historic deposits, and two bore holes revealed areas with a high potential to contain only prehistoric deposits.

Most of the historic deposits appear to relate either to the late 1800s or the early 1900s, although some earlier and later material was also recovered. Diagnostic artifacts were not recovered from the prehistoric deposits, so dates for these deposits are not available.

In most cases, areas were considered to have high potential for prehistoric deposits when a particular landform suggests the possibility for buried deposits rather than actual artifactual data. These determinations are based, in part, on the areas proximity to the Ohio River or the old channel of Beargrass Creek. These areas are presumed to have fine-grained deposits that tend to have a greater potential for buried prehistoric materials because of the low-energy depositional history of those landforms. The area that exhibited the best potential for prehistoric deposits was represented by bore hole 4B-248, which was located on a terrace of the Ohio River. Prehistoric sites in other parts of Jefferson County, 15Jf620, the Railway Museum (15Jf630), and Falls Harbor (15Jf597 and 15Jf598), are located on this same terrace. Areas coded as high potential for historic deposits are based on a combination of Sanborn maps, artifacts, and natural or cultural contexts.

# Chapter 2. Environmental Setting

This section of the report provides a basic summary of the natural environment of the project area. Topics covered include physiography, modern and prehistoric climate, vegetation, and description of the project area. Soil descriptions were not provided since the downtown Louisville area has not been mapped for soil associations.

## Physiography

Jefferson County is almost entirely situated in the Outer Bluegrass physiographic region of Kentucky. The southwest portion of the county is located within the Knobs physiographic region, adjacent to Muldraugh Hill. The extreme eastern part of the county is hilly while the central and northern parts are a tableland of low relief (McGrain and Currens 1978:41). The tableland area occupies the largest part of the county. This area is essentially a gently southwestward sloping surface from a high of 240.8 m (790 ft) above mean sea level (AMSL) on the east to 152.4 m (500 ft) AMSL at the foot of the knobs in the southwest part of the county.

The geologic formations specific to the Outer Bluegrass are the limestones, calcareous shales, and siltstones of the Fairview Formation of the Ordovician period. The major hydrologic feature of the county is the Ohio River and its tributaries, including Floyds Fork, Harrods Creek, Goose Creek, and Beargrass Creek (Zimmerman 1966).

## Climate

The climate in this area of Kentucky is continental in character and temperature and precipitation levels fluctuate widely. The prevailing winds are westerly and therefore, most of the storms cross the state in a west to east pattern. Low-pressure storms that originate in the Gulf of Mexico and move in a northeasterly direction across Kentucky contribute the greater proportion of precipitation received by the state. Warm, moist, tropical air masses from the Gulf are most common during the summer months when humidity levels are already quite high. As storms move through the state, occasional hot and cold periods of short duration may be experienced. During the spring and fall, storm systems tend to be less severe and have a smaller frequency, therefore resulting in less radical extremes in temperature and rainfall (Anderson 1959).

Based on records kept in Louisville, the average daily maximum temperature in January is 6.4 degrees Celsius (43.5 degrees Fahrenheit) whereas the average daily minimum temperature is -3.6 degrees Celsius (25.5 degrees Fahrenheit). The average temperature range for July is 31.5–18.6 degrees Celsius (88.5–65.5 degrees Fahrenheit). Precipitation levels indicate an average range of about 5.7 cm (2.25 in) for October to 11.7 cm (4.59 in) for March (Zimmerman 1966:132).

### *Prehistoric Climate*

Climatic conditions during the terminal Pleistocene and Holocene ages represent a series of transitions in temperature, rainfall, and seasonal patterns (Anderson 2001; Niquette and Donham 1985:6–8; Shane et al. 2001). These transitions created a seemingly infinite range of ecological variation across time and space, and this variation both limited and expanded survival strategies of human populations. One can posit a link between certain climatic events and the development of prehistoric cultures in the eastern woodlands of North America (Anderson 2001). It must be recognized that human responses to environmental factors are varied and that not all cultural change was “determined” by climatic events.

The Wisconsin glacial maximum occurred approximately 21,400 years B.P., or 18,000 radiocarbon years B.P. (Anderson 2001; Delcourt and Delcourt 1987). The landscape at that time was quite different from that of today. Much of the mid-continent consisted of periglacial tundra dominated by boreal conifer and jack-pine forests. Sea levels were approximately 100 m (328 ft) below present levels, and because so much water was contained by the glaciers, the coastal plains were approximately twice the size they are today (Anderson 2001:152). During the Wisconsin glacial epoch, eastern North America was populated by a variety of faunal species, including megafaunal taxa such as mastodon, mammoth, saber-toothed tiger, and Pleistocene horse, as well as by modern taxa such as white-tailed deer, raccoon, and rabbit.

A general warming trend and concomitant glacial retreat was under way by circa 15,000 B.P. (Anderson 2001; Shane 1994). After 14,000 B.P., the boreal forest gave way to a mixed conifer/northern hardwoods forest complex. By 10,000 B.P., southern Indiana was probably on the northern fringes of expanding deciduous forests (Delcourt and Delcourt 1987:92–98). Pollen records from the Gallipolis Lock and Dam on the Ohio River near Putnam County, West Virginia, reveal that all the important arboreal taxa of mixed mesophytic forest had arrived in the region by 9000–8500 B.P. (Fredlund 1989:23). Reidhead (1984:421) indicates that the generalized hardwood forests were well established in southeastern Indiana and southwest Ohio by about 8200 B.P.

Prior to approximately 13,450 B.P., conditions were harsh but capable of supporting human populations. It now appears that some people inhabited North America at this time (Adovasio et al. 1998; Dillehay 1997; McAvoy and McAvoy 1997). Populations were probably small, scattered, and not reproductively viable (Anderson 2001). The Inter-Allerod Cold Period, circa 13,450–12,900 B.P, witnessed the spread of Clovis populations across the continent. (Anderson 2001). This period was followed by the rapid onset of a cooling event known as the Younger Dryas, during which megafauna species became extinct, vegetation changed dramatically, and temperature fluctuated dramatically. The Younger Dryas corresponded with the end of the Clovis culture, which gave way to a variety of subregional cultures across eastern North America. The rapid climate change, perhaps as short as ten to 40 years, may have been a factor in this settlement shift.

The beginning of the Holocene Age (circa 11,300–12,700 B.P.) is associated with rapidly warming temperatures, decreases in cloud cover, and generalized landscape instability (Delcourt 1979:270; Webb and Bryson 1972:107). Temperature increases during this period are estimated to have been three times greater than later Holocene fluctuations (Webb and Bryson 1972:107). During the early Holocene, rapid increases in boreal plant species occurred on the Allegheny Plateau in response to the retreat of the Laurentide ice sheet from the continental United States (Maxwell and Davis 1972:517–519; Whitehead 1973:624). At lower elevations, deciduous species were returning after having migrated to southern Mississippi Valley refugia during the Wisconsin advances (Delcourt and Delcourt 1981:147). The climate during the early Holocene was considerably cooler than the modern climate, and extant species in upper altitude zones of the Allegheny Plateau reflect conditions similar to the Canadian boreal forest region (Klippel and Parmalee 1982; Maxwell and Davis 1972:515–516). Conditions at lower elevations were less severe and favored the transition from boreal to mixed mesophytic species. At Cheek Bend Cave in the Nashville Basin, an assemblage of small animals from the Late Pleistocene confirms the environmental changes that took place during the Pleistocene to Holocene transition, and the resulting extinction of Pleistocene megafauna and establishment of modern fauna in this area (Klippel and Parmalee 1982).

Traditionally, Middle Holocene (circa 8900–5700 B.P./8000–5000 radiocarbon years B.P.) climate conditions were thought to be consistently dryer and warmer than the present (Delcourt 1979:271; Klippel and Parmalee 1982; Wright 1968). In this model, the influx of westerly winds during the Hypsithermal climatic episode contributed to periods of severe moisture stress in the Prairie Peninsula and to an eastward advance of prairie vegetation (Wright 1968). Prairies expanded in central Indiana between 8000 and 7000 B.P. (Webb et al. 1983). Pollen data from Hamilton and Marion counties in central Indiana indicate an oak/hickory dominance of the forest complex and warm, dry conditions sometime after about 8000 B.P. (Engelhardt 1960, 1965).

More recent research (Anderson 2001; Shane et al. 2001:32–33) suggests that the Middle Holocene was marked by considerable local climatic variability. Paleoclimatic data indicate a period of more pronounced seasonality characterized by warmer summers and cooler winters. This evidence is supported by ice core data that show no appreciable decrease in continental ice volume, which would be expected with an increase in global temperature (Hu et al. 1999). However, Webb et al.'s (1983) hypothesis of increased aridity during this period is still valid for much of the region. Delcourt (1979:274) identified Middle Holocene moisture stress along the Cumberland Plateau in Tennessee. Paleoecological data indicate that xeric conditions were not as extreme in this area as in the Midwest, where a considerable advance of prairie vegetation occurred. In fact, because of shifting tropical air masses, the southern and central Appalachians may have experienced increased precipitation at this time (Delcourt and Delcourt 1997). No evidence of climatically driven vegetation change during the period of prairie expansion was found at Gallipolis, probably because of the proximity of the forest to the Ohio River (Fredlund 1989). Fredlund (1989) reports that after 5700 B.P., the forest surrounding Gallipolis lost diversity and became dominated by xeric oak/hickory associations more typical of western mesophytic forests.

The Hypsithermal episode probably influenced adaptive strategies at this time. Stafford (1994) suggests that changing vegetation resulted in heterogeneous upland resource availability in southern Indiana. In this model, the patchy resource base was exploited through a logistical collector strategy, a change from the generalized foraging of the preceding period. In the southeast, the increased seasonal extremes, expansion of pine forests at the expense of oaks, and increasingly xeric conditions probably caused significant social stress to Middle Archaic populations. This stress may have been ameliorated by the consolidation of peoples into riparian settings where hardwood forests persisted (Anderson 2001).

The earliest distinguishable Late Holocene climatic episode began circa 5000 B.P. and ended around 3000 B.P. This episode is associated with the establishment of essentially modern deciduous forest communities in the southern highlands and increased precipitation across most of the mid-continental United States (Delcourt 1979:270; Maxwell and Davis 1972:517–519; Shane et al. 2001; Warren and O'Brien 1982:73). Changes in local and extra-local forests after about 4800 B.P. may also have been the result of anthropogenic influences. Fredlund (1989:23) reports that the Gallipolis pollen record showed increasing local disturbance of the vegetation from circa 4800 B.P. to the present, a disturbance that may have been associated with the development and expansion of horticulture activity. Based on a study of pollen and wood charcoal from the Cliff Palace Pond in Jackson County, Kentucky, Delcourt and Delcourt (1997:35–36) recorded the replacement of a red cedar-dominated forest with a forest dominated by fire-tolerant taxa (oaks and chestnuts) around 3000 B.P. The change is associated with increased local wildfires (both natural and culturally augmented) and coincided with increases in cultural utilization of upland (mountain) forests.

Beginning around 2800 B.P., generally warm conditions, probably similar to those of the twentieth century, prevailed until the onset of the Neo-Boreal episode, or Little Ice Age, around 700 B.P. Despite this trend, brief climatic fluctuations occurred during this period. Some of these fluctuations have been associated with adaptive shifts in midwestern prehistoric subsistence and settlement systems. For example, the Middle Woodland Hopewellian florescence is temporally correlated with the relatively mild sub-Atlantic climatic episode (Griffin 1961). Likewise, the culture's decline corresponds roughly to the Vandal Minimum (circa A.D. 400–800), a period of global temperature decline. Struever and Vickery (1973) suggest a possible correlation between the onset of a cooler, moister period (circa 1600 B.P.) and increased use of Polygonum by Late Woodland groups in the Midwest (Struever and Vickery 1973:1215–1216). During this same period (1600–1300 B.P.), warmer temperatures have been inferred for the Great Plains and dryer conditions for the Upper Great Lakes (Baerreis et al. 1976; Warren and O'Brien 1982). Other fluctuations during the Late Holocene are similarly non-uniform across the mid-continental United States; however, the interfaces of all fluctuations are generally consistent. Local paleoecological evidence is required to determine the kinds of climatic fluctuations Woodland populations experienced during the Pacific episode. Given evidence of fluctuations elsewhere, changes most likely occurred circa 1700 B.P., 1300 B.P., and 900 B.P., with a possible earlier change around 2300 B.P.

Studies of historic weather patterns and tree-ring data by Fritts et al. (1979) have indicated that climatological averages are "unusually mild" when compared to seventeenth- to nineteenth-century trends (Fritts et al. 1979:18). The study suggests that winters were generally colder, weather anomalies were more common, and unusually severe winters were more frequent between AD 1602 and AD 1899 than after AD 1900. Cooler, moister conditions are associated with the Neo-Boreal episode, which began around 700 B.P. and coincided with minor glacial advances in the northwest and Europe (Denton and Karlen 1973; Warren and O'Brien 1982:73). This episode is viewed by Warren and O'Brien as a causal factor in vegetation pattern shifts in northeast Missouri (Warren and O'Brien 1982:74–76). Fluctuations in the Neo-Boreal episode appear to have varied locally (Baerreis et al. 1976:50–52; Warren and O'Brien 1982:73).

The effects of the Neo-Boreal episode, which ended during the mid- to late-nineteenth century, have not been studied in detail for this region. It appears that the area experienced less radical temperature decreases during the Late Neo-Boreal than did the upper Midwest and northern Plains (Fritts et al. 1979), so it follows that related changes in extant vegetation would be more difficult to detect. It is probably safe to assume that average temperatures were at least a few degrees cooler during the late Prehistoric and early Historic periods. The frequency of severe winters and average winter precipitation were probably greater as well. Several scholars (e.g., Anderson 2001; Griffin 1961; Grove 1988) have observed that the beginning of the Little Ice Age disrupted prehistoric cultures in the Eastern Woodlands. Anderson (2001:166) relates the agricultural difficulties brought on by the climatic downturn to "increased warfare and settlement nucleation, and decreased long distance exchange and monumental construction."

## Vegetation

The Outer Bluegrass physiographic province is located within the Western Mesophytic Forest (Braun 1950:146). The major vegetation types in this region form a complex mosaic strongly influenced by underlying geologic strata. This is in strong contrast to the situation in the Mixed Mesophytic Forest to the east. There forests in the Inner Bluegrass are generally less luxuriant than those in the Appalachian Plateau and have a greater tendency towards dominance of a few species (Braun 1950:122-123).

The transition from extensive, mixed Mesophytic communities in the far eastern part of the state to extensive oak and oak-hickory communities in central and western Kentucky is well marked despite the more generalized mosaic pattern and the presence of large prairie areas (Braun 1950:123). While old forest trees remain on large estates, there are no extensive areas of original vegetation outside of the river gorges in the Bluegrass and it is impossible to reconstruct a picture of the original forest conditions (Braun 1950:125). Beech trees are not represented naturally in the Inner Bluegrass forest; however, beech trees are part of the forested areas in the Outer Bluegrass. The western Mesophytic forest is dominated by oak and hickory, but a wide variety of other species are represented.

Oak-chestnut and oak-hickory communities occupy upper slopes and ridgetops. Pine is dominant on ridgetops where rock outcrops occur. Beech and white oak are located where shale is the underlying rock. Oak, oak-hickory, and oak-pine communities comprise the modern day eastern Kentucky forest community (Niquette and Henderson 1984).

## Description of the Project Area

As will become evident later in the report, the project footprint actually consisted of numerous small-sized areas that were mainly confined to the existing ROW for Interstates 65, 64, and 71. Although the ROW was a continuous zone that paralleled the existing interstates, it was typically subdivided into small-sized pockets of green space due to it being cross-cut by secondary roads (e.g., Jefferson Street, Adams Street) and existing buildings. These green areas generally had vegetation consisting of grass and small bushes (Figure 2.1), although some places, especially the larger-sized areas, did contain small to medium-sized trees (Figure 2.2). Large-sized green areas were located in the medians of Interstate 64 and 71 (e.g., Spaghetti Junction), at the intersection of Witherspoon and Adams Streets, and near the skateboard park at the corner of Hancock and Clay Streets. In nearly all cases, the previously mentioned vegetation represents secondary growth. Examples of dense secondary growth includes areas south of Interstate 71 near bore holes 2W-135 and 2W-139, in and around the water treatment plant near bore hole 2W-151, near the Hadley Pottery house, and bore holes 1W-74 and 1W-76 behind McDonalds off of Market Street. A few green areas within the ROW in downtown Louisville were gardens and manicured lawns that were maintained by various businesses or the city. Such areas include the Great Lawn between the Ohio River and Interstate 64 near bore hole 4W-260 (Figure 2.3), the periphery of Jefferson Street near bore holes 1W-17 and 1W-28, and 5B-291 near the horse barn off of Witherspoon.

**Figure 2.1. Example of vegetation in project area near bore hole 3R-384, looking east.**

**Figure 2.2. Example of vegetation in project area near bore hole 3B-183, looking northwest.**

**Figure 2.3. Manicured landscaping in the Great Lawn area.**

Many ROW areas contained earthen embankments that supported the interstate network. For this reason, the actual ROW area that could be investigated was typically very narrow, for example, 3–6 m (about 10–20 ft) in maximum width. In some cases these green areas consisted of totally disturbed soils with no evidence of intact cultural deposits being present. Examples of such areas include bore hole 1B-17 and 1B-32 (parking lot) where a truncated B horizon silt loam or C horizon sands were encountered just below the ground surface. Other areas of the project footprint, however, appear to have possible intact historic deposits, such as bore hole 1W-77, 1W-27, and 1B-25 near the intersection of Jefferson and Preston Streets, 4W-260 in or near the Great Lawn, and 3B-177 in the median of Interstate 64, among others.

Soils in the project footprint varied widely depending on amount of urban disturbance, depth below ground surface (bgs), the presence of intact cultural deposits, and the water table. Because of these factors general statements about soils cannot be accurately made. General statements are further complicated by the fact that the soils in Louisville have never been mapped (see Zimmerman et al. 1966). It can be stated with a certain amount of assurance, however, that sands, sometimes alternating between fine and coarse-sized, are present across the project area. What differs is the depth at which the sands become prevalent. Sands tend to be encountered between 3 and 6 m (10 and 20 ft) below ground surface but in a few cases sand was identified before 10 ft or after 20 ft. A couple of bore holes never penetrated into the sands, but this situation was very rare.

As previously noted, parts of the project footprint contained standing structures, roads, earthen embankments, and other built objects (e.g., large water fountains and parking lots). Without any doubt, the built environment has adversely impacted some archaeological resources. In some cases, urbanism has destroyed any evidence of archaeological remains (see above) while in other cases their presence has hindered or obstructed our evaluation. For example, numerous parking lots located in the ROW may have intact resources located beneath the asphalt but could not be evaluated. Some of the embankments appear to have intact deposits located below them, as indicated in bore hole 5B-324. Areas with standing structures, like the three-story brick building located on Jefferson Street (Baehr Fabrics) or the three-story brick building located on the corner of Jefferson and Jackson Streets, made evaluation of archaeological resources in and around the area difficult and may have partially destroyed the integrity of archaeological deposits near the structures.

# Chapter 3. Cultural Overview

This section of the report provides a discussion on the cultural history of the Falls Area. A general prehistoric overview is given in which each of the time periods are discussed. The historic summary is more specific to the Jefferson County area of Kentucky with discussion heavily weighted toward the developmental history of Louisville. A site file search at Office of State Archaeology (OSA) did not indicate that any previously recorded archaeological sites were located within the project footprint. Some of the more important sites located within a 2 km radius have been included within the cultural overview below.

## Falls Area Prehistoric Overview Cultural Chronology

This section of the report provides an overview of the prehistoric cultures that inhabited the region in and around the Falls of the Ohio area from Paleoindian (Clovis) to Late Prehistoric. Some individual sites located outside the project purview are also included in the following discussions given their importance to defining particular time periods (for example, the importance of Meadowcroft Rockshelter to possible pre-Clovis occupations). This discussion will then be followed by a summary of the historic period for Jefferson County.

### Pre-Clovis Prospects

The mainstream archaeological community agrees that Asiatic people arrived in North America via the Bering land bridge that once joined Siberia and Alaska (Dragoo 1976:4). These earliest populations may have followed the Pleistocene megafauna (or other animal species) to this continent, thereafter populating both North and South America. Muller-Beck (1966) noted that this may have occurred as early as 40,000 B.C. Nevertheless, conclusive evidence to support such an early arrival is difficult to identify. Possible early sites known in the New World include Meadowcroft Rockshelter, Monte Verde, Cactus Hill, and the Topper site.

At Meadowcroft Rockshelter in western Pennsylvania, dates exceeding 17,000 B.C. have been assayed from the material recovered from the deepest microstrata in Stratum IIa (Adovasio et al. 1978:638-639). Additional but controversial evidence of a pre-Clovis horizon has been found more recently at Monte Verde in northern Chile (Dillehay 1989, 1997; Meltzer et al. 1997). An occupational surface (MV-II), dating to approximately 10,500 B.C. was documented at the site (Dillehay 1989, 1997). It is suggested that this occupation includes wooden huts, hearths, and associated stone artifacts. Radiocarbon dates suggest that this occupation was approximately 1,000 years older than the generally accepted dates for Clovis but is situated some 16,000 km south of the Bering Land Bridge. Several other sites in the United States also have been suggested as candidates for pre-Clovis occupations; however, Monte Verde remains the best documented. In fact, the Monte Verde data have compelled Meltzer to reconsider his absolute proclamations concerning the “Clovis Barrier” (Meltzer et al. 1997). Meltzer and his colleagues state, “MV-II is clearly archaeological and there is no reason to question the integrity of the radiocarbon ages” (Meltzer et al. 1997:660–661).

### The Paleoindian Period

The earliest cultural period conclusively documented in the middle Ohio Valley is Paleoindian. Dragoo (1976:5) has dated this period in the eastern United States from about 10,500 B.C. to 8000 B.C. Mason (1962:236) has suggested, however, that this period may have begun as early as 11,550 B.C., based on what is known about North American glacial history at the close of the Pleistocene.

Arrival of Paleoindian populations in the middle Ohio Valley was closely associated with the movements of the Pleistocene glaciers. During the Paleoindian period, the last of these glacial advances and retreats, called Greatlakean Stadial (post-9900 B.C.), occurred. Although the glaciers never actually extended south of the Ohio River, the climatic effects of the glacier were probably felt. A cooler, moister climate affected the composition and distribution of floral and faunal communities (Delcourt and Delcourt 1982; Klippel and Parmalee 1982), although the specific effect in the Middle Ohio Valley is not well understood.

Distinctive lanceolate-shaped, often fluted, projectile points called Clovis are the artifactual hallmarks of the early part of the Paleoindian period. Unifacially and bifacially chipped tools such as knives, scrapers, spokeshaves, endscrapers with spurs, drills, and gravers have also been recovered. Artifacts and tools of wood, bone and shell are inferred to have also been used, but poor preservation of these artifact types have prevented recovery.

In the Plains area, Paleoindian points recovered from subsurface contexts have been found in direct association with extinct Pleistocene megafauna (Jennings 1978:27). Often these sites have been interpreted as kill sites. This has led archaeologists to hypothesize that these early Americans were engaged full-time in hunting big-game Pleistocene mammals, such as mammoth, mastodon, giant beaver, bison and Pleistocene horse, to the exclusion of plant resource utilization (e.g., Bonnichsen et al. 1987; Kelly and Todd 1988; Stoltman and Baerreis 1983).

In opposition to this view of Paleoindians as big game hunters, many species of plants and small mammals have been recovered from Clovis-aged sites such as Lubbock Lake (Johnson 1987), Shawnee-Minisink (Dent and Kaufman 1985), and Aubrey (Ferring 1989). The latter indicate that, at least in some cases, a wide variety of plant and animal species were being exploited by early groups. The apparent specialization on big game hunting may have more to do with biases of the archaeological record (e.g., preservation, site discovery) than the realities of Paleoindian lifeways. As Grayson (1988:44) has noted, if Paleoindian groups "spent most of their time hunting mice and gathering berries, we probably would not know it." In a recent review of the topic, Meltzer (1993) concluded that there is no widespread evidence for the specialized hunting of big game species (i.e., megafauna). Several authors (e.g., Davis 1993; Dincauze 1993; Meltzer 1993) have now argued that the Paleoindian diet was probably more generalized. A number of faunal and floral species would have been utilized. Megafauna would have been taken when encountered, but not to the exclusion of other species.

In the eastern United States, fluted points have not been recovered in association with extinct Pleistocene fauna. Quimby (1960:27–33) thinks that even without this association, archaeologists may still postulate that Paleoindian peoples were hunting mastodons in the Upper Great Lakes. MacDonald (1968), on the other hand, has proposed that perhaps caribou were the preferred game. Evidence to support this suggestion has been found at Holcomb Beach in Michigan (Fitting et al. 1966), where caribou remains were found in a hearth associated with Paleoindian fluted points.

The traditional picture of Paleoindian lifeways consisting of big-game hunting almost exclusively is currently viewed as too simplistic. Even though the site dates to the latter portion of the Paleoindian period, floral and faunal materials recovered from the Shawnee Minisink Site in Monroe County, Pennsylvania, reflected a much different picture. Dent (1981:79) reported that the Paleoindian levels of this site included carbonized seeds such as acalypha, blackberry, chenopod, hawthorn plum, hackberry, and grape. In addition, the faunal assemblage suggested that these people were heavily dependent upon fish.

Although Paleoindian type sites are located in the western Plains area, more fluted points have been found in the Midwest and Southeast than in the Plains (Jennings 1978:27). Early Paleoindian Clovis points occur abundantly below the glacial margin around the Ohio River, and are particularly common in Kentucky, Tennessee, Alabama, and Georgia (Dragoo 1976:9).

Paleoindian sites in the eastern United States where Clovis points have been recovered from subsurface contexts include Bull Brook in Massachusetts (Byers 1954), Shawnee-Minisink Site in Pennsylvania (Marshall 1978), Wells Creek Crater (Dragoo 1973), Johnson-Hawkins, Johnson, and Carson-Conn-Short sites (Broster and Norton 1992) in Tennessee, Debert Site in Nova Scotia (MacDonald 1968), and Modoc Rockshelter in Illinois (Fowler 1959). At Meadowcroft, despite the lack of diagnostic fluted projectile points, subsurface remains that date to the Paleoindian period were recovered. These include Mungai knives, bifaces, flake blades, and debitage, as well as four firepit features (Adovasio et al. 1977). Although far from being universally accepted, the earliest dated Paleoindian component in North America (14225 ± 975 B.C.) (Adovasio et al. 1977:Table 7) was recovered from Stratum II at this site.

Dated Paleoindian material in the Ohio Valley is virtually absent. In fact, Tankersley (1990:80) states that there are only 22 dated Paleoindian sites in the entire United States and that 17 of these are located west of the Mississippi River. Three dates, from two Kentucky sites, are worthy of note. Unfortunately, the association between the dates and Paleoindian material cannot be demonstrated. An alluvial stratum at Big Bone Lick, containing sloth, horse, mastodon and mammoth, yielded a date of 8,650±250 B.C. (W-1358). Clovis points were also found at the site and the date may be an accurate assessment for Paleoindian use of this locale. Enoch Fork Rockshelter (15Pe50) yielded two early dates: 9,010±240 B.C. (Beta-15424) and 11,530±350 B.C. (Beta-27769). Both of the samples used to generate these dates were obtained from a stratum underlying an Early Archaic Kirk zone at the site (Cecil Ison, personal communication 1991). More recently, Broster and Norton (1992; also see Broster et al. 1991) have reported dates of 11,700±980 B.P., 12,660±970 B.P. from the Johnson site, and 11,980±110 B.P. associated with fluted material from the Johnson-Hawkins site along the Cumberland River in the Nashville Basin of Tennessee.

With the retreat of the glaciers, the environment began to change, and the Pleistocene megafauna became extinct. Regional archaeological complexes began to develop (Dragoo 1976:10) as new projectile points replaced the Clovis point tradition. In the Southeast, Clovis fluted points gave way to Plainview, Agate Basin, Cumberland, Quad, Dalton (Meserve), Beaver Lake, and Hardaway-Dalton projectile points. These projectile point types are representative of the transition from the late Paleoindian to the Early Archaic period (circa 8500–8000 B.C.).

Transitional Paleoindian/Early Archaic sites are slightly more numerous than the earlier Paleoindian sites. Diagnostic artifacts include the Dalton, Quad, Beaverlake, Greenbrier, and Hardaway Side Notched PPKs (Justice 1987:35–43). Sites dating to this period show many resemblances with Paleoindian material (lanceolate PPks, uniface tools) and also with an Early Archaic lifeway (more diverse subsistence, and the introduction of many bifacial tool forms and several types of sites). Hunting remains the main source of subsistence. However, Dalton peoples probably based their economy around the hunting of small game animals, such as the white-tailed deer, instead of the large game animals (Morse 1973). This is probably also the case for other late Paleoindian/Early Archaic groups. According to Williams and Stoltman (1965:678), "available evidence suggests an increasing Dalton concentration into the Tennessee River valley of northwest Alabama and western Tennessee, and the Green River in Kentucky." With depletion of the big game herds, old supplementary subsistence patterns were intensified. This is the beginning of an Archaic subsistence pattern (Williams and Stoltman 1965). Two basic kinds of Dalton sites have been described by Morse (1973): base settlements and butchering camps.

Many sites that contained Paleoindian material also contained transitional Paleoindian components. There appears to be an increase in the number of sites, which may reflect a population increase during this period. Hunting remained important; however, there is evidence for the use of wild plant foods as a dietary supplement. At the Hester site, Lentz (1986) recovered the remains of wild plum, hickory nut, hackberry, walnut, and acorn in association with Dalton, Big Sandy, Decatur, and Pine Tree horizons. Lentz (1986:272) states, "Most of the foods [recovered in these early horizons] can be consumed fresh without any required grinding, soaking, or cooking." Few food-processing artifacts were recovered from the site.

Goodyear (1982:382–392) has argued, based on radiocarbon dates and contexts of Dalton points across the Southeast, that Dalton points consistently date earlier, and are not contemporary with later side notched and corner notched forms. Goodyear places this transitional phase between 8500 and 7900 B.C.

## The Archaic Period

Based on a suite of radiocarbon dates, temporal limits for the Archaic period have been established at approximately 9950 to 2950 B.P. within the region, though dates extending to 2750 B.P. would not be unexpected. The Archaic, which is traditionally divided into Early, Middle, and Late sub-periods, represents a period of time when pre-ceramic hunter-gatherer populations occupied the region.

During the last three decades, surface surveys and excavations of floodplain and upland sites have generated a variety of cultural, temporal, functional and environmental data, which have been used to reconstruct the lifestyles of Falls Area prehistoric populations. Using radiocarbon dates and artifact sequences from deeply stratified floodplain and rockshelter sites, these data have been ordered chronologically to reconstruct local prehistory. What has emerged is a picture of a constantly changing natural world and attendant cultural responses. The data suggest cultural developments in the Falls Area, and the greater Ohio Valley in general, occurred at a relatively slow, steady rate throughout the Archaic period. Existing models view the Archaic as a period characterized by increasing sedentism through time, as the development of more efficient subsistence practices resulted in a shift from high residential mobility in the early Holocene to more logistically organized foraging strategies in middle to late Holocene times. Most models to date suggest that the impetus for this trend is environmental change. In particular, the dry-warm Hypsithermal or Atlantic climatic episode, which dates from about 7000 to 5000 B.P., and concomitant changes in vegetation are frequently cited as the factors which "forced" Midwest hunter-gatherers out of the uplands and into major river valleys (Carmichael 1977). More recent studies in southwestern Indiana suggest the settlement-subsistence changes which occurred during the Middle Archaic cannot be adequately explained by such simple cause and effect models (Stafford 1991). Although a considerable wealth of knowledge about the Archaic period has accumulated over the years, many important questions regarding changes and developments in Archaic adaptive strategies, technological systems, and social structures remain to be more fully addressed.

### *The Early Archaic Period*

Based primarily on transitional lithic forms, archaeologists have reached general agreement that regional Early Archaic populations in the Midwest and Southeast developed from Late Paleoindian expressions (Funk 1978:19). In the greater Ohio Valley, temporal limits of 9950 to 7950 B.P. are widely used for this subperiod (cf., Jefferies 1990:150–151; Granger 1988:153). By the Early Archaic, many of the harsh conditions associated with the terminal Pleistocene had been ameliorated and the large megafauna species exploited by earlier Paleoindian populations had become extinct. Deciduous forests established themselves across the landscape and rivers that previously served as sluiceways for glacial meltwaters dwindled in size, exposing broad alluvial valleys, which were conducive to settlement and served as potential travel avenues for human and animal populations. As noted by Muller (1986:56) "many of the features of the Early Archaic, though poorly understood, reflect the beginning of the long period of 'specialization' to Eastern Woodland local environments."

In the Falls Area, Early Archaic occupations are recognized by a variety of notched point types that are typically well made and fashioned from high quality cherts. Early Archaic points were highly curated, as many specimens retain evidence of a high degree of blade resharpening and rejuvenation. Within the Falls Area, point clusters typical of the period consist of Thebes, Kirk, Rice Lobed, LeCroy, and Stanley. The Thebes Cluster incorporates the Thebes, St. Charles, Lost Lake, and Calf Creek point types (Justice 1987:54-60). Each of these types occurs in the general Falls Area region, though the Calf Creek type is at its northeastern extension. Klippel (1971) reported dates of 9530 and 9340 B.P. for Thebes points at Graham Cave, and more recently Morrow (1989) reported four dates spanning the period from 9510 to 8900 B.P. at the Twin Ditch site in the lower Illinois Valley. Radiometric dates for Thebes sites or components in the Falls Area are not available. However, recent work by Indiana State University at the Simpson site (12Hr403) identified a potential buried Thebes occupation in Harrison County, Indiana (Stafford and Cantin 1992). Radiocarbon samples have yet to be recovered, though future excavations are planned.

Included in the Kirk Corner Notched and Kirk Stemmed clusters are the Kirk Corner Notched, Stilwell, Palmer Corner Notched, Charleston Corner Notched, Pine Tree Corner Notched, Decatur, Kirk Stemmed, and Kirk Serrated point types (Justice 1987:71–85). Kirk cluster points are typically less massive than those of the Thebes cluster and blades are infrequently beveled. Available radiocarbon dates for Kirk cluster components in the eastern U.S. are in the same range as those reported for Thebes sites. Small variety Kirk points dated to 9490–8440 B.P. were recovered from the lower levels at Longworth-Gick in Jefferson County, Kentucky, while an overlying level produced larger Kirk specimens also dated to 8440 B.P. Large variety Kirk points were dated at the St. Albans site in West Virginia to 8850–8800 B.P. (Broyles 1971). Kirk Stemmed and Kirk Serrated points are believed to date within the 8850–7950 B.P. range (Justice 1987:84).

The Rice Lobed cluster includes Rice Lobed, MacCorkle Stemmed, and St. Albans Side Notched points (Justice 1987:85–91). Each is a basely notched or bifurcated stem type that has geographic distribution within the general project area (though Rice Lobed is at its northeasternmost extension within the Ohio Valley). The related LeCroy Cluster consists of the LeCroy Bifurcated Stem, Lake Erie Bifurcated Base, Kanawha Stemmed, and Fox Valley Truncated Barb point types (Justice 1987:91–97). At Longworth-Gick, LeCroy and Kanawha points were recovered from a stratigraphic position above the Kirk horizons dated to 8420 B.P. Kanawha, McCorkle, LeCroy and other unclassified bifurcate base points were recovered from buried alluvial contexts at 12Cl106 (and a few examples from 12Cl109) during mitigation of the Clark Maritime Archaeological District in Clark County, Indiana (Sieber and Ottesen 1985).

Stanley Stemmed points have prominent occurrence in portions of the mid-south, southeast, and eastern Atlantic states (Coe 1964; Justice 1987:97–99). This point type is not well documented in the Falls Area, though specimens have been reported in both Kentucky and Indiana. Test excavations at the Glasgow site (46KA229) in Kanawha County, West Virginia, identified what appeared to be a sealed Stanley component (Niquette et al. 1991:27–56). Corrected radiocarbon dates clustered between 8450–8150 B.P., indicating a relatively late Early Archaic placement. Corrected dates for the Icehouse Bottom site in Tennessee, Neville site in New Hampshire, Habron site in Virginia, Russel Cave site in

Alabama, and Hansford site in West Virginia (Justice 1987:97–98), were similar to those reported for Glasgow, with only a single date from Ice House Bottom falling in the pre-7950 B.P. range (Niquette et al. 1991:51). Based on these early dates, the Stanley complex is placed in the Early Archaic, rather than its more traditional early Middle Archaic, position.

Archaeological data collected from surface surveys and excavations throughout the Midwest indicate that the formation of most Early Archaic sites resulted from short-term occupations by small, highly mobile groups (bands). Sites dating to this period are characteristically small in size and produce limited numbers of functionally restricted artifacts. Chert tools associated with the procurement and processing of fauna are most common, though collection of wild plant resources was undoubtedly important to the subsistence base. Generally lacking is evidence of midden development, pit features, human and dog interments, groundstone tools/implements used to process plant foods, and other evidence of long-term and/or intensive occupation; however, thermal features (burned surfaces), charcoal filled pits, and some rock concentrations have been identified at deeply buried sites in the general project area (Collins 1979; DiBlasi 1981; Smith 1986). Using a large-scale survey data set from the dissected, forested uplands in southwestern Indiana, Stafford (1991) concluded that Early Archaic, and possibly early Middle Archaic groups, utilized a mobility strategy dominated by fine-grain patch-to-patch movement through multiple drainage basins by procuring resources on an encounter basis as associated with foragers. In this system patch, travel costs are minimized and within patch residence time is limited, resulting in high mobility as reflected in frequent residential moves. Patterns of chert procurement for the area suggest residential moves were made over large home ranges relative to the later Archaic periods. Cantin (1993) conducted a technological and raw material procurement analysis of Thebes and Kirk cluster points from southwestern Indiana, in an effort to document potential intra-period variability of Early Archaic mobility strategies and home range sizes. The database consisted of 112 Thebes cluster and 187 Kirk cluster points recovered by the survey of some 22,000 acres in a 17 county area. Resulting data, though subject to differing interpretations, suggest that both Thebes and Kirk groups consisted of small, highly mobile bands. Nevertheless, the movements of the Kirk groups appear to have been confined to areas that are more restricted or home ranges, suggesting that a “settling in” process was underway. More analysis is needed, but the data are useful for addressing intra-period variability in favor of the generalized Early Archaic profiles, which have resulted from most studies to date.

In the Falls Area region of Kentucky, some 60 Early Archaic sites/components have been documented (Jefferies 1990:185). Perhaps the best known of these sites is Longworth-Gick (15Jf243), located on a low alluvial floodplain ridge down river from Louisville (Collins 1979). Early Archaic materials were identified in a number of zones at this deeply stratified site excavated by the University of Kentucky in 1975. In situ Early Archaic deposits have also been identified at Ashworth Shelter (15BU236) on Floyds Fork, which serves as the type site for the Early Archaic Ashworth phase (DiBlasi 1981; Granger et al. 1992:28, 30). In the lower levels of the Ashworth site, DiBlasi (1981) reported a horizon identified by what were termed Ashworth points (Kirk-like). Two features and a human burial were reported as being associated with this horizon. Similar deposits are reported for the Durrett Cave habitation site (15Jf201) and the McNeeley Lake site (15Jf200) (Granger 1988). Ashworth phase materials from the KYANG (Kentucky Air National Guard) site have not been analyzed to date (Granger et al. 1992:30). Excavations at the Clark Maritime Center in Clark County, Indiana, identified a wide variety of Early Archaic point types in buried alluvial deposits at sites 12Cl106 and 12Cl109 (Sieber and Ottesen 1985). In Harrison County, Indiana, Smith (1986) conducted investigations at the

Swan's Landing site, a Kirk workshop with multiple occupational zones. Unfortunately, absolute dates for the site appear to have been contaminated by coal. Also in Harrison County, Stafford and Cantin (1992) conducted phase II tests at the Simpson site (12Hr403) and identified a possible buried Thebes component in the lowermost levels. Site 12Hr87, now destroyed by the lateral migration of the Ohio River, is reported to have had an Early Archaic bifurcate base component.

Additional Early Archaic sites and components have been identified in a variety of buried contexts in the Midwest and Southeast. In West Virginia, Broyles (1971) reported on a stratified Early Archaic sequence at the St. Albans site, while other stratified sequences with Early Archaic components were identified at Modoc (Ahler 1993; Fowler 1959; Styles et al. 1983) and Koster (Brown and Vierra 1983) in southern Illinois. In Tennessee, Chapman (1975, 1976, 1977) reported on the bifurcate base tradition components of the Rose Island site, while Coe (1964) discussed the results of his investigations at Early Archaic sites in the piedmont region of North Carolina.

## *The Middle Archaic Period*

Following Jefferies (1990:150–151) and Granger et al. (1992:31) temporal limits of 7950–4950 B.P. are used to define the Falls Area Middle Archaic. This departs from the 5950 B.P. date traditionally used by many local archaeologists to define the Middle/Late Archaic transition (cf., Jefferies 1990:150; Muller 1986:57). According to Jefferies (1990:186), less than 60 Middle Archaic sites have been recorded for the Salt River Management Area, and the sites or components that are dated cluster within the latter portion of the period. This, in part, is likely a reflection of a long history of inconsistent classification. Few dates from approximately 8000 to 6000 B.P. are available.

By Middle Archaic times, environmental conditions in the Falls Area were essentially modern, as remnants of Pleistocene vegetation had disappeared (Jefferies 1990:151). Artifact inventories (and presumably populations) became increasingly regionalized and new artifact classes and technologies were developed. A "settling in" process was well underway in which localized groups developed more efficient adaptive strategies in order to exploit the wide range of plant and animal resources available (Caldwell's Primary Forest Efficiency). For the first time, groundstone artifacts manufactured through a pecking-grinding-polishing technology occur with regularity. Included are woodworking implements such as adzes and axes, as well as atlatl weights or bannerstones used in hunting and pendants used for personal adornment. Other formal and informal groundstone tools such as manos, mortars and pestles, and nutting stones were used in the processing of nuts and other plant foods (and possibly the smashing of bone prior to boiling). During the latter part of the Middle Archaic, relatively large quantities of fire-cracked rock (FCR) occur at some sites, suggesting the intensive processing of seasonally available plant resources.

When preservation is adequate, bone tools and debris occur in feature and midden contexts. Tools include awls, antler projectile points, fishhooks, scrapers, and gouges used for a variety of extractive and processing tasks. Bone pins, some of which are engraved with geometric motifs, have been reported for sites in the region, but appear to be more common in the lower reaches of the Ohio Valley. Relatively large sites with midden stains, large numbers of pit features, diversified artifact assemblages (which include some ornaments of exotic material) and human and dog interments occur in upland and valley settings by late Middle Archaic times. Sites of this nature, which are generally classified as "base-camps" are commonly interpreted as seasonal and/or multi-seasonal residences occupied by relatively large groups to exploit locally abundant resources. Such sites are often situated at or near the interface of two or more microenvironments. Regionally important sites with Middle Archaic components include Eva (Lewis and

Lewis 1961), North Carolina Piedmont sites (Coe 1964), Modoc Rockshelter (Fowler 1959), and Koster (Cook 1976; Brown and Vierra 1983).

Middle Archaic sites in the Falls Area often include relatively large, well-made side-notched points of the Raddatz Cluster (Justice 1987:67–69). Point types in this cluster commonly reported for sites in the greater Falls Area include Big Sandy II, Brannon Side-Notched, Faulker Side-Notched, and Godar Side-Notched. The distribution of Raddatz Cluster points is primarily to the west/northwest of the Falls Area in portions of the lower Ohio, Illinois, and upper Mississippi valleys. At many of the larger late Middle Archaic midden sites in the Ohio Valley Raddatz Cluster points co-occur with smaller side-notched forms of the Matanzas Cluster (Justice 1987:119–124). The latter cluster consists of the Matanzas Side-Notched, Brewerton Eared-Notched, and Salt River Side-Notched point types. Matanzas cluster points are typically placed within the Late Archaic, but they may well have first appeared during late Middle Archaic times (Anslinger 1988; Cantin and Anslinger 1987; Hemmings 1977, 1985; Jefferies 1988:151–152; Wilkins 1978; U.S. Army Corps of Engineers 1980).

The Old Clarksville phase was originally defined by Granger (1988:153–203) for the Falls Area Late Archaic, but the placement has since been revised to the late Middle Archaic (Granger 1992). Principal components include Old Clarksville (12Cl1), Hornung (15Jf60), KYANG (15Jf267), and McNeeley Lake (15Jf200). Recurrent attributes include the placement of tightly flexed interments in small, oval pits within settlements or nearby middens. On occasion ceremonial grave goods accompany burials, with items such as bracelets, necklaces, pins, and beads being present; some of these are also fashioned from "exotic" materials. Available data indicate that females and infants are most often accompanied by such inclusions. The intentional interment of dogs also occurs. Side-notched points, unifacial end-scrapers, drills, and a variety of bone tools (some engraved) also occur with regularity. Middle Archaic deposits identified in southwestern Jefferson County at the Villier, Spadie, and Rosenberger sites yielded limited data (Collins 1979; Pollack 1990:186). It is evident, however, that by the late Middle Archaic, sites with relatively thick, well developed midden deposits; numerous pit features; large and functionally diverse artifacts assemblages of chert, groundstone, and bone; and human and dog burials occurred throughout the middle and lower reaches of the Ohio Valley. The Ferry Landing, Miller, and Hoke sites in Harrison County and the Reid site (12Fl1) in Floyd County, Indiana, produced similar components (Janzen 1972, 1977).

In the lower Ohio Valley, the Middle Archaic is not well documented, though a number of late Middle Archaic sites have been investigated. The best known of these is the Black Earth site in southern Illinois, which was excavated during the Carrier Mills Archaeological Project (Jefferies and Butler, ed. 1982; Jefferies and Lynch 1983). The late Middle Archaic occupation, dated to approximately 5950–4950 B.P., was characterized by a heavy dark midden, numerous pit features, Godar/Big Sandy II and Matanzas side-notched points, and an extensive bone tool industry, which included engraved bone pins. When blades were broken, many of the points were reworked into "hafted" scrapers. Side-notched points accounted for 86 percent of the points from late Middle Archaic contexts, with stemmed Karnak points being of relatively minor importance. The assemblage was noted to share considerable stylistic similarity to those of the Helton phase (Cook 1976) in the lower Illinois Valley and the French Lick phase (Munson and Cook 1980) of southern Indiana.

In southern Indiana, a number of sites in the Wabash, White, Ohio, and Patoka watersheds were used by Munson and Cook (1980) to define the French Lick phase. In their dimensional description, the authors placed French Lick in the early Late Archaic within the range of 4950–3450 B.P. Using a point data set from the Bluegrass site (12W162) in Warrick County and a number of surrounding sites in southwestern Indiana, Cantin and Anslinger (1986) suggested that the French Lick phase actually incorporated lithic elements of both the late Middle and Late Archaic sub-periods. They further suggested that refinement of the phase sequence for the area would be possible through the examination of small, short-term camps rather than the larger midden sites that contained temporally mixed deposits resulting from long periods of re-occupation. The Bluegrass site, excavated by Indiana State University in the 1980s, produced a series of radiocarbon dates which clustered between 5500 to 5000 B.P., although one outlier date of 6200 B.P. was also obtained from a lower midden zone (Anslinger 1988). Lithic and bone artifacts from the site were similar to those reported for Black Earth, Koster's Helton phase component in southern Illinois, the McCain site in southern Indiana (Miller 1941), as well as other sites in the region. A sample of 186 points from the Bluegrass site consisted of 119 (64 percent) side-notched and 67 (36 percent) stemmed forms. The side-notched specimens were primarily of the Matanzas cluster, though nearly 13 percent were classified as Godar/Big Sandy II. The stemmed points were primarily in the Karnak/Oak Grove cluster. Some burials from the site produced caches with stemmed points similar to those reported for Green River Archaic in Kentucky. Included were antler atlatl hooks and handles, bar atlatl weights, bifaces and unifaces, antler projectile points, awls, pins, paired ground hog mandibles, and a variety of other items, including an occasional mussel shell and a single turtle shell rattle. The composition of the assemblage and the clustered dates suggest that by 5000 B.P. side-notched points were being replaced by stemmed forms in the area; however, the differences extend beyond simple morphology. The side-notched and stemmed points from the Bluegrass site were manufactured through strikingly different reduction technologies. The chert usage patterns are also distinct, with the stemmed forms being fashioned from high quality blue-gray cherts of the Wyandotte series and the side-notched forms from a wide array of lesser quality cherts including fossiliferous varieties.

Data collected from the Falls Area down river into southern Illinois and western Kentucky show a similar pattern in which side-notched point forms are replaced by stemmed types. Whether this transition was roughly coeval throughout the lower Ohio Valley, or whether there were significant lag periods in some watersheds, is not well documented at this time. Unfortunately, many of the sites examined to date contain mixed assemblages, which are not particularly amenable to resolving this problem. As such, it would be useful to examine differences in the relative frequencies of side-notched and stemmed points at stratified and/or single component sites which are firmly dated. To do so could potentially provide watershed specific temporal data for the side-notched to stemmed point transition, which in turn could be used in combination with a variety of data to determine if there were concomitant changes in settlement strategies, subsistence practices, technological systems, and social organization.

Also of interest is a study conducted by Stafford (1991) regarding late Middle Archaic settlement within the Wabash Lowland physiographic province of southwestern Indiana. For this period of time (based on the presence of side-notched points at sites), he identified a fundamentally different strategy than noted for the Early Archaic. The structure of extra-valley use changed to a coarse-grained one, where a valley base-camp was used to stage resource procurement episodes of upland and near-river patches for storage at the base-camps (i.e., logistical strategy with high-bulk processing). In this system, round trip travel costs and added processing costs reduce the profitability of distant resource patches in the upper reaches of drainage basins. More emphasis is therefore placed on exploiting nearby patches in closer proximity to the bases, although patches once visited in the Early Archaic are not totally ignored. A net increase in travel costs and added processing time results in longer patch residence time and reduced mobility.

## *The Late Archaic Period*

Late Archaic manifestations of the Falls Area share considerable similarity with contemporaneous culture expressions throughout the greater Ohio Valley, though the closest affinities appear to be with sites in the lower reaches of the Valley. Falls Area Late Archaic is dated from approximately 4950–2950 B.P., but dates extending to about 2750 B.P. would not be unexpected. The Late Archaic represents a continuation of the late Middle Archaic way-of-life, though artifact assemblages and adaptive strategies show an increase in regional variability and specialization. In addition, in some areas such as the Green River, there is evidence for the further development of long-distance exchange systems. By the Late Archaic, modern vegetation communities had become established. Within the region, Late Archaic sites occur at higher frequencies than do those of the preceding Archaic sub-periods, and a greater range of site types have been documented (Jefferies 1988; Granger et al.1992:32). Although the Falls Area has a relatively long history of archaeological investigations, it has only been in recent times that discrete cultural-temporal manifestations (phases) have been defined (Granger 1988).

In Kentucky, the most extensive research on the Late Archaic has been conducted in the Green River region. Much of this work was conducted in the 1930s and 1940s by WPA work crews under the direction of William S. Webb and his colleagues. Large numbers of sites in the region, including shell middens or mounds such as Indian Knoll (Webb 1946), Carlson Annis (Webb 1950), Read (Webb 1950), and Chiggerville (Webb and Haag 1939), were examined. Rolingson (1967) conducted the first large-scale reexamination of the Green River shell mound materials. Primarily using point types, she was able to document a long history of occupation at the sites, which extended from the Paleoindian Period to the late prehistoric times. The sites were interpreted as being formed through the gradual accumulation of debris left at the sites during repeated, short-term occupations operating within a central-based wandering settlement-subsistence system. It is commonly noted that shellfish were important to the subsistence economy of Green River Late Archaic populations, though Claassen (1992) has suggested that shell mounds functioned as mortuary facilities rather than residence locations. Shell midden sites with assemblages similar to those from the Green River region, occur in southern Indiana and areas of northern Kentucky, though few such sites are reported up river from the Falls.

For southern Indiana, Munson and Cook (1980) defined the French Lick phase of the Late Archaic. Temporal placement was established at approximately 4950–2450 B.P. Diagnostic elements of the phase included the M-B-K-S point series (Matanzas, Big Sandy II, Karnak, and straight to expanding stemmed points). Engraved bone pins, similar to those recovered from the Helton phase occupation at Koster and the Black Earth site in southern Illinois, have been identified at a number of southern Indiana sites which produce M-B-K-S points (e.g., McCain, Turpin, Crib Mound, Bluegrass). The Salt River Side Notched point, which appears to be a local Matanzas variant confined to the Falls Area, does not occur at French Lick phase sites. Cheryl Munson (1980:678–680) proposed a settlement-subsistence model for the French Lick phase, which was similar to models developed by Winters (1969) for Riverton Culture and by Bowen (1977) for Late Archaic in the western Tennessee River Valley. Hypothesized settlement categories consisted of 1) summer shell middens, 2) summer fishing camps, 3) fall base camps, 4) spring-summer unknown camps, 5) fall-winter hunting camps, 6) fall-winter rock-shelter camps, and 7) winter habitations which were potentially the same as summer shell middens. The model is similar to other developed for Midwest Archaic manifestations in that it is based on a series of site classes differentiated by seasonal, task, and zonal resource utilization.

The Lone Hill phase of the Falls area was defined by Granger (1986, 1988) following years of research in the region. Important sites/components include Lone Hill (15Jf10), KYANG II, Minors Lane (15Jf36), Spadie (15Jf14), Villers (15Jf110), and Rosenberger (15Jf18.). The Lone Hill phase was initially placed in the Terminal Archaic sub-period, though it has more recently been assigned to the Late Archaic (Granger et al. 1992). Stemmed points are diagnostic of the Lone Hill phase. Typically, the points are fashioned from high quality St. Genevieve chert (Galconda and Wyandotte) and are manufactured through a reduction sequence, which incorporates relatively large bifacial preforms. This technology is distinct from that used in the manufacture of the side-notched types of the Old Clarksville phase. This is a pattern similar to that noted at the Bluegrass site in southern Indiana. Lone Hill phase sites often include large number of burials, many of which contain grave goods including items of exotic material. Scrapers, drills, axes, atlatl weights and hooks, hammerstones, anvils, and ornaments are also widely reported.

In the Falls Area region, Janzen (1977) developed a settlement-subsistence model for the Late Archaic based on both Indiana and Kentucky data. Janzen's model differs from those proposed by Winters (1969), Munson (1980), and others, in that he suggested, on the basis of resource potential, that the Falls Area Late Archaic utilized a semi-sedentary with wandering system (hub and spoke model). As such, his model did not incorporate seasonally shifting bases. Janzen noted that "central base camps" were located at or near areas where two or more micro-environmental zones came together. From these bases, groups could exploit the wide range of resources available within the "unique ecological zone" at the Falls, through the establishment of small support sites occupied by task-specific groups. However, according to Granger (1988) Janzen's model is flawed. He states:

> [S]election of a cultural entity (phase[s]) whose full settlement pattern, contextual nature of activities, activity areas or settlement types, and system of functional associations was unknown, required as yet undeveloped baseline data. His model fails because of the lack of this information to give it precision predictability. Janzen's (1977) approach was viable but premature (Granger 1988:165).

A later Archaic expression is represented by Riverton-like points in the Merom-Trimble series. In the Falls Area region, Riverton style points have been reported in small numbers from several sites. However, large intensively occupied sites have not been identified. In southwestern Ohio, Vickery (1976, 1980) used Riverton style points in his definition of the Maple Creek phase, though he also noted that McWhinney Heavy Stemmed points were common (Vickery 1980:28). Data from 12Sw99 in Switzerland County, Indiana, however, suggest that the two types were produced by discrete groups, though they may overlap temporally. Late Archaic Merom-Trimble projectile points were recovered in higher percentage at the Villier site than at the Rosenberger or Spadie sites in Jefferson County. This may suggest a cultural affinity with the Riverton culture and the Maple Creek phase (Jefferies 1990; Robinson and Smith 1979). A temporal span from approximately 3550–2750 B.P. has been established for Riverton Culture in Indiana and Illinois (Anslinger 1986:17–18). The Riverton lithic system is based on the expedient acquisition and reduction of chipped-stone tools. Because of the lack of investment in their production, points and other tools show little or no evidence of curation. Also, oval house structures with single post construction were identified at the Wint site (12B95) in Bartholomew County, southeastern Indiana (Anslinger ibid. 1986:104-111).

The settlement-subsistence model developed by Winters (1969) for Riverton Culture in the Wabash Valley has greatly influenced the development of subsequent models in the Midwest and Mid-south. These models are based on a variety of criteria, including site locations relative to resource zones, seasonality of fauna, and relative ratios of functional (fabricating, processing, domestic, weapons) artifact classes. The model incorporates a variety of seasonally shifting site types composed of major bases and smaller, more specialized ancillary camps.

To date the model has not been seriously tested, though potential Riverton hunting and nut-processing sites have been investigated (Anslinger 1986; Pace 1980). Although the Riverton model has been widely accepted, the data sets used by Winters were not without problems (cf., Fitting 1973:368–369). Using available data from Illinois and Indiana, it would be fruitful to test the Riverton model, with modern geomorphic methods being used to document more precisely the stratigraphic record and contextual nature of cultural inclusions and sediments at the deep midden sites.

The appearance of cultigens in Late Archaic contexts has been interpreted as evidence of early plant domestication and use of these plants as subsistence resources. Evidence of early cultigens has been documented at such sites as Koster in central Illinois (Brown 1977:168), Carlson Annis and Bowles along the Green River in west-central Kentucky (Marquardt and Watson 1976:17), and at Cloudsplitter Rockshelter in eastern Kentucky (Cowan et al. 1981).

Struever and Vickery (1973) have defined two plant complexes domesticated at the close of the Archaic, which continued in use into the Woodland period. One group consisted of non-native plants such as gourd, squash, and corn. The other was a group of native plants such as chenopodium, marsh elder, and sunflower. Struever and Vickery (1973) suggested that the native cultigens were cultivated first, and that the non-native, tropical cultigens were introduced later. Recent research in Missouri, Kentucky and Tennessee, however, suggests that squash was under cultivation in the Mid-south by the late third millennium B.C. (Adovasio and Johnson 1981:74), and that by the second half of the second millennium B.C., evidence from Illinois, Kentucky and Tennessee demonstrates that squash, gourd and sunflower were well established (Adovasio and Johnson 1981:74). This more recent evidence contradicts Streuver and Vickery's scenario (Chomko and Crawford 1978). Watson (1985) has outlined two different groups of cultigens: the East Mexican Agricultural Complex and the Eastern United States Agricultural Complex. The latter includes sunflower (*Helianthus annus*), sumpweed (*Iva annua*), chenopod (*Chenopodium* sp.), maygrass (*Phalaris* sp.), and knotweed (*Polygonum* sp.). The East Mexican Agricultural complex includes squash (*Curcurbita pepo*), bottle gourd (*Legenaria siceraria*) and maize (*Zea mays*). Watson, like Struever and Vickery (1973), suggests that corn, squash, and bottle gourd were domesticated in Mexico and imported into the eastern United States by way of the Gulf of Mexico and then up the Mississippi River and its tributaries. The native cultigens consist of local species, whose seeds recovered from archaeological contexts are much larger than those which grow in a natural state; hence, cultivation is inferred.

Plant domestication was an important factor in Late Archaic cultural development. Recent research at Cloudsplitter Rockshelter has documented early plant domestication. Desiccated squash rind was found in a Late Archaic deposit at Cloudsplitter, associated with a radiocarbon date of 3728±80 B.P. (Cowan et al. 1981:71). Seeds of the Eastern Agricultural complex (sunflower, sumpweed, maygrass, and erect knotweed) were sparse in the Late Archaic levels at the site. However, after 3000 B.P. (1050 B.C.), all members of the Eastern Agricultural complex underwent a sudden and dramatic increase in the rate at which they were being deposited in the site, perhaps indicative of a wholesale introduction of the complex into the region at this time. The Late Archaic and Early Woodland inhabitants of Cloudsplitter seem to have followed a similar trajectory in cultivated plant usage experienced in several other river drainages in the Eastern United States (Cowan et al. 1981:71).

## The Woodland Period (1500 B.C.–A.D. 1150)

Archaeologists have traditionally distinguished the Woodland period from the preceding Archaic by the appearance of specific cultural traits, cordmarked or fabric-marked pottery, the construction of burial mounds and other earthworks, and the rudimentary practice of agriculture (Willey 1966:267).

The Woodland period can be viewed as a developmental period with continuity from the preceding Late Archaic, as well as dramatic differences. While it is true that there were no dramatic changes in Native American populations at the Falls of the Ohio from the Archaic to the Woodland, there were important changes in lifeways through time that ultimately distinguish Woodland cultures from Archaic, here as elsewhere. But the Falls of the Ohio is characteristic of Woodland elsewhere. It is apparent that after the Archaic not all regions of the eastern United States marched hand-in-hand through time toward increasing social and cultural complexity. Considerable cultural diversity developed in the Woodland, in contrast to the Late Archaic, which had perhaps witnessed the development of a remarkably similar, riverine oriented way of life. Woodland period cultures at the Falls of the Ohio, for example, developed marked contrasts with those upriver in Southern Ohio and Northern Kentucky and in the Kentucky Bluegrass, and downriver towards the mouth of the Wabash and below. Furthermore, different regions changed at different rates: diversity not only developed, it was maintained through the Woodland.

Finally, peaks of cultural complexity (most importantly the Adena and Hopewell manifestations of southern Ohio and Indiana above and below the Falls of the Ohio) were not necessarily followed by a continuing elaboration of society and culture. The end of the Woodland period in many ways marked a decline from heights attained 100–200 years earlier in many parts of the Ohio Valley. The Woodland period, in the Ohio Valley and elsewhere, is the first point in prehistoric time that archaeologists encounter the truth of Caldwell's observation (1958) that cultural development in the Eastern Woodlands was not leading inexorably toward civilization. Rather, departing from an Archaic base, cultural evolution in the Eastern United States proceeded by fits and starts to the ultimate complexity of the Late Prehistoric with local advances and backsliding.

The Woodland period is customarily divided into three sub-periods: Early, Middle, and Late. The absolute chronology is fluid, however, and many "Woodland" sites contain components that cannot be placed in time with any degree of precision. For the purposes of this report, Early Woodland dates between 1000 B.C. and 400 B.C., Middle Woodland between 400 B.C. and 400 A.D. and Late Woodland between A.D. 400 and A.D. 1100. As discussed in the following subsections, these divisions to some extent represent departures from current uses and reflect shifting conceptions of the nature of culture development during the era as a whole.

## *The Early Woodland Period (until circa 400 B.C.)*

The Early Woodland period is, in part, an ill-defined boundary between the Late Archaic and Woodland periods. While there is a lack of extensive data on the period and the transition from the Late Archaic, excavations have been conducted in the Ohio Valley near the Falls Area that bear on the nature of the transition. These are summarized by Granger et al. (1991) from a discussion of their work at the Guthrie Beach site complex at the mouth of Harrod's Creek upriver from the Falls of the Ohio at Louisville.

At Guthrie Beach, five sites were excavated. One of these, the Habich site (15Jf550), was largely Archaic in date, while Dennis (15Jf554), Long (15Jf549), Clay (15Jf 548) and Mortimer (15Jf555) were considered wholly Woodland (Granger et al. 1991:27). The stark difference between the high density of Archaic materials at Habich and the much less dense, even ephemeral, occurrence of Woodland materials at the other sites is an important testimony to the sorts of changes that took place with the onset of the Woodland Period (Granger et al. 1991:35). Although ceramics are noted as a distinguishing characteristic of Woodland sites, they are almost never "a majority artifact type on these riverine linear ridge" sites (Granger et al.

1991:39). This fact, together with the high density of sterile features at sites like Whittaker (15Jf417), suggests very transitory use of the Ohio River bank by Woodland peoples. This is in marked contrast to the large, intensely occupied sites of the terminal Late Archaic. This same pattern of transitory occupation is repeated in Southern Indiana on the banks of the Ohio at the Woodland sites located at the Clark Maritime Center (Granger et al. 1991:39).

True ceramics were preceded by the use of steatite and sandstone bowls in the Ohio Valley. Although poorly dated at the Falls, as well as elsewhere, they may have been in use as early as circa 1200 B.C. and probably continued in use and overlapped with the introduction of a true ceramic technology. For example, a sandstone bowl was used as a mortuary offering at the Willow Island Mound, which dates perhaps as early as 400 B.C. (Hemmings 1978:33–34). Subsequent research has demonstrated that ceramics did not occur suddenly or widely over the Eastern United States. The introduction of pottery occurred before 2000 B.C. in the deep Southeast, while other parts of the East began using ceramics as late as circa 500 B.C. Because of this simple reality, the occurrence of ceramics is generally not considered here as a mark for the beginning of the Woodland period.

Relative to the rest of the Eastern United States, the local introduction of ceramics in the Ohio Valley occurred late. While the absolute dating is not clear, it is probable that the earliest ceramics in the valley post-date 1000 B.C. and are derived from mid-Atlantic antecedents (Custer 1987:100-102). In contrast, by this time in the fiber-tempered ceramic producing areas of the Deep South, ceramics had already been in use for over 1,000 years. The reasons for the lag in ceramic use probably reflect the regional resistance of long standing traditions of food preparation developed in the Archaic and maintained well into the Woodland. There was after all, no real change in subsistence from Archaic period into the Woodland period. Looking backward from the Middle Woodland to the Early (Clay 1983), there is some suggestion that Early Woodland pottery was principally used for special occasions such as ritual feasting.

Perhaps some of the earliest pottery for the Falls of the Ohio has been recovered from the Clark Maritime project (Sieber and Ottesen, eds. 1989:236-246). The project is located between the areas of the Early Woodland Marion phase, downriver from the Falls of the Ohio, and the Hartman Plain and Fayette Thick ceramic complexes, upriver at the Great Miami River in Ohio and Northern Kentucky. In general, the earliest pottery complex recorded for Clark Maritime is somewhere between the two typological extremes.

The majority type at the Falls of the Ohio is called Mid-Valley Cordmarked and is perhaps more similar to the more western pottery of the Marion phase, Marion Thick, than it is to the pottery of Ohio and Kentucky. Occurring with it is an unnamed plain surfaced type or the same temper (grit) and general configuration. Roughly 82 percent of this ceramic complex is cordmarked, with the remaining 18 percent being plain surfaced. These ceramic data stress the continuity in Early Woodland culture, west to east, through the Falls, despite, or perhaps because of, the relatively ephemeral nature of the occupation. It may be suggested that, with the Early Woodland, relatively intense regional exploitation of specific niches, like the Ohio River banks, shifted to a more transient use of the region which, among other things, led to increased contact with other similar groups up and down the river. Through this contact, technological ideas like ceramics spread widely, producing the superficial resemblance of pottery from below the Falls to the Central Ohio Valley in the states of Ohio and Kentucky.

## *The Middle Woodland Period (circa 400 B.C.–A.D. 400)*

The decision to establish 400 B.C. as the end of the Early Woodland reflects a recognition of the close relationship between the Adena and Hopewell manifestations of

Woodland culture. It is a feature of the Falls of the Ohio Middle Woodland that, apart from ceramics and other traits like lithic projectile points, there is little expression of the salient characteristic of either cultural fluorescence in this segment of the Ohio River Valley.

As Mocas points out (1992), a ceramic develops at the Falls, probably after 400 B.C., which is stylistically quite similar to Adena Plain, hallmark of Adena culture, to the east in Kentucky and Southern Ohio. The best sample of this ceramic, Falls Plain, comes from the Zorn Avenue site in Jefferson County in suburban Louisville near the river. The archaeological features at Zorn, and across the river at Clark Maritime, include large pits filled with economic wastes, which suggest an intensity of occupation during the Middle Woodland that may not have occurred earlier at sites of Guthrie Beach. Notable elements of Middle Woodland culture seem to be largely lacking at the Falls of the Ohio or within 100 river miles up or down the River. These include the ceremonial earthworks that principally characterize Ohio Hopewell upriver from the Falls (occurring to a much lesser extent downriver in sites of the Mann phase in Indiana), but begin as early at 300 B.C. in Central Kentucky Adena. Beyond that, even the burial mounds, which for some have been the hallmark of the Woodland Period as a whole (when it was called, alternatively, the Burial Mound Period), are poorly represented at the Falls, if indeed they occur at all. Possible burial mounds do exist, for example the Sutherland mound (15Jf287) on the Ohio floodplain (Granger et al. 1991:38), but they are understood at present only through limited, poorly documented amateur excavations.

Despite the continuity in culture (certainly in ceramics) that seems apparent for the length of the Ohio River in the Early Woodland before 400 B.C., with the Falls of the Ohio Middle Woodland there developed marked discontinuities in cultural developments along the Ohio River trench. Below the Falls in the Mann phase of southwestern Indiana, impressive burial mounds (for example the GE Mound) would come into use during the Middle Woodland, containing burials and associated artifacts suggesting wide contacts with the American Midwest and the South. These were often set in truly huge sites with impressive but poorly understood earthworks (such as the Mann site itself). There is little evidence of these contacts in either ceramics or other artifacts at the Falls of the Ohio. At the most, certain ceramic stylistic motifs from downriver might be repeated in pottery of the Falls Plain type. Above the Falls of the Ohio, particularly along the drainages of the Great and Little Miami and Scioto rivers (Squier and Davis 1848), geometric earthworks which contained large burial mounds have been used to characterize what is called Scioto Valley Hopewell in the Middle Woodland, setting it fully apart from the minimal sites of the Falls of the Ohio. At the same time, the large, accretional burial mounds of Ohio and Adena sites, like Robbins on the Ohio River in Boone County, Kentucky, are also apparently lacking.

## The Late Woodland Period

Around A.D. 400, the Hopewellian ceremonial centers and extensive trade network collapsed in the Ohio Valley, and burial practices became less complex. The decline of Hopewell marked the beginning of the Late Woodland sub-period. In areas such as Illinois, Southwestern Indiana, or Ohio where Hopewellian influence was greatest, Late Woodland marks a return to a less complex way of life. In other areas where Hopewellian influence was minimal, Late Woodland witnessed the continuation of a generalized Woodland lifestyle of an increasing dependence on domesticated plants, coupled with hunting and gathering. For the Falls Region, the Late Woodland may be viewed as a continuation of the relatively low profile Woodland cultures that had characterized the Middle Woodland before it.

However, there is distinct culture change in the Late Woodland, notably in chert projectile points. Late Woodland projectile point forms include early Late Woodland (circa A.D. 400–750) Chesser and Lowe point varieties. These are followed by later Late Woodland forms such as Jack's Reef Corner

Notched, Raccoon Notched, and Levanna points. After about A.D. 800, small triangular projectile points appear in artifact assemblages. The presence of smaller projectiles, specifically of triangular points, is frequently used to infer that the bow and arrow came into use at this time.

While regional ceramic sequences differ, most Late Woodland ceramics are generally cordmarked or finished with a paddle wrapped with cords, partly a technological expediency, partly used to produce a distinctive surface finish on the pots. As a rule, there was a decline in the technological, and some would maintain the esthetic, qualities of late Woodland pottery when compared to Middle Woodland ceramics. Nevertheless, one thing is starkly apparent, Native American pottery became much more common with the Late Woodland. What had once been an artifact associated with ritual performances at mounds and earthworks or, in a region like the Falls where these constructions were lacking, vessels probably associated with communal feasting at certain times of the year in the course of seasonal moves, became much more widely used as storage containers. Variability in ceramic tempering agents is thought to reflect regional, and not temporal, developments (Purrington 1967:124). A number of Late Woodland phases have been defined in the middle Ohio Valley upriver from the Falls of the Ohio: Newtown (Griffin 1952), Peters (Prufer and McKenzie 1966), Chesser (Prufer 1967), Watson Farm (Mayer-Oakes 1955), Buck Garden (McMichael 1965), and Childers and Woods (Shott 1990). Aspects of the ceramics from these phases may be found in Falls of the Ohio Late Woodland ceramics, but the phases themselves are not represented in sites.

It may be possible to recognize cultural differences in a distinctive way between Late Woodland groups in the Ohio at the time, including the Falls of the Ohio. According to Maslowski (1984, 1985), cordage twist preference is a culturally learned attribute and can reflect culturally related populations (cf., Croes 1989). He postulates that the "study of cordage twist patterns, along with their other culture specific attributes, may eventually lead to the identification and correlation of prehistoric ethnic groups with historic tribes" (1984; emphasis added). He states further, "cordage twist patterns have greater temporal continuity than decorative or environmentally influenced attributes" (1985:3). For the Falls Region, however, the extensive ceramic samples equal to this fascinating task remain to be recovered.

Maslowski (1984, 1985) has amassed a body of data on the distribution of cordage twist preferences for Middle and Late Woodland and Late Prehistoric pottery-bearing sites in the greater Middle Ohio Valley. His data suggest that indigenous populations during this period may have evidenced a decided preference for Z-twist; whereas, immigrants from elsewhere (probably from the North or West) can be recognized by the dominance of S-twist pottery. His data also suggest that the two culturally unrelated populations may have coexisted for a time in the region. Good examples of a "northern" tradition lie with Intrusive Mound Culture and perhaps Buck Garden.

At the Falls of the Ohio, the SARA site (15Jf187) is a good example of an early Late Woodland site from which to generalize about the nature of culture at the time (Mocas 1995). Native Americans at SARA, a site located on the floodplain of the Ohio, below the Falls but within suburban Louisville, exploited nuts, wild plants, native eastern United States cultivated plants, and the wild animals of the bottomland locale. In short, they made intensive use of the river floodplain using both traditional methods, which were of great antiquity, and newer methods (plant cultivation), which were a hallmark of the Woodland Period as a whole. Still, at this time, however, corn was not one of the domesticated plants.

Six features at SARA, representing a variety of domestic locales at the site, contained ceramics. Most sherds were limestone tempered, and 84 percent of these were cordmarked; the rest were plain surfaced.

The dominant jar was relatively large and bomb-shaped with a distinct neck. Somewhat thinner than the ceramics that had characterized the Early and Middle Woodland, SARA pottery was also a more efficient, if somewhat more fragile, cooking container for its thinner walls more efficiently conducted the heat of the cooking fire to the contents. The development of this more efficient pottery may reflect increasing diversity in cooking methods in the Late Woodland and the increase in importance of domesticated plants in broths and stews.

Another Late Woodland component similar to SARA was recovered from the nearby Arrowhead Farm site (15Jf237) (Mocas 1976). Yet another find of similar pottery was made from the Bates Island site (15Jf258), 20 km (about 12. 5 mi) upriver from SARA and above the Falls of the Ohio. For all these sites, it remains unclear as to the relationships between occupations here at the Falls of the Ohio during the Late Woodland and the culture phases defined to date upriver. Notably lacking in our area are the large and distinctive sites of the Late Woodland that occur in Southern Ohio, Northern Kentucky, and West Virginia, that have been at the center of the discussion over the nature of the late Woodland cultural adaptation.

## The Late Prehistoric Period

The Falls of the Ohio forms a transition zone between two major and distinct Late Prehistoric cultures in the Ohio trench. These are the Mississippian cultures down river from the Falls and the Fort Ancient cultures upriver.

The Late Prehistoric archaeological complex of the middle Ohio Valley is Fort Ancient, which spans the time period from approximately A.D. 1150 to about A.D. 1700. Geographically, Fort Ancient extends from western West Virginia to southeastern Indiana and from south central Ohio to north central and northeastern Kentucky (Griffin 1978:551). It is probably not represented by sites near the Falls of the Ohio itself. The development of Fort Ancient and its relationship to Late Woodland cultures has been, and continues to be, a hotly debated issue. Two hypotheses have been offered in explanation for the relationship between Fort Ancient and Late Woodland cultures. One suggests that Fort Ancient represents the fluorescence of an indigenous Late Woodland culture (Graybill 1980:55–56; Rafferty 1974). Others (e.g., Essenpries 1978:154–155) suggest that Fort Ancient represents an influx of Mississippian peoples from the lower Ohio River Valley. Although the question has yet to be resolved, it is entirely possible that each of these hypotheses are correct, depending upon the data set and region one employs to address the problem.

Fort Ancient reflects an elaboration of Late Woodland subsistence activities and social organization. Settlements were much more nucleated, as evidenced by large village sites. Village sites tend to be situated in valley bottoms along the main stems of the region’s larger drainages (Graybill 1978, 1979). On the other hand, smaller sites tend to be located throughout tributary drainages and are thought to represent seasonal camps and resource procurement activity stations. A number of sites along the Ohio River, or close to it, were fortified, and many have central courtyards or plaza areas (Griffin 1978:552). Fort Ancient subsistence is characterized by an increased reliance on cultivation with the widespread adoption of maize cultivation by A.D. 900, coupled with beans and squash. Despite the increased importance of horticulture, hunting provided an important source of food. Deer was the main meat source; at some sites it made up to 80 percent of the game consumed (Griffin 1978:552). The cultural material assemblage, including elaborate ceramic styles (usually tempered with crushed mussel shell, although limestone and grit tempered ceramics also occurred), triangular arrow points, mussel shell tools (e.g., knives, scrapers and hoes), also served to distinguish Fort Ancient cultures from Late Woodland occupations.

Below the Falls of the Ohio, the Late Prehistoric Period after A.D. 1000 is characterized by the appearance of a distinctive cultural adaptation which is called Mississippian (Smith 1978). In contrast to Fort

Ancient culture upriver from the Falls, Mississippian cultures probably had, or were to develop, a more complex political settlement system. This was characterized by large and small settlements reflecting the development of simple chiefdoms through time. The larger sites of the typical Mississippian local settlement pattern often included a flat-topped mound, which was the base for a structure that housed the local chief and members of his lineage. Quite often, the mound center would be defended with a sophisticated stockade system, for inter-village strife appears to have gone along with increased political complexity.

Around these larger sites were a number of smaller farming villages. Here, just as in Fort Ancient, domestic activities focused on the cultivation of corn, beans, and squash. However, their houses suggest from the concentrated remains and frequent rebuildings that the towns and villages of Mississippian cultural groups may have been more rooted in space for longer periods of time than their upriver Late Prehistoric neighbors.

Below the Falls of the Ohio, the Mississippian developmental sequence after circa A.D. 1000 is typified by the development of what is called the Angel phase (Green and Munson 1978), which has most recently been divided into a series of three sub-phases (Hilgeman 1992). In an early study of the Angel phase (Green and Munson 1978:303), the authors trace sites of the phase up to the Falls. Sites with Mississippian pottery, typically shell tempered and plain rather than cordmarked like Fort Ancient ceramics, have been identified on both sides of the Ohio, at Clarksville in Indiana, and along the river road in Louisville, upriver from the Falls. In addition, Mississippian groups from down the Ohio made expeditions into the Falls area specifically to make salt at Bullitt's Lick, south of Louisville.

There is continuity between these Late Prehistoric cultures above and below the Falls of the Ohio and the cultures that first made contact with Anglo American culture circa A.D. 1600. At the mouth of the Wabash, downriver from the Falls, the Caborn-Welborn phase begins after A.D. 1400 and, according to current reconstructions (Pollack 1989), lasts until after A.D. 1600. Minimal European trade goods reached this portion of the Ohio Valley by the latter date. Upriver, in the Madisonville phase of Fort Ancient (Drooker 1997), European trade goods appear with Native American assemblages by this date as well. In both cases, the source may be either the invading French or English civilizations of the Atlantic seaboard. However, there is no record of these historic contact cultures at the Falls of the Ohio.

## History of Jefferson County

Jefferson County is located in north central Kentucky at the falls of the Ohio River. It was created in May 1780 when the Virginia legislature divided Kentucky County into Jefferson, Fayette, and Lincoln counties to provide settlers better access to seats of government. It is named for Thomas Jefferson, who was governor of Virginia at the time of its creation. Originally, Jefferson County contained 20,202 sq km (7,800 sq mi) of land between the Green and Ohio Rivers. Today it has an area of approximately 1,000 sq km (386 sq mi) (Kleber 1992:464).

Long before the settlement of Jefferson County, Anglo-American speculators were interested in the lands adjacent to the falls of the Ohio. This mile-long rapid over a Devonian coral reef is the only natural barrier to navigation on the Ohio-Mississippi River system between modern Pittsburgh and New Orleans. It was a natural place for a settlement, as all river traffic had to stop at this point. (Kleber 1992:305). In 1774, Virginia sent the so-called Fincastle surveyors to Kentucky to locate grants for veterans of the French and Indian War. In May they arrived at the falls and surveyed 16,187 ha (40,000 acres), including most of what is now the city of Louisville and eastern Jefferson County (Kleber 1992:318; Yater 1987:12). John Connolly, a Pennsylvania native and former surgeon’s mate in the British army, obtained 2,000 acres on the south side of the falls in what is now downtown and western Louisville (Kleber 1992:224).

Settlement started at the falls in 1778 when Lieutenant Colonel George Rogers Clark of Virginia led an expedition down the Ohio to capture the British posts north of the Ohio at Kaskaskia, Vincennes, and Detroit (Kleber 1992:195). In May, the expedition halted at Corn Island at the head of the falls to await reinforcements. When the main army moved down river in June, a group of camp followers and military personnel remained behind on the island. Later that year the Corn Island settlers moved ashore and their cluster of cabins became the embryo of Louisville (Wade 1959:14–15; Yater 1987:2–6)

Before a town could develop at the site, the 1774 claim of John Connolly had to be addressed. Since Connolly had become a Tory during the Revolution, a 1779 Court of Kentucky, County ignored his claim and permitted the town of Louisville to be laid out on his grant. In 1780, the Virginia legislature formally voided Connolly's grant (Wade 1959:15). The town, however, did not live up to its expectations. It developed a reputation for sickness and most new arrivals moved into the countryside. Louisville had only 359 inhabitants in 1800 (Wade 1959:17).

Many settlers arrived at Louisville but quickly migrated inland along the three branches of Beargrass Creek. During the 1780s, there were seven fortified "stations" in the Beargrass watershed. As the Indian threat gradually declined—the last raid on the county was in 1789—settlers left the forts to establish farms. Another area of early settlement was along what is now the county's southwest border in the Salt River Valley, where salt makers established the county's first significant industry (Kleber 1992:465).

Settlers came to Jefferson County along two main routes. A majority probably took flatboats from some point on the upper Ohio and landed at the mouth of Beargrass Creek. Other settlers came through the Cumberland Gap and up the western branch of the Wilderness Road. By the 1790s, with Indian attacks along the Ohio River ending, the river route became far more popular than the old trail through the mountains (Yater 1987:2-5).

Most of Jefferson County's early settlers came from Virginia, North Carolina, and Pennsylvania and were of English, Scotch-Irish, or German background. Many African American slaves also arrived with their masters. Wealthy Virginians quickly came to dominate the social and political order, controlling the best land and the political system. Yeoman farmers often had to lease, or settle for the more rugged terrain on the edge of the large estates (Kleber 1992:465).

During the 1790s, two towns were founded in the eastern part of the county, as potential rivals to Louisville. In 1784, William White built a house in eastern Jefferson County and later laid out Middletown on the site. In 1797, Abraham Bruner founded Jeffersontown, which was settled primarily by Pennsylvania Germans (Kleber 1992:465; Rennick 1984:152, 196).

Before 1810, Louisville and Jefferson County developed more slowly than the more populous Inner Bluegrass region around Lexington. The arrival of the steamboat on the western waters in the 1810s, however, set in motion a transportation and economic revolution that brought boom times to Louisville and the falls region. In 1817, there were 17 steamboats totaling 3,290 tons on the Ohio-Mississippi system. By 1830, there were 187 boats with a total tonnage of 29,481. In 1829, over 1,000 steamboat landings were made at Louisville. This stimulated the growth of a wide range of businesses including taverns, hotels, distilleries, hemp-processing factories, machine shops, and warehouses. Between 1810 and 1820, Louisville's population tripled to 4,012. Louisville's boom continued into the next decade while land-locked Lexington's economy stagnated. By 1830, Louisville was the commonwealth's largest city, which it has remained to the present day (Wade 1959:190–191; Yater 1987:37).

During the antebellum years, Jefferson County's farmers were among the state's most productive. In 1850, they led the state in value of animals slaughtered, production of hay, market gardening, and orchards (Kleber 1992:465). Germans who had arrived in the county in great numbers in the 1840s and 1850s owned many of these farms (Kleber 1992:465). The strength of the agricultural sector encouraged investment in processing industries. During the 1850s, Louisville was the second largest pork-packing center in the nation, butchering over 300,000 hogs a year (Yater 1987:75).

In the 1840s, James Guthrie led a movement in Louisville's business community to improve trade through the construction of railroads. Consequently, the Louisville and Frankfort Railroad opened in 1851. More important, however, was the opening of the Louisville and Nashville Railroad in 1859. This greatly strengthened the city's ties to the southern economy (Kleber 1992:578–79; Yater 1987:75).

During the Civil War, Louisville became perhaps the most important Union stronghold in the western theater. As an important port on the Ohio and the northern terminus of the strategic Louisville and Nashville Road, it was essential that the Union Army hold the city if it was to hold Kentucky. In September 1862, the Confederate armies of Generals Braxton Bragg and Kirby Smith invaded Kentucky. The Union army of General Don Carlos Buell followed Bragg and somehow beat the Confederate in the race to Louisville. On October 8, Buell won a narrow victory over Bragg at the Battle of Perryville and the Confederates withdrew into Tennessee. Louisville had been saved and perhaps so had the Union cause in the West (Hafendorfer 1991).

War brought profound social and economic change to Louisville. After Appomattox, thousands of former slaves flocked to the city. The community also attracted a significant number of former Confederate officers who did not want to live in the occupied South. These new arrivals found a city unscathed by war and in the midst of robust economic growth. Louisville's economy expanded throughout the Reconstruction with the manufacture of steam engines and boilers as the largest industry, employing 2,236 workers in 1870 (Yater 1987:102). In 1867, as perhaps the most telling sign of this progress, the Louisville and Nashville Railroad began the longest iron bridge in the United States over the Ohio at the Falls. It was dedicated in 1870 (Yater 1987:95–96, 99–100).

Most of Jefferson County, however, remained rural farmland well into the twentieth century. Not until the 1920s did suburbanization begin swallowing up large tracts of farm. This trend was temporarily halted during the Great Depression of the 1930s, as credit to buy homes dried up and the inter-urban electric train lines, which carried county residents to the city, went out of business (Kleber 1992:466).

After World War II suburbanization and industrial growth began anew, this time at an unprecedented pace. Between 1950 and 1960, the county population outside Louisville city limits nearly doubled to 220,308. By 1960, some thirty independent suburban cities ringed Louisville. The arrival of the interstate highway made it possible to live in the county and commute downtown (Kleber 1992:466).

Social change came to the county as well. In 1945, most of the county's black population lived in Louisville, which was essentially a southern segregated city. Under the administration of Mayor Charles Farnsley (1948–1953), the city began a slow process of dismantling Jim Crow laws. The public library, major hospitals, and all of the county colleges were integrated. Farnsley's successor, Andrew Broaddus, integrated public parks. Nevertheless, the process was slow. In 1975, the federal courts ordered busing to integrate what was still a defacto segregated school system (Yater 1987:219, 244).

The last half of the twentieth century witnessed great economic growth and the development of manufacturing in the county. In 1951, the General Electric Company announced that it was moving its home appliance manufacturing operation to Jefferson County. Before the end of the decade, GE employed more than 16,000 workers at the plant. In 1969, the Ford Motor Company opened the world's largest truck plant in eastern Jefferson County, creating over 4,000 jobs. Finally, during the 1980s, United Parcel Service developed its principal distribution center at Louisville's Standiford Field. By 1972 the county suburbs exceeded the city in population. Jefferson County is still, by far, the state's largest metropolitan area with a population of 664,937 recorded in 1990 (Kleber 1992:467; Yater 1987:220, 229, 247).

# Chapter 4. Methods and Sampling

Before the start of field investigations, a sample of proposed bore holes was selected for archaeological monitoring. The selection process was guided by a review of old Louisville maps that identified “areas of historic interest” that were located near or within the project footprint. Separately, “areas of prehistoric interest” were identified based on landform data (e.g., locations near the old channel of Beargrass Creek) and the location of previously recorded prehistoric sites in the area. These data were then superimposed on the project mapping that had the precise location of each proposed bore hole identified on it. If a proposed bore hole was located in an “area of interest” in the project footprint, then that bore hole was selected for archaeological monitoring. For example, a review of 1905 Sanborn maps that were superimposed on the project mapping indicated that bore hole 1B-17 was located at the edge of the old Louisville “red light district” and specifically in an area that functioned as a saloon. Given the social context of the area and the function of the building, it was decided that 1B-17 needed to be monitored in order to evaluate the integrity of the archaeological remains at that location and its potential for producing important information about the history of Louisville.

As previously noted, the drilling of the bore holes, and consequently the archaeological monitoring of those holes, was sub-divided into five phases with each phase focusing on a specific section of the proposed construction project. For example, Phase I monitoring was concentrated in downtown Louisville, from the intersection of Preston and Jefferson Streets to the skateboard park at the corner of Franklin and Hancock Streets. Phase 3 monitoring, on the other hand, was concentrated east of downtown Louisville along Adams Street, Interstate 71, and Interstate 64. These latter bore holes were located in and immediately around the Butchertown historic district.

Employing the process outlined above for each of the five phases of work, it was determined, after consultation with the KYTC and the Kentucky Heritage Council (KHC), that a sub-sample of the total number of bore holes to be drilled needed to be singled out for archaeological monitoring. This sub-sample included a total of 61 geotechnical bore holes, not counting the 15 bore holes that were previously monitored as part of the Interstate 65 Accelerated Section of the LSIORB project. These latter bore holes will be included in a separate phase I/II report for which fieldwork is on-going. Table 4.1 lists both the proposed and the actual number of bores completed during the project (minus the Interstate 65 Accelerated Section bores). A separate column of that table provides an explanation as to any discrepancies that may exist between the proposed number of bores to be monitored and the actual number of bores that were monitored.

**Table 4.1. Total count of bore holes that were monitored for each phase of drilling.**

| Drilling Phase | Proposed Number of Bores to be Completed | Actually Number of Bores Completed | Comments |
|---|---|---|---|
| Phase I* | 14 | 10 | 4 bores not monitored - failed to be notified by drillers |
| Phase 2 | 15 | 14 | 1 bore not drilled |
| Phase 3 | 14 | 13 | 1 bore denied access by landowner |
| Phase 4 | 7 | 8 | 1 additional bore was drilled to replace one lost phase 1 bore |
| Phase 5 | 11 | 12 | 1 additional bore was drilled to replace one lost phase 1 bore |
| Total | 61 | 57 | Monitored 4 less bores than originally proposed |

** Does not include the 15 borings from the I-65 Accelerated Section of the project*

Only 57 of the 61 bore holes proposed were monitored because either the drilling team supervisor failed to coordinate drilling with the archaeology team or landowners would not permit CRAI personnel access to their properties. The actual number of missed bore holes was six, but two of those bores were later replaced with other bore holes in an effort to recoup some of the lost data. Table 4.2 lists each of the bore holes that were proposed to be monitored, the bore holes that were actually monitored, and comments relating to missing bore holes and replaced bore holes for each phase of the drilling.

Although not a typical archaeological data recovery method, the monitoring did allow for some coarse recordation of cultural deposits. For example, the monitoring allowed for some preliminary inferences to be proposed concerning disturbed vs. undisturbed areas, fill zones vs. natural zones, and for the identification of areas that exhibited intact cultural deposits. These data were then used to identify high vs. low potential for further archaeological work.

The actual monitoring of these bore holes was conducted employing the following procedures. For each bore hole, the top 3–4.5 m (10–15 ft) of native Holocene sediments (below construction fill zones) was drilled and removed in 1.5 m (5 ft) lifts (Figure 4.1). The auger cuttings were then screened through .25-inch mesh. If artifacts were present, they were bagged and labeled according to their respective 1.5 m (5 ft) section (i.e., 0–5, 5–10, 10–15, etc.). Sediment characteristics like color and texture were also recorded (on a specially prepared form) by 1.5 m (5 ft) sections, and the cultural materials, if present, were briefly described. Also recorded on some of these forms were a series of observations that seemed pertinent but not specifically requested by KYTC to record. For example, additional information was recorded for bore hole 2W-391 concerning the high water table (about .6 m [2 ft bgs]) and the fact that no split-spoon samples were taken from the bore (see split-spoon discussion below). The notes recorded regarding bore hole 4B-248 provides another example of important but not specifically requested information because monitoring continued to a depth of about 24 m (80 ft) bgs in order to better record the deeper sediments. The soil profile from about 11–24 (35–80 ft) bgs alternated between fine and coarse-sized sand lenses.

**Table 4.2. Individual bore numbers by phase of construction.**

| Drilling Phase | Proposed Bores to be Completed | Actual Bores Completed | Comments |
|---|---|---|---|
| Phase I* | 1B-17,1B-20,1B-23,1B-25,1W-27,1W-28,1B-32,1B-34,1B-52,1B-53,1W-74,1W-76,1W-77,1W-81 | 1B-17,1W-25,1W-27,1W-28,1B-32,1B-34,1B-52,1W-74,1W-76,1W-77 | Proposed bores that were not monitored were 1B-20,1B-23,1B-53,1W-81 |
| Phase 2 | 2B-94,2B-97,2B-111,2B-112,2B-116,2B-123,2B-125,2W-135,2W-139,2W-146,2W-151,2W-159,2W-160,2W-394,2W-398 | 2B-94,2B-97,2B-116,2B-123,2W-125,2W-135,2W-139,2W-146,2W-151,2W-159,2W-160,2W-394,2W-398,2W-391 | Proposed bores that were not monitored were 2B-111 and 2B-112. 2B-111 was replaced by 2W-391 while 2B-112 was not replaced |
| Phase 3 | 3B-173,3B-177,3B-181,3B-183,3B-197,3W-206,3W-207,3W-208,3W-209,3W-374,3R-383,3R-384,3B-364,3B-386 | 3B-173,3B-177,3B-181,3B-183,3B-197,3W-206,3W-208,3W-209,3B-364,3W-374,3B-386,3R-383,3R-384 | Proposed bore that was not monitored was 3W-207:denied permission. Not replaced. |
| Phase 4 | 4B-248,4B-249,4B-250,4B-260,4B-266,4B-268,4W-270 | 4B-248,4B-249,4B-250,4B-260,4B-266,4B-267,4B-268,4B-270 | All proposed bores were completed. Monitored an additional bore, 4B-267, to replace a missing bore from phase 1. |
| Phase 5 | 5B-291,5B-296,5B-298,5B-304,5B-305,5B-321,5B-322,5B-324,5B-325,5B-326,5B-328 | 5B-291,5B-292,5B-319,5B-324,5B-325,5B-326,5B-294,5B-296,5B-298,5B304,5B305 | Proposed bore that were not monitored were 5B-321 and5B-322. Exchanged for 5B-319 and 5B-294. Did one additional bore, 5B-292 to replace missing bore from phase 1. |

* Does not include the 15 borings from the I-65 Accelerated Section of the project

** Does not include the 15 borings from the I-65 Accelerated Section of the project*

**Figure 4.1. Drill crew augering a bore hole.**

The drillers systematically pulled either a .7 m (2.5 ft) Shelby Tube sample or a split-spoon sample from the mechanical auger at 1.5 m (5 ft) intervals. The Shelby Tubes were encased in a metal sleeve and reserved for testing in the engineer laboratory. These samples could not be analyzed by the archaeologist. As implied from the name, split-spoon samples were cores that had casings that could be pried open, exposing the core sample. Each split-spoon sample was recorded by the monitoring archaeologist before they were packaged in laboratory containers. Sediment characteristics were also recorded for these samples and digital photos were taken (Figure 4.2). Split-spoon samples were recorded to depths of 9 m (30 ft). The vertical location of each sample taken from the first 9 m (30 ft) was included on the soil profile that was drawn for each bore hole.

Occasionally when a bore hole was located near an existing utility corridor, the City of Louisville requested that the first 1.8–2.4 m (6–8 ft) be vacuumed by their personnel in order to guarantee that these lines would not be impacted by the drilling (Figure 4.3). The vacuum operated off the back of a truck that would be parked next to the bore hole. A hose leading to the vacuum would then be inserted into the bore hole, sucking up the loose dirt created by a person with a jack hammer. The vacuuming process typically took about 30 minutes to complete. The loose dirt created by the vacuuming was deposited on the ground next to the hole. After the first six to eight feet were vacuumed, the archaeologist would then screen all the dirt, collect any artifacts, and recorded the soils as previously outlined above. Also after vacuuming, the drill crew would then proceed with augering the remaining depth of the bore hole.

**Figure 4.2. Example of a split spoon sample.**

**Figure 4.3. Example of a crew vacuuming the top 1.8 to 2.4 m (6 to 8 ft) of soil at bore hole 3B-197.**

# Chapter 5. Materials Recovered

This section discusses the cultural material recovered from the bore holes during monitoring. Both prehistoric and historic artifacts were recovered, although the vast majority of the material was historic. The historic artifacts are discussed first followed by the prehistoric analysis. Artifacts and attendant data generated from this investigation will be curated in accordance with federal guidelines. All field notes, records, artifacts, and site photographs will be curated with the Department of Anthropology, William Webb Museum, at the University of Kentucky.

## Historic Artifact Analysis

*Tanya A. Faberson, Ph.D.*

There were 1,012 historic artifacts recovered during the monitoring of non-environmental geotechnic bores associated with Phases 1 through 5 of the Kentucky portion of the LSIORB project. The following provides a descriptive discussion of the types and age of artifacts recovered from the bore holes. A complete inventory of the historic artifacts can be found in Appendix A.

### Methods

The historic assemblage includes artifacts classified and grouped according to a scheme originally developed by Stanley South (1977). South believed that his classification scheme would present patterns in historic site artifact assemblages that would provide cultural insights. Questions of historic site function, the cultural background of a site's occupants, and regional behavior patterns were topics to be addressed using this system.

South's system was widely accepted and adopted by historical archaeologists. However, some, such as Orser (1988) and Wesler (1984), have criticized South's model on theoretical and organizational grounds. One criticism is that the organization of artifacts is too simplistic. Swann (2002) observed that South's groups can potentially be insufficiently detailed. She suggested the use of sub-groups to distinguish between, for example, candleholders used for religious purposes and those used for general lighting. Others, such as Sprague (1981), have criticized South's classification scheme for its limited usefulness on late nineteenth and early twentieth century sites, sites which include an array of material culture—such as automobile parts—not considered by South. Despite its shortcomings, however, most archaeologists recognize the usefulness of South's classification system to present data.

Stewart-Abernathy (1986), Orser (1988), and Wagner and McCorvie (1992) have subsequently revised this classification scheme. In this report, artifacts were grouped into the following categories: Domestic, Architecture, Furnishings, Clothing, Personal, Maintenance and Subsistence, Floral and Faunal, and Unidentified. The artifacts recovered during this project are summarized in Table 5.1.

**Table 5.1. Historic artifacts recovered according to functional group.**

| Artifact group | Count | Percent |
|---|---|---|
| Architecture | 179 | 17.7 |
| Clothing | 1 | 0.1 |
| Domestic | 587 | 58.0 |
| Floral and Faunal | 34 | 3.4 |
| Furnishings | 3 | 0.3 |
| Maintenance and Subsistence | 77 | 7.6 |
| Personal | 7 | 0.7 |
| Unidentified | 124 | 12.2 |
| Total | 1012 | 100 |

Grouping artifacts into these specific categories makes it more efficient to associate artifact assemblages with historic activities or site types. One primary change associated with the refinement of these categories is reassigning artifacts associated with the "Miscellaneous and Activities" under South's (1977) original system. Considering the potential variety of historic dwellings, outbuildings, and commercial buildings in the Kentucky portion of the LSIORB project area, a refinement of the artifact groupings was considered important to perhaps observe whether the distribution of specific artifact groups would produce interpretable patterns related to activity areas or structure types. Each one of these groups and associated artifacts is discussed in turn.

Information on the age of artifacts as described in the artifact tables is derived from a variety of sources cited in the discussion of the materials recovered. The intercept and terminal dates cited need some clarification. Usually, an artifact has specific attributes that represent a technological change, an invention in the manufacturing process or simple stylistic changes in decoration. These attribute changes usually have associated dates derived from historical and archaeological research. For example, bottles may have seams that indicate a specific manufacturing process patented in a certain year. The bottle then can be assigned an incept date for the same year of the patent. New technology may eliminate the need for the same patent and the bottle would no longer be produced. The terminal date will be the approximate time when the new technology takes hold and the old bottles are no longer produced.

Specific styles in ceramic decorations are also known to have changed. Archaeological and archival researchers have defined time periods when specific ceramic decorations were manufactured and subsequently went out of favor (e.g., Lofstrom et al. 1982; Majewski and O'Brien 1987). South’s (1977) mean ceramic dating technique uses this information. The dates presented here should not be considered absolute, but are the best estimates of an artifact’s age available at this time. A blank space indicates the artifact could not be dated or that the period of manufacture was so prolonged that the artifact was being manufactured before America was colonized. An ending date of “present” was assigned for artifacts that may be acquired today. The rationale for presenting dates for the artifacts recovered is to allow a more precise estimate of the time span the site was occupied, rather than the mean occupation date of a site.

## Architecture Group (N=179)

The Architecture group is comprised of artifacts directly related to buildings, as well as those artifacts used to enhance the interior or exterior of buildings. These artifacts primarily consist of window glass, nails, and construction materials, such as brick and mortar. The Architecture group artifacts recovered from the geotechnic bore holes consisted of construction material, such as bricks and mortar, fittings and hardware, flat glass, and nails. These items are discussed below.

### *Construction Material (N=50)*

Construction materials refer to all elements of building construction. For this project, the building materials collected included primarily brick, with lesser amounts of mortar, ceramic tile, and wood (Table 5.2). When possible, bricks (n=42) were separated into handmade (n=6) and machine-made (n=6), but if this assessment could not be made, the bricks were categorized as indeterminate brick fragments (n=30).

Handmade or early machine-made bricks often have a glaze resulting from the sand in the clay turning to glass in the kiln. The paste is usually more porous and the shape of this early brick is more irregular. The later machine-made bricks have a harder, more consistent paste and are uniform in shape. Machine-made bricks will often have marks in the clay related to the machine manufacturing process (Greene 1992; Gurcke 1987). Although no research has been conducted on the local history of brick making facilities near the bore hole monitoring areas, handmade bricks generally date before 1881 in neighboring cities such as Frankfort (Hockensmith 1997:165). A whole brick from 1W-77 had the word Ironton inscribed on one side. Several maker-marks utilizing the word "IRONTON" have been documented. One mark is listed for "Ironton Fire Brick Co." in Ohio, generally dating around the 1920s and 1930s. Another instance of the use of that mark was by the Carlyle-Labold Co. of Ohio in 1935. Yet another mark was used by Ashland Fire Brick Co. of Kentucky in 1921 (Gurcke 1987).

**Table 5.2. Summary of Construction Material.**

| Bore Hole | Construction material | N | Wt. (g) | Comments |
|---|---|---|---|---|
| 1B-52 | Brick, Machine made, Non-vitrified | 1 | 3.9 | 10R5/6 red |
| 1B-52 | Brick, Indeterminate, Non-vitrified | 2 | 0.9 | |
| 1B-52 | Brick, Indeterminate, Non-vitrified | 2 | 1.4 | |
| 1B-52 | Mortar | 1 | 2.9 | |
| 1W-27 | Brick, Indeterminate, Non-vitrified | 1 | 0.2 | |
| 1W-27 | Brick, Indeterminate, Non-vitrified | 2 | 24.5 | |
| 1W-28 | Brick, Machine made, Non-vitrified | 4 | 39.5 | 10R4/6 red; no measurable fragments |
| 1W-28 | Brick, Indeterminate, Non-vitrified | 1 | 14.7 | |
| 1W-74 | Brick, Indeterminate, Non-vitrified | 3 | 6.4 | |
| 1W-76 | Brick, Indeterminate, Non-vitrified | 1 | 0.8 | |
| 1W-77 | Brick, Handmade, Non-vitrified | 1 | 543.6 | 2.5YR4/4 reddish brown; 5.4 cm thick, 9.9 cm wide |
| 1W-77 | Brick, Machine made, Non-vitrified | 1 | 3606.06 | 2.5YR4/6 red; 7.7 cm thick, 9.9 cm wide, 22.7 cm long; "IRONTON F.B. CO. / PAVER" |
| 2B-123 | Ceramic, Wall/floor tile | 1 | | |
| 2W-146 | Brick, Indeterminate, Non-vitrified | 2 | 28.7 | |
| 2W-146 | Brick, Indeterminate, Non-vitrified | 9 | 113.9 | |
| 3B-197 | Ceramic, Wall/floor tile | 1 | | |
| 3B-197 | Ceramic, Wall/floor tile | 1 | | |
| 3B-197 | Ceramic, Wall/floor tile | 1 | | |
| 3B-363 | Ceramic, Wall/floor tile | 1 | | |
| 3R-384 | Brick, Indeterminate, Non-vitrified | 4 | 86.4 | |
| 3R-384 railroad area | Brick, Handmade, Non-vitrified | 1 | 1292.3 | 10R3/6 dark red; 5.6 cm thick, 10.1 cm wide |
| 3R-384 railroad area | Brick, Handmade, Non-vitrified | 1 | 1271.1 | 10R4/8 red; 5.8 cm thick, 10.2 cm wide |
| 4B-248 | Brick, Handmade, Non-vitrified | 1 | 581.2 | 10R4/6 red; 5.6 cm thick, 10.3 cm wide |
| 4B-248 | Brick, Handmade, Non-vitrified | 1 | 596.7 | 5YR5/6 yellowish red; 6.2 cm thick |
| 4B-260 | Wood, Plywood | 1 | 0.1 | |
| 5B-296 | Brick, Indeterminate, Non-vitrified | 1 | 64.9 | |
| 5B-304 | Brick, Indeterminate, Non-vitrified | 2 | 3.4 | |
| 5B-326 | Brick, Handmade, Vitrified | 1 | 10.4 | GLEY1 4/N dark gray |
| 5B-326 | Mortar | 1 | 3.5 | |
| Total | | 50 | | |

The remaining materials included in this class consisted of two pieces of mortar, one piece of painted plywood, and five fragments of ceramic floor tile.

## Fittings and hardware (N=4)

This class of artifacts includes fittings for structures such as plumbing pipes and other architectural hardware. One chrome plated toilet handle, one brass perforated tub drain, and two stoneware water pipe fragments were recovered (Table 5.3).

## Flat Glass (N=105)

Cylinder glass was developed in the late eighteenth century to enable the inexpensive production of window glass. With this method, glass was blown into a cylinder and then cut flat (Roenke 1978:7). This method of producing window glass replaced crown glass, which dated back to the Medieval period and could only be made into very small, usually diamond shaped, panes (Roenke 1978:5). Cylinder glass was the primary method of window glass production from the late eighteenth century through the early twentieth century, wherein cylinder glass windows were slowly replaced by plate glass windows, whose production became mechanized after 1900 but did not become a commercial success in the U.S. until around 1917 (Roenke 1978:11).

Cylinder window glass has been shown to gradually increase in thickness through time and can be a useful tool for dating historic sites. Several dating schemes and formulas have been devised that use average glass thickness to calculate building construction or modification dates. These include Ball (1983), Roenke (1978), and Chance and Chance (1976) to name a few. Like previously derived formulas, Moir (1987) developed a window glass dating formula to estimate the initial construction dates for structures built primarily during the nineteenth century.

**Table 5.3. Summary of Fittings and Hardware.**

| Bore hole | Type | N | Wt. (g) | Minimum Date | Maximum Date |
|---|---|---|---|---|---|
| 3W-209 | Stoneware water pipe | 1 | 26.1 | | |
| 5B-304 | Chrome plated toilet handle | 1 | | | |
| 5B-304 | Brass perforated tub drain | 1 | | | |
| 5B-326 | Stoneware water pipe | 1 | 19.2 | | |
| Total | | 4 | | | |

Although Moir (1987:80) warns that analysis on structures built prior to 1810 or later than 1915 have shown poor results, most research in this area shows the regression line extending back beyond 1810 (Moir 1977; Roenke 1978). Hence, dates calculated back to 1785 were considered plausible. Sample size is also a consideration when using the Moir window glass regression formula. According to Moir (1987:78), sample sizes also need to be "reasonable and not collected from a point or two" in order to accurately date the construction of a building. For the purposes of this investigation, a "reasonable" sample size is considered 50 window glass sherds.

Each fragment of flat glass was measured for thickness and recorded to the nearest hundredth of a millimeter using digital calipers. The differences between cylinder window glass, mirror glass, and plate glass were in part determined by the thickness and wear of each flat glass fragment. Although Moir (1987:80) states that dating window glass after 1915 is not as reliable for dating sites, for our purposes, window glass that measured 2.43 mm (dating to 1917) was included in the calculations because according to Roenke (1978:11), plate glass does not become widely or successfully produced in the U.S. until 1917.

There were 105 sherds of flat glass recovered during the geotechnic bore hole monitoring (Table 5.4). Fifty-four of these sherds were recorded as cylinder window glass and were dated using the Moir (1987) window glass regression formula. These dates are very tentative, however, since the sample sizes recovered from each bore hole were very small. Plate glass (n=54) was also recovered during the monitoring as well as privacy glass (n=3) and stained glass (n=2).

**Table 5.4. Flat Glass Recovered by Bore Hole.**

| Bore hole | Type | N | Moir Date |
|---|---|---|---|
| 1B-17 | Window glass | 1 | 1826 |
| 1W-27 | Window glass | 1 | 1869 |
| 1W-27 | Plate glass | 1 | 1917 |
| 1W-28 | Window glass | 1 | 1898 |
| 1W-28 | Window glass | 1 | 1899 |
| 1W-76 | Plate glass | 1 | 1917 |
| 1W-76 | Window glass | 1 | 1911 |
| 2B-123 | Window glass | 1 | 1903 |
| 2W-398 | Window glass | 1 | 1905 |
| 3R-384 | Window glass | 1 | 1896 |
| 3R-384 | Plate glass | 2 | 1917 |
| 3R-384 | Plate glass | 1 | 1917 |
| 4B-248 | Window glass | 1 | 1855 |
| 4B-248 | Window glass | 1 | 1852 |
| 4B-248 | Window glass | 1 | 1863 |
| 4B-248 | Window glass | 1 | 1834 |
| 4B-248 | Window glass | 1 | 1868 |
| 4B-248 | Window glass | 1 | 1917 |
| 4B-250 | Window glass | 1 | 1878 |
| 4B-250 | Plate glass | 1 | 1917 |
| 4B-250 | Window glass | 1 | 1869 |
| 4B-250 | Window glass | 1 | 1875 |
| 4B-250 | Window glass | 1 | 1829 |
| 4B-250 | Window glass | 1 | 1810 |
| 4B-250 | Window glass | 1 | 1821 |
| 4B-250 | Window glass | 1 | 1855 |
| 4B-260 | Plate glass | 1 | 1917 |
| 4B-260 | Plate glass | 1 | 1917 |
| 4B-260 | Other glass;stained:tan | 1 | |
| 4B-260 | Privacy glass | 1 | |
| 4B-260 | Window glass | 1 | 1831 |
| 4B-260 | Plate glass | 1 | 1917 |
| 4B-260 | Privacy glass | 2 | |
| 4B-260 | Other glass;stained:green | 1 | |
| 4B-267 | Plate glass | 1 | 1917 |
| 4B-267 | Window glass | 1 | 1858 |
| 4B-267 | Window glass | 1 | 1836 |
| 4B-267 | Window glass | 1 | 1895 |
| 4B-267 | Window glass | 1 | 1862 |
| 4B-267 | Window glass | 1 | 1864 |
| 4B-267 | Plate glass | 1 | 1917 |
| 4B-267 | Window glass | 1 | 1884 |
| 4B-270 | Window glass | 1 | 1869 |
| 4B-270 | Plate glass | 1 | 1917 |
| 4B-270 | Window glass | 1 | 1901 |
| 4B-270 | Plate glass | 1 | 1917 |
| 4B-270 | Window glass | 1 | 1861 |
| 4B-270 | Window glass | 1 | 1854 |
| 4B-270 | Window glass | 1 | 1893 |
| 4B-270 | Window glass | 1 | 1819 |
| 4B-270 | Window glass | 1 | 1875 |
| 4B-270 | Window glass | 1 | 1890 |
| 4B-270 | Plate glass | 1 | 1917 |
| 4B-270 | Window glass | 1 | 1889 |
| 4B-270 | Window glass | 1 | 1828 |
| 4B-270 | Window glass | 1 | 1869 |

| Bore hole | Type | N | Moir Date |
|---|---|---|---|
| 4B-270 | Window glass | 1 | 1859 |
| 4B-270 | Plate glass | 1 | 1917 |
| 4B-270 | Window glass | 1 | 1834 |
| 4B-286 | Plate glass | 1 | 1917 |
| 4B-286 | Window glass | 1 | 1901 |
| 4B-286 | Window glass | 1 | 1843 |
| 4B-286 | Plate glass | 1 | 1917 |
| 4B-286 | Window glass | 1 | 1859 |
| 4B-286 | Window glass | 1 | 1882 |
| 4B-286 | Plate glass | 1 | 1917 |
| 4B-286 | Plate glass | 1 | 1917 |
| 5B-294 | Window glass | 1 | 1900 |
| 5B-294 | Window glass | 1 | 1906 |
| 5B-298 | Plate glass | 1 | 1917 |
| 5B-298 | Plate glass | 2 | 1917 |
| 5B-298 | Plate glass | 1 | 1917 |
| 5B-304 | Plate glass | 1 | 1917 |
| 5B-304 | Plate glass | 1 | 1917 |
| 5B-304 | Plate glass | 1 | 1917 |
| 5B-304 | Plate glass | 1 | 1917 |
| 5B-304 | Plate glass | 1 | 1917 |
| 5B-304 | Plate glass | 1 | 1917 |
| 5B-304 | Plate glass | 11 | 1917 |
| 5B-319 | Window glass | 1 | 1895 |
| 5B-319 | Plate glass | 1 | 1917 |
| 5B-319 | Plate glass | 1 | 1917 |
| 5B-319 | Window glass | 1 | 1890 |
| 5B-319 | Window glass | 1 | 1883 |
| 5B-319 | Window glass | 1 | 1906 |
| 5B-319 | Window glass | 1 | 1891 |
| 5B-319 | Plate glass | 1 | 1917 |
| 5B-326 | Window glass | 1 | 1911 |
| 5B-326 | Plate glass | 1 | 1917 |
| 5B-326 | Window glass | 1 | 1896 |
| 5B-326 | Plate glass | 1 | 1917 |
| 5B-326 | Plate glass | 1 | 1917 |
| Total | | 105 | |

### *Nails (N=20)*

There are three stages recognized in the technological chronology of nails: wrought nails, cut nails, and wire-drawn nails. Wrought nails were handmade and were the primary type of construction fastener in the eighteenth and early nineteenth centuries. Their use ended around 1830 with the widespread use of square cut or machine cut nails (Nelson 1968:8).

The cut nail, introduced in approximately 1790, originally had a machine cut body with a handmade head. Around 1815, crude machine made heads replaced handmade heads on cut nails, and they began to replace wrought nails in the construction industry. Early fully machine cut nails exhibit a "rounded shank under the head," and therefore, often appear pinched below the head of the nail (Nelson 1968:8). By the late 1830s, these "early" fully machine cut nails were replaced with "late" fully or modern machine cut nails.

The first wire-drawn nails were introduced into the United States from Europe by the mid-nineteenth century. These early wire nails were primarily used for box construction and were not well-adapted for the building industry until the 1870s. Although the cut nail can still be purchased today, the wire nail nearly universally replaced it by the turn of the twentieth century (Nelson 1968:8).

A total of 20 nails was recovered from the monitored bore holes (Table 5.5). Of the nails recovered, there were two general cut nails, six late fully machine cut nails, eight wire-drawn nails, and four unidentifiable nails. Although the nails were recovered from somewhat isolated contexts considering the bore holes, the late fully machine cut and wire-drawn nails suggest contexts dating from the late nineteenth and twentieth centuries.

## Clothing Group (N=1)

The Clothing group includes buttons, clothing fasteners, footwear, and other clothing related items such as belts, hats, and fabric. Only one clothing item was recovered during the geotechnic bore hole monitoring (Table 5.6). This was a flat, one-piece sew-through porcelain (prosser) button dating after 1840 (Sprague 2002). The button measured 17.5 mm (.69 in). See Figure 5.3 below for photo of button.

## Domestic Group (N=587)

Artifacts included in the Domestic group consisted of ceramics (n=86), container glass (n=477), glass container closures (n=2), metal food containers (n=1), glass tableware (n=8), other tableware (n=4), openers (n=1), utensils (n=1), and undiagnostic container fragments (n=7). The ceramic inventory consisted of a variety of refined and unrefined wares dating throughout the nineteenth and early twentieth centuries. A full description of ceramic types recovered is listed below, followed by descriptions of other Domestic group artifacts.

**Table 5.5. Summary of nails.**

| Bore hole | Type | Size | Condition | N | Minimum Date | Maximum Date |
|---|---|---|---|---|---|---|
| 2W-97 | Wire nail | 7d | Clinched | 1 | 1880 | |
| 3B-197 | Wire nail | 6d | Pulled | 1 | 1880 | |
| 3B-197 | Wire nail | Fragment | | 1 | 1880 | |
| 4B-250 | Cut nail, late machine headed | Fragment | | 1 | 1830 | 1880 |
| 4B-267 | Cut nail late machine headed | 9d | Pulled | 1 | 1830 | 1880 |
| 4B-267 | Cut nail late machine headed | 5d | Pulled | 1 | 1830 | 1880 |
| 4B-267 | Cut nail late machine headed | Fragment | | 1 | 1830 | 1880 |
| 4B-270 | Cut nail late machine headed | 12d | Pulled | 1 | 1830 | 1880 |
| 4B-270 | Cut nail, unidentified cut | Fragment | | 1 | 1800 | 1880 |
| 4B-286 | Cut nail, unidentified cut | Fragment | | 1 | 1800 | 1880 |
| 5B-298 | Unidentifiable nail | Fragment | | 1 | | |
| 5B-304 | Cut nail late machine headed | 8d | Pulled | 1 | 1830 | 1880 |
| 5B-304 | Wire nail | 8d | Pulled | 1 | 1880 | |
| 5B-304 | Wire nail | 16d | Pulled | 1 | 1880 | |
| 5B-304 | Wire nail | Fragment | | 1 | 1880 | |
| 5B-325 | Wire nail | Fragment | | 1 | 1880 | |
| 5B-328 | Wire nail | 7d | Clinched | 1 | 1880 | |
| 5B-328 | Unidentifiable nail | Fragment | | 3 | | |
| Total | | | | 20 | | |

**Table 5.6. Summary of Clothing Group Artifacts.**

| Bore hole | Type | N | Minimum Date | Maximum Date | Size |
|---|---|---|---|---|---|
| 4B-270 | Sew-through button, prosser | 1 | 1840 | | 11/16" |

## *Ceramics (N=86)*

The ceramics recovered during the monitoring were grouped into six major ware types: whiteware (n=39), ironstone (n=16), semi-porcelain (n=11), porcelain (n=6), unidentified refined white-bodied ware (n=2), and stoneware (n=12). Ceramics within each of these ware groups were separated into decorative types that have temporal significance. Each of these ware groups is reviewed below, followed by discussions of associated decorative types. Figure 5.1 provides examples of the various ceramics recovered during monitoring.

### Whiteware (N=39)

As a ware type, whiteware includes all refined earthenware that possesses a relatively non-vitreous, white to grayish-white clay body. Undecorated areas on dishes exhibit a white finish under clear glaze. This glaze is usually a variant combination of feldspar, borax, sand, niter, soda, and china clay (Wetherbee 1980:32). Small amounts of cobalt were added to some glazes, particularly during the period of transition from pearlware to whiteware and during early ironstone manufacture. Some areas of thick glaze on whiteware may therefore exhibit bluish or greenish-blue tinting. Weathered paste surfaces are often buff or off-white and vary considerably in color from freshly exposed paste (Majewski and O’Brien 1987).

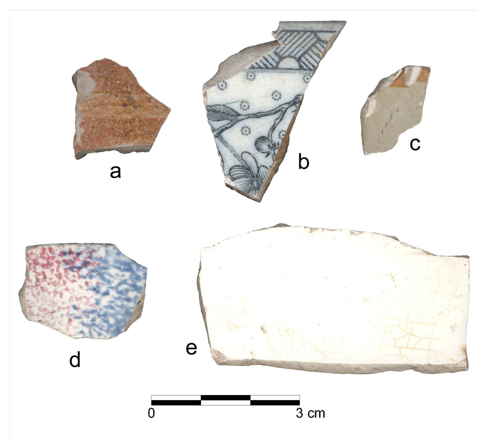


**Figure 5.1. Examples of historic ceramics recovered during monitoring: a. salt glazed stoneware hollowware (3R-384), b. black transfer print whiteware plate rim, c. slip decorated (swirl/wormware) whiteware hollowware (4B-250), d. polychrome spattered whiteware tea cup rim (4B-248), and e. plain whiteware plate footring (3B-197).**

Most whiteware produced before 1840 had some type of colored decoration. These decorations are often used to designate ware groups (i.e., edgeware, polychrome, and colored transfer print). Most of the decorative types are not, however, confined to whiteware. Therefore, decoration alone is not a particularly accurate temporal indicator or actual ware group designator (Price 1981).

The most frequently used name for undecorated whiteware is the generic "ironstone," which is derived from "Ironstone China" patented by Charles Mason in 1813 (Mankowitz and Hagger 1957). For purposes of clarification, ironstone will not be used when referring to whiteware. Ironstone is theoretically harder and denser than whiteware produced prior to about 1840. Manufacturer variability is, however, considerable and precludes using paste as a definite ironstone identifier or as a temporal indicator. Consequently, without independent temporal control, whiteware that is not ironstone is difficult to identify, as is early versus later ironstone. For our analysis, the primary determining factor in classification of a sherd as whiteware was the hardness and porosity of the ceramic paste. Decorative types observed on the whiteware sherds recovered from the geotechnic bore holes are summarized in Table 5.7 and defined in the following discussions.

#### PLAIN (N=30)

This decorative type includes dishes with no colored decoration or solid glaze. Plain whiteware can frequently exhibit some form of molding or embossing. While some researchers (Lofstrom et al. 1982:10; Wetherbee 1980) include molded designs with "plain" whiteware, we agree with Majewski and O'Brien (1987:153) that molded vessels should be grouped on their own.

Plain whiteware sherds (n=30) are the most common ceramic recovered from the geotechnic boreholes. Two saucer sherds (see Figure 5.1) and one tea cup sherd were identified in the assemblage, but the remaining 27 sherds could not be identified according to vessel shape. Although the majority of whiteware sherds recovered from the bore holes were plain, it is possible that many of these sherds were from undecorated portions of decorated vessels. The suggested age range for plain whiteware sherds is 1830 to the present (Majewski and O'Brien 1987:119).

**Table 5.7. Summary of whiteware.**

| Bore hole | Decoration | N | Minimum Date | Maximum Date |
|---|---|---|---|---|
| 1W-27 | Transfer print: Black | 1 | 1828 | 1860 |
| 1W-28 | Plain | 1 | 1830 | |
| 3B-197 | Plain | 1 | 1830 | |
| 3B-197 | Plain | 1 | 1830 | |
| 3B-363 | Decal: Gold | 1 | 1880 | |
| 4B-248 | Plain | 1 | 1830 | |
| 4B-248 | Spattered: red and blue | 1 | 1830 | 1870 |
| 4B-250 | Slip decorated: Swirl/wormware | 1 | 1830 | |
| 4B-270 | Plain | 4 | 1830 | |
| 4B-286 | Plain | 1 | 1830 | |
| 5B-319 | Plain | 1 | 1830 | |
| 5B-319 | Plain | 1 | 1830 | |
| 5B-319 | Transfer print: Black | 2 | 1828 | 1860 |
| 5B-319 | Transfer print: Black | 1 | 1828 | 1860 |
| 5B-319 | Plain | 10 | 1830 | |
| 5B-319 | Plain | 2 | 1830 | |
| 5B-319 | Plain | 2 | 1830 | |
| 5B-319 | Plain | 3 | 1830 | |
| 5B-319 | Plain | 1 | 1830 | |
| 5B-319 | Transfer print: Blue | 1 | 1820 | 1860 |
| 5B-326 | Chromatic glaze: Brown | 1 | 1930 | |
| 5B-326 | Plain | 1 | 1830 | |
| Total | | 39 | | |

### Sponge/Spattered (N=1)

Wares with spatter decoration were produced by the Staffordshire potteries in great quantities throughout the nineteenth century and in the United States after circa 1850 (Majewski and O'Brien 1984:44). Spatter decoration was produced using a stencil or a full brush of paint tapped against the vessel. Occasionally, the spatter effect was created through transfer printing (Majewski and O'Brien 1984:44). This pattern is most commonly found on plates or platters, but was also used on cups, saucers, coffee pots, pitchers, and serving dishes. This decorative type generally dates from 1830 to 1870, since spattered vessels were imported to the United States from England before American pottery companies began producing vessels with this style of decoration.

By 1845, a cut-sponge (or "stick-spatter") technique was also in use. Sponges were cut to produce various shapes. These cut sponges were then dipped in paint or enamel and then dabbed onto the vessel, creating a stencil-like appearance. This decorative type generally dates from 1845 to 1900.

Spatter and cut sponge decoration can involve many underglaze colors. The one spatter decorated sherd recovered from the bore hole monitoring was blue and red, and this sherd had once been part of a tea cup (see Figure 5.1).

#### *Slip Decorated (N=1)*

Annular decoration—also known as dipped, banded, or slip banded—is a style involving the application of horizontal bands of colored slip around a vessel exterior. Unlike flat borderline handpainting, annular banding exhibits a slight relief. It can be found on creamware, pearlware, and whiteware. The banding was often utilized in conjunction with colored glazes as well as decorative motifs such as "cat's eye," "earthworm" (finger-painted), and mocha. The latter was incorporated into earlier styles (Van Rensselear 1978:240).

Those English potters who immigrated to the United States in the 1830s and 1840s continued to manufacture banded or annular ware; however, whiteware and yellowware were the most common paste types. The production of American yellowware, in particular, incorporated many of these designs. Banding, "cat's eye," "earthworm," and mocha (dendritic) motifs were utilized, sometimes exhibiting a combination of these styles on the same vessel. Slip decorated whiteware recovered from the bore hole monitoring included one swirl/wormware sherd from an unknown vessel (see Figure 5.1).

#### *Transfer-Printed (N=5)*

By the late 1780s, the practice of transfer printing was being developed in the potteries of Staffordshire, England, as a fast and inexpensive method of mass-producing decorated pearlware and whiteware. It was originally perfected circa 1756 for use on porcelains and was not used on earthenwares until Thomas Minton designed his blue willow pattern in 1780, which initiated a wider commercial use (Norman-Wilcox 1978; Little 1969:15–17 in Majewski and O'Brien 1987). A description of the process follows.

The required pattern is first engraved by hand on a copper plate, from which a tissue-paper print called a "pull" or "proof" is taken. Then, by pressing the tissue against a piece of undecorated ware, the design is deposited or transferred to the surface of the vessel. Glazing and baking complete the process (Norman-Wilcox 1978:167).

According to Hughes and Hughes (1968:150) and others (Godden 1963:113), blue was the dominant color of transfer-printed wares prior to the 1830s. With advances in ceramic technology, brown and black prints appeared after 1825 and, by 1830, green, red, pink, mulberry, and light blue were also being produced (Bemrose 1952:23; Little 1969:13-22; Samford 1997:20; Wetherbee 1980:15). By 1831, a technique for transferring more than one primary color to a vessel was perfected (Godden 1965:xx; Samford 1997:20).

Early patterns include the willow pattern and other Chinese design motifs. Although some Chinese-style motifs were still being used, the use of classical and romantic scenic themes became popular in the early nineteenth century. These patterns included country scenes, floral motifs, and travel scenes. Patterns depicting American buildings and scenery were popular after 1812 (Samford 1997:6; Snyder 2000:5). The patterns on these sherds were suggestive of prints of the early nineteenth century (Price 1979:19).

A total of five transfer-printed sherds was recovered from the geotechnic bore holes. These consist of one blue transfer printed sherd and four black transfer printed sherds (see Figure 5.1). The majority of these sherds appear to date between the 1820s and 1860. No vessel shapes were identified.

#### DECAL (N=1)

Decal decorated designs—or decalcomania as it is also known—were first used on porcelain toward the end of the nineteenth century, but did not appear on American-made earthenware ceramics much before 1900. Decals are applied to ceramic vessel blanks after firing, and then the vessel is refired and glazed at a lower temperature to make the decal adhere (Blaszczyk 2000:77). The decals include stipple and line-engraved motifs created using a lithographic process in an assortment of colors (Majewski and O'Brien 1984:36).

In contrast to the polychrome sprig and broadline hand-painted floral styles popular in the mid-nineteenth century, floral decals are often characterized by their use as a border or vessel accent. Frequently, these appear as small sprays of flowers applied off-center and often were applied in conjunction with thin-line border stripes, raised-border motifs, handpainting, and gilding (Majewski and O'Brien 1984:36). Occasionally, decals were lightly touched up by hand in order to give a handpainted appearance. Majewski and O'Brien suggest that this motif began in the late 1800s as an inexpensive alternative to multi-colored handpainted techniques. They further suggest that this technique remained a popular method of decoration through the mid-twentieth century and is still in use today, although the technique has been largely replaced by silk screening (Blaszczyk 2000:161). Decal decoration can occur on whiteware, ironstone, and porcelain.

One decal decorated sherd was recovered during the geotechnic bore hole monitoring. This basal sherd from an unidentified vessel form had a gold decal and dates from 1880 to the present.

#### CHROMATIC GLAZE (N=1)

Solid colored, or chromatic, glazed ceramics became popular during the second quarter of the twentieth century (Majewski and O'Brien 1987:164). As chain stores dealing in five- and ten-cent merchandise, groceries, drugs, and clothing sought to provide an increased array of cheap merchandise for consumers, pottery companies expanded their production efforts with the use of tunnel kilns. These kilns, which contained continuous flow ovens, allowed pottery manufacturers to significantly increase the output of cheap dishes available to chain stores, and ultimately, consumers (Blaszczyk 2000:120–121).

One of the first well-known and popular styles to be produced in the 1920s had a yellow or ivory glaze, with or without decals (Blaszczyk 2000:121). By the 1930s, other chromatic glazes in colors such as red, cobalt blue, and green also became popular, as exemplified by the excitement surrounding Homer-Laughlin's introduction of Fiesta tableware to the consumer market in 1936 (Gonzalez 2000). Over time, other colors were added to the chromatic glazed tablewares available to consumers, and although chromatic glazed vessels are still available today, the height of their popularity was seen between the 1920s and 1960s.

One chromatic glazed (brown) vessel sherd was recovered during the geotechnic bore hole monitoring. The vessel shape was unidentifiable.

### Ironstone (N=16)

Ironstone is a white or gray-bodied, refined stoneware with a clear glaze. It is often indistinguishable from whiteware. Ironstone differs from whiteware in that the body is more vitreous and dense. In addition, a bluish tinge or a pale blue-gray cast often covers the body. In some cases, a fine crackle can be seen in the glaze; however, this condition is not as common as it is in whiteware (Denker and Denker 1982:138).

Confusion in the classification of white-bodied wares is further compounded by the use of the term as a ware type or trade name in advertising of the nineteenth century. Both ironstones and whitewares were marketed with names such as "Patent Stone China," "Pearl Stone China," "White English Stone," Royal Ironstone," "Imperial Ironstone," "Genuine Ironstone," "White Granite," and "Granite Ware" (Gates and Ormerod 1982:8; Cameron 1986:170). These names do not imply that true ironstone was being manufactured. Some investigators avoid the distinctions entirely by including ironstones as a variety of whiteware. Others, however, such as Wetherbee (1980), refer to all nineteenth century white-bodied earthenwares as ironstone. For this analysis, the primary determining factor in classification of a sherd as ironstone was the hardness and porosity of the ceramic paste. Sherds with a hard vitreous paste were classified as ironstone.

Charles James Mason is usually credited with the introduction of ironstone (referred to as Mason's Ironstone China) in 1813 (Dodd 1964:176). Others, including the Turners and Josiah Spode, produced similar wares as early as 1800 (Godden 1965:xxiii). As a competitive response to the highly popular oriental porcelain, British potters initiated this early phase of ironstone production. The ironstone of this early phase bears a faint blue-gray tint and oriental motifs much like Chinese porcelain. A second phase of ironstone began after 1850 in response to the popularity of hard paste porcelains produced in France. This variety of ironstone had a harder paste and reflected the gray-white color of French porcelains.

While some ironstones continued to use oriental design motifs after 1850, the general trend was toward undecorated or molded ironstones (Collard 1967:125–130; Lofstrom et al. 1982:10). Ironstone continued to be produced in England and, after 1870, it was also manufactured by numerous American companies. For many years, classic ironstone—the heavy, often undecorated, ware–had been frequently advertised as being affordable and suitable for "country trade" (Majewski and O'Brien 1987:121). By the late 1800s, these thick, heavy ironstones began losing popularity and were frequently equated with lower socio-economic status (Collard 1967:13). At the same time, ironstone manufacturers began shifting to thinner, lighter weight ironstones. As a result, this type of ironstone became popular tableware in American homes during most of the twentieth century (Majewski and O'Brien 1987:124–125). In spite of the shift towards thinner and lighter ironstones, heavy ironstone remained on the market and continues to be popular in hotel/restaurant service (hence, this heavy, twentieth century ironstone is sometimes called "hotelware"). However, its production for home use all but ceased by the second decade of the twentieth century (Lehner 1980:11).

Ceramics categorized as ironstone in the current study included 16 sherds (Table 5.8). Fourteen of these sherds were plain, while two sherds were decorated with a brown transfer print. This decorative style dates to the middle of the nineteenth century. Identified vessel types represented by the ironstone recovered from the geotechnic bore holes include one tea cup and one bowl.

**Table 5.8. Summary of ironstone.**

| Bore hole | Decoration | N | Min Date | Max Date |
|---|---|---|---|---|
| 3B-183 | Plain | 1 | 1840 | |
| 3B-363 | Plain | 1 | 1840 | |
| 4B-248 | Plain | 2 | 1840 | |
| 4B-250 | Transfer print:Brown | 1 | 1840 | 1860 |
| 4B-260 | Plain | 3 | 1840 | |
| 4B-260 | Transfer print:Brown | 1 | 1840 | 1860 |
| 4B-270 | Plain | 1 | 1840 | |
| 5B-319 | Plain | 2 | 1840 | |
| 5B-319 | Plain | 3 | 1840 | |
| 5B-325 | Plain | 1 | 1840 | |
| Total | | 16 | | |

## Porcelain (N=6)

Porcelain is the name given to highly fired, translucent ware. Porcelain was introduced to Europe by Portuguese sailors traveling back from China during the sixteenth century. The formula for true or feldspatic porcelain was not discovered in Europe until 1708 and not marketed until 1713 (Boger 1971:266). The production of true, or hard paste, porcelain was limited to three factories in England; all other products were soft paste porcelains made with glass, bone ash, or soapstone. Soft paste porcelain, or "bone china," became the preferred product after 1800, since the 40 percent bone ash made the paste harder and cheaper to produce than the other two formulas that included glass or soapstone (Mankowitz and Hagger 1957:179). Among the more affluent households, porcelain was a common tableware used during the eighteenth and nineteenth centuries (Fay and Nekola 1986:69).

Porcelain production in America was not successful until 1826, and the number of porcelain factories in the United States remained small throughout the nineteenth century. Bone china was also the most common porcelain manufactured in America (Mankowitz and Hagger 1957:27). In the lab, bone china can be differentiated from hard paste porcelain by placing it under ultraviolet light. Bone china fluoresces blue-white while hard paste fluoresces magenta (Majewski and O'Brien 1987:128).

The porcelain recovered from the geotechnic bore holes represents two different decorative styles (Table 5.9). These are discussed below. Due to the length of time that porcelain has been manufactured and the lack of temporally diagnostic decorative styles present on the sherds recovered during the project, specific date ranges could not be assigned.

### PLAIN (N=5)

Like pearlware, there were few undecorated porcelain vessels. It is possible that these five plain sherds came from the undecorated portion of decorated vessels. All of the sherds were too fragmentary to permit vessel identification.

**Table 5.9. Summary of porcelain.**

| Bore hole | Decoration | N | Min Date | Max Date |
|---|---|---|---|---|
| 3B-363 | Plain | 1 | | |
| 4B-250 | Plain | 1 | | |
| 4B-260 | Molded design | 1 | | |
| 4B-267 | Plain | 1 | | |
| 5B-325 | Plain | 1 | | |
| Total | | 6 | | |

### MOLDED (N=1)

One porcelain sherd with molded decoration was recovered. As with the plain porcelain, the vessel form could not be identified.

## Semi-Porcelain (N=11)

Semi-porcelain refers to an opaque, white-bodied, slightly porous to nonporous refined ware. The following description was taken from Manson and Snyder (1997:10). This term was widely used for dinnerware sets after about 1910 to distinguish them from porcelain sets. The paste of semi-porcelain wares sticks to the tongue slightly or not at all (like ironstone), but can often be scratched with a knife (like whiteware). Semi-porcelain is frequently vitreous like porcelain, but is not translucent (i.e., light does not shine through it). The ware tends to be lighter in weight than ironstone and ranges from thin to medium in thickness (it is rarely thick).

Majewski and O'Brien (1987:122) list semi-porcelain as a variation on ironstone. In addition to terms like "ironstone china," popular variants included white granite, semi-porcelain, and stone china (Collard 1967:131; Ramsay 1947:153). The proliferation of names used in marketing wares of this nature around the turn of the century has caused considerable confusion. Although semi-porcelain may display several decorative techniques, the assemblage included all plain sherds (Table 5.10). None of the sherds could be identified as to vessel form.

**Table 5.10. Summary of Semi-porcelain.**

| Bore hole | Decoration | N | Min Date | Max Date |
|---|---|---|---|---|
| 4B-250 | Plain | 1 | 1880 | |
| 4B-250 | Plain | 1 | 1880 | |
| 4B-250 | Plain | 1 | 1880 | |
| 4B-260 | Plain | 3 | 1880 | |
| 4B-260 | Plain | 5 | 1880 | |
| Total | | 11 | | |

## Unidentified refined white-bodied ware (N=2)

This category is a "catch-all" for all white-bodied ware that cannot be further classified as to ware type, usually due to burning or erosion. There were two unidentified refined white-bodied ware sherds (Table 5.11). Both sherds were burned and unidentifiable as per vessel shape.

**Table 5.11. Summary of unidentified refined white-bodied ware.**

| Bore hole | Decoration | N | Min Date | Max Date |
|---|---|---|---|---|
| 2W-391 | Plain | 1 | | |
| 5B-304 | Plain | 1 | | |

## Stoneware (N=12)

Stoneware served as the "daily use" pottery of America, particularly rural America, after its introduction during the last decade of the eighteenth century. Stoneware is a ware manufactured of a naturally vitrifying fine, but dense, clay. The pottery was fired longer and to a higher temperature than earthenwares; a kiln temperature of at least 1,200 to 1,250 degrees celsius had to be obtained (Dodd 1964:274–275; Cameron 1986:319). As a result, stoneware exhibits a hard body and a very homogeneous texture. Its body is nonporous and well suited to liquid storage. Stoneware, as it is called, is not a refined ware (such as its cousin, ironstone) and it was typically utilized for utilitarian purposes associated with vessels such as jars, churns, crocks, tubs, jugs, mugs, pans, and pots. The paste may vary from grays to browns, depending on the clay source and length and intensity of the firing.

Stoneware vessels were typically glazed, with salt glazing and slip glazing being most common. Salt glazed stoneware, introduced to the United States in the early nineteenth century, was accomplished by introducing sodium chloride into the kiln during the firing process, where the salt quickly volatilized. The vapor reacted with the clay to form a sodium aluminum silicate glaze (see Billington 1962:210; Dodd 1964:239). The surface of the glaze is typically pitted, having what is commonly known as an "orange peel" effect.

Stoneware may also be coated with a colored slip (a suspension of fine clay and pigment). The Albany slip—named after the rich brown clay found near Albany, New York—first appeared in the 1820s. Initially, it was mainly used for the interior of stoneware vessels. However, by the 1850s, it was also used as an exterior glaze. Bristol glaze, an opaque white slip, was introduced late in the nineteenth century. When used in combination with Albany slip, Bristol glazed stoneware vessels have a general date range of 1880–1925 (Ketchum 1983:19; Raycraft and Raycraft 1990:5).

A third glaze often used on stoneware is the alkaline glaze. Like the Albany slip, it was developed in the 1820s. The basic alkaline glaze is made up of wood ash, clay, and sand. Other additions may be slaked lime, ground glass, iron foundry cinders, or salt. These additions affected the color and texture of the glaze. Colors vary from olive to brown to a gray-green or yellowish hue, depending on adjustments in proportion of ingredients (Ketchum 1991:9).

Twelve stoneware vessel sherds were recovered during the geotechnic bore hole monitoring (Table 5.12). The most common exterior treatment was Albany slip (n=5). Other exterior treatments represented by the assemblage included bristol glaze (n=4), salt glaze (n=2), and one stoneware vessel sherd with an eroded exterior. Two of the Bristol glazed sherds were also blue sponge decorated. Out of the stoneware recovered from the bore holes (see Figure 5.1), only one salt glazed sherd was identified as to vessel form and this was a bottle fragment. No other vessel forms were identified.

Table 5.12. Summary of stoneware.

| Bore hole | Ext. glaze/ decoration | Int. glaze/ decoration | N | Min Date | Max Date |
|---|---|---|---|---|---|
| 1B-17 | Eroded | Salt glaze | 1 | 1800 | 1925 |
| 3R-384 | Salt glaze | Unglazed | 1 | 1800 | 1925 |
| 4B-260 | Albany slip | Albany slip | 1 | 1830 | |
| 4B-260 | Albany slip | Albany slip | 2 | 1830 | 1925 |
| 4B-260 | Bristol slip; sponged: blue | Bristol slip | 2 | 1880 | 1925 |
| 4B-260 | Bristol slip; sponged: blue | Bristol slip | 1 | 1880 | 1925 |
| 4B-286 | Albany slip | Eroded | 1 | 1830 | |
| 5B-319 | Albany slip | Albany slip | 1 | 1830 | 1925 |
| 5B-326 | Salt glaze | Albany slip | 1 | 1830 | 1925 |
| 5B-326 | Bristol slip | Albany slip | 1 | 1890 | 1925 |
| Total | | | 12 | | |

## *Container glass (N=484)*

A variety of container glass was recovered during the current investigation. Research by Baugher-Perlin (1982), Jones and Sullivan (1985), and Toulouse (1972) were used to date glass containers. Glass color was the only attribute used for dating those fragments that could not be identified as to type of manufacture.

The approximate date of manufacture for bottles and bottle fragments recovered from the project area was established by determining the manufacturing process associated with the bottle (i.e., creation of the base and lip of the container) and using any patent or company manufacturing dates embossed on the bottle. For example, the lip on a bottle can be informative. The lipping tool, patented in the U.S. in 1856, smoothed and shaped the glass rim into a more uniform edge than a hand smoothed lip or “laid-on ring.” Certain types or styles of lips were associated with specific contents; for example, medicines were often contained in bottles with prescription lips (Jones and Sullivan 1985). Lipping tools were used throughout the middle and end of the nineteenth century until the advent of the fully automatic bottle machine. A “sheared” or unfinished bottle lip dates before 1880.

The manufacturing process can be roughly divided into three basic groups including free blown, molded (BIM), and machine manufactured (ABM) vessels (Baugher-Perlin 1982:262–265). An unidentified category was used for those that could not be determined. Each process represented by the assemblage collected from the monitored bore holes is discussed separately below. Figure 5.2 provides examples of containers recovered during monitoring.

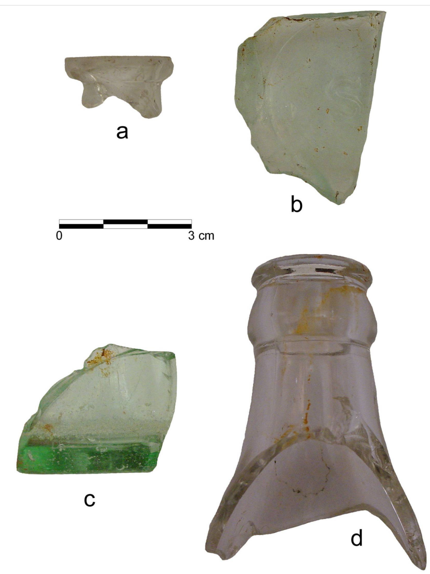


**Figure 5.2. Examples of container glass recovered during monitoring: a. clear BIM glass late applied prescription bottle lip (5B-326), b. aqua BIM glass post bottom bottle base (4B-270), c. light green ABM glass post Bottom Bottle base (3B-197), and d. clear ABM glass crown bottle lip (3B-197).**

### Blown-in-mold (BIM) (N=85)

BIM container glass comprised the second largest category of identifiable glass with 85 fragments (Table 5.13). Two lip treatments were identified in the assemblage, and these were late applied (n=5) and Hutchinson stopper (blob top) (n=1). One lip sherd was unidentifiable as to lip treatment. No pontil marks were discovered on any of the BIM glass fragments; however, one basal sherd exhibited a cup/post bottom mold. The remaining body sherds (n=77) consisted of various colors. These included amber (n=7), aqua (n=8), clear (n=44), light green (n=17), and olive green (n=1). See Figure 5.2 for examples of the clear and aqua BIM bottle fragments. Many of these colors are datable (see the Undiagnostic Container Glass section of this report for a full discussion). Vessel types represented by the BIM manufacturing technique include one liquor/beer/wine bottle, one canning jar, two medicine bottles, and three miscellaneous bottles.

### Machine Manufactured Container Glass (ABM) (N=392)

The Owens automatic bottle-making machine was patented in 1903 and creates distinctive seams that run up the length of bottle necks, in addition to valve marks and suction scars. This automatic bottle machine (ABM) mold provides a firm manufacturing date at the beginning of the twentieth century. There were 392 glass fragments assigned to the ABM category, although only a portion of these had distinguishing attributes (Table 5.14). See Figure 5.2 for examples of ABM bottle fragments. As with the BIM glass, there were several base types: cup/post bottom mold, individual suction, and Owens scar. Lip treatments included crown and external thread.

A variety of body treatments were observed in the machine made glass. These included embossed sherds (n=11) and plain recessed panel fragments (n=2). Enameling (applied color label) has been used as a decorative technique since 1935 (Paul and Parmalee 1973:57). The assemblage included one enameled sherd.

### Undiagnostic Container Glass (N=7)

When no other diagnostic features were present, the color of the glass was noted, although there is some subjectivity inherent in color classification. Jones and Sullivan (1985) observed that chemicals color glass, either as natural inclusions or additions by the manufacturer. The concern here was primarily to note the presence of opaque white “milk” glass, cobalt glass, and clear glass.

**Table 5.13. Summary of BIM glass.**

| Bore hole | Color | Vessel | N | Minimum Date | Maximum Date |
|---|---|---|---|---|---|
| 3B-364 | Clear glass | | 1 | 1864 | 1920 |
| 3R-384 | Clear glass | | 1 | 1864 | |
| 3R-384 | Aqua glass | | 3 | | |
| 3R-384 | Aqua glass | Misc. bottle | 1 | | |
| 4B-248 | Aqua glass | | 1 | | |
| 4B-248 | Aqua glass | | 1 | | |
| 4B-267 | Aqua glass | Misc. bottle | 1 | | |
| 4B-267 | Aqua glass | | 1 | | |
| 4B-267 | Aqua glass | | 1 | 1856 | 1920 |
| 4B-270 | Clear glass | | 1 | 1864 | |
| 4B-270 | Aqua glass | Misc. bottle | 1 | 1850 | |
| 5B-325 | Aqua glass | Canning Jar | 1 | 1860 | |
| 5B-326 | Clear glass | | 31 | 1864 | |
| 5B-326 | Light green glass | | 13 | | |
| 5B-326 | Amber glass | | 4 | 1860 | |
| 5B-326 | Olive green glass | | 1 | | |
| 5B-326 | Clear glass | Medicine: Patent and Pharmacy | 2 | 1864 | 1920 |
| 5B-326 | Clear glass | | 1 | 1864 | |
| 5B-326 | Aqua glass | Liquor / Beer / Wine | 1 | 1860 | 1920 |
| 5B-326 | Clear glass | | 9 | 1864 | |
| 5B-326 | Clear glass | | 1 | 1864 | |
| 5B-326 | Light green glass | | 3 | | |
| 5B-326 | Light green glass | | 1 | 1856 | |
| 5B-326 | Light green glass | | 1 | 1860 | |
| 5B-326 | Amber glass | | 2 | 1860 | |
| 5B-326 | Amber glass | | 1 | 1860 | |
| Total | | | 85 | | |

**Table 5.14. Summary of Machine Made Container Glass.**

| Bore hole | Color | Vessel | N | Minimum Date | Maximum Date |
|---|---|---|---|---|---|
| 1B-32 | Clear glass | | 1 | 1903 | |
| 1B-52 | Clear glass | | 3 | 1903 | |
| 1B-52 | Aqua glass | | 1 | 1903 | |
| 1W-27 | Clear glass | | 128 | 1903 | |
| 1W-27 | Clear glass | Misc. bottle | 3 | 1903 | |
| 1W-27 | Clear glass | | 3 | 1903 | |
| 1W-27 | Clear glass | Misc. bottle | 3 | 1903 | |
| 1W-27 | Clear glass | Misc. bottle | 1 | 1924 | |
| 1W-27 | Clear glass | | 3 | 1903 | |
| 1W-27 | Clear glass | Misc. bottle | 1 | 1903 | |
| 1W-27 | Clear glass | Misc. bottle | 1 | 1968 | |
| 1W-27 | Clear glass | Misc. bottle | 1 | 1903 | |
| 1W-27 | Clear glass | Liquor / Beer / Wine | 1 | 1938 | |
| 1W-27 | Clear glass | Liquor / Beer / Wine | 1 | 1903 | |
| 1W-27 | Clear glass | Misc. bottle | 1 | 1915 | |
| 1W-27 | Clear glass | Liquor / Beer / Wine | 2 | 1903 | 1955 |
| 1W-27 | Clear glass | Liquor / Beer / Wine | 1 | 1903 | 1955 |
| 1W-27 | Light green glass | Soda / Mineral Water | 2 | 1916 | |
| 1W-27 | Amber glass | | 10 | 1903 | |
| 1W-27 | Amber glass | Misc. bottle | 1 | 1903 | 1955 |
| 1W-27 | Amber glass | Misc. bottle | 3 | 1903 | |
| 1W-27 | Amethyst glass | | 1 | 1903 | 1914 |
| 1W-27 | Clear glass | | 24 | 1903 | |
| 1W-27 | Clear glass | | 1 | 1903 | |
| 1W-27 | Clear glass | | 1 | 1968 | |
| 1W-27 | Clear glass | | 17 | 1903 | |
| 1W-27 | Amber glass | | 3 | 1903 | |
| 1W-28 | Clear glass | | 6 | 1903 | |
| 1W-74 | Clear glass | | 2 | 1903 | |
| 2B-123 | Clear glass | | 2 | 1903 | |
| 2W-125 | Clear glass | | 3 | 1903 | |
| 2W-125 | Amber glass | | 1 | 1903 | |
| 2W-125 | Clear glass | | 1 | 1903 | |
| 2W-125 | Clear glass | | 1 | 1903 | |
| 2W-146 | Clear glass | | 2 | 1903 | |
| 2W-394 | Clear glass | | 1 | 1903 | |
| 2W-398 | Amber glass | | 1 | 1903 | |
| 2W-398 | Clear glass | | 1 | 1903 | |
| 3B-197 | Clear glass | | 5 | 1903 | |
| 3B-197 | Clear glass | Misc. bottle | 1 | 1903 | |
| 3B-197 | Clear glass | Soda / Mineral Water | 1 | 1903 | |
| 3B-197 | Clear glass | Soda / Mineral Water | 2 | 1903 | 1955 |
| 3B-197 | Light green glass | Soda / Mineral Water | 1 | 1903 | |
| 3B-197 | Light green glass | Soda / Mineral Water | 1 | 1903 | |
| 3B-197 | Aqua glass | | 1 | 1903 | |
| 3B-364 | Clear glass | | 1 | 1903 | |
| 3B-364 | Clear glass | Misc. jar | 1 | 1903 | |
| 3B-364 | Clear glass | | 1 | 1903 | |
| 3R-384 | Clear glass | | 2 | 1903 | |
| 3W-206 | Clear glass | | 4 | 1903 | |
| 3W-206 | Clear glass | | 1 | 1903 | |
| 3W-206 | Amber glass | | 3 | 1903 | |
| 3W-208 | Clear glass | | 2 | 1903 | |
| 3W-209 | Clear glass | | 15 | 1903 | |
| 3W-209 | Clear glass | Misc. bottle | 1 | 1903 | |
| 3W-209 | Amber glass | Misc. bottle | 1 | 1920 | |
| 3W-209 | Clear glass | | 4 | 1903 | |
| 4B-248 | Clear glass | | 1 | 1903 | |
| 4B-248 | Aqua glass | | 1 | 1903 | |
| 4B-249 | Clear glass | | 1 | 1903 | |
| 4B-250 | Clear glass | | 1 | 1903 | |
| 4B-250 | Clear glass | | 2 | 1903 | |
| 4B-250 | Olive green glass | | 4 | 1903 | |
| 4B-250 | Olive green glass | | 1 | 1903 | |
| 4B-250 | Clear glass | | 2 | 1903 | |
| 4B-250 | Olive green glass | | 2 | 1903 | |
| 4B-260 | Clear glass | | 3 | 1903 | |

| Bore hole | Color | Vessel | N | Minimum Date | Maximum Date |
|---|---|---|---|---|---|
| 4B-260 | Clear glass | | 2 | 1903 | |
| 4B-260 | Olive green glass | | 1 | 1903 | |
| 4B-260 | Amber glass | | 2 | 1903 | |
| 4B-267 | Clear glass | | 5 | 1903 | |
| 4B-267 | Clear glass | | 4 | 1903 | |
| 4B-267 | Opaque white glass | | 2 | 1903 | |
| 4B-270 | Clear glass | | 2 | 1903 | |
| 4B-270 | Olive green glass | | 2 | 1903 | |
| 4B-286 | Clear glass | | 4 | 1903 | |
| 4B-286 | Amber glass | | 2 | 1903 | |
| 5B-294 | Clear glass | | 2 | 1903 | |
| 5B-296 | Clear glass | | 1 | 1903 | |
| 5B-298 | Amber glass | | 1 | 1903 | |
| 5B-298 | Clear glass | Soda / Mineral Water | 1 | 1935 | |
| 5B-304 | Green glass | | 1 | 1903 | |
| 5B-304 | Amber glass | | 4 | 1903 | |
| 5B-304 | Aqua glass | | 1 | 1903 | |
| 5B-304 | Light green glass | | 1 | 1903 | |
| 5B-319 | Clear glass | | 2 | 1903 | |
| 5B-319 | Olive green glass | | 3 | 1903 | |
| 5B-319 | Clear glass | | 28 | 1903 | |
| 5B-319 | Clear glass | Medicine: Patent and Pharmacy | 1 | 1903 | |
| 5B-319 | Opaque white glass | | 4 | 1903 | |
| 5B-325 | Clear glass | | 7 | 1903 | |
| 5B-325 | Clear glass | Plate | 3 | 1903 | |
| 5B-325 | Clear glass | Medicine: Patent and Pharmacy | 1 | 1903 | |
| Total | | | 392 | | |

According to Munsey (1970:55), milk or opaque white glass has been manufactured as long as glass has been made, but milk glass became common as it was frequently used in "containers, tablewares, and lighting devices" in the late nineteenth through the twentieth centuries (Jones and Sullivan 1985:14).

Blue glass is another color that had great popularity in the late nineteenth century. In addition, with the growing public desire to see the contents of the bottles, clear glass came into demand and was popular beginning in the late nineteenth century (Baugher-Perlin 1982:261).

Seven container glass sherds collected during the geotechnic bore hole monitoring were not diagnostic except for glass color (Table 5.15). These were milk glass (n=1), cobalt glass (n=1), and clear glass (n=5).

## Closures (N=2)

Bottle closures serve both to prevent the spilling of a bottle's contents and to protect a bottle's contents from contamination and evaporation (Berge 1980). Closures have been used almost as long as skins and bottles have been employed to contain liquids. Closures range from a utilitarian piece of paper or cloth stuffed into the mouth of a bottle to a delicately crafted crystal stopper for a decanter. There are three primary closure types: caps, stoppers, and seals (Berge 1980).

Caps are secured to a bottle by overlapping the outside edge of the finish or mouth. Common cap types include external screw, lugs, crown, and snap-on. External screw caps were first introduced in the mid-nineteenth century (Jones and Sullivan 1985; Toulouse 1977). External thread caps were attached to bottles by means of grooves in the cap that screwed down on continuous glass threads on the finished exterior of a bottle. External thread caps were first produced using metal in 1858 (Jones and Sullivan 1985; Toulouse 1977). Advances in technology led to the introduction of a Bakelite external thread cap around 1922 (Berge 1980; Meikle 1995), an aluminum shell roll-on cap in 1924 (Berge 1980; Rock 1980), and plastic caps in the mid-1930s (Meikle 1995). Examples of the external thread cap include canning jar, mayonnaise jar, and pickle jar lids.

**Table 5.15. Summary of undiagnostic container glass.**

| Bore hole | Color | N | Min Date | Max Date |
|---|---|---|---|---|
| 3B-197 | Cobalt glass | 1 | 1890 | |
| 4B-260 | Opaque white glass | 1 | 1890 | |
| 4B-260 | Clear glass | 2 | 1864 | |
| 4B-267 | Clear glass | 1 | 1864 | |
| 5B-304 | Clear glass | 2 | 1864 | |
| Total | | 7 | | |

The crown cap was patented on February 2, 1892, by William Painter of Baltimore, Maryland (Rock 1980). The crown cap was placed over the finish and then crimped around a lip or groove in the finish to seal the container. This closure was lined with cork from 1892 until circa 1965 (IMACS Users Guide 1990; Riley 1958; Rock 1980). Crown caps with composition liners appeared in 1912 and both cork and composition liners were gradually phased out following the introduction of the plastic liner in 1955 (IMACS Users Guide 1990; Riley 1958). Most glass soda bottles have crown cap closures.

Stoppers, the second major closure type, are secured to the finish interior of bottles, usually by forcing a portion of the stopper into the bore of the finish. Stopper types include cork, glass, inside screw, porcelain-top, Hutchinson Spring, Electric, Pittsburgh, and Lightning. Cork stoppers were the most common historic closure type. Most glass stoppers use ground or roughened tapered stems along with a roughened finish inside to seal bottles. Loose blown-glass stoppers date to circa 1500 B.C. and tapered glass stoppers date to A.D. 500 (Holscher 1965). The "modern" ground and tapered glass stopper was developed in Europe around 1725 (Holscher 1965). Glass stoppers came in many shapes, sizes, and styles and were used as closures in many different types of bottles. As with the cork stopper, the glass stopper was phased out in the 1920s with the advent of the crown cap closure (Berge 1980; Jones and Sullivan 1985).

Seal closures utilized the vacuum on the interior of the glass container. The cooling of the bottle's contents created the vacuum. Seal closures, although dating back to 1810, did not become popular until the mid-twentieth century. These closures were most often used for food jars (Berge 1980). There were several types of seal closures including Phoenix, Sure Seal, Giles, spring seal, and disc seal.

The disc seal was used as early as 1810 by Nicholas Appert (Berge 1980). John L. Mason used this type of closure on his patented fruit jar in 1858 (Berge 1980). Mason's closure was made of zinc and was held in place with an exterior screw cap ring. Unfortunately, the zinc reacted with the contents of the jars, giving the contents an unpleasant metal taste (Jones and Sullivan 1985). Glass liners were developed and added to the disc around 1869 by Lewis R. Boyd (Toulouse 1969, 1977). These liners prevented the zinc from reacting with the contents of the jar. To aid in opening, Boyd added a handle to the disc circa 1900 (Toulouse 1977). Both of these disc seal types were used until around 1950 (Jones and Sullivan 1985; Toulouse 1969, 1977). In 1865, the Kerr two-piece seal was patented. This system utilized a metal seal disc held in place by an exterior screw cap with no center. This seal and cap type system is still in use today.

The two closure artifacts recovered from the geotechnic bore hole monitoring date from the late–nineteenth century through the twentieth century (Table 5.16). One of these items was a commercial container closure and the other was a home canning container closure.

The commercial container closure consisted of an aluminum shell roll-on cap from a bottle, and the home canning container closure consisted of a glass lid from a lightning closure-style canning jar.

**Table 5.16. Summary of Container Closures.**

| Bore hole | Container type | Closure type | N | Minimum Date | Maximum Date |
|---|---|---|---|---|---|
| 1W-27 | Commercial Containers | Aluminum shell roll-on cap | 1 | 1924 | |
| 5B-326 | Home Canning Jars | Glass lid for lightning | 1 | 1877 | 1960 |

## *Metal Food Containers (N=1)*

The first tinned goods were packaged in hand cut, shaped, and soldered can bodies made of tin or iron plate. These “tin canisters” were patented in England in 1810 and in the United States in 1818 (Clark 1977; Rock 1984). The cans often swelled, burst, or reacted with goods they held.

Another can type, termed “hole-and-cap can” because of the filling process, either had flush or hand-crimped ends (Rock 1984). The can’s side seams, either a lap side seam or a plumb joint, was soldered, fusing the gaps closed. The cans were filled through an orifice in the center of one end of the can. After the can was filled, a cap was soldered over the hole, sealing the can, hence the name “hole-and-cap” (Rock 1984). The hole-and-cap can came into use about the same time as the tin canister, but was quickly improved upon. These cans were likewise plagued by swelling and bursting incidents.

The first improvement was the addition of a small hole in the center of the soldered cap, implemented around 1820. This small hole allowed moisture to escape from the cans when heated, after the cans were filled and sealed. This process reduced the number of cans that swelled or burst. After heating, the hole was sealed with solder. Hole-in-cap cans were still handmade; a good tinsmith could produce 60 per day (Sacharow and Griffin 1970). These cans were the first cans used for commercially produced foods in the United States (Rock 1984).

In 1847, Allen Taylor invented a machine that converted flat metal disks into stamped or flanged can ends. This machine was improved upon over the next two years, yielding a machine that stamped both can ends and cut a filler hole in the cap (Rock 1984). Most canneries in the United States used these stamped end cans until the 1880s.

The key-wind can was introduced in 1866. The opening system consisted of a scored band on either the side or top of the can, which could be removed by rolling it back with a key. The sardine can is a familiar example of this can type.

The tapered tin was patented in 1875 by two Chicago entrepreneurs for their processed meat products. These tins were either rectangular or had a base larger than the top. Another Chicago manufacturer combined and perfected the tapered tin and key-wind cans in 1895.

As the demand for canned goods rose, a separate can producing industry evolved. Max Ams, a New York machine-made can company owner, developed a “double side seam” in 1888 that locked the parts of the cans together. By 1898, the company had perfected this technique with the introduction of the “Ams Can” (Collins 1924; May 1937). This can eliminated the need for interior seam soldering by closing the top, bottom, and side seams with double seams. These innovations reduced the manufacture time of the cans and significantly reduced can failure (i.e., swelling and bursting) due to the superior strength of the seam.

The hole-in-top can, an improvement of the hole-in-cap can, used a small pinhole, no larger than .318 cm (.125 in) in diameter. The hole was sealed with solder. By 1920, evaporated milk was found almost exclusively in hole-in-top cans (Rock 1984).

In 1904, the Sanitary Can Company of New York developed the first airtight solderless can (Rock 1984). The cans were completely machine-made and were produced at a rate of almost 25,000 cans a day (May 1937). By the early 1960s, the tin can was replaced by a steel body, which was stronger and more durable than tin. Aluminum tops were added to beverage cans in order to make opening the cans easier. Modern cans are steel or alloys, usually lined with plastic on the interior to prevent chemical reactions between the contents and the can.

Only one metal container was recovered during the geotechnic bore hole monitoring, and this was an aluminum beverage can (Table 5.17). This aluminum beverage can dates from 1959 to the present.

**Table 5.17. Summary of Metal Food Containers.**

| Bore hole | Type | N | Min Date | Max Date |
|---|---|---|---|---|
| 3W-206 | Beverage Can:Aluminum | 1 | 1959 | |

## *Openers (N=1)*

This group refers to items used to open metal food containers (see above). One church key was recovered during the geotechnic bore hole monitoring (Table 5.18). This opener likely was used to open food or beverage cans.

**Table 5.18. Summary of Openers.**

| Bore Hole | Type | N | Min Date | Max Date |
|---|---|---|---|---|
| 5B-304 | Church Key | 1 | 1935 | |

## *Glass Tableware (N=8)*

Press molding was first used (although at a very small scale) in England in the late seventeenth century to make small solid glass objects, such as watch faces and imitation precious stones (Buckley 1934). By the end of the eighteenth century, decanter stoppers and glass feet for objects were also being produced (Jones and Sullivan 1985:34). The production of complete hollowware glass objects did not become possible until innovations in press-molded techniques in the United States occurred during the late 1820s. Ten years later, the production of press-molded glassware was well established (Watkins 1930).

Earlier press-molded glass objects were predominately made of colorless lead glass (Jones and Sullivan 1985:34). William Leighton of the Hobbs-Brockunier Glass Works in Wheeling, West Virginia, invented lime glass in the 1860s. This type of glass looked like lead glass, had superior pressing attributes, and was much more inexpensive than lead glass (Revi 1964). Advancements in mold technology in the 1860s and 1870s led to the application of steam-powered mold operation. This in turn led to increased production and even more reduced costs (Revi 1964). Today, press molding is conducted entirely by machine (Jones and Sullivan 1985).

In the nineteenth century, press-molded table glass was made by dropping hot pieces of glass into a mold. A plunger was forced into the mold, pressing the hot glass against it. The outer surface of the glass took on the form of the mold, while the inner surface of the glass was shaped by the plunger. The plunger was withdrawn and the glass object was removed from the mold. The surface of the glass was often fire polished to restore the brilliance of the glass surface that was lost where it had been in contact with the mold (Jones and Sullivan 1985:33).

Press-molded glass may be recognized by several characteristics. Usually, the glass object must be open-topped in order for the plunger to be withdrawn from the mold. Narrow mouthed vessels were produced, but additional manipulation of the glass was necessary after the plunger was removed from the mold. Evidence of this manipulation should be present on the vessel (Jones and Sullivan 1985:33).

Another characteristic of press-molded containers was that mold seams were generally present. The seams were sharp and distinct, unless steps had been taken to deliberately remove them. The texture of the glass surface of press-molded glass was disturbed and often disguised by an all-over stipple design. The edges of the designs on press-molded glass had a predisposition toward rounded edges. The bases of press-molded objects were usually polished. The quality of the designs on press-molded glassware was precise and the design motifs were numerous (Jones and Sullivan 1985:33).

Eight glass tableware fragments were recovered during the geotechnic bore hole monitoring (Table 5.19). Of the identifiable fragments, five were press molded. The only colors represented were opaque white and clear. Vessel types included two tumblers and two bowls.

### *Utensils (N=1)*

The Utensils category refers to eating and serving flatware (Table 5.20). Only one utensil fragment was recovered during the geotechnic bore hole monitoring, and this was a plastic handle of an unidentifiable utensil.

### *Other Tableware (N=4)*

A small number of other modern domestic related items were recovered from the geotechnic bore hole monitoring (Table 5.21). They included one piece of Styrofoam, two plastic party cup fragments, and one plastic bowl fragment. Styrofoam was invented by Ray McIntire at Dow Chemical Company in 1954 and was commercially available by 1962 (Bellis 2005). The other plastic items most likely date after 1950 (Meikle 1995).

## Faunal/Floral Group (N=34; Wt= 39.6 g)

A total of 34 faunal remains weighing 39.6 g were recovered during the geotechnic bore hole monitoring (Table 5.22). These numbers are the preliminary identification of the remains and will differ slightly from the analysis conducted by the specialist in this report. No floral remains were recovered. Faunal remains were dominated by items classified as unidentified shell (n=24), followed by bones and teeth (n=10). All the shell was indeterminate mollusca and the animal bone was mostly indeterminate mammal or indeterminate bird. A few animal bones could be further identified as deer and pig.

## Furnishings Group (N=3)

The Furnishings group includes artifacts usually associated with the home or building but are not elements of the actual construction. Examples of furnishings include decorative elements, furniture, lighting, heating, and flooring. All three Furnishings group items collected during the bore hole monitoring were decorative elements (Table 5.23). These included two unidentifiable molded porcelain fragments—likely from figurines—and a piece of brass picture hanging hardware.

**Table 5.19. Summary of glass tableware.**

| Bore hole | Type | Color | Vessel | N | Minimum Date | Maximum Date |
|---|---|---|---|---|---|---|
| 3B-363 | Press mold | Opaque white | Bowl | 1 | 1890 | |
| 3B-363 | Press mold | Opaque white | Bowl | 1 | 1890 | |
| 4B-250 | Press mold | Clear | | 1 | 1864 | |
| 4B-267 | Press mold | Clear | Tumbler | 1 | 1864 | |
| 5B-319 | Undiagnostic fragment | Clear | | 2 | 1864 | |
| 5B-319 | Press mold | Clear | Tumbler | 1 | 1864 | |
| 5B-319 | Undiagnostic fragment | Clear | | 1 | 1864 | |
| Total | | | | 8 | | |

**Table 5.20. Summary of Utensils.**

| Bore hole | Type | N | Minimum Date | Maximum Date |
|---|---|---|---|---|
| 5B-304 | Unidentified handle: plastic | 1 | 1950 | |

**Table 5.21. Summary of Other Tableware.**

| Bore hole | Type | Vessel | N | Minimum Date | Maximum Date |
|---|---|---|---|---|---|
| 1W-28 | Tableware: Styrofoam | 'clamshell' food container | 1 | 1962 | |
| 1W-76 | Tableware: Plastic | Cup | 1 | 1950 | |
| 3B-363 | Tableware: Plastic | Bowl | 1 | 1950 | |
| 3R-384 | Tableware: Plastic | Cup | 1 | 1950 | |

**Table 5.22. Floral and Faunal Remains Recovered.**

| Bore hole | Class | Type | N | Wt. (g) |
|---|---|---|---|---|
| 2W-125 | Faunal Remains | Bone / teeth | 1 | 0.2 |
| 2W-146 | Faunal Remains | Bone / teeth | 1 | 0.4 |
| 2W-97 | Faunal Remains | Bone / teeth | 1 | 0.3 |
| 3W-209 | Faunal Remains | Unidentified Shell | 1 | 0.4 |
| 3W-209 | Faunal Remains | Unidentified Shell | 1 | 0.6 |
| 4B-250 | Faunal Remains | Bone / teeth | 1 | 0.2 |
| 4B-267 | Faunal Remains | Bone / teeth | 1 | 0.1 |
| 4B-267 | Faunal Remains | Bone / teeth | 3 | 1.5 |
| 4B-267 | Faunal Remains | Unidentified Shell | 3 | 3.9 |
| 4B-267 | Faunal Remains | Bone / teeth | 1 | 0.1 |
| 4B-286 | Faunal Remains | Unidentified Shell | 2 | 1.0 |
| 5B-294 | Faunal Remains | Unidentified Shell | 1 | 0.4 |
| 5B-294 | Faunal Remains | Unidentified Shell | 12 | 25 |
| 5B-319 | Faunal Remains | Unidentified Shell | 1 | 0.2 |
| 5B-319 | Faunal Remains | Bone / teeth | 1 | 0.6 |
| 5B-325 | Faunal Remains | Unidentified Shell | 3 | 4.7 |
| Total | | | 34 | |

**Table 5.23. Summay of Furnishings.**

| Bore hole | Class | Type | N | Minimum Date | Maximum Date |
|---|---|---|---|---|---|
| 1W-74 | Decorative Elements | Unid furniture ceramic: molded porcelain | 1 | | |
| 3R-384 | Decorative Elements | Unid furniture ceramic: molded porcelain | 1 | | |
| 4B-267 | Decorative Elements | Metal picture hanging hardware | 1 | | |

## Maintenance and Subsistence Group (N=77)

The Maintenance and Subsistence group contains artifacts related to general maintenance activities. These artifacts were grouped into classes containing farming and gardening, hunting and fishing, stable and barn activities, and fuel-related items such as coal. General tools and hardware are included in this category, as well as engine parts, electrical, and non-food containers.

### *Cans (N=6)*

Items included in this class are non-food cans and their closures. Six items in this class were recovered during the geotechnic bore hole monitoring (Table 5.24). These artifacts include two unidentifiable non-food can fragments and one turpentine can lid.

### *Containers (N=1)*

Containers for storage and hauling were included in this class. The only artifact in this class recovered during the geotechnic bore hole monitoring was a possible iron/steel bucket fragment (Table 5.25).

### *Electrical (N=4)*

Items in this class of artifacts include insulators, electrical wire, batteries, electrical tape, and any other item associated with electricity. Very few electrical items recovered, namely one carbon electrode battery and three vinyl covered pieces of wire (Table 5.26).

### *Farming and Gardening (N=1)*

This class includes artifacts associated with gardening activities. The only item recovered in this class during the geotechnic bore hole monitoring was a common clay flower pot fragment (Table 5.27). Terra cotta vessels have a long history, and are therefore not temporally sensitive.

### *General Hardware (N=27)*

This class of artifacts includes a wide variety of hardware fasteners and items used for many purposes. Objects within this category include nuts, bolts, and screws as well as copper and steel wire, washers, fence staples, nuts, and springs (Table 5.28). These artifacts generally date from the mid nineteenth century through the twentieth century.

**Table 5.24. Summary of Cans.**

| Bore hole | Class | Type | N | Minimum Date | Maximum Date |
|---|---|---|---|---|---|
| 5B-304 | Cans | Turpentine lid | 1 | 1906 | |
| 5B-304 | Cans | Unidentified non-food can | 1 | | |
| 5B-325 | Cans | Unidentified non-food can | 4 | | |

**Table 5.25. Summary of Containers.**

| Bore hole | Class | Type | N | Minimum Date | Maximum Date |
|---|---|---|---|---|---|
| 1B-52 | Containers | Unidentified iron/steel rim | 1 | | |

**Table 5.26. Summary of Electrical.**

| Bore hole | Class | Type | N | Minimum Date | Maximum Date |
|---|---|---|---|---|---|
| 3B-197 | Electrical | Battery:carbon cell | 1 | 1888 | |
| 5B-304 | Electrical | Wire:vinyl covered | 3 | 1950 | |

**Table 5.27. Summary of Farming and Gardening.**

| Bore hole | Class | Type | N | Minimum Date | Maximum Date |
|---|---|---|---|---|---|
| 5B-325 | Farming and Gardening | Common clay flower pot | 1 | | |

**Table 5.28. Summary of General Hardware.**

| Bore hole | Type | N | Minimum Date | Maximum Date |
|---|---|---|---|---|
| 1B-34 | Rivet: Aluminum | 1 | | |
| 1B-52 | Wire: smooth, Iron/steel | 1 | | |
| 2W-97 | Washer: flat, Iron/steel | 1 | | |
| 4B-250 | Wire: smooth, Iron/steel | 10 | | |
| 4B-250 | Wire: smooth, Iron/steel | 1 | | |
| 4B-260 | Modern black plastic cable tie | 1 | | |
| 4B-267 | Rivet, Iron/steel; Wrought/handmade | 1 | | |
| 4B-286 | Synthetic material: Woven tarp material | 1 | | |
| 5B-304 | Washer: flat, Iron/steel | 1 | | |
| 5B-304 | Unidentified screw: Aluminum | 1 | | |
| 5B-304 | Nut: hex, Iron/steel | 1 | | |
| 5B-304 | Bolt: unidentified, Iron/steel | 1 | | |
| 5B-304 | Wire: smooth, Iron/steel | 5 | | |
| 5B-325 | Wire: smooth, Iron/steel | 1 | | |
| Total | | 27 | | |

## *Transportation (N=9)*

This class of artifacts includes various parts associated with engines, automobiles, railroads, wagons, carriages, and other modes of transportation. By far the most numerous artifact type recovered was automobile window glass (n=5) (Table 5.29). The remaining artifacts were two pieces of tempered glass (possibly also from an automobile), one gas tank cap (see Figure 5.3 below), and one steel belted tire/tube. The automobile window glass was characterized by its thickness and distinctive breakage pattern. Tempered glass was first used in automobiles in 1919, but was limited to the use in the front windshield (Smart Glass 2006). It was not until the 1950s that tempered glass was installed in side and back windows (PPG Industries 2006).

## *Fuels (N=29, Wt=65.4g)*

This group of artifacts includes coal, cinder, and containers indicative of fuel. Twenty pieces of coal (23.1g) and nine pieces of cinder/slag (42.3g) were collected during the geotechnic bore hole monitoring (Table 5.30).

Table 5.29. Summary of Transportation.

| Bore hole | Type | N | Minimum Date | Maximum Date |
|---|---|---|---|---|
| 1B-52 | Vehicle part: tempered glass | 1 | 1919 | |
| 3W-208 | Vehicle part: Tire/tube, steel belted | 1 | | |
| 4B-260 | Vehicle part: tempered glass | 1 | 1919 | |
| 5B-296 | Vehicle part: tempered automotive glass | 1 | 1919 | |
| 5B-304 | Vehicle part: tempered automotive glass | 1 | 1919 | |
| 5B-304 | Vehicle part: tempered automotive glass | 1 | 1919 | |
| 5B-319 | Vehicle part: tempered automotive glass | 2 | 1919 | |
| 5B-325 | Vehicle part: gas tank cap | 1 | | |
| Total | | 9 | | |

Table 5.30. Fuel by Count and Weight.

| Bore hole | Type | N | Wt. (g) |
|---|---|---|---|
| 1W-27 | Coal | 1 | 1.5 |
| 1W-27 | Coal | 2 | 0.5 |
| 1W-27 | Cinder / slag | 1 | 0.4 |
| 1W-76 | Coal | 1 | 0.1 |
| 1W-76 | Coal | 1 | 3.2 |
| 1W-76 | Cinder / slag | 1 | 4.2 |
| 3B-364 | Cinder / slag | 1 | 1.5 |
| 4B-250 | Coal | 4 | 1.3 |
| 4B-260 | Coal | 1 | 0.4 |
| 4B-260 | Coal | 1 | 0.3 |
| 4B-267 | Coal | 1 | 0.9 |
| 4B-267 | Coal | 1 | 4 |
| 4B-267 | Coal | 1 | 0.6 |
| 4B-270 | Coal | 4 | 5.1 |
| 4B-286 | Cinder / slag | 2 | 18.9 |
| 4B-286 | Cinder / slag | 3 | 14.1 |
| 5B-319 | Cinder / slag | 1 | 3.2 |
| 5B-325 | Coal | 1 | 1.1 |
| 5B-328 | Coal | 1 | 4.1 |
| Total | | 29 | |

# Personal Group (N=7)

The Personal group includes artifacts assumed to have belonged to individuals. This category of artifacts includes jewelry and beads, coins, toys and games, health and grooming items, personal effects, and music and art. Tobacco products are also subsumed into this category. Seven personal group artifacts were recovered during the geotechnic bore hole monitoring (Table 5.31). These are described in detail below with Figure 5.3 providing a select example.

## Health and Grooming (N=2)

Health and grooming items are those artifacts used for personal hygiene, including hair care, dental care, razors, and nail care. Two plastic toothbrush fragments were recovered during the bore hole monitoring (see Figure 5.3). One fragment was red, the other was white. These fragments were temporally diagnostic since modern plastic was introduced in the 1930s (Meikle 1995).

## Jewelry and Beads (N=1)

One jewelry and bead item was recovered during the geotechnic bore hole monitoring. This consisted of a brass broach clasp. This item was not temporally diagnostic, but likely dates from the late nineteenth to the mid-twentieth century.

## Money (N=1)

One coin was recovered from a bore hole. This coin was a nickel with an indiscernible date (see Figure 5.3). Since the nickel featured Thomas Jefferson on the obverse and Monticello on the reverse, it was dated after 1938 based on its design elements (Wilhite and Lemke 1981:33).


Figure 5.3. Miscellaneous artifacts recovered during monitoring: a. Jefferson head nickel with unidentifiable date (3B-197), b. metal automobile gasoline cap (5B-325), c. four hole porcelain button (4B-270), d. plastic toothbrush fragments (5B-325), and e. stoneware tobacco pipe bowl (4B-269).

**Table 5.31. Summary of Personal Group.**

| Bore hole | Class | Type | N | Minimum Date | Maximum Date |
|---|---|---|---|---|---|
| 3B-197 | Money | Nickel | 1 | 1938 | |
| 3B-363 | Toys and Games | Miniature: tableware (bowl), porcelain: decal | 1 | 1880 | |
| 4B-267 | Tobacco | Pipe bowl: stoneware | 1 | | |
| 5B-296 | Jewelry and beads | Broach clasp | 1 | | |
| 5B-319 | Toys and Games | Doll / doll: bisque/porcelain head | 1 | 1860 | |
| 5B-325 | Health and Grooming | Tooth brush: plastic/modern | 2 | 1930 | |
| Total | | | 7 | | |

### *Tobacco (N=1)*

Only one tobacco-related artifact was recovered during the geotechnic bore hole monitoring. This stoneware pipe bowl fragment exhibited molded ribs (see Figure 5.3). Since the artifact did not permit identification of the stem type, this fragment was not useful for determining the date of use.

### *Toys and Games (N=2)*

Toys recovered during the bore hole monitoring include one doll part and a miniature tableware fragment. Both of these items date from the late nineteenth century to the present day.

The porcelain doll fragment was categorized by the type of exterior decoration used to finish the doll. The fragment recovered featured a bisque finish. Porcelain dolls were popular throughout the second half of the nineteenth century but drastically declined in popularity after about 1917 when other synthetic materials rose in popularity (Coleman et al. 1968). However, these dolls are still produced today.

Miniature tablewares also have long been a popular toy. One porcelain bowl fragment with floral decal decoration was recovered. This temporally diagnostic artifact dates after 1880.

## Unidentified (N=124)

This category contains artifacts that could not be identified beyond the material from which the artifact is made. There were six material classes included within this group. These material classes included biological (n=11), ceramic (n=1), glass (n=45), plastic (n=12), stone (n=1), metal (n=50), multiple materials (n=3), and unidentified materials (n=1) (Table 5.32).

Unidentified artifacts made of a biological material, such as wood or rubber, are placed in the biological class. Seven of these items were made of rubber, followed by leather (n=2), and one unidentifiable rubber-like item. These were all items whose nature and function could not be determined.

One unidentified ceramic item was recovered from during the bore hole monitoring. This item was an unglazed porcelain irregular rim of an unknown vessel or form.

Forty-five pieces of unidentifiable glass were recovered during the investigations. Three of these pieces showed evidence of burning. The rest consisted of 41 pieces that were amorphous but had not been burned and one item that was an unidentified item/part that may have been a glass block or tile fragment.

Twelve pieces of unidentified plastic were recovered from the project area. These were divided into several categories including cellophane (n=1), modern (n=10), and unidentified (n=1). The modern and unidentified plastic artifacts included amorphous fragments as well as small parts whose function could not be identified.

Three artifacts were recovered that were composed of more than one material type. All three of these items were composed of thin aluminum backed by black plastic. The precise nature and function of these items could not be determined.

**Table 5.32. Summary of Unidentified Artifacts.**

| Bore hole | Class | Type | N | Wt. (g) | Minimum Date | Maximum Date |
|---|---|---|---|---|---|---|
| 1B-52 | Metal | Iron/ steel | 2 | 69.2 | | |
| 1W-27 | Unident. Material | Tar | 1 | 6.9 | | |
| 1W-74 | Biological material | Rubber | 1 | 0.8 | | |
| 2W-97 | Metal | Iron/ steel | 1 | 19.2 | | |
| 3B-364 | Glass | Amorphous | 1 | 1.9 | | |
| 3B-364 | Biological material | Other | 2 | | 1851 | |
| 3R-384 | Plastic | Modern | 1 | 0.1 | | |
| 3R-384 | Plastic | Modern | 2 | 0.2 | | |
| 4B-248 | Metal | Iron/ steel | 3 | 2.5 | | |
| 4B-248 | Metal | Iron/ steel | 2 | 1.4 | | |
| 4B-248 | Biological material | Leather | 1 | 0.3 | | |
| 4B-250 | Metal | Unidentified | 1 | 3.7 | | |
| 4B-260 | Glass | Amorphous | 1 | 3.8 | | |
| 4B-260 | Metal | Iron/ steel | 1 | 4.3 | | |
| 4B-260 | Metal | Iron/ steel | 1 | 0.4 | | |
| 4B-260 | Metal | Iron/ steel | 5 | 44 | | |
| 4B-260 | Metal | Lead | 1 | 36.8 | | |
| 4B-260 | Metal | Other | 1 | 1.1 | | |
| 4B-260 | Glass | Amorphous | 1 | 3 | | |
| 4B-260 | Metal | Iron/ steel | 4 | 74.1 | | |
| 4B-267 | Metal | Iron/ steel | 1 | 2 | | |
| 4B-267 | Biological material | Leather | 1 | 3.9 | | |
| 4B-270 | Plastic | Cellophane | 1 | | 1971 | |
| 4B-270 | Metal | Aluminum | 1 | 0.4 | | |
| 4B-286 | Glass | Amorphous | 5 | 4.6 | | |
| 4B-286 | Glass | Amorphous | 4 | 3.1 | | |
| 4B-286 | Metal | Unident. white metal | 1 | 1 | | |
| 4B-286 | Glass | Amorphous | 2 | 8.1 | | |
| 5B-294 | Glass | Amorphous | 1 | 2.2 | | |
| 5B-294 | Glass | Item/part | 1 | 12 | | |
| 5B-304 | Ceramic | Porcelain | 1 | | | |
| 5B-304 | Glass | Amorphous | 1 | 3.2 | | |
| 5B-304 | Metal | Iron/ steel | 5 | 77 | | |
| 5B-304 | Metal | Iron/ steel | 1 | 6.2 | | |
| 5B-304 | Metal | Iron/ steel | 12 | 218.7 | | |
| 5B-304 | Metal | Lead | 1 | 22.8 | | |
| 5B-304 | Metal | Aluminum | 1 | 2.3 | | |
| 5B-304 | Metal | Unidentified | 2 | 47.8 | | |
| 5B-304 | Plastic | Modern | 7 | 6 | | |
| 5B-304 | Plastic | Unident. plastic | 1 | 3.8 | | |
| 5B-304 | Biological material | Rubber | 6 | 13.8 | | |
| 5B-304 | Multiple materials | Item/part | 3 | 43.2 | | |
| 5B-319 | Glass | Amorphous | 2 | 3.2 | | |
| 5B-319 | Stone | Slate | 1 | 0.9 | | |
| 5B-319 | Glass | Amorphous | 3 | 10.3 | | |
| 5B-325 | Glass | Amorphous | 5 | 34.7 | | |
| 5B-326 | Glass | Amorphous | 2 | 1 | | |
| 5B-326 | Metal | Iron/ steel | 3 | 1.4 | | |
| 5B-328 | Glass | Amorphous | 16 | 173.6 | | |
| Total | | | 124 | | | |

One piece of slate weighing .9 g was also placed in the unidentified group. It is possible that this fragment was either once part of a writing slate, roofing slate, or it could have been natural.

The largest category of unidentified artifacts was the metal category (n=50). Included in this was aluminum (n=2), iron/steel (n=41), lead (n=2), chrome (n=1), white metal (n=1), and unidentified (n=3). The unidentified metal consisted of a variety of things such as flat thin strips, pieces of rod iron, and amorphous items. The function of these metal pieces was difficult to ascertain so the metal was grouped in the unidentified category. It is possible that many of these pieces may have been nails, tools, or hardware, but excessive rust prevented a definite identification.

# Prehistoric Lithic Artifact Analysis

*Brian D. DelCastello*

The current investigations of the geotechnic bore hole monitoring recovered a meager prehistoric lithic assemblage consisting of four pieces of flake debris (3.3 g) (Table 5.33). Of this total, only two flakes (3.0 g) were larger than .64 cm (.25 in). Three of the geotechnic bore holes, including 2W-398, 4B-248, and 4B-270, recovered lithic artifacts during the current investigations.

The analysis of flake debris involved the recording of several attributes, including flake size, weight, raw material type, presence of cortex, and probable stage of lithic reduction during which the flake was produced. Reduction stage follows Magne's (1985) definitions and was determined by the number of facets on the platform or the number of flake scars on the dorsal surface. Early stage reduction is defined as core reduction, middle stage as the first half of tool production, and late stage as the second half of tool production and subsequent maintenance. For flakes that retain platforms, zero to one facet on the platform indicates early stage, two facets indicate middle stage, and three or more facets indicate late stage. Biface thinning is a specialized form of late stage reduction. A biface thinning flake is defined as a flake with a lipped platform having three or more facets. For non-platform-bearing flakes, dorsal flake scars were counted instead of platform facets; zero to one dorsal flake scars indicates early stage, two scars middle stage, and three or more flake scars late stage. Stage of reduction was not determined for blocky debris or flakes smaller than .25 inch. Raw material type was determined by a comparison with the sample collection housed at Cultural Resource Analysts, Inc. Raw material identification was not conducted for flake debris less than .25 in.

While the flake debris assemblage is meager, general inferences can be made concerning the lithic technology identified during the course of the project. Only one geotechnic bore hole (4B-248) produced flake debris (n=2) that was of large enough size for analysis. Both flakes were recovered from the bore hole at a depth ranging from 6.1–7.6 m (20–25 ft) below the existing ground surface. Both flakes were recovered from fine-grained sediments, particularly silty clay.

Raw materials identified in the assemblage included single flakes of Ste. Genevieve (1.3 g) and St. Louis (1.7 g), the latter of which displayed evidence of burning. Both flakes were assigned as middle stage flakes. Both raw materials are known to occur naturally throughout the region in many areas of northwestern Kentucky (Grabowski 2001). Neither raw material, however, was noted in the Jeffersonville geologic quadrangle, in the vicinity of the currently defined project area (Kepferle 1974).

**Table 5.33. Summary data of flake debris.**

| Bore Hole No. | Depth (ft bgs) | Size | Count | Weight | Stage | Raw Material |
|---|---|---|---|---|---|---|
| 4B-270 | 0-5 | 1 | 1 | 0.2 | < .25 | < .25 |
| 2W-398 | 0-5 | 1 | 1 | .1 | < .25 | < .25 |
| 4B-248 | 20-25 | 2 | 1 | 1.3 | Middle | Ste. Genevieve |
| 4B-248 | 20-25 | 2 | 1 | 1.7 | Middle | St. Louis (burnt) |
| Total | | | 4 | | | |

The presence of these lithic artifacts within the bore holes warrants further discussion. Although a single piece of less than .25 in flake was recovered from subsurface deposits in each of bore holes 2W-270 and 4B-398 (0–1.5 m [0–5 ft]), both were recovered from disturbed contexts. The 2W-270 flake was recovered from historic fill composed of sandy loam sediments. The 4B-398 flake was also recovered from historic fill, a highly mottled silt loam. Both flakes are not considered to be taken from in situ deposits.

In contrast, the two flakes recovered from bore hole 4B-248 appear to have been recovered from fine-grained, in situ deposits. These flakes were recovered from silty clay sediments that were likely the result of low-energy depositional environments. The fact that two individual flakes (each manufactured from different lithic raw materials) were recovered from fine-grained sediments from a single bore hole suggests that there is a likelihood that additional cultural materials may be recovered from this approximate depth (i.e., Stafford and Creasman 2002). It has been shown that low energy depositional environments, such as those identified at the location of bore hole 4B-248, typically preserve archaeological remains (e.g., Ferring 1992; Gladfelter 2001; Hassen 1978; Waters 1996).

The lithic artifacts recovered from the current investigations appear to be the result of pre-Contact occupations(s). The flakes are the result of several tool production and/or maintenance episodes utilizing lithic raw materials obtained from different source areas. Given the lack of temporally sensitive, or otherwise diagnostic lithic artifacts, little can be said of the temporal assignment of the prehistoric artifacts.

# Chapter 6. Results of Bore Hole Monitoring

The results of the monitoring of the geotechnical bore holes are presented below. Each of the five phases of monitoring is discussed separately with individual bore holes being discussed by locality number. Each locality generally represents a group of bore holes that were lumped together based on their proximity to each other, their location on the same landform or city block, or their similarity in terms of artifacts recovered or features encountered. For this reason, the bore holes from each locality will be discussed as a group. Implementing such an approach allows for easier discussion of the large data set and makes broader scale patterning in artifacts and soil characteristics more apparent.

Seventeen localities were identified among the five phases (Table 6.1), with Locality 6 consisting of two sections: those bore holes located on the eastern side of Beargrass Creek and those bore holes located on the western side of the same creek. Although closely grouped, it was felt that this distinction was necessary because the western bore holes revealed possible intact historic deposits, but all of the bore holes on the eastern side of Beargrass Creek were heavily disturbed and predominately culturally sterile. As can be observed in Table 6.1, two localities (6b and 10) include discussion of bore holes monitored during different phases. The decision to include multiple phases into a single locality discussion was based on spatial distribution; tightly grouped bore holes from different phases were discussed collectively given there similarity in environmental variables (landform) and social history (as evidenced by Sanborn maps and archaeological data).

## Phase 1 Bore Hole Monitoring

Ten bore holes were monitored during the Phase 1 portion of the project. Phase 1 locations were restricted to the downtown Louisville area. These bore holes extended from substation 650+00, near the corner of Preston and Jefferson Streets, to about substation 207+00 at the corner of Washington and Franklin Streets. As noted in Table 6.1, Phase 1 bore holes were grouped into five localities which were designated Localities 1 through 5.

### Locality 1

Locality 1 bore holes included 1W-28 and 1B-17 (see Figure 1.3). 1W-28 was located in what is now vacant ROW. The vegetation in this area included low-lying grasses and a few large pine trees. Between the ROW was a city-maintained garden with flowers and low-lying bushes or shrubbery (Figure 6.1). Vegetation in this area consisted of city-maintained gardens interspersed with a few large pine trees. These two bore holes were separated by about 100 m (325 ft). The ROW width in Locality 1 around 1W-28 was about 15 m (50 ft), and ranged between 30 and 45 m (100 and 150 ft) around 1B-17.

#### *Cultural Context and Historic Map Data*

According to the 1892 (Figure 6.2) and 1905 Sanborn maps, bore hole 1W-28 was located in the backyards of dwellings. More specifically, the bore hole was located between

**Table 6.1. Individual bore holes by locality within phases.**

| Locality | Phase 1 | Phase 2 | Phase 3 | Phase 4 | Phase 5 |
|---|---|---|---|---|---|
| 1 | 1W-28, 1B-17 | | | | |
| 2 | 1W-74, 1W-76 | | | | |
| 3 | 1B-25,1W-27,1W-77,1B-32 | | | | |
| 4 | 1B-34 | | | | |
| 5 | 1B-52 | | | | |
| 6a | | 2B-116,2B-97,2B-94 | | | |
| 6b | | 2B-123,2B-125,2W-146 | 3W-206,3W-208,3W-209 | | |
| 7 | | 2W-135,2W-139 | | | |
| 8 | | 2W-151,2W-159,2W-160 | | | |
| 9 | | 2W-391,2W-394,2W-398 | | | |
| 10 | | | 3R-384,3R-383 | | 5B-296 |
| 11 | | | 3B-364 | | |
| 12 | | | 3B-386,3B-183,3B-181,3B-177,3B-173,3B-197 | | |
| 13 | | | 3W-374 | | |
| 14 | | | | 4B-260, 4B-266, 4B-267,4B-268 | |
| 15 | | | | 4B-250, 4B-249,4B-248,4B-270 | |
| 16 | | | | | 5B-291,5B-292,5B-294, 5B-298, 5B-304, 5B-305, 5B-324, 5B-325 |
| 17 | | | | | 5B-319,5B-326, 5B-328 |
| Total | 10 | 14 | 13 | 8 | 12 |

Figure 6.1. Overview of area around bore hole 1W-28, looking west.

Figure 6.2. The 1892 Sanborn map of Louisville showing the locations of Locality 1 bore holes.

### Depositional Context and Artifacts

Judging from the soils identified during monitoring, the area in and around 1B-17 does not have intact cultural deposits. This area has been heavily disturbed by construction, probably road related activities, as evidenced by the complete lack of an A horizon and the presence of a truncated B horizon from ground surface to 304 cm (0–10 ft) bgs. Below 304 cm (10 ft) to at least 914 cm (30 ft) bgs was the C horizon that contained a fining upward sequence of sands. The lower coarser sands also contained about 25 percent gravel-sized material. The B horizon contained 10 brick fragments smaller than .25-inch in size, one piece of flat glass, and one stoneware sherd. The stoneware had a salt glazed interior and an unidentified glaze on the exterior. This body sherd has a date range of circa 1800 to 1925.

The soils for 1W-28 are slightly different from 1B-17 in that the A horizon is present from ground surface to about 1.5 m (0–5 ft) bgs. These soils were a 10YR 3/2 very dark grayish brown sandy loam. The A horizon contained several pieces of flat glass, 17 brick fragments smaller than .25-inch in size, six bottle glass fragment (ABM), a plain whiteware sherd, and styrofoam. The chronological position of the artifacts could not be adequately determined based on the available data. If the two flat glass fragments, however, are good indicators, which is a big assumption based on sample size, then a very late 1890s or early 1900 occupation may be present. The B horizon extended from 1.5–4.5 m (5–15 ft) bgs and consisted of a 10YR 5/4 yellow brown sandy loam that was culturally sterile. From 4.5–5.1 m (15–17 ft) bgs, the B horizon changed slightly to a 10YR 4/6 dark yellowish brown sandy clay loam that was also culturally sterile. The C horizon extended from 5.1 to at least 8.2 m (17 to at least 27 ft) bgs and consisted of coarse sands. This horizon was culturally sterile.

### Features

No features were observed in Locality 1. The presence of buried features in or near 1B-17 is unlikely due to past disturbances in the area. Intact features are a possibility in and around 1W-28 based on the presence of intact cultural deposits and as suggested by the 1892 and 1905 Sanborn maps which recorded the location of many structures (mostly dwellings) that are within the project footprint.

### Assessment

Judging from the cumulative data presented above, the area in and around 1B-17 has a low potential to contain intact historic cultural deposits. Bore hole 1W-28, on the other hand, has a high potential to contain intact buried historic deposits within the first 1.5 m (5 ft) of vertical soil. Sanborn maps indicate this area was part of a series of dwellings that once lined Jefferson Street in the 1890s and early 1900s. The potential of buried prehistoric deposits is low in Locality 1 based on the lack of fine-grained Holocene overbank deposits in this part of the project area (Stafford and Creasman 2002).

## Locality 2

Locality 2 bore holes include 1W-74 and 1W-76 and were located near substation 655 +00 (see Figure 1.3). The vegetation in and around both bore holes included low-lying grasses and large pine trees with the trees becoming denser toward the southwest end of the

ROW (Figure 6.3). These two bore holes were separated by about 58 m (190 ft). The ROW width was roughly 23 m (75 ft) and the length was about 95 m (310 ft). The southern half of the ROW was located under the embankment that supports Interstate 65.

## *Cultural Context and Historic Map Data*

According to the 1892 (Figure 6.4) and 1905 Sanborn maps, bore hole 1W-74 was located in the backyard of either a saloon, store, or, depending on exact provenience, a dwelling.

**Figure 6.3. Overview of area around bore hole 1W-74 and 1W-76.**

**Figure 6.4. The 1892 Sanborn map of Louisville showing the locations of Locality 2 bore holes.**

Bore hole 1W-76 was located in the backyard of a store on both maps, although given the small-sized lots in this area the hole could fall within either a dye casting business immediately to the west or dwellings just to the east.

## *Depositional Context and Artifacts*

The soils and cultural deposits in and around both 1W-74 and 1W-76 are roughly comparable. Judging from the soils identified during monitoring, the first 1.5 m (5 ft) section bgs was a 10YR 4/4 dark yellowish brown silt loam containing a low number of historic artifacts. Artifacts include a few brick fragments, several pieces of flat glass, one piece of plastic tableware, rubber, coal, and a fragment of a decorative ceramic piece. The chronological assignment of the artifacts was not ascertained because of the small assemblage size. If the several pieces of flat glass are an indicator, then the occupation may fall within the early 1900s, although the plastic and rubber are certainly later. From about 1.5–9.1 m (5–30 ft) bgs the soils were all fine sands and ranged in color from 10YR 4/4 dark yellowish brown to 10YR 5/6 yellowish brown. All the sands were culturally sterile except for a single piece of flat glass and two pieces of coal that together probably represent drag from the auger.

## *Features*

Two features were identified on the ground surface within the ROW near 1W-74 and 1W-76. Both features were rock-lined cisterns or wells with diameters of about 1 m (Figure 6.5). Both had been partially filled in with soil and modern trash. No attempt was made to record the depth or stratigraphy of these cisterns with a bucket auger or shovel.

**Figure 6.5. Rock-lined cistern/privy near 1W-74 and 1W-76 in Locality 2.**

### *Assessment*

Judging from the cumulative data presented above, it is likely that the area in and around 1W-74 and 1W-76 will produce intact historic deposits. The presence of intact features on the ground surface indicates that disturbances in the area may have been minimal and the Sanborn maps indicate that several cultural variables are present (e.g., fire station, dwellings). For these reasons this area is considered to have a high potential for buried intact historic deposits dating to the early 1900s. The potential for buried prehistoric deposits is low in Locality 2 based on the lack of fine-grained Holocene overbank deposits in this part of the project area (Stafford and Creasman 2002).

## Locality 3

Locality 3 bore holes include 1B-25, 1W-27, 1W-77, and 1B-32 (see Figure 1.3). Although located on the same block, bore hole 1B-32 was separated from the other three more southern bore holes by Interstate 65. Bore holes 1B-25 and 1W-27 were in what is now vacant ROW. The vegetation in this area consisted of low grasses and a few small to medium-sized trees (Figure 6.6).

152 m (500 ft). The northern half of the ROW south of Interstate 65 was located under an embankment as was the southern half of the northern ROW where 1B-32 was located.

## Cultural Context and Historic Map Data

According to the 1892 (Figure 6.7) and 1905 Sanborn maps, bore holes 1B-25 and 1W-27 were located in the yard areas for dwellings.

Next to bore hole 1B-25 at 501 to 503 Jefferson Street is a vacant standing structure that had been previously recorded by Powell (2000:VI-311-312). According to her evaluation the structure, which was constructed between 1875 and 1885, did not meet National Register eligibility. The structure is a two and one-half story, six bay commercial building with a first floor cast iron façade. Window openings are elongated with flat lintels. The social context for the structure was gathered by Powell from various Louisville city directories and has been presented below:

## Depositional Context and Artifacts

No soil was recovered from bore hole 1B-25 due to the presence of a buried intact brick foundation that prevented the drill from catching material other than brick. This bore hole had been placed near an existing 2.5-story brick structure. Bore hole 1W-77, did not produce any artifacts during monitoring. What was present was a brick lined alley that had to be drilled through in order to get to the soil (see Figure 6.8 below). The soil under the brick lined alley appeared to have been fill (maybe a B horizon), followed by C Horizon coarse sands that contained some gravels at about 6–9.1 m (25–30 ft) bgs.

Bore hole 1W-27 does have an intact A horizon that extended from ground surface to about 1.5 m (5 ft) bgs. These soils were 10YR 2/2 very dark brown loam sand containing mostly artifacts relating to domestic activities. Nearly all these artifacts were bottle glass (ABM) exhibiting clear or amber color (Table 6.2). The only other domestic artifact (besides a piece of plastic) was a single whiteware sherd exhibiting back transfer print. It appears this sherd was part of a footring. Some architectural artifacts were present as well, including two pieces of flat glass and brick fragments. If accurate, these two pieces of flat glass produced thickness values that date them to 1869 and 1917. The sample is so small, however, that these results should be viewed with a certain degree of skepticism.

Figure 6.6. Overview of area around bore holes 1B-25, 1W-27, and 1W-77 in Locality 3, looking west.

Figure 6.7. The 1892 Sanborn map of Louisville showing the locations of Locality 3 boreholes.

**Table 6.2. Historic artifacts recovered at 1W-27 according to functional group.**

| Artifact group | Count | Percent |
|---|---|---|
| Architecture | 5 | 2.2 |
| Clothing | 0 | 0 |
| Domestic | 215 | 95.5 |
| Floral and Faunal | 0 | 0 |
| Furnishings | 0 | 0 |
| Maintenance and Subsistence | 4 | 1.8 |
| Personal | 0 | 0 |
| Unidentified | 1 | .5 |
| Total | 225 | 100 |

All of the other artifacts produced a date range in the early to mid-1900s if not somewhat later in a few cases. Although artifacts were found as deep as 3–4.5 m (10–15 ft) bgs (which included a B and a C horizon), these artifacts are very likely to be drag from the auger. The B horizon, which ranged from about 1.5–2.0 (5–6.5 ft) bgs, consisted of 10YR 4/6 dark yellowish brown sandy loam. The C horizon extended from about 2.0–9.1 m (6.5 to at least 30 ft) bgs and consisted of fine sands. Toward the 30 ft depth the sands included about 25 percent gravels.

Bore hole 1B-32 located at the northwest corner of the block had an A horizon from ground surface to about .9 m (3 ft bgs), although apparently devoid of artifacts. These soils were a 10YR 3/2 very dark grayish brown silty clay loam. Under the A horizon was a B horizon or fill zone that extended to a depth of about 3 m (10 ft) bgs and was a 10YR 3/6 dark yellowish brown sandy clay. Three small brick fragments came from the B horizon. From 3 m (10 ft) bgs to at least 9.1 m (30 ft) bgs, the soils were C horizon sands that were culturally sterile. These soils were 10YR 5/6 yellowish brown fine sands, although the gravel content increased with depth.

## Features

One feature was encountered during the monitoring of 1B-25. This feature is a buried brick foundation that belonged to a structure that has since been removed. Just west of this bore hole is an abandoned standing structure. According to the 1892 and 1905 Sanborn maps, this area contained numerous structures, including both stores and dwellings. Another feature within the project ROW was identified at ground surface in and around 1W-77. This area is part of an alleyway that has been around since at least 1892. It was bricked-lined with several sections of the pavement still intact (Figure 6.8).

**Figure 6.8. Intact brick lined alley near bore hole 1W-77 in Locality 3.**

### *Assessment*

Judging from the cumulative data presented above, the area in and around 1B-32 (north of Interstate 65) is considered to have low potential since no intact historic deposits were identified during monitoring. The area in and around 1B-25, 1W-27, and 1W-77 (south of Interstate 65) do contain buried historic deposits including features. The presence of a partially intact brick lined alley at ground surface may also indicate that other buried features may be present as well. For these reasons, these areas are considered to have a high potential for intact historic deposits. The potential of buried prehistoric deposits is low in Locality 3 based on the lack of fine-grained Holocene overbank deposits in this part of the project area (Stafford and Creasman 2002).

## Locality 4

The only bore hole in Locality 4 was 1B-34 (see Figure 1.3). Because this area was in a parking lot no vegetation was present. The ROW width was roughly 53 m (175 ft) and the length was about 137 m (450 ft). The eastern half of the ROW was located under the embankment that supports Interstate 65.

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### *Cultural Context and Historic Map Data*

### *Depositional Context and Artifacts*

The soils in 1B-34 consisted almost entirely of fine to medium-sized sands from about .9–8.2 m (3–27 ft) bgs. These soils were 10YR 4/6 dark yellowish brown with the lower sands also containing about 20–40 percent gravels. Above this was a highly mottled layer of fill that had been used to level the ground surface before paving the parking lot. No cultural artifacts were recovered from this bore hole except for a single aluminum rivet. No evidence of an intact A or B horizon was identified.

### *Features*

No features were observed in Locality 4 other than the existing standing structures. The presence of buried features in or near 1B-34 is unlikely due to past disturbances in the area.

### *Assessment*

Judging from the cumulative data presented above, the area in and around 1B-34 has a low potential for producing intact historic deposits due to a high level of disturbance from construction activities. The potential for buried prehistoric deposits is low in Locality 4 based on the lack of fine-grained Holocene overbank deposits in this part of the project area (Stafford and Creasman 2002).

**Figure 6.9. The 1892 Sanborn map of Louisville showing the locations of bore hole 1B-34 in Locality 4.**

## Locality 5

The only bore hole in Locality 5 was 1B-52 (see Figure 1.3). This bore hole was located n what is now vacant ROW (near substation 208+00). Vegetation in this area consisted entirely of low lying grasses (Figure 6.10). The ROW consisted of two sections, an eastern half and a western half that were separated by Interstate 65. The ROW width in the eastern half was roughly 38 m (125 ft) and the length was about 137 m (450 ft). The western half of the eastern ROW was located under the embankment that supports Interstate 65. The ROW width in the western half ranges from about 43–91 m (140–300 ft) and the length was about 244 m (800 ft). The eastern half of the western ROW was located under the embankment that supports Interstate 65.

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### *Cultural Context and Historic Map Data*

According to the 1892 (Figure 6.11) and 1905 Sanborn maps, bore hole 1B-52 was located on the edge of downtown where a series of large businesses were operating. More specifically, bore hole 1B-52 was located

**Figure 6.10. Overview of area around bore hole 1B-52 in Locality 5.**

**Figure 6.11. The 1892 Sanborn map of Louisville showing the locations of bore hole 1B-52 in Locality 5.**

### Depositional Context and Artifacts

The soils in 1B-52 consisted of either a fill zone or an A horizon from ground surface to about 4.0 m (13 ft) bgs. These soils were either 10YR 4/2 dark grayish brown sandy loam or 10YR 3/2 very dark grayish brown sandy silt. Domestic, architectural, and maintenance/subsistence artifacts were recovered from this horizon. The architectural remains included a handful of brick and mortar, the domestic remains consisted of a few bottle fragments (ABM), and maintenance/subsistence included wire, an iron fragment, and a vehicle part. Below the A horizon was a possible thin B horizon consisting of 10YR 5/6 yellowish brown silt clay. The remaining soil profile to at least a depth of 9.7 m (32 ft) bgs was C horizon sands that tended to be coarse-sized. These sands ranged from 10YR 3/1 very dark gray to 10YR 5/4 yellowish brown. The B and C horizons were culturally sterile except for a few artifacts that had been dragged down by the auger.

### Features

No features were observed in Locality 5. The presence of buried features in or near 1B-52 is still a possibility based on the artifacts recovered so far and the evidence presented on Sanborn maps, especially for the eastern half of the ROW.

### Assessment

Judging from the cumulative data presented above, the area in and around 1B-52 has a high potential for containing intact historic deposits, especially in the eastern ROW. The same cannot be demonstrated for the western half of the ROW which was not assessed during the monitoring. Based on the 1905 Sanborn map, however, the western ROW may be heavily disturbed by railroad lines. The potential for buried prehistoric deposits is low in Locality 5 based on the lack of fine-grained Holocene overbank deposits in this part of the project area (Stafford and Creasman 2002).

## Phase 2 Bore Hole Monitoring

A total of 14 bore holes were monitored during the Phase 2 portion of the project. Phase 2 bore holes were located east of downtown Louisville along Interstates 64 and 71. Part of this area is known as the Butchertown historic district. As noted in Table 6.1, Phase 2 monitoring included 14 bore holes grouped into four localities which were designated Localities 6 through 9. As will become evident in the discussions below, Locality 6 was further subdivided into areas 6a and 6b. Locality 6 also includes three bore holes from the Phase 3 drilling, which are included in this discussion because they were located in such close proximity to the Phase 2 bore holes.

## Locality 6

Locality 6 included bore holes from two areas separated by Beargrass Creek. Locality 6a was located on the east side of Beargrass Creek and consists of bore holes 2B-116, 2B-97, and 2B-94 (see Figure 1.3). Locality 6b was located on the west side of Beargrass Creek and consists of bore holes 2B-123, 2B-125, 2W-146, 3W-206, 3W-208, and 3W-209. The latter three were monitored during the Phase 3 work.

### *Cultural Context and Historic Map Data*

**Figure 6.12. Overview of Locality 6a with Interstate 64 overpass at top of the photo (diagonal slant) and disturbed soils under the overpass, looking southwest.**

**Figure 6.13. Overview of dense secondary growth in Locality 6b, looking southeast.**

**Figure 6.14. The 1892 Sanborn map of Louisville showing the locations of bore holes in Locality 6a.**

In Locality 6b (Figure 6.15), the Sanborn maps indicate some variation in terms of houselot function.

**Figure 6.15. The 1892 Sanborn map of Louisville showing the locations of bore holes in Locality 6b.**

Contextual data concerning the early butchering operations in the Story Avenue area are plentiful. For example, this neighborhood, which later became part of the Butchertown historic district, developed as a focal point for the slaughtering of pigs and cattle for two main reasons (Williams 2001:149-150). Of primary importance was Louisville's city ordinance that banned the practice of butchering within the confines of the downtown area. Since the Story Avenue neighborhood was located at the eastern limits of the city, this area did not fall within the banned limits, and for this reason, became a focal point for the butchering of animals. The nearby Beargrass Creek provided a natural conduit for the discarding of animal waste and residue from the slaughtering process.

This process first started in the mid-1800s. The other main reason that this area developed as an animal processing center at this time was the arrival of German immigrants, many of whom previously worked in the butchering profession when in Germany. The German immigrant population of Butchertown facilitated the development of other related businesses at this time as well, including tanneries, breweries, and saloons. Although much of old Butchertown has since been replaced by other businesses over the years, some of the old slaughter houses are present, but not in operation, as are the railroad tracks that were used to transport the animals to the area and the finished products to other parts of the Midwest. An example of a stock yard operation in this neighborhood was Bourbon Stock Yard. This operation was first started in 1834 and continued to function until 1999 and was widely known for the quality of its products across the eastern United States (Kramer 2001:106).

## Depositional Context and Artifacts

The soil profiles from the three bore holes in Locality 6a indicate this area has been heavily disturbed. Much of this disturbance was probably the result of the construction of Interstate 64, but also may related to various construction episodes associated with Mellwood (Reservoir) Avenue. In these profiles, the A horizon was entirely absent. Instead the top 4.5–6.0 m (15–20 ft) of profile consisted of B horizon silty clay loam or clay loam soils that ranged in color from 10YR 4/6 dark yellowish brown to 10YR 5/8 yellowish brown. Except for a few brick fragments, the B horizon was culturally sterile. Below the B horizon and continuing to at least 9.1 m (30 ft) bgs were R horizon limestones.

Locality 6b soil profiles can be discussed in groups. Bore hole 2B-123 and 2W-146 had intact cultural deposits from about 3–4.5 m (10–15 ft) bgs to at least 9.1 m (30 ft) bgs. These deposits were a 10YR 3/2 very dark grayish brown silty clay loam and contained some bottle glass, flat glass, ceramic tile, brick fragments, and bone. Although difficult to evaluate, it appears the artifact assemblage represents remains from the early 1900s. The soils above the cultural deposits are likely fill zones and ranged from 10YR 4/6 dark yellowish brown silty clay loams to 7.5YR 4/4 brown/dark brown silt clays. The soils below the cultural deposits were not tested to their extreme depths.

Another group of bore holes within Locality 6b includes 2B-125, 3W-208, 3W-209, and 3W-206 . The first three bore holes were located in highly disturbed areas. The observed disturbance was likely the product of Interstate 64 construction and various construction activities associated with

All artifacts, which generally consisted of machine made bottle glass, were recovered from disturbed contexts. All artifacts were retained for analysis. An A horizon was absent from these three bore holes with the top soils in these profiles either representing fill zones or possibly a B horizon. These soils tended to range from a 10YR 4/6 dark yellowish brown sandy clay loam to 10YR 5/6 yellowish brown sandy clay. Below the B horizon was a C horizon that ranged from 3.5–7.6 m (10–25 ft) bgs depending on bore hole. Bore hole 3W-206 was slightly different from the others in that the ROW area in this part of the project footprint may have had a thin intact cultural deposit located from 1.5–2.4 m (5–8 ft) bgs. These soils were a 10YR 3/2 very dark grayish brown loamy sand containing mostly a low density of machine made bottle glass. Soils above the cultural layer were 10YR 4/4 dark yellowish brown silt loams and probably represent fill from the building of the on-ramp to Interstate 64 while the soils beneath the cultural deposits were C horizon sands. These sands represented a fining upward sequence with the color ranging from 10YR 4/4 dark yellowish brown to 10YR 5/2 grayish brown.

### Features

No features were observed in Locality 6a or 6b during monitoring. Intact features are, however, a possibility in Locality 6b, particularly in and around 2W-146, 2B-123, and 3W-206. According to 1892 and 1905 Sanborn maps, each of these three areas had substantial occupations in the past which indicate that intact cultural features may be present. Results from the monitoring of these bore holes shows intact deposits are present in which these features may be located.

**Figure 6.16. Stone wall along west bank of Beargrass Creek, looking northwest.**

### *Assessment*

Judging from the cumulative data presented above, the areas in and around 2W-146, 2B-123, and 3W-206 have a high potential of producing intact historic deposits. Low potential areas include ROW parcels located in and around bore holes 2B-116, 2B-94, 2B-97, 3B-125, 3W-208, and 3W-209. These areas did not demonstrate substantial evidence of intact historic deposits or the possibility of cultural features. These areas were highly disturbed due to the construction of Interstate 64, exit and on-ramps associated with the interstate, and various city roads like Story Avenue. The potential of buried prehistoric deposits is low in Locality 6 based on the lack of fine-grained Holocene overbank deposits in this part of the project area (Stafford and Creasman 2002).

## Locality 7

Bore holes in Locality 7 consisted of 2W-135 and 2W-139 (in and around substation 438+00). These bore holes were located in ROW area along the east side of Interstate 64 . This area has dense vegetation, including many large-sized trees (mostly pine) and underbrush (Figure 6.17). The vegetation was so thick that a dozer was needed to clear the area before drilling could begin. Although variable, the ROW width along this portion of Interstate 64 was about 30 m (100 ft) and the length was about 350 m (1,150 ft).

**Figure 6.17. Overview of Locality 7, looking northwest.**

### Cultural Context and Historic Map Data

The 1892 Sanborn map does not show the project area where the monitoring occurred, but did include other parts of the ROW that were labeled as residential. According to the 1905 Sanborn map, Locality 7 bore holes were located between Charlton and Stevenson Streets among a series of houselots that were residential but interspersed with a few vacant parcels. Street numbers ranged from 954 to 944 Stevenson Street. All these structures were razed with the building of Interstate 64. As a result of the completely disturbed nature of the soils in and around the bore holes (discussed below), it was decided that a close-up illustration of the 1905 Sanborn map for the area of interest did not need to be included in the discussion of Locality 7. This map, however, was consulted to determine what was present before interstate construction.

### Depositional Context and Artifacts

The soil profiles from the two bore holes in Locality 7 indicate this area has been heavily disturbed. Much of this disturbance was probably the result of the construction of Interstate 64. In these profiles, the A horizon was entirely absent. Instead the top 3.0–3.6 m (10–12 ft) of profile consisted of B horizon 10YR 4/4 dark yellowish brown or 7.5YR 5/8 strong brown silty clay loam soil. Except for a few brick fragments, the B horizon was culturally sterile. Below about 3.0–3.6 m (10–12 ft) was the R horizon.

### Features

No features were observed in Locality 7 during monitoring. Although the 1905 Sanborn map indicated that residential structures were present at the time the maps were drawn, the construction of Interstate 64 has since completely destroyed any evidence of their presence. Consequently, it is unlikely that intact features are present here.

### Assessment

The area in and around 2W-135 and 2W-139 are considered to have low potential since they did not produce any evidence that intact historic deposits are present, and given the amount of disturbance to this locality during the construction of Interstate 64, intact historic deposits were not expected. The potential for buried prehistoric deposits is low in Locality 7 based on the lack of fine-grained Holocene overbank deposits in this part of the project area (Stafford and Creasman 2002).

## Locality 8

Bore holes in Locality 8 included 2W-151, 2W-159, and 2W-160 (between substation 535+00 and 541+00). These bore holes were located in the ROW area along the south side of Interstate 71 (see Figure 1.3). Bore hole 2W-151 was located west of Beargrass Creek immediately adjacent to a narrow asphalt road. Bore hole 2W-159 and 2W-160 were located east of Beargrass Creek along a narrow portion of the ROW. In all three cases, the ROW area contained dense undergrowth and numerous pine, oak, and hickory trees (Figure 6.18). In order for the drill to access these areas, many of the trees had to be felled and removed. Although the ROW was about 23 m (75 ft) in width, the entire north side was under an earthen embankment that supports Interstate 71. For this reason, only about 5 or 10 m (16 to 33 ft) of the south half of the ROW was easily accessible. All three areas also tended to be water logged. Just south of the ROW, perhaps 5 m (16 ft) away was Muddy Fork Beargrass Creek, a tributary of Beargrass Creek.

### Cultural Context and Historic Map Data

Sanborn maps from 1892 and 1905 did not extend far enough to the east to include the Locality 8 area. The modern-day built environment includes a few residential and business structures located on Mellwood Avenue to the south of the project area. Also present are several large-sized parcels that are asphalt parking lots where semi-trucks park.

**Figure 6.18. Overview of vegetation in Locality 8.**

## *Depositional Context and Artifacts*

The soil profiles from these three bore holes indicate this area has been heavily disturbed. Much of this disturbance was probably the result of the construction of Interstate 71. These disturbed soils produced varied profiles and tended to be mottled. In these profiles, the A horizon was entirely absent. Instead the top 3.0–4.5 m (10–15 ft) of profile consisted of either 10YR 3/3 very dark grayish brown or 10YR 4/4 dark yellowish brown silty clay loams. Generally, below about 4.5 m (15 ft) the soils became highly saturated and consisted of 10YR 2/1 black silt loam. All of these bore holes and their associated soils were culturally sterile.

## *Features*

No features were observed in Locality 8 during monitoring. It is unlikely that intact cultural deposits, including features, are present in this area due to the disturbed nature of the soils from Interstate 71 construction.

## *Assessment*

The area in and around 2W-151, 2W-159, and 2W-160 are considered to have low potential for intact historic deposits due to the amount of disturbance to this locality during the construction of Interstate 71. The potential for buried prehistoric deposits is low in Locality 8 based on the lack of fine-grained Holocene overbank deposits in this part of the project area (Stafford and Creasman 2002).

## Locality 9

Bore holes in Locality 9 consisted of 2W-391, 2W-394, and 2W-398 (near substation 550+00 and 565+00). These bore holes were located in ROW area between Interstate 71 to the north and Muddy Fork Beargrass Creek to the south (see Figure 1.3). In all three cases, the ROW area contains dense undergrowth and numerous pine, oak, and hickory trees. In order for the drill to access these areas, many of the trees had to be felled and removed (Figure 6.19). Although the ROW was about 23 m (75 ft) in width, the entire north side was under an earthen embankment that supports Interstate 71. For this reason, only about 5–10 m (16–33 ft) of the south half of the ROW was easily accessible. All three areas also tended to be water logged.

### *Cultural Context and Historic Map Data*

Sanborn maps from 1892 and 1905 did not extend far enough to the east to include the Locality 9 area. The modern-day built environment includes a few residential and business structures.

### *Depositional Context and Artifacts*

The soil profiles from these three bore holes indicated that this area had been disturbed, but the extent of the disturbance was difficult to evaluate. For example, bore hole 2W-391 did not have an A horizon within its profile. Instead the B horizon extended from ground surface to about 4.5 m (15 ft) bgs and consisted of 10YR 3/1 very dark gray or 10YR 5/4 yellowish brown silt loam soils. Only two artifacts, a refined plain whiteware sherd and a chert flake smaller than a .25 inch, were identified in this horizon. From about 4.5 to at least 9.1 m (15 to at least 30 ft) bgs was the C horizon, which consisted mainly of fine sands with a 10YR 4/1 dark gray color. The water table was encountered at about .6 m (2 ft) bgs.

**Figure 6.19. Overview of vegetation in Locality 9.**

On the other hand, bore holes 2W-394 and 2W-398 seem to represent relatively intact soils. These two bores had soil profiles that were roughly similar. The top 1.5 m (5 ft) of the profile consisted of an A horizon that ranged from 10YR 5/4 yellowish brown silty clay loam to 10YR 4/3 brown/dark brown silt loam. This horizon did have a light density of historic artifacts (N=4) that included a piece of flat glass and three fragments of machine made bottle glass (as well as two brick fragments). In addition to these artifacts one small prehistoric flake was also identified. Below the A horizon was the B horizon. This horizon continued to a depth of between 4.5 and 6.0 m (15 and 20 ft) bgs and consisted of 10YR 5/6 yellowish brown silty clay soils that were culturally sterile. Below the B horizon was either C horizon sands or R horizon rocks.

### *Features*

No features were observed in Locality 9 during monitoring. It is unlikely that intact cultural deposits, including features, are present in this area due to either the disturbed nature of the soils from Interstate 71 construction or the ephemeral nature of past human activities in this area.

### *Assessment*

The area in and around 2W-391 has a low potential to contain intact historic deposits given the amount of disturbance to this locality during the construction of Interstate 64. Bore holes 2W-394 and 2W-398 were not disturbed but still have a low potential for intact historic deposits given the very light density of artifacts. Most of these artifacts are likely the result of flooding in the area and not actual occupation. The potential of buried prehistoric deposits is low in Locality 9 based on the lack of fine-grained Holocene overbank deposits in this part of the project area (Stafford and Creasman 2002).

# Phase 3 Bore Hole Monitoring

Thirteen bore holes were monitored during the Phase 3 portion of the project. Phase 3 bore hole locations were restricted to the east of downtown Louisville mainly along Interstates 64 and 71. Most of the monitoring occurred from the Story Avenue on-ramp for Interstate 64 west to the Campbell and Adam Streets intersection. This area encompassed interstate medians as well as locations along Adam Street. As noted in Table 6.1, Phase 3 monitoring included 13 bore holes grouped into four localities which were designated Localities 10 through 13. Bore holes 3W-206, 3W-208, and 3W-209 were already discussed. Given the proximity of 5B-296 to 3R-384 it was decided to add the former to the Locality 10 discussions, but 5B-296 is not included in the total number of bore holes monitored during the Phase 3 drilling. For this reason the following discussion is restricted to 10 Phase 3 bore holes and one Phase 5 bore hole.

## Locality 10

Locality 10 bores included two Phase 3 holes, 3R-383 and 3R-384, and one Phase 5 hole, 5B-296 (see Figure 1.3). All three bore holes were located on the north side, while bore 3R-383 was located about 236 m (775 ft) to their east (see Figure 2.1). The triangular wedge-shaped green space that 3R-384 and 5B-296 was located in measured about 30 m (98 ft) in width from tree line near Interstate 64. The length of the ROW was about 122 m (400 ft). Present within the ROW was a large billboard sign that may have disturbed part of the area, as well as an old gas pipeline.

## *Cultural Context and Historic Map Data*

According to the 1892 and 1905 Sanborn maps, bore holes 3R-384 and 5B-296 were located among a series of houselots that lined both Streets.

## *Depositional Context and Artifacts*

The soil profile for bore holes 3R-383 and 5B-296 were similar in that no evidence of intact cultural deposits was identified. The soils from ground surface to the sands were B horizon sandy loams or silty clay loam with color ranging from 10YR 3/3 dark brown to 10YR 4/3 brown/dark brown. The B horizon was essentially culturally sterile. Below this was the C horizon which consisted of 10YR 4/4 dark yellowish brown fine to medium-sized sands. The C horizon was also culturally sterile. It's possible that 3R-383 and 5B-296 were disturbed by either an old gas pipeline or road construction.

**Figure 6.20a. The 1892 Sanborn map for bore holes in Locality 10, Bores 3R-384 and 5B-296.**

**Figure 6.20b. The 1892 Sanborn map for bore holes in Locality 10, Bore 3R-383.**

The soil profile for bore hole 3R-384 was different in that an A horizon was present from ground surface to about 1.5 m (5 ft) bgs. This horizon was a 10YR 3/2 very dark grayish brown sandy loam containing a light density of historic material. Artifacts included three fragments of flat glass, three plastic pieces, five fragments of blown-in-mold bottle glass, two fragments of machine made bottle glass, a plastic tableware fragment, and 11 brick fragments. These data hint at a late 1800s or early 1900s occupation. Under this horizon was the B horizon which extended to a depth of about 4.5 m (15 ft) bgs and consisted of 10YR 5/4 and 10YR 5/6 silty clay loams. Some historic artifacts were recovered from this horizon, which consisted of four brick fragments, a ceramic decoration, and one piece of flat glass. On the ground surface were three complete bricks and a salt glazed ceramic sherd that were collected.

### *Features*

No features were observed in Locality 10 during monitoring. Intact features are, however, a possibility, particularly in and around 3R-384. According to the 1892 and 1905 Sanborn maps, this area had substantial occupations in the past which indicate that intact cultural features may be in the area. Results from the monitoring of this bore hole show intact deposits are present in which these features may be located.

### *Assessment*

Judging from the cumulative data presented above, the area in and around 3R-384 is considered to have a high potential for producing intact historic deposits. Low potential areas include bore hole 3R-383 and 5B-296. These areas did not demonstrate any substantial evidence of intact historic deposits or the possibility of cultural features. These areas were highly disturbed due to the construction of Interstate 64, construction of Street, or from an old gas pipeline. Based on the presence of fine-grained overbank sediments deriving from low-energy depositional events (including both silty clay loams and silt loams), this locality, especially around 3R-384, has the potential to contain prehistoric deposits (i.e., Stafford and Creasman 2002). For this reason, some trenching, including deep trenching, should be attempted in this area in order to identify the presence of any possible historic and prehistoric deposits.

## Locality 11

Originally only bore hole 3B-364 (near substation 398+00) was to be monitored in Locality 11; however, after the drill crew reported having recovered numerous historic artifacts during augering, it was decided that artifacts from around 3B-363 would also be collected. Since the monitoring of 3B-363 occurred after the drilling had been competed, the only records or field notes concerning this hole relate to the artifacts that were collected from the spoil pile and later analyzed. These bore holes were located in the ROW area between Interstates 64 and 71 (see Figure 1.3). This area was a green space that supported mostly grass vegetation, but also a few small trees (Figure 6.21). Extending down the middle of this area was a small drainage that ends at a concrete culvert. In all three cases, the ROW area contains dense undergrowth and numerous pine, oak, and hickory trees. In order for the drill to access these areas, many of the trees had to be felled and removed. Areas immediately adjacent to the interstates are under earthen embankments. The ROW area, which was essentially an island between roads, was about 305 m (1000 ft) in length and 32 m (150 ft) in width.

Figure 6.21. Overview of Locality 11, looking west.

## Cultural Context and Historic Map Data

The bore hole locations could not confidently be located on Sanborn maps because of the near lack of reference points needed to triangulate their proveniences. The building of the interstate system through this section of Louisville has obliterated most of the aforementioned reference points (i.e., street intersections, etc.). As a general observation based on the Sanborn maps from 1892 and 1905, the bore holes were located in an area of Louisville that used to depend heavily on the lumber industry (Figure 6.22). In fact many of the lots in this area were part of large-size lumber operations or were vacant lots.

## Depositional Context and Artifacts

The soil profile for 3B-364 suggests this area has been disturbed from past construction activities, mostly those associated with the building of the interstate system (including the nearby culvert). The first 1.2 m (4 ft) of the soil profile shows fill material consisting of 10YR 3/3 dark brown silty clay soils. A couple of machine made bottle glass fragments were recovered from this zone. Below the fill were all C horizon sandy clays or sands that tended to be a 2.5Y 4/1 dark gray color (4–30 ft bgs). A few artifacts were found within this horizon but probably represent drag from the drilling processes. Artifacts included a rubber object, machine made bottle glass, blown-in-mold bottle glass, and cinder.

As mentioned earlier, bore hole 3B-363 was not monitored, but some artifacts were collected from the surface around the hole after it had been drilled. These materials consisted mostly of ceramic or tableware, but a piece of tile and one toy fragment were also recovered.

## Features

No features were observed in Locality 11 during monitoring. Although domestic historic artifacts were present in 3B-363 it is difficult to evaluate whether the artifacts originated from intact deposits or features or if they were part of fill used to level off or build up the area for the interstate system.

**Figure 6.22. The 1905 Sanborn map of Louisville showing the locations of bore holes in Locality 11.**

### Assessment

The area in and around 3W-363 and 3W-364 has a low potential to produce intact historic deposits. Part of the area has been disturbed, particularly around 3W-364. While 3W-363 did produce historic artifacts it was impossible to gauge its context since the drilling in this bore hole was not monitored; the artifacts were obtained only from the surface. The potential of buried prehistoric deposits is low in Locality 11 based on the lack of fine-grained Holocene overbank deposits in this part of the project area (Stafford and Creasman 2002).

## Locality 12

Locality 12 bore holes included 3B-173, 3B-177, 3B-181, 3B-183, 3B-197, and 3B-386 (see Figure 1.3). The first four holes were located in a large triangular shaped green area situated between Interstates 64 and 71 on the east side of Louisville (in and around substation 410+00). This area measured about 304 m (1000 ft) from northwest to southeast and 76 m (250 ft) from southwest to northeast. Bore hole 3B-197 was located about 61 m (200 ft) southwest of the large triangular green area, while 3B-386 was located about 76 m (250 feet) north of the triangular green area. The area in and around 3B-197 measured about 53 m (175 ft) from north to south and 61 m (200 ft) from east to west, while 3B-386 measured about 335 m (1,100 ft) east to west and about 53 m (175 ft) north to south. All six bore holes are located in what is known locally as "Spaghetti Junction." This area, except for the roads, is vacant ROW that contains a combination of low-lying grasses with numerous large trees situated along the edges of the interstates (see Figure 2.2).

### Cultural Context and Historic Map Data

Based on the Sanborn maps from 1892 and 1905 (Figure 6.23), all bore holes were located in vacant lots, although residential lots were present in areas immediately adjacent to these bore locations.

### Depositional Context and Artifacts

The soil profiles from bore holes 3B-173, 3B-177, 3B-181, 3B-183, and 3B-386 in Locality 12 do not contain any appreciable evidence of intact cultural deposits. These areas also exhibit, to various degrees, evidence of disturbance that may have been associated with the construction of the interstate system. Profiles generally show either fill or a truncated B horizon from about ground surface to about 3.0 m (10 ft) bgs. These soils ranged from 10YR 4/2 dark grayish brown loamy sand to 10YR 3/4 dark yellowish brown silty clay loam. Artifacts were generally absent in these soils. From about 3.0 to at least 9.1 m (10 ft to at least 30 ft) bgs were C horizon sands. These soils were typically 10YR 4/2 dark grayish brown fine-sized sands to 10YR 8/1 white coarse-sized sands with about 25 percent gravels. These soils were culturally sterile. The only exception to this pattern within the five above mentioned bore holes, is 3B-173, which may have an intact cultural layer from about 1.5–3.0 m (5–10 ft) bgs. These soils were 10YR 3/2 very dark grayish brown and contained a few brick fragments.

The sixth bore hole in this locality consisted of 3W-197. This hole, which did appear to have intact cultural deposits, was located in a green area. The top 3.0 m (10 ft) of this soil profile consisted of 10YR 4/3 brown/dark brown sandy loam that contained historic glass, nails, brick fragments, historic ceramics, and various metal objects (Table 6.3). Although difficult to evaluate, it appears that the top 2.1 m (7 ft) contained all the artifacts. From 3.0–7.6 m (10–25 ft) bgs was a 10YR 5/2 grayish brown sandy clay loam that was culturally sterile.

**Figure 6.23. The 1905 Sanborn map of Louisville showing the locations of bore holes in Locality 12.**

**Table 6.3. Historic artifacts recovered at 3W-197 0–2.1 m (0–7 ft bgs) according to functional group.**

| Artifact group | Count | Percent |
|---|---|---|
| Architecture | 5 | 23.0 |
| Clothing | 0 | 0 |
| Domestic | 15 | 68.0 |
| Floral and Faunal | 0 | 0 |
| Furnishings | 0 | 0 |
| Maintenance and Subsistence | 1 | 4.5 |
| Personal | 1 | 4.5 |
| Unidentified | 0 | 0 |
| Total | 22 | 100 |

### Features

No features were observed in Locality 12 during monitoring. Although 3B-373 and 3B-197 did produce a few historic artifacts from what appears to have been a small pocket of cultural deposit, no apparent features were present.

### Assessment

The area in and around these bore holes with the exception of 3B-197 and possibly 3B-173 did not produce any evidence of intact cultural deposits. Part of the area also appears to have been disturbed by the construction of the various interstates. Given the disturbance to this locality and the uncertain nature of the deposits around 3B-197 and 3B-173 this locality, should be considered as having a low potential for intact historic deposits. The potential for buried prehistoric deposits is low in Locality 12, except for the area represented by 3B-197, based on the amount of disturbance caused by interstate construction. Despite the relatively low potential of Bore 3B-197, it should be tested by deep trenching since this area was not as disturbed and contained fine-grained overbank sediments that were derived from low-energy depositional events (including both silty clay loams and sandy clay loams). For these reasons, 3B-197 should be further investigated to determine if prehistoric deposits are present.

## Locality 13

Locality 13 consisted of bore hole 3W-374 (see Figure 1.3). This hole was located on the south side of Interstate 71 in ROW area (near substation 527+00), which paralleled the interstate and was vacant, containing mostly low-lying grasses and few scattered trees.

### Cultural Context and Historic Map Data

This bore hole was located just outside of the 1892 Sanborn map purview.

### Depositional Context and Artifacts

The soil profiles from bore hole 3W-374 does not contain any appreciable evidence of intact cultural deposits. The entire profile consisted of 10YR 4/3 brown/dark brown medium to fine-sized sands. Most of these soils appear to be fill brought in for interstate construction. The only cultural material was a few brick fragments that were too small to save.

**Figure 6.24. The 1905 Sanborn map of Louisville showing the locations of bore holes in Locality 13.**

### *Features*

No features were observed in Locality 13 during monitoring, and it is unlikely that any intact features are present in the area.

### *Assessment*

The area in and around the bore hole is considered to have low potential since no evidence of intact historic deposits was present. Part of the area also appears to have been disturbed by the construction of Interstate 71. This includes the entire ROW area from about substation 535+00 to 521+00. The potential for buried prehistoric deposits is low in Locality 13 based on the lack of fine-grained Holocene overbank deposits in this part of the project area (Stafford and Creasman 2002).

# Phase 4 Bore Hole Monitoring

Eight bore holes were monitored during the Phase 4 portion of the project. Phase 4 bore hole locations were restricted to the downtown Louisville area, particularly along River Road from the Interstate-65 bridge over the Ohio River west to about 2nd Street. As noted in Table 6.1, Phase 4 monitoring included eight bore holes grouped into two localities which were designated Localities 14 and 15.

## Locality 14

Locality 14 consisted of four bore holes: 4B-260, 4B-266, 4B-267 and 4B-268 (see Figure 1.3).

Vegetation varied among these parcels. For example, both 4B-268 and 4B-266 which were located on or near earthen embankments for Interstate 64 had a combination of low lying grasses and secondary overgrowth like bushes and small trees. Areas in and around bore holes 4B-260 and 4B-267, on the other hand, had vegetation consisting of just low lying grasses. Parts of Locality 14 are located under the Interstate 64 overpass as well as immediately to its north and south.

## *Cultural Context and Historic Map Data*

According to the 1892 (Figures 6.26 and 6.27) and 1905 Sanborn maps, bore hole 4B-260 was located in a sparsely populated residential section along Fulton. Bore holes 4B-266 and 4B-267, however, were located in industry-oriented areas, for example, iron works or coal yards respectively.

**Figure 6.25. Overview of area in Locality 14, looking east.**

**14.**

**Figure 6.26. The 1892 Sanborn map of Louisville showing the locations of bore holes 4B-266 and 4B-268 in Locality 14.**

**Figure 6.27. The 1892 Sanborn map of Louisville showing the locations of bore holes 4B-260 and 4B-267 in Locality 14.**

## Depositional Context and Artifacts

Of the four bore holes, only 4B-266 did not produce evidence of cultural material between ground surface and about 9.1 m (30 ft) bgs. The main reason for the lack of cultural material is that the auger was placed on top of an earthen embankment that supports Interstate 64. This location was chosen in error. All soils above 9.1 m (30 ft) bgs represented fill that had been brought to the area during interstate construction. Of some interest, however, was the occurrence of a cultural zone located from 10.6 to about 11.2 m (35 to about 37 ft) bgs. This buried A horizon was a 10YR 3/2 very dark grayish brown loamy sand containing small brick fragments and cinder.

Each of the other three bore holes, 4B-260, 4B-267 and 4B-268, did have cultural deposits that extended from about ground surface to about 4.5 m (15 ft) bgs (Figure 6.3). This A horizon generally consisted of either 10YR 3/1 very dark gray loamy sand or 10YR 3/2 very dark grayish brown sandy loam. Cultural material consisted of numerous small-sized brick fragments, plastic, metal fragments, glass, and historic ceramics (see Table 6.4). As a general observation, the amount of domestic related artifacts outnumbers most of the other artifact groups. Domestic artifacts include machine made bottle glass, stoneware, porcelain, ironstone, and some blown-in-mold bottle glass. Artifacts from the architectural group included mostly flat glass, but also a few cut nails, plate glass, and small brick fragments. Other artifacts noted in these bore holes were a high concentrations of faunal material from 4B-267 and a generally low occurrence of maintenance and subsistence objects, like cinder, coal, and slag. Although small brick fragments were present at each bore hole, 4B-268 had a much higher concentration than the others. The faunal remains were too small to be confidently identified to the species level. The artifacts from these bores encompassed a wide time period from the mid-1800s to the mid-1900s, but the general character of the assemblage indicates a more limited time frame, probably late 1800s or early 1900s occupation span.

Below the A horizon was the B horizon which ranged from 4.5 m (15 ft) bgs to between 6.0 and 9.1 m (20 and 30 ft) bgs. These soils were mapped as 10YR 4/1 silty clay loam and did contain a few artifacts that probably represent drag from the auger. Below the B horizon was C horizon sands that were culturally sterile. These sands were generally fine-sized and ranged in color from 10YR 4/1 dark gray to 10YR 5/8 yellowish brown. Some gravel was present in the sand as well.

## Features

No features were observed in Locality 14. Buried features are still a possibility based on the artifacts recovered so far and the buildings that are known to have been in the area based on the Sanborn maps.

## Assessment

Judging from the cumulative data presented above, the areas in and around 4B-260, 4B-267, and 4B-268 are considered to have a high potential for producing intact historic deposits. The same cannot be demonstrated for 4B-266, and for this reason, this area is considered to have low potential. What is interesting in the data is that the artifacts represent residential functions for 4B-260, 4B-267, and 4B-268 areas, but the Sanborn maps (which are roughly contemporary with the artifacts recovered) show mostly manufacturing or industrial businesses. Possible interpretations concerning this difference are that dwellings were present but not recorded or that fill containing historic midden was brought in to these areas as part of the construction of the interstates or the maintenance of the park. In either case, further work is needed to address this issue.

## Table 6.4. Historic assemblage for bore holes 4B-260, 4B-267, and 4B-268.

| Upper | Lower | Provenance | Group | Class | Type | Attribute 1 | Attribute 2 | Attribute 3 | Quantity | Weight g) | Vessel Part | Min. Date | Max. Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 5 | 4B-260 | ARCHITECTURE | Flat Glass | Plate glass | | | | 1 | | | 1917 | 1917 |
| 0 | 5 | 4B-260 | DOMESTIC | ABM | Clear glass | | | ABM | 3 | | Body | 1903 | |
| 0 | 5 | 4B-260 | DOMESTIC | Ceramics | Ironstone | Plain | | | 3 | | Body | 1840 | |
| 0 | 5 | 4B-260 | DOMESTIC | Undiag. Container Frag. | Opaque white glass | | | | 1 | | Body | 1890 | |
| 0 | 5 | 4B-260 | MAIN. and SUBS. | Fuels | Coal | | | | 1 | 0.4 | | | |
| 0 | 5 | 4B-260 | MAIN. and SUBS. | General Hardware | Other | Other | | | 1 | | | | |
| 5 | 10 | 4B-260 | ARCHITECTURE | Flat Glass | Plate glass | | | | 1 | | | 1917 | 1917 |
| 5 | 10 | 4B-260 | ARCHITECTURE | Flat Glass | Other glass | | | | 1 | | | | |
| 5 | 10 | 4B-260 | ARCHITECTURE | Flat Glass | Privacy glass | | | | 1 | | | | |
| 5 | 10 | 4B-260 | DOMESTIC | Ceramics | Stoneware | Albany slip ext | Albany slip int | | 1 | | Body | 1830 | |
| 5 | 10 | 4B-260 | DOMESTIC | Ceramics | Semi-Porcelain | Plain | | | 3 | | Body | 1880 | |
| 5 | 10 | 4B-260 | DOMESTIC | Ceramics | Porcelain | Plain | | Molded design | 1 | | Body | | |
| 5 | 10 | 4B-260 | MAIN. and SUBS. | Transportation | Vehicle part | Other | | | 1 | | | 1919 | |
| 5 | 10 | 4B-260 | UNIDENTIFIED | Glass | Amorphous | | | | 1 | 3.8 | | | |
| 5 | 10 | 4B-260 | UNIDENTIFIED | Metal | Iron/ steel | Rod | | | 1 | 4.3 | | | |
| 5 | 10 | 4B-260 | UNIDENTIFIED | Metal | Iron/ steel | Item/Part | | | 1 | 0.4 | | | |
| 5 | 10 | 4B-260 | UNIDENTIFIED | Metal | Iron/ steel | Amorphous | | | 5 | 44 | | | |
| 5 | 10 | 4B-260 | UNIDENTIFIED | Metal | Lead | Amorphous | | | 1 | 36.8 | | | |
| 5 | 10 | 4B-260 | UNIDENTIFIED | Metal | Other | Item/Part | | | 1 | 1.1 | | | |
| 10 | 15 | 4B-260 | ARCHITECTURE | Construction Materials | Wood | Other | | | 1 | 0.1 | | | |
| 10 | 15 | 4B-260 | ARCHITECTURE | Flat Glass | Window glass | 1.4 | | | 1 | | | 1831 | 1831 |
| 10 | 15 | 4B-260 | ARCHITECTURE | Flat Glass | Plate glass | | | | 1 | | | 1917 | 1917 |
| 10 | 15 | 4B-260 | ARCHITECTURE | Flat Glass | Privacy glass | | | | 2 | | | | |
| 10 | 15 | 4B-260 | ARCHITECTURE | Flat Glass | Other glass | | | | 1 | | | | |
| 10 | 15 | 4B-260 | DOMESTIC | ABM | Clear glass | | | ABM | 2 | | Body | 1903 | |
| 10 | 15 | 4B-260 | DOMESTIC | ABM | Olive green glass | | | ABM | 1 | | Body | 1903 | |
| 10 | 15 | 4B-260 | DOMESTIC | ABM | Amber glass | | | ABM | 2 | | Body | 1903 | |
| 10 | 15 | 4B-260 | DOMESTIC | Ceramics | Stoneware | Albany slip ext | Albany slip int | | 2 | | Body | 1830 | 1925 |
| 10 | 15 | 4B-260 | DOMESTIC | Ceramics | Stoneware | Bristol slip ext | Bristol slip int | Spattered / sponged | 2 | | Body | 1880 | 1925 |
| 10 | 15 | 4B-260 | DOMESTIC | Ceramics | Semi-Porcelain | Plain | | | 5 | | Body | 1880 | |
| 10 | 15 | 4B-260 | DOMESTIC | Ceramics | Stoneware | Bristol slip ext | Bristol slip int | Spattered / sponged | 1 | | Rim | 1880 | 1925 |
| 10 | 15 | 4B-260 | DOMESTIC | Ceramics | Ironstone | Transfer print | Brown | | 1 | | Body | 1840 | 1860 |
| 10 | 15 | 4B-260 | DOMESTIC | Undiag. Container Frag. | Clear glass | | | | 2 | | Body | 1864 | |
| 10 | 15 | 4B-260 | MAIN. and SUBS. | Fuels | Coal | | | | 1 | 0.3 | | | |
| 10 | 15 | 4B-260 | UNIDENTIFIED | Glass | Amorphous | | | | 1 | 3 | | | |
| 10 | 15 | 4B-260 | UNIDENTIFIED | Metal | Iron/ steel | Amorphous | | | 4 | 74.1 | | | |
| 0 | 5 | 4B-267 | ARCHITECTURE | Flat Glass | Plate glass | | | | 1 | | | 1917 | 1917 |
| 0 | 5 | 4B-267 | ARCHITECTURE | Nails | Cut nail | 9d | Common | Pulled | 1 | | | 1830 | 1880 |
| 0 | 5 | 4B-267 | MAIN. and SUBS. | Fuels | Coal | | | | 1 | 0.9 | | | |
| 0 | 5 | 4B-267 | UNIDENTIFIED | Metal | Iron/ steel | Amorphous | | | 1 | 2 | | | |

| Upper | Lower | Provenance | Group | Class | Type | Attribute 1 | Attribute 2 | Attribute 3 | Quantity | Weight g) | Vessel Part | Min. Date | Max. Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | 10 | 4B-267 | ARCHITECTURE | Flat Glass | Window glass | 1.73 | | | 1 | | | 1858 | 1858 |
| 5 | 10 | 4B-267 | DOMESTIC | ABM | Clear glass | | | ABM | 5 | | Body | 1903 | |
| 5 | 10 | 4B-267 | DOMESTIC | BIM (Blown in Mold) | Aqua glass | | | Unidentified | 1 | | Lip | | |
| 5 | 10 | 4B-267 | DOMESTIC | Glass Tableware | Press mold | Clear | | | 1 | | Base | 1864 | |
| 5 | 10 | 4B-267 | FLORAL and FAUNAL | Faunal Remains | Bone / teeth | | | | 1 | 0.1 | | | |
| 5 | 10 | 4B-267 | MAIN. and SUBS. | Fuels | Coal | | | | 1 | 4 | | | |
| 10 | 15 | 4B-267 | ARCHITECTURE | Flat Glass | Window glass | 1.46 | | | 1 | | | 1836 | 1836 |
| 10 | 15 | 4B-267 | ARCHITECTURE | Flat Glass | Window glass | 2.16 | | | 1 | | | 1895 | 1895 |
| 10 | 15 | 4B-267 | ARCHITECTURE | Flat Glass | Window glass | 1.77 | | | 1 | | | 1862 | 1862 |
| 10 | 15 | 4B-267 | ARCHITECTURE | Flat Glass | Window glass | 1.8 | | | 1 | | | 1864 | 1864 |
| 10 | 15 | 4B-267 | ARCHITECTURE | Flat Glass | Plate glass | | | | 1 | | | 1917 | 1917 |
| 10 | 15 | 4B-267 | ARCHITECTURE | Nails | Cut nail | 5d | Common | Pulled | 1 | | | 1830 | 1880 |
| 10 | 15 | 4B-267 | ARCHITECTURE | Nails | Cut nail | Fragment | | | 1 | | | 1830 | 1880 |
| 10 | 15 | 4B-267 | DOMESTIC | ABM | Clear glass | | | ABM | 4 | | Body | 1903 | |
| 10 | 15 | 4B-267 | DOMESTIC | ABM | Opaque white glass | | | ABM | 2 | | Body | 1903 | |
| 10 | 15 | 4B-267 | DOMESTIC | BIM (Blown in Mold) | Aqua glass | | | | 1 | | Body | | |
| 10 | 15 | 4B-267 | DOMESTIC | BIM (Blown in Mold) | Aqua glass | | Embossed | | 1 | | Body | 1856 | 1920 |
| 10 | 15 | 4B-267 | DOMESTIC | Ceramics | Porcelain | Plain | | | 1 | | Body | | |
| 10 | 15 | 4B-267 | FLORAL and FAUNAL | Faunal Remains | Bone / teeth | | | | 3 | 1.5 | | | |
| 10 | 15 | 4B-267 | FLORAL and FAUNAL | Faunal Remains | Unidentified Shell | | | | 3 | 3.9 | | | |
| 10 | 15 | 4B-267 | FURNISHINGS | Decorative Elements | Other | Metal | | | 1 | | | | |
| 10 | 15 | 4B-267 | MAIN. and SUBS. | Fuels | Coal | | | | 1 | 0.6 | | | |
| 10 | 15 | 4B-267 | MAIN. and SUBS. | General Hardware | Rivet | Iron / steel | Wrought / handmade | | 1 | | | | |
| 10 | 15 | 4B-267 | PERSONAL | Tobacco | Pipe | Bowl fragment | Molded ribs on bowl | Stoneware | 1 | | | | |
| 15 | 20 | 4B-267 | ARCHITECTURE | Flat Glass | Window glass | 2.03 | | | 1 | | | 1884 | 1884 |
| 15 | 20 | 4B-267 | DOMESTIC | Undiag. Container Frag. | Clear glass | | | | 1 | | Body | 1864 | |
| 15 | 20 | 4B-267 | FLORAL and FAUNAL | Faunal Remains | Bone / teeth | | | | 1 | 0.1 | | | |
| 15 | 20 | 4B-267 | UNIDENTIFIED | Biological material | Leather | | | | 1 | 3.9 | | | |
| 0 | 5 | 4B-268 | ARCHITECTURE | Flat Glass | Plate glass | | | | 1 | | | 1917 | 1917 |
| 0 | 5 | 4B-268 | ARCHITECTURE | Flat Glass | Window glass | 2.23 | | | 1 | | | 1901 | 1901 |
| 0 | 5 | 4B-268 | ARCHITECTURE | Flat Glass | Window glass | 1.55 | | | 1 | | | 1843 | 1843 |
| 0 | 5 | 4B-268 | ARCHITECTURE | Flat Glass | Plate glass | | | | 1 | | | 1917 | 1917 |
| 0 | 5 | 4B-268 | ARCHITECTURE | Flat Glass | Window glass | 1.74 | | | 1 | | | 1859 | 1859 |
| 0 | 5 | 4B-268 | FLORAL and FAUNAL | Faunal Remains | Unidentified Shell | | | | 2 | 1 | | | |
| 5 | 10 | 4B-268 | ARCHITECTURE | Flat Glass | Window glass | 2.01 | | | 1 | | | 1882 | 1882 |
| 5 | 10 | 4B-268 | ARCHITECTURE | Flat Glass | Plate glass | | | | 1 | | | 1917 | 1917 |
| 5 | 10 | 4B-268 | ARCHITECTURE | Flat Glass | Plate glass | | | | 1 | | | 1917 | 1917 |
| 5 | 10 | 4B-268 | DOMESTIC | ABM | Clear glass | | | ABM | 4 | | Body | 1903 | |
| 5 | 10 | 4B-268 | DOMESTIC | Ceramics | Whiteware | Plain | | | 1 | | Base | 1830 | |
| 5 | 10 | 4B-268 | UNIDENTIFIED | Glass | Amorphous | | | | 5 | 4.6 | | | |
| 10 | 15 | 4B-268 | DOMESTIC | ABM | Amber glass | | | ABM | 2 | | Body | 1903 | |

| Upper | Lower | Provenance | Group | Class | Type | Attribute 1 | Attribute 2 | Attribute 3 | Quantity | Weight g) | Vessel Part | Min. Date | Max. Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10 | 15 | 4B-268 | DOMESTIC | Ceramics | Stoneware | Albany slip ext | | | 1 | | Body | 1830 | |
| 10 | 15 | 4B-268 | MAIN. and SUBS. | Fuels | Cinder / slag | | | | 2 | 18.9 | | | |
| 10 | 15 | 4B-268 | UNIDENTIFIED | Glass | Amorphous | | | | 4 | 3.1 | | | |
| 10 | 15 | 4B-268 | UNIDENTIFIED | Metal | Unidentified white metal | Flat, thin | | | 1 | 1 | | | |
| 15 | 20 | 4B-268 | ARCHITECTURE | Nails | Cut nail | Fragment | | | 1 | | | 1800 | 1880 |
| 15 | 20 | 4B-268 | MAIN. and SUBS. | Fuels | Cinder / slag | | | | 3 | 14.1 | | | |
| 15 | 20 | 4B-268 | MAIN. and SUBS. | General Hardware | Other | | Synthetic material | | 1 | | | | |
| 15 | 20 | 4B-268 | UNIDENTIFIED | Glass | Amorphous | | | | 2 | 8.1 | | | |

The potential of buried prehistoric deposits is low in 4B-266 based on the lack of fine-grained Holocene overbank deposits in this part of the project area (Stafford and Creasman 2002). Based on the presence of fine-grained overbank sediments deriving from low-energy depositional events (including both silty clay loams and silty clay), the area around bore holes 4B-260, 4B-267, and 4B-268 have the potential to contain prehistoric deposits (i.e., Stafford and Creasman 2002). For this reason, some trenching, including deep trenching, should be attempted in this area in order to identify the presence of any possible historic and prehistoric deposits.

## Locality 15

Bore holes in Locality 15 included 4B-248, 4B-249, 4B-250, and 4B-270 (see Figure 1.3). No vegetation was present in this area. Bore 4B-249 was situated in the middle of a two-way road on a small earthen island. This area was covered mostly by low-lying grasses with one or two small ornamental trees. Bore holes 4B-248 and 4B-270 were located between River Road and a multi-story parking garage (Figure 6.28). The vegetation in this area consisted of low-lying grasses with a few small trees spaced evenly down the ROW length. Parts of Locality 15 are located under the Interstate 64 overpass as well as immediately to its north and south.

**Figure 6.28. Overview of vegetation and topography in Locality 15, looking west.**

## Cultural Context and Historic Map Data

According to the 1892 (Figure 6.29) and 1905 Sanborn maps, each of the bore holes were located on the northern edge of downtown where a large railroad depot was operating. The bore holes were located north of the depot in an area where numerous rail lines converged. A larger set of rail lines also converged to the south of the depot. On the 1892 Sanborn map, the areas to the south of the depot were heavily involved with business and commerces, including box manufacturers, syrup and molasses producers, liquor sellers, and numerous warehouses. These warehouses stored various liquors, iron, bottles, grains, machines, and coal. Residential houselots do not appear to be present in this area at the turn of the 1900s.

## Depositional Context and Artifacts

The soil profile for 4B-249 did not produce strong evidence for the presence of cultural deposits. The first 1.5 m (5 ft) of the vertical profile did have a 10YR 4/1 dark gray sandy loam soil containing a few small brick fragments and a single piece of machine made bottle glass. From 1.5–9.1 m (5 ft–30 ft) bgs the soils were all 10YR 6/1 sands that were part of the C horizon. These sands were culturally sterile.

Bore holes 4B-250, 4B-248, and 4B-270 each had cultural deposits in their soil profiles. Bore hole 4B-250, which was located at the northeast corner of where the old railroad depot used to stand, appears to have had an A horizon from about .15–4.5 m (.5–15 ft) bgs. The A horizon soil was a 10YR 3/1 very dark gray loamy sand that contained a moderate density of historic debris. Most of the artifacts were related to domestic activities, which mainly consisted mainly of ceramics but also a few fragments of machine made bottle glass (Table 6.5).

**Figure 6.29. The 1892 Sanborn map of Louisville showing the locations of bore holes in Locality 15.**

The ceramics included examples of semi-porcelain and porcelain sherds and one example of whiteware. Lots of wire and coal were also present (maintenance and subsistence material) as were a few architecture related artifacts like flat glass and cut nails. Based on manufacturing dates the historic assemblage most likely represents a pre-1900 occupation which is supported by the flat glass thickness dates that tend to cluster around the mid- to late 1900s. Also of interest, the deepest section of the profile, about 4.5–6.0 m (15–20 ft) bgs which was part of the underlying B horizon, had the oldest date ranges for artifacts from the bore hole (which were mostly domestic related artifacts). This line of evidence may be an indicator that intact deposits are present in this area of the project footprint and represent residential houselots. No evidence of a C horizon was noted in the first 9.1 m (30 ft) of this bore hole.

Bore hole 4B-248 was located at the northwest corner of where the old railroad depot used to stand. A distinctive A horizon was noted from about 1.5–4.5 m (5 ft–15 ft) bgs. This horizon was mainly a 10YR 3/2 very dark grayish brown sandy loam containing a moderate amount of historic debris. Artifacts consisted mostly of domestic related material including ironstone, whiteware, a multi-colored sponge-spattered whiteware sherd, and blow-in-mold bottle glass (Table 6.6).

**Table 6.5. Historic Assemblage for bore hole 4B-250.**

| Provenience | Upper | Lower | Group | Class | Type | Attribute 1 | N | Weight | Vessel part | MinDate | MaxDate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 4B-250 | 0 | 5 | MAINT. and SUB. | General Hardware | Wire: smooth | Iron / steel | 10 | | | | |
| 4B-250 | 0 | 5 | DOMESTIC | Ceramics | Semi-Porcelain | Plain | 1 | | Body | 1880 | |
| 4B-250 | 0 | 5 | ARCHITECTURE | Flat Glass | Window glass | 1.96 | 1 | | | 1878 | 1878 |
| 4B-250 | 0 | 5 | ARCHITECTURE | Flat Glass | Plate glass | | 1 | | | 1917 | 1917 |
| 4B-250 | 0 | 5 | DOMESTIC | Ceramics | Porcelain | Plain | 1 | | Body | | |
| 4B-250 | 0 | 5 | DOMESTIC | ABM | Clear glass | | 1 | | Body | 1903 | |
| 4B-250 | 5 | 10 | MAINT. and SUB. | Fuels | Coal | | 4 | 1.3 | | | |
| 4B-250 | 5 | 10 | UNIDENTIFIED | Metal | Unidentified | Item/Part | 1 | 3.7 | | | |
| 4B-250 | 5 | 10 | ARCHITECTURE | Flat Glass | Window glass | 1.86 | 1 | | | 1869 | 1869 |
| 4B-250 | 5 | 10 | ARCHITECTURE | Flat Glass | Window glass | 1.93 | 1 | | | 1875 | 1875 |
| 4B-250 | 5 | 10 | FLORAL and FAUNAL | Faunal Remains | Bone / teeth | | 1 | 0.2 | | | |
| 4B-250 | 5 | 10 | DOMESTIC | Glass Tableware | Press mold | Clear | 1 | | Body | 1864 | |
| 4B-250 | 5 | 10 | DOMESTIC | ABM | Clear glass | | 2 | | Body | 1903 | |
| 4B-250 | 5 | 10 | DOMESTIC | ABM | Olive green glass | | 4 | | Body | 1903 | |
| 4B-250 | 10 | 15 | DOMESTIC | Ceramics | Semi-Porcelain | Plain | 1 | | Rim | 1880 | |
| 4B-250 | 10 | 15 | ARCHITECTURE | Flat Glass | Window glass | 1.38 | 1 | | | 1829 | 1829 |
| 4B-250 | 10 | 15 | MAINT. and SUB. | General Hardware | Wire: smooth | Iron / steel | 1 | | | | |
| 4B-250 | 10 | 15 | DOMESTIC | Ceramics | Ironstone | Transfer print | 1 | | Body | 1840 | 1860 |
| 4B-250 | 10 | 15 | ARCHITECTURE | Nails | Cut nail | Fragment | 1 | | | 1830 | 1880 |
| 4B-250 | 10 | 15 | DOMESTIC | ABM | Olive green glass | | 1 | | Body | 1903 | |
| 4B-250 | 15 | 20 | DOMESTIC | Ceramics | Semi-Porcelain | Plain | 1 | | Body | 1880 | |
| 4B-250 | 15 | 20 | ARCHITECTURE | Flat Glass | Window glass | 1.15 | 1 | | | 1810 | 1810 |
| 4B-250 | 15 | 20 | ARCHITECTURE | Flat Glass | Window glass | 1.29 | 1 | | | 1821 | 1821 |
| 4B-250 | 15 | 20 | ARCHITECTURE | Flat Glass | Window glass | 1.69 | 1 | | | 1855 | 1855 |
| 4B-250 | 15 | 20 | DOMESTIC | Ceramics | Whiteware | Slip decorated | 1 | | Body | 1830 | |
| 4B-250 | 15 | 20 | DOMESTIC | ABM | Clear glass | | 2 | | Body | 1903 | |
| 4B-250 | 15 | 20 | DOMESTIC | ABM | Olive green glass | | 2 | | Body | 1903 | |

**Table 6.6. Historic Assemblage for bore hole 4B-248.**

| Provenience | Upper | Lower | Group | Class | Type | Attribute 1 | N | Weight | Vessel code | Vessel part | Minimum Date | Maximum Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4B-248 | 0 | 8 | ARCHITECTURE | Flat Glass | Window glass | 1.84 | 1 | | | | 1868 | 1868 |
| 4B-248 | 0 | 8 | UNIDENTIFIED | Biological mat. | Leather | | 1 | 0.3 | | | | |
| 4B-248 | 0 | 8 | ARCHITECTURE | Flat Glass | Window glass | 2.43 | 1 | | | | 1917 | 1917 |
| 4B-248 | 0 | 8 | DOMESTIC | ABM | Clear glass | | 1 | | | Body | 1903 | |
| 4B-248 | 0 | 8 | DOMESTIC | ABM | Aqua glass | | 1 | | | Body | 1903 | |
| 4B-248 | 0 | 8 | ARCHITECTURE | Const. Mat. | Brick | Non-vitrified brick | 1 | 581.2 | | | | |
| 4B-248 | 0 | 8 | ARCHITECTURE | Const. Mat. | Brick | Non-vitrified brick | 1 | 596.7 | | | | |
| 4B-248 | 10 | 15 | UNIDENTIFIED | Metal | Iron/ steel | Amorphous | 3 | 2.5 | | | | |
| 4B-248 | 10 | 15 | ARCHITECTURE | Flat Glass | Window glass | 1.69 | 1 | | | | 1855 | 1855 |
| 4B-248 | 10 | 15 | ARCHITECTURE | Flat Glass | Window glass | 1.65 | 1 | | | | 1852 | 1852 |
| 4B-248 | 10 | 15 | DOMESTIC | Ceramics | Ironstone | Plain | 2 | | | Body | 1840 | |
| 4B-248 | 10 | 15 | DOMESTIC | BIM | Aqua glass | | 1 | | | Body | | |
| 4B-248 | 10 | 15 | DOMESTIC | Ceramics | Whiteware | Plain | 1 | | | Body | 1830 | |
| 4B-248 | 10 | 15 | DOMESTIC | Ceramics | Whiteware | Spattered / sponged | 1 | | Cup | Rim | 1830 | 1870 |
| 4B-248 | 15 | 20 | UNIDENTIFIED | Metal | Iron/ steel | Amorphous | 2 | 1.4 | | | | |
| 4B-248 | 15 | 20 | ARCHITECTURE | Flat Glass | Window glass | 1.78 | 1 | | | | 1863 | 1863 |
| 4B-248 | 15 | 20 | ARCHITECTURE | Flat Glass | Window glass | 1.44 | 1 | | | | 1834 | 1834 |
| 4B-248 | 15 | 20 | DOMESTIC | BIM | Aqua glass | | 1 | | | Body | | |

Also present was a few pieces of flat glass. These artifacts together produce a relatively tight mid-1800s occupation date for the A horizon at this bore and would, as a result, pre-date the Sanborn maps cited above. Above the A horizon was about 1.5 m (5 ft) of fill deposits consisting of mottled soils ranging from 10YR 4/3 brown/dark brown to 10YR 3/2 very dark grayish brown. These fill deposits were all sandy loams. The artifacts within the fill appear to be more recent and slightly more varied supporting the interpretation that these soils are fill and probably not primary deposits.

Below the A horizon from about 4.5–9.1 m (15 ft–25 or 30 ft) bgs was the B horizon which had 10YR 4/1 dark gray silty clay or silty clay loam soils. Some historic material was recovered from this horizon but most of these artifacts probably represent drag from the auger. The artifacts from the B horizon were mostly small brick fragments but a few pieces of flat glass and metal were also present. Of greater interest than the historic artifacts from this horizon were three prehistoric chert flakes. These flakes, which were recovered between 6.0 and 7.3 m (20 and 24 ft) bgs, represent the only prehistoric material recovered during the monitoring program in good stratigraphic context.

The soil profile and artifact type are slightly different in bore hole 4B-270 when compared to the previously discussed bore hole. Hole 4B-270 has a possible A horizon ranging from 1.5–4.5 m (5–15 ft) bgs, but few artifacts could be confidently assigned to this horizon, with the exception of numerous small brick fragments. These brick fragments were likely dragged down from higher up in the profile which consisted entirely of fill deposits. The fill consisted of mottled soils ranging from 10YR 3/3 dark brown sandy loam to 10YR 3/2 very dark grayish brown sandy loams. Historic artifacts were plentiful and included mostly architectural debris, but also some domestic material, but also one chert fragment that was smaller than .25 inch. The architectural artifacts were mostly flat glass and nails (besides the brick already mentioned above), while the few domestic artifacts were whiteware, ironstone, blown-in-mold bottle glass, and machine made bottle glass. Dates from the 17 pieces of flat glass based on thickness values were varied, ranging from 1819 to 1917. Given the wide range of dates for the flat glass and the large amount of architectural debris, it is likely the fill consisted of soils brought into the area from other parts of Louisville in order to level off low areas. No evidence of a C horizon was noted in the first 9.1 m (30 ft) of this bore.

### Features

No features were observed in Locality 15; however, the presence of buried features in or near 4B-248 and 4B-250 are still a possibility.

### Assessment

Judging from the cumulative data presented above, 4B-249 and 4B-270 are considered to have low potential since no evidence of intact historic deposits was present. Although a large number of artifacts were recovered from 4B-270 the majority of these were associated with fill deposits, not primary deposits. For this reason, these two bores are considered to have low priority. Bore holes 4B-248 and 4B-250, on the other hand, have a high potential to produce intact historic deposits and, in the case with 4B-248, prehistoric deposits. Based on the historic material recovered from the A horizon in 4B-248, the deposits pre-date the Sanborn maps and indicate that the area was residential before various industries took over. While the prehistoric material consisted of just a few flakes, further work should be directed towards the B horizon in order to better define the prehistoric context of the area (e.g., chronology).

Based on the presence of fine-grained overbank sediments deriving from low-energy depositional events (including both silty clay loams and silty clays), the area around these bore holes, except for 4B-249, have the potential to contain prehistoric deposits (i.e., Stafford and Creasman 2002). The landform that 4B-348 on which was located has produced prehistoric sites in other parts of Jefferson County, including 15Jf620, the Railway Museum (15Jf630), and Falls Harbor (15Jf597 and 15Jf598). For this reason, some trenching, including deep trenching, should be attempted in this area in order to identify the presence of any possible historic and prehistoric deposits.

# Phase 5 Bore Hole Monitoring

Twelve bore holes were monitored during the Phase 5 portion of the project. Phase 5 locations were restricted to median areas produced by the overlapping of Interstates 65, 71, and 64 just north and slightly east of downtown Louisville. Included in this area was a concentration of bore holes in and around the horse barn. As noted in Table 6.1, Phase 5 monitoring included 12 bore holes grouped into two localities which were designated Localities 16 and 17. One Phase 5 bore hole, 5B-296, has already been mentioned among the Phase 3 discussions and for this reason will not be discussed further in this section.

## Locality 16

Bore holes in Locality 16 consisted of 5B-298, 5B-304, 5B-305, 5B-291, 5B-292, 5B-294, 5B-324, and 5B-325 (see Figure 1.3). Bore holes 5B-298, 5B-304, and 5B-305 were located within the property of a concrete mixing plant located across from the horse barn (near substation 374+00). The original reason for choosing these bore holes was because of their close location to the old channel which has since been diverted. Such areas were considered to have a high potential for prehistoric deposits. No vegetation was noted in this area. The concrete plant, which was entirely located within the ROW, measured about 91 m (300 ft) north to south and 137 m (450 ft) east to west (Figure 6.30).

**Figure 6.30. Overview of bore holes in Locality 16 at the concrete plant, looking northeast.**

Bore holes 5B-291, 5B-292, and 5B-294 were located in and around the horse barn (near substation 375+00). Bore 5B-291 was located at the southwest corner of the barn, while 5B-292 was on the west side, and 5B-294 was located on the north side (Figure 6.31). Other than the horse barn, the area generally consisted of low-lying grass interspersed with a few trees. Numerous trees were also growing along a chain linked fence behind the barn.

Bore holes 5B-324 and 5B-325 were located in Spaghetti Junction where Interstates 64, 71, and 65 overlap each other (near substation 370+00). These bore holes were placed in variously sized green patches between the interstates. Vegetation consisted of low-lying grasses and, in some cases, small trees.

## *Cultural Context and Historic Map Data*

In this area of the project footprint several of the roads have been realigned or discontinued since the production of the 1892 and 1905 Sanborn maps. Having said this, however, it is still possible to roughly plot the bore holes on these maps in order to get a general idea of past activities in this locality. The 1905 Sanborn map indicates bore holes 5B-298, 5B- 304, and 5B-305 were located in vacant lots, although the Jeffersonville and Louisville Railroad line did run through the locality from northeast to southwest (Figure 6.32).

Figure 6.31. Overview of bore hole 5B-294 north of the horse barn in Locality 16.

On the 1905 Sanborn map, bore holes 5B-291, 5B-292, 5B-294, 5B-324, and 5B-325 were located in residential zones. Locality 10 was located just to the east of these and appears to be in a section of Louisville that was heavily involved with the lumber industry (see Locality 10 discussions).

## *Depositional Context and Artifacts*

As a general observation, the depositional context of 5B-298, 5B-304, and 5B-305 are entirely disturbed by the construction of the concrete plant. Bore hole 5B-298 produced few artifacts and no strong evidence of intact cultural deposits. Artifacts were mostly machine made bottle glass and flat glass. Soils ranged from 10YR 4/1 dark gray silt loam to 10YR 5/4 yellowish brown sandy clay loam and probably represents fill used to level off the area for construction.

Bore holes 5B-304 and 5B-305 are similar in that the old channel of Beargrass Creek was plainly evident from about 4.5–9.1 m (15 ft–30 ft) bgs. Soils associated with Beargrass Creek were identified as a 10YR 3/2 very dark grayish brown sandy loam or sand containing a large amount of gravels. These soils were culturally sterile. Above the creek bed, fill deposits that were used to in-fill the old channel were present and probably used in order to level-off the entire area for later construction. The fill deposits consisted of layers of soils alternating between 10YR 6/1 gray, 10YR 8/1 white, and 10YR 3/2 very dark grayish brown. Soil texture and some colors could not be recorded. While artifacts were present within the fill, they consisted of secondary deposits brought from elsewhere. Artifacts included a large percentage of unidentified metal and maintenance and subsistence material like wire, hardware, and cans. A few domestic and architecture related artifacts were present as well. Most of artifacts date to the early 1900s.

**Figure 6.32. The 1905 Sanborn map of Louisville showing the locations of bore holes in Locality 16.**

Bore holes 5B-291 and 5B-292 near the horse barn were culturally sterile C horizon sands from just below ground surface to at least 9.1 m (30 ft) bgs. These sands were generally 10YR 7/1 light gray colored and fine-sized. These soils were culturally sterile. The other bore hole near the horse, 5B-294, produced an entirely different soil profile. From just below the ground surface to about 3.0 m (10 ft) bgs was a probable A horizon containing a moderate density of historic material. Drilling stopped at 3.0 m (10 ft) bgs because of the potential hazard signaled by a fuel smell emanating from the auger hole. This smell was not present in the first 3.0 m (10 ft) of augering. The majority of the historic material in the first 3.0 m (10 ft) was comprised mostly of small brick fragments which numbered slightly more than 200 pieces. Other than brick, a small number of domestic and architectural artifacts were also recovered, including two pieces of flat glass, fragments of machine made bottle glass, and unidentified glass. Shell fragments were also present. As a whole, the artifacts appear to date to the early 1900s.

Bore hole 5B-324 was culturally sterile. The entire soil profile consisted of clean fill which may indicate any intact deposits may have been stripped off during the construction of the interstate system. These fill zones ranged from 10YR 5/3 silty clay loam to 10YR 4/1 dark gray mottled with 10YR 5/3 brown/dark brown. Bore hole 5B-325, on the other hand, did produce cultural material from about 1.5–4.5 m (5–15 ft) bgs. This buried A horizon was a 10YR 3/2 very dark grayish brown silty clay loam containing a moderate amount of small brick fragments and a low density of domestic and maintenance and subsistence artifacts. The former consisted of single examples of porcelain and ironstone, BIM bottle fragment and 12 pieces of machine made bottle glass. The latter included a clay flower pot, a vehicle part, coal and cinder, a wire nail, and a can fragment. Part of two toothbrushes and five pieces unidentified glass were also recovered. Above the A horizon was 10YR 4/4 silty clay loam fill that was culturally sterile. Monitoring ceased with the A horizon due to the potential hazard associated with the fuel smell emanating from the auger hole.

## Features

No features were observed in Locality 16 during monitoring. The presence of intact buried features is not likely in and around bore holes 5B-298, 5B-304, and 5B305 due to disturbances from the construction of the currently operating concrete plant. Likewise, cultural features are not expected in or around 5B-291, 5B-292, or 5B-324 due to mostly C horizon sands which tend not to have cultural deposits. Bore 5B-325 has cultural deposits and perhaps intact features but the presence of buried fuels in this area is a probable health risk and for this reason should not be further investigated. Bore 5B-294 did have cultural deposits, and it is possible that features are present from ground surface to about 10 ft bgs.

## Assessment

Areas with a low potential to produce intact historic deposits consist of 5B-298, 5B-304, 5B-305, 5B-291, 5B-292, 5B-324, and 5B-325 and should not be investigated further because of the lack of intact deposits or the presence of hazardous material (fuels, etc.). A high potential area was identified in and around 5B-294 that was located north of the horse barn. This area has the potential to produce intact deposits belonging to residential zones dating to the early 1900s. The potential of buried prehistoric deposits is low in Locality 16 except for 5B-294 based on the lack of fine-grained Holocene overbank deposits in this part of the project area (Stafford and Creasman 2002). Much of the area has also been heavily impacted by modern construction which may have disturbed any existing prehistoric deposits. I would recommend a few trenches in the concrete plant area near bore hole 5B-298 and to the north of the horse barn (5B-294) to verify that intact prehistoric deposits are not present. These areas appear to have been disturbed the least in this locality.

## Locality 17

Bore holes in Locality 17 included 5B-319, 5B-326, and 5B-328 (see Figure 1.3). These bore holes were located within spaghetti junction. Bore 5B-319 and 5B-326 were located just south of River Road and east of Interstate 65 (near substation 223+00), and bore 5B-328 was located just west of Interstate 65 and north of Witherspoon Street (near substation 214+00). Bore 5B-326 was located in a very narrow area measuring no more than 3 m (9.8 ft) in maximum width. Vegetation in this area was low lying grass except for numerous small trees growing on the earthen embankment that supports Interstate 71 (Figure 6.33). Both 5B-319 and 5B-328 were located in green areas between interstates and generally consisted of low lying grass.

### *Cultural Context and Historic Map Data*

In this area of the project footprint, nearly all of the pre-existing roads were destroyed when the interstate system was built. For this reason it was very difficult to superimpose the bore hole locations onto the 1892 and 1905 Sanborn maps. Having said this, however, it is still possible to roughly plot the bore holes on these maps in order to get a general idea of past activities in this locality. The 1905 Sanborn map (Figure 6.34) indicates bore holes 5B-326 was located either in the northeast corner of the 600 block of Fulton or the northwest corner of the 700 block of Fulton.

**Figure 6.33. Overview of Locality 17 looking north from bore hole 5B-326.**

The northeast corner was occupied by a saloon and a vacant lot to its east (620 and 622 Fulton), while the northwest corner was occupied by either a vacant lot or a dwelling. Bore 5B-319 and 5B-328 were located in vacant lots. The latter bore hole is not included on the map but is located about 200 ft west of Hancock Street and 300 ft south of Fulton. The former on the 600 block of Fulton and the latter was probably on the 500 block of Brady. Both of these locations in 1905 were a mix of residential structures and industry, including the aforementioned Ewald Iron Company and the Louisville Gas Company.

## Depositional Context and Artifacts

The soil profile for 5B-326 produced strong evidence for the presence of cultural deposits from just below ground surface to about 6.0 m (20 ft) bgs. This A horizon consisted of 10YR 3/2 or 10YR 4/3 sandy clay loam. Approximately 150 small brick fragments were recovered but not saved from the A horizon. Other than bricks, the majority of the artifacts that were identified related to domestic functions and included mostly blown-in-mold bottle glass and a few examples of ceramics (Table 6.7).

The ceramics included plain whiteware, brown glazed whiteware, and a stoneware sherd with a salt glazed exterior and a Albany slipped interior. A few architectural related artifacts were also present and included mostly flat glass. There is no apparent difference within the artifact assemblage to indicate chronology change over time. The majority of the artifacts date to the end of the 1800s or to the beginning of the 1900s. The C horizon was located below the A horizon and consisted of 10YR 4/1 sands. These soils were very wet and culturally sterile. The C horizon extended from about 6.0–9.1 m (20–30 ft) bgs.

Bore hole 5B-319 had an A horizon that extended from ground surface to about 3.0 m (10 ft) bgs. This horizon was a 10YR 3/2 very dark grayish brown sandy loam that contained a moderate density of historic material. Most of the artifacts were small brick fragments. Of the 92 non-brick artifacts, roughly two-thirds were domestic related and largely consisted of ceramics (Table 6.8). The ceramics included mostly plain whiteware, but also some stoneware, ironstone, and blue transfer print whiteware. The remaining artifacts were flat glass, faunal, metal, and coal/cinder. Although some of the artifacts date to the mid-1800s, it appears that the majority relates to the end of the 1800s or the beginning of the 1900s. Below the A horizon the soils were not identified but were likely sands. These soils were culturally sterile.

Bore hole 5B-328 had an intact A horizon located from 3.0–6.0 m (10–20 ft) bgs. This horizon had a 10YR 3/2 dark grayish brown silty clay loam soil containing a low density of historic artifacts. Artifacts consisted of 16 pieces of amorphous glass, one wire nail, three unidentified nails, and coal/cinder. Above the A horizon was the probable fill brought in during the construction of the interstates. These soils were 10YR 5/4 yellowish brown or 10YR 4/3 brown/dark brown sandy loam. The fill was culturally sterile. A possible B horizon that extended to a depth of at least 9.1 m (30 ft) bgs was located below the A Horizon. These soils were culturally sterile as well. Soils from this horizon were 7.5YR 3/0 very dark gray and contained about 20 percent gravels.

## Features

No features were observed in Locality 17. The presence of buried features in or near 5B-326, 5B-319, and 5B-328 are still a possibility based on the artifacts recovered and the Sanborn maps.

## Assessment

Judging from the cumulative data presented above, 5B-326, 5B-319, and 5B-328 are considered to have high a potential for the presence of intact historical deposits. Based on the presence of fine-grained overbank sediments deriving from low-energy depositional events (including both silty clay loams and silty clays), the area around these bore holes have the potential to contain prehistoric deposits (i.e., Stafford and Creasman 2002). For this reason, some trenching, including deep trenching, should be attempted in these areas in order to identify the presence of any possible historic and prehistoric deposits.

**Figure 6.34. The 1905 Sanborn map of Louisville showing the locations of bore holes in Locality 17.**

## Table 6.7. Historic assemblage from bore hole 5B-326.

| Upper | Lower | Provenience | Group | Class | Type | Attribute | N | Weight (g) | Vessel part | Minimum Date | Maximum Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 5 | 5B-326 | UNIDENTIFIED | Glass | Amorphous | | 2 | 1 | | | |
| 0 | 5 | 5B-326 | DOMESTIC | Ceramics | Whiteware | Chromatic glaze; Brown | 1 | | Body | 1930 | |
| 5 | 10 | 5B-326 | ARCHITECTURE | Flat Glass | Window glass | 2.35 | 1 | | | 1911 | 1911 |
| 10 | 15 | 5B-326 | DOMESTIC | Ceramics | Stoneware | Salt glaze ext; Albany slip int | 1 | | Base | 1830 | 1925 |
| 10 | 15 | 5B-326 | DOMESTIC | BIM | Clear glass | | 31 | | Body | 1864 | |
| 10 | 15 | 5B-326 | DOMESTIC | BIM | Light green glass | | 13 | | Body | | |
| 10 | 15 | 5B-326 | DOMESTIC | BIM | Amber glass | | 4 | | Body | 1860 | |
| 10 | 15 | 5B-326 | DOMESTIC | Container Closure | Home Canning Jars | Glass lid for lightning | 1 | | | 1877 | 1960 |
| 10 | 15 | 5B-326 | DOMESTIC | BIM | Olive green glass | | 1 | | Body | | |
| 10 | 15 | 5B-326 | DOMESTIC | BIM | Clear glass | Late applied, Prescription | 2 | | Lip | 1864 | 1920 |
| 10 | 15 | 5B-326 | DOMESTIC | BIM | Clear glass | Unidentified | 1 | | Lip | 1864 | |
| 10 | 15 | 5B-326 | DOMESTIC | BIM | Aqua glass | Late applied, Wine/brandy | 1 | | Lip | 1860 | 1920 |
| 10 | 15 | 5B-326 | ARCHITECTURE | Flat Glass | Plate glass | | 1 | | | 1917 | 1917 |
| 10 | 15 | 5B-326 | ARCHITECTURE | Flat Glass | Window glass | 2.18 | 1 | | | 1896 | 1896 |
| 10 | 15 | 5B-326 | ARCHITECTURE | Flat Glass | Plate glass | | 1 | | | 1917 | 1917 |
| 10 | 15 | 5B-326 | DOMESTIC | Ceramics | Stoneware | Bristol slip ext; Albany slip int | 1 | | Body | 1890 | 1925 |
| 10 | 15 | 5B-326 | ARCHITECTURE | Construction Mat. | Mortar | | 1 | 3.5 | | | |
| 15 | 20 | 5B-326 | DOMESTIC | BIM | Clear glass | | 9 | | Body | 1864 | |
| 15 | 20 | 5B-326 | DOMESTIC | BIM | Clear glass | Embossed | 1 | | Body | 1864 | |
| 15 | 20 | 5B-326 | DOMESTIC | BIM | Light green glass | | 3 | | Body | | |
| 15 | 20 | 5B-326 | ARCHITECTURE | Fitting/Hardware | Stoneware pipe | Ceramic | 1 | 19 | | | |
| 15 | 20 | 5B-326 | DOMESTIC | BIM | Light green glass | Embossed | 1 | | Body | 1856 | |
| 15 | 20 | 5B-326 | DOMESTIC | BIM | Light green glass | Late applied, Blob | 1 | | Lip | 1860 | |
| 15 | 20 | 5B-326 | DOMESTIC | BIM | Amber glass | | 2 | | Body | 1860 | |
| 15 | 20 | 5B-326 | DOMESTIC | BIM | Amber glass | Embossed | 1 | | Body | 1860 | |
| 15 | 20 | 5B-326 | UNIDENTIFIED | Metal | Iron/ steel | Flat, thin | 3 | 1.4 | | | |
| 15 | 20 | 5B-326 | ARCHITECTURE | Flat Glass | Plate glass | | 1 | | | 1917 | 1917 |
| 15 | 20 | 5B-326 | DOMESTIC | Ceramics | Whiteware | Plain | 1 | | Body | 1830 | |
| 15 | 20 | 5B-326 | ARCHITECTURE | Construction Mat. | Brick | Handmade brick; Vitrified | 1 | 10 | | | |
| Total | | | | | | | 89 | | | | |

**Table 6.8. Historic assemblage from bore hole 5B-319.**

| Upper Depth | Lower Depth | Provenience | Group | Class | Type | Attribute | N | Weight (g) | Vessel code | Vessel part | Minimum Date | Maximum Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 5 | 5B-319 | DOMESTIC | Ceramics | Whiteware | Plain | 1 | | | Body | 1830 | |
| 0 | 5 | 5B-319 | DOMESTIC | Ceramics | Whiteware | Plain | 1 | | | Footring | 1830 | |
| 0 | 5 | 5B-319 | DOMESTIC | Glass Tableware | Undiagnostic fragment | Clear | 2 | | | Body | 1864 | |
| 0 | 5 | 5B-319 | DOMESTIC | Ceramics | Whiteware | Transfer print | 2 | | | Body | 1828 | 1860 |
| 0 | 5 | 5B-319 | DOMESTIC | Ceramics | Whiteware | Transfer print | 1 | | | Rim | 1828 | 1860 |
| 0 | 5 | 5B-319 | DOMESTIC | Ceramics | Ironstone | Plain | 2 | | | Body | 1840 | |
| 0 | 5 | 5B-319 | ARCHITECTURE | Flat Glass | Window glass | 2.17 | 1 | | | | 1895 | 1895 |
| 0 | 5 | 5B-319 | ARCHITECTURE | Flat Glass | Plate glass | | 1 | | | | 1917 | 1917 |
| 0 | 5 | 5B-319 | PERSONAL | Toys and Games | Doll / doll part | Bisque porcelain- doll only | 1 | | | | 1860 | |
| 0 | 5 | 5B-319 | MAINTENANCE and SUB. | Transportation | Vehicle part | Other | 2 | | | | 1919 | |
| 0 | 5 | 5B-319 | UNIDENTIFIED | Glass | Amorphous | | 2 | 3.2 | | | | |
| 0 | 5 | 5B-319 | DOMESTIC | Ceramics | Stoneware | Albany slip ext and int | 1 | | | Body | 1830 | 1925 |
| 0 | 5 | 5B-319 | UNIDENTIFIED | Stone | Slate | | 1 | 0.9 | | | | |
| 0 | 5 | 5B-319 | FLORAL and FAUNAL | Faunal Remains | Unidentified Shell | | 1 | 0.2 | | | | |
| 0 | 5 | 5B-319 | DOMESTIC | ABM | Clear glass | | 2 | | | Body | 1903 | |
| 0 | 5 | 5B-319 | DOMESTIC | ABM | Olive green glass | | 3 | | | Body | 1903 | |
| 5 | 10 | 5B-319 | DOMESTIC | Ceramics | Whiteware | Plain | 10 | | | Body | 1830 | |
| 5 | 10 | 5B-319 | DOMESTIC | Ceramics | Whiteware | Plain | 2 | | | Rim | 1830 | |
| 5 | 10 | 5B-319 | DOMESTIC | Ceramics | Whiteware | Plain | 2 | | Saucer | Rim | 1830 | |
| 5 | 10 | 5B-319 | DOMESTIC | Ceramics | Whiteware | Plain | 3 | | | Footring | 1830 | |
| 5 | 10 | 5B-319 | DOMESTIC | Glass Tableware | Press mold | Clear | 1 | | Tumbler | Base | 1864 | |
| 5 | 10 | 5B-319 | DOMESTIC | Glass Tableware | Undiagnostic fragment | Clear | 1 | | | Rim | 1864 | |
| 5 | 10 | 5B-319 | ARCHITECTURE | Flat Glass | Plate glass | | 1 | | | | 1917 | 1917 |
| 5 | 10 | 5B-319 | ARCHITECTURE | Flat Glass | Window glass | 2.11 | 1 | | | | 1890 | 1890 |
| 5 | 10 | 5B-319 | ARCHITECTURE | Flat Glass | Window glass | 2.02 | 1 | | | | 1883 | 1883 |
| 5 | 10 | 5B-319 | DOMESTIC | Ceramics | Ironstone | Plain | 3 | | | Body | 1840 | |
| 5 | 10 | 5B-319 | MAINTENANCE and SUB. | Fuels | Cinder / slag | | 1 | 3.2 | | | | |
| 5 | 10 | 5B-319 | DOMESTIC | Ceramics | Whiteware | Plain | 1 | | Cup | Footring | 1830 | |
| 5 | 10 | 5B-319 | ARCHITECTURE | Flat Glass | Window glass | 2.29 | 1 | | | | 1906 | 1906 |
| 5 | 10 | 5B-319 | ARCHITECTURE | Flat Glass | Window glass | 2.12 | 1 | | | | 1891 | 1891 |
| 5 | 10 | 5B-319 | ARCHITECTURE | Flat Glass | Plate glass | | 1 | | | | 1917 | 1917 |
| 5 | 10 | 5B-319 | DOMESTIC | Ceramics | Whiteware | Blue Transfer print | 1 | | | Rim | 1820 | 1860 |
| 5 | 10 | 5B-319 | UNIDENTIFIED | Glass | Amorphous | | 3 | 10 | | | | |

| Upper Depth | Lower Depth | Provenience | Group | Class | Type | Attribute | N | Weight (g) | Vessel code | Vessel part | Minimum Date | Maximum Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | 10 | 5B-319 | FLORAL and FAUNAL | Faunal Remains | Bone / teeth | | 1 | 0.6 | | | | |
| 5 | 10 | 5B-319 | DOMESTIC | ABM | Clear glass | | 28 | | | Body | 1903 | |
| 5 | 10 | 5B-319 | DOMESTIC | ABM | Clear glass | Recessed panel | 1 | | Medicine | Body | 1903 | |
| 5 | 10 | 5B-319 | DOMESTIC | ABM | Opaque white glass | | 4 | | | Body | 1903 | |
| Total | | | | | | | 92 | | | | | |

# Chapter 7. Summary and Conclusion

Within the right-of-way (ROW), which totaled approximately 133 ha (329 acres), 57 geotechnic bore holes, grouped into 17 localities, were monitored. The soil characteristics and archaeological materials recovered from each bore hole were recorded, and the results were used to assess the potential of that area to produce intact historic and prehistoric deposits. Each of these bore holes was considered to be representative of subsurface deposits within the parcel in which it was located. Archaeological potential was defined as high or low depending on the amount of disturbance in the area as well as the amount and type of artifacts recovered.

As can be seen in Table 7.1, 34 bores holes were classified as low potential of finding intact historic or prehistoric archaeological deposits. Eleven bore holes exhibited a high potential to contain both intact historic and prehistoric archaeological deposits. In addition, 10 bore holes revealed areas with a high potential to contain just intact historic deposits, and two bore holes revealed areas with a high potential to contain only prehistoric deposits. Most of the historic deposits appear to relate either to the late 1800s or the early 1900s, although some earlier and later material was also recovered. Diagonistic artifacts were not recovered from the prehistoric deposits, so predicting dates for these deposits is not possible.

In most cases, areas were considered to have high potential for prehistoric deposits when a particular landform suggested the possibility for buried deposits rather than actual artifactual data. These determinations are based, in part, on the areas proximity to the Ohio River or the old channel of Beargrass Creek. These areas are presumed to have fine-grained deposits that tend to have a greater potential for buried prehistoric materials because of the low-energy depositional history of those landforms. The area that exhibited the best potential for prehistoric deposits was represented by bore hole 4B-248, which was located on a terrace of the Ohio River. Prehistoric sites in other parts of Jefferson County, 15Jf620, the Railway Museum (15Jf630), and Falls Harbor (15Jf597 and 15Jf598), are located on this same terrace. Areas coded as high potential for historic deposits are based on a combination of Sanborn maps, artifacts, and natural or cultural contexts.

As noted at the beginning of the report, the monitoring of the bore holes was only a first step in the identification of significant historic and prehistoric occupations located within the project footprint. Based on the results of the monitoring, it certainly appears such deposits are present and require further investigation. The data collected from the monitoring is currently being incorporated into the archaeological GIS program that is being established for the Louisville Metro area.

**Table 7.1. Assessments for each bore hole monitored.**

| Locality | Bore Hole | Evaluation of Historic Deposits | Evaluations of Prehistoric Deposits |
|---|---|---|---|
| 1 | 1B-17 | low potential | low potential |
| | 1W-28 | high potential | low potential |
| 2 | 1W-74 | high potential | low potential |
| | 1W-76 | high potential | low potential |
| 3 | 1B-25 | high potential | low potential |
| | 1W-27 | high potential | low potential |
| | 1B-32 | low potential | low potential |
| | 1W-77 | high potential | low potential |
| 4 | 1B-34 | low potential | low potential |
| 5 | 1B-52 | high potential | low potential |
| 6a | 2B-94 | low potential | low potential |
| | 2B-97 | low potential | low potential |
| | 2B-116 | low potential | low potential |
| 6b | 2B-123 | high potential | low potential |
| | 2B-125 | low potential | low potential |
| | 2W-146 | high potential | low potential |
| | 3W-206 | high potential | low potential |
| | 3W-208 | low potential | low potential |
| | 3W-209 | low potential | low potential |
| 7 | 2W-135 | low potential | low potential |
| | 2W-139 | low potential | low potential |
| 8 | 2W-151 | low potential | low potential |
| | 2W-159 | low potential | low potential |
| | 2W-160 | low potential | low potential |
| 9 | 2W-391 | low potential | low potential |
| | 2W-394 | low potential | low potential |
| | 2W-398 | low potential | low potential |
| 10 | 3R-383 | low potential | low potential |
| | 3R-384 | high potential | high potential |
| | 5B-296 | low potential | low potential |
| 11 | 3B-364 | low potential | low potential |
| 12 | 3B-173 | low potential | low potential |
| | 3B-177 | low potential | low potential |
| | 3B-181 | low potential | low potential |
| | 3B-183 | low potential | low potential |
| | 3B-197 | low potential | high potential |
| | 3B-386 | low potential | low potential |
| 13 | 3W-374 | low potential | low potential |
| 14 | 4B-260 | high potential | high potential |
| | 4B-266 | low potential | low potential |
| | 4B-267 | high potential | high potential |
| | 4B-268 | high potential | high potential |
| 15 | 4B-248 | high potential | high potential |
| | 4B-249 | low potential | low potential |
| | 4B-250 | high potential | high potential |
| | 4B-270 | low potential | low potential |
| 16 | 5B-291 | low potential | low potential |
| | 5B-292 | low potential | low potential |
| | 5B-294 | high potential | high potential |
| | 5B-298 | low potential | low potential |
| | 5B-304 | low potential | low potential |
| | 5B-305 | low potential | low potential |
| | 5B-324 | low potential | low potential |
| | 5B-325 | low potential | low potential |
| 17 | 5B-319 | high potential | high potential |
| | 5B-326 | high potential | high potential |
| | 5B-328 | high potential | high potential |

# References


Adovasio, James M., Joel D. Gunn, J. Donahue, and R. Stuckenrath

1977 Meadowcroft Rockshelter: Retrospect 1976. *Pennsylvania Archaeologist* 47(2–3):1–93.

1978 Meadowcroft Rockshelter, 1977: An Overview. *American Antiquity* 43(4):632–651.

Adovasio, James M., and W. C. Johnson

1981 Appearances of Cultigens in the Upper Ohio Valley: A View from Meadowcroft Rockshelter. *Pennsylvania Archaeologist* 51(1–2):63–80.

Adovasio, James M., David R. Pedler, John Donahue, and Robert Stuckenrath

1998 Two Decades of Debate on Meadowcroft Rockshelter. *North American Archaeologist* 19:317–341.

Ahler, Steven R.

1993 *Late Archaic Components at Modoc Rock Shelter, Randolph County, Illinois.* Illinois State Museum Reports of Investigations, No. 48. Springfield, Illinois.

Anderson, David G.

2001 Climate and Culture Change in Prehistoric and Early Historic Eastern North America. *Archaeology of Eastern North America* 29:143–186.

Anderson, O. K.

1959 *Climate of Kentucky*. Climatography of the United States No. 60:15.

Anslinger, C. Michael

1988 Bluegrass: A Middle-Late Archaic Site in Southwestern Indiana. Paper presented at the 60th Annual Meeting of the Midwest Archaeological Conference, Urbana, Illinois.

Baerreis, David A., Reid A. Bryson, and John E. Kutzbach

1976 Climate and Culture in the Western Great Lakes region. *Midcontinental Journal of Archaeology* 1:39–58.

Ball, Donald B.

1983 Approaches Toward the Dating of 19th Century Ohio Valley Flat Glass. *Proceedings of the First Annual Symposium on Ohio Valley Urban and Historic Archaeology* 1:129–137

Baugher-Perlin, Sherene

1982 Analyzing Glass Bottles for Chronology, Function, and Trade Networks. In *Archeology of Urban America: The Search for Pattern and Process*, edited by Roy Dickens, pp. 250-291. Academic Press, New York, New York.

Bellis, Mary

2005 Polystyrene and Styrofoam. Electronic document, http://inventors.about.com/library/inventors/blpolystyrene.htm#styrofoam, accessed January 6, 2006.

Bemrose, Geoffrey

1952 *Nineteenth Century English Pottery and Porcelain*. Pitman Publishing Corporation, New York, New York.

Berge, Dale L.

1980 *Simpson Springs Station Historical Archaeology in Western Utah 1974-1975*. Cultural Resource Series Number 6. Bureau of Land Management, Utah State Office. Salt Lake City, Utah.

Billington, Dora M.

1962 *The Technique of Pottery*. Hearthside Press Inc., New York, New York.

Blaszczyk, Regina L.

2000 *Imagining Consumers: Design and Innovation from Wedgwood to Corning.* Johns Hopkins University Press, Baltimore, Maryland.

Boger, Louise Ade

1971 *The Dictionary of World Pottery and Porcelain*. Charles Scribner and Sons. New York.

Bonnichsen, Robson, Dennis Stanford, and J. Fastook
1987 Environmental Change and Developmental History of Human Adaptive Patterns: The Paleo-Indian Case. In *North America and Adjacent Oceans during the Last Deglaciation*, edited by W. Ruddiman and H. E. Wright Jr., pp. 403–424. Geological Society of America, Boulder.

Bowen, William R.
1977 A Reevaluation of Late Archaic Subsistence and Settlement Patterns in the Western Tennessee Valley. *Tennessee Anthropologist*, 2(2):100-120.

Braun, E. Lucy
1950 *Deciduous Forest of Eastern North America*. Blakiston, Philadelphia.

Brooks, Carolyn
2001 Furniture Factories. In *Encyclopedia of Louisville*, ed. John E. Kleber, pp. 323-324. The University Press of University, Lexington.

Broster, John B., David P. Johnson, and Mark R. Norton
1991 The Johnson Site: A Dated Clovis-Cumberland Occupation in Tennessee. *Current Research in the Pleistocene* 8:8–10.

Broster, John B., and Mark R. Norton
1992 The Tennessee State Paleoindian Survey: Summary and Overview. Paper Presented at the 49th Annual Meeting of the Southeastern Archaeological Conference, Little Rock.

Brown, James A.
1977 Current Directions in Midwestern Archaeology. *Annual Review of Anthropology* 6:161–179.

Brown, James A. and Robert K. Vierra
1983 What Happened to the Middle Archaic?: Introduction to an Ecological Approach to Koster Site Archaeology. In *Archaic Hunters And Gatherers in the American Mid-West*, edited by James . L. Phillips and James. A. Brown, pp. 165-196. Academic Press, New York.

Broyles, Bettye J.
1971 *Second Preliminary Report: The St. Albans Site, Kanawha County, West Virginia, 1964–1968*. Report of Archeological Investigations No. 3. West Virginia Geological and Economic Survey, Morgantown.

Buckley, Francis
1934 Old English Glass. The Birmingham Glass Pinchers. *Glass* 11(May):187-188.

Byers, D. S.
1954 Bull Brook: A Fluted Point Site in Ipswich, Massachusetts. *American Antiquity* 19:343–351.

Caldwell, James
1958 *Trend and Tradition in the Prehistory of the Eastern United States*. Scientific Papers Vol. 11. Illinois State Museum, Springfield (Also published as Memoir No. 88. American Anthropological Association.)

Cameron, Elisabeth
1986 *Encyclopedia of Pottery and Porcelain, 1800-1960*. Facts on File Publications, New York, New York.

Cantin, Mark
1993 Comparative Analysis of Thebes and Kirk Lithic Traditions and Implications of Home Ranges. Ms. on file, Anthropology Laboratory, Indiana State University, Terre Haute.

Cantin, Mark and C. Michael Anslinger
1986 Jeffersonville Chert: A Problem in Provenience (Abstract). *Proceedings of the Indiana Academy of Science* 95:86. Indiana Academy of Science, Indianapolis.

Carmichael, David L.
1977 Preliminary Archaeological Survey of Illinois Uplands and Some Behavioral Considerations. *Midcontinental Journal of Archaeology* 2:219–251.

Chance, David H., and Jennifer V. Chance
1976 *Kanaka Village, Vancouver Barracks 1974*. Reports in Highway Archaeology No. 3. Office of Public Archaeology, University of Washington, Seattle, Washington.

Chapman, Jefferson
1975 *The Rose Island Site and the Bifurcate Tradition*. Publications in Anthropology No. 8. Tennessee Valley Authority, Chattanooga. Report of Investigations No. 14. Department of Anthropology, University of Tennessee, Knoxville.

1976 The Archaic Period in the Lower Little Tennessee River Valley: The Radiocarbon Dates. *Tennessee Anthropologist* (1):1-12.

1977 *Archaic Period Research in the Lower Little Tennessee River Valley - 1975: Icehouse Bottom, Harrison Branch, Thirty Acre Island, Calloway Island*. Publications in Anthropology No. 13, Tennessee Valley Authority. Report of Investigations No. 18, Department of Anthropology, University of Tennessee, Knoxville.

Chomko, Stephan and G. Crawford
1978 Plant Husbandry in Prehistoric Eastern North America: New Evidence for its Development. *American Antiquity* 43:405-408.

Clark, Hyla M.
1977 *The Tin Can Book*. New American Library, New York, New York.

Claassen, Cheryl
1992 Shell Mounds as Burial Mounds: A Revision of the Shell Mound Archaic. In *Current Archaeological Research in Kentucky*: Volume Two, edited by David Pollack and A. Gwynn Henderson, pp. 1-11. Kentucky Heritage Council, Frankfort.

Clay, R. Berle
1983 Pottery and Graveside Ritual in Kentucky Adena. *Midcontinental Journal of Archaeology* 8(1):109–126.

Coe, Joffery L.
1964 *The Formative Cultures of the Carolina Piedmont*. New Series Vol. 54, Part 5. Transactions of the American Philosophical Society, Philadelphia.

Coleman, Dorothy S., Elizabeth A. Coleman, and Evelyn J. Coleman
1968 *The Collector's Encyclopedia of Dolls*. Crown Publishers, New York, New York.

Collins, Michael B.
1979 The Longworth-Gick Site (15JF243). In *Excavations at Four Archaic Sites in the Lower Ohio Valley, Jefferson County, Kentucky*, Vol. II, edited by Michael B. Collins, pp. 471–589. Occasional Papers in Anthropology No. 1. Department of Anthropology, University of Kentucky, Lexington.

Collard, E.
1967 *Nineteenth-Century Pottery and Porcelain in Canada*. McGill University Press, Montreal, Canada.

Collins, James
1924 *The Story of Canned Foods*. E. P. Dutton and Company, New York, New York.

Cook, Thomas Genn
1976 *Koster: An Artifact Analysis of Two Archaic Phases in West-central Illinois*. Prehistoric Record No. 1, Koster Research Reports No. 3, Northwestern University Archaeological Program, Evanston, Illinois.

Cowan, C. Wesley, H. E. Jackson, K. Moore, A. Nickelhoff, and T. Smart
1981 The Cloudsplitter Rockshelter, Menifee County, Kentucky: A Preliminary Report. *Southeastern Archaeological Conference Bulletin* 24:60–75.

Croes, Dale R.
1989 Prehistoric Ethnicity on the Northwest Coast of North America: An Evaluation of Style in Basketry and Lithics. In *Journal of Anthropological Archeology* 8, 101-130 (1989). Academic Press, Inc.

Custer, Jay. F.

1987 Problems and Prospects in Northeastern Prehistoric Ceramic Studies, *North American Archaeologist* 8:2:97-124.

Davis, Leslie B.
1993 Paleo-Indian Archaeology in the High Plains and Rocky Mountains of Montana. In *From Kostenki to Clovis: Upper Paleolithic-Paleo-Indian Adaptations*, edited by O. Soffer and N. D. Praslov, pp. 263–278. Plenum, New York.

Delcourt, Hazel R.
1979 Late Quaternary Vegetational History of the Eastern Highland Rim and Adjacent Cumberland Plateau of Tennessee. *Ecological Monographs* 49(3):255–280.

Delcourt, Paul A., and Hazel R. Delcourt
1981 Vegetation Maps for Eastern North America: 40,000 BP to the Present. In *Geobotany II* edited by Robert C. Romans, pp. 123–165. Plenum Publishing, New York.

1982 Formap Project: Forest Mapping across Eastern North America for the Past 20,000 Years. Paper presented at the 39th Annual Meeting of the Southeastern Archaeological Conference, Memphis.

1987 *Long Term Forest Dynamics of the Temperate Zone: A Case Study of Late-Quaternary Forests in Eastern North America*. Springer-Verlag, New York.

1997 Report of Paleoecological Investigations, Cliff Palace Pond, Jackson County, Kentucky, in the Daniel Boone National Forest. Report submitted to U.S. Forest Service, Daniel Boone National Forest, Stanton Ranger District, Stanton, Kentucky.

Denker, Ellen and Bert Denker
1982 *The Warner Collector's Guide to North American Pottery and Porcelain*. Warner Books, New York, New York.

Dent, Richard J.
1981 Amerind Society and the Environment: Evidence from the Upper Delaware Valley. In *Anthropological Careers, Perspectives in Research, Employment, and Training*, edited by R. Landman et al., pp.74–85. Anthropological Society of Washington.

Dent, R. J., and B. Kaufman
1985 Aboriginal Subsistence and Site Ecology as Interpreted from Fine Scale Floral Remains. In *Shawnee-Minisink: A Stratified Paleoindian-Archaic Site in the Upper Delaware Valley of Pennsylvania*, edited by C. McNett, pp. 55–79. Academic, Orlando.

Denton, George H., and Wibjorn Karlen
1973 Holocene Climatic Variation: Their Pattern and Possible Cause. *Quaternary Research* 3:155–205.

DiBlasi, Phillip J.
1981 A New Assessment of the Archaeological Significance of the Ashworth Site (15BU236): A Study in the Dynamics of Archaeological Investigation in Cultural Resource Management. Unpublished Master's thesis, Department of Interdisciplinary Studies, University of Louisville, Louisville.

Dillehay, Thomas D.
1989 *Monte Verde, A Late Pleistocene Settlement in Chile: Paleoenvironment and Site Context*, Vol I. Smithsonian Institution Press, Washington, D.C.

1997 *Monte Verde, A Late Pleistocene Settlement in Chile: The Archaeological Context and Interpretation*, Vol. II. Smithsonian Institution Press, Washington, D.C.

Dincauze, Dena F.
1993 Fluted Points in the Eastern Forests. In *From Kostenki to Clovis: Upper Paleolithic-Paleo-Indian Adaptations*, edited by O. Soffer, and N. D. Praslov, pp. 279–292. Plenum, New York.

Dodd, A. E.

1964 *Dictionary of Ceramics*. Philosophical Library Inc., New York, New York.

Dragoo, Don W.
1976 Some Aspects of Eastern North American Prehistory: A Review 1975. *American Antiquity* 41:3–27.

1973 Wells Creek: An Early Man Site in Stewart County, Tennessee. *Archaeology of Eastern North America* 1:1–56.

Drooker, Penelope Ballard
1997 *The View from Madisonville*. Memoirs of the Museum of Anthropology No. 31. University of Michigan, .

Engelhardt, Donald W.
1960 A Comprehensive Study of Two Early Wisconsin Bogs in Indiana. *Proceedings of the Indiana Academy of Science* 69:110–118.

1965 A Late Glacial Postglacial Pollen Chronology for Indiana. *American Journal of Science* 263:410–415.

Essenpries, P. S.
1978 Fort Ancient Settlement: Differential Response at a Mississippian Late Woodland Interface. In *Mississippian Settlement Patterns*, edited by B. D. Smith, pp. 141–168. Academic, New York.

Fay, R. P., and Anette Nekola
1986 *Archaeological Investigations at Liberty Hall, Frankfort, Kentucky*. Kentucky Heritage Council, Frankfort, Kentucky.

Ferring C. Reid
1989 The Aubry Clovis Site: A Paleo-Indian Locality in the Upper Trinity River Basin, Texas. *Current Research in the Pleistocene* 6:9–11.

1992 Alluvial Pedology and Geoarchaeological Research. In *Soils in Archaeology: Landscape Evolution and Human Occupation*, edited by V. T. Halliday, pp. 1-40. Smithsonian Institution, Washington D.C.

Fitting, James E.
1973 The Riverton Culture: A Second Millennium Occupation in the Central Wabash Valley. *American Antiquity*: Reviews, edited by Fred Plog, pp. 386-369. Society for American Archaeology.

Fitting, James E., Jerry DeVisscher, and Edward J. Wahla
1966 *The Paleo-Indian Occupation of the Holcombe Beach*. Anthropological Papers No. 27. Museum of Anthropology, University of Michigan, Ann Arbor.

Fowler, Melvin L.
1959 *Summary Report of Modoc Rockshelter*. Reports of Investigations No. 8. Illinois State Museum, Springfield.

Fredlund, Glen G.
1989 *Holocene Vegetational History of the Gallipolis Locks and Dam Project Area, Mason County, West Virginia*. Contract Publication Series 89-01. Cultural Resource Analysts, Lexington, Kentucky.

Fritts, Harold C., G. Robert Lofgren, and Geoffrey A. Gordon
1979 Variation in Climate Since 1602 as Reconstructed from Tree-rings. *Quaternary Research* 12:18–46.

Funk, R. E.
1978 Post-Pleistocene Adaptations. In *Northeast*, edited by B. G. Trigger, pp. 16–27. Handbook of North American Indians, vol. 15, W. T. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

Gates, William C., Jr. and Dana E. Ormerod
1982 The East Liverpool Pottery District: Identification of Manufacturers and Marks. *Historical Archaeology* 16(1-2):1-358.

Gladfelter, Bruce G.
2001 *Archaeological Sediments in Humid Environments. In Sediments in Archaeological Context*, edited by J. K. Stein and W. R. Farrand, pp. 93-126.

The University of Utah Press, Salt Lake City.

Godden, Geoffrey A.
1963 *An Illustrated Encyclopedia of British Pottery and Porcelain*. Crown Publishers, New York, New York.

1965 *An Illustrated Encyclopedia of British Pottery and Porcelain*. Bonanza Books, New York, New York.

Gonzalez, Mark
2000 *Collecting Fiesta, Lu-Ray, and Other Colorware*. L-W Book Sales, Marion, Indiana.

Goodyear, Albert C.
1982 The Chronological Position of the Dalton Horizon in the Southeastern United States. *American Antiquity* 47:382–395.

Grabowski Jr., George, J.
2001 Mississippian System. In *The Geology of Kentucky – A Text to Accompany the Geologic Map of Kentucky*, edited by R. C. McDowell. USGS Professional Paper 1151-H. Electronic document, http://pubs.usgs.gov/prof/p1151h/index.html, accessed 25 September 2006.

Granger, Joseph E.
1986 The Late/Terminal Archaic Settlement Dilemma in the Falls of the Ohio River Region of Kentucky: An examination of Components, Phases and Clusters. Unpublished manuscript, in possession of the author.

1988 Late/Terminal Archaic Settlement in the Falls of the Ohio River Region of Kentucky: An Examination of Components, Phases and Clusters. In *Paleoindian and Archaic Research in Kentucky*, edited by C. D. Hockensmith, D. Pollack, and T. N. Sanders, pp. 153–204. Kentucky Heritage Council, Frankfort.

2001 Archaeology. In *The Encyclopedia of Louisville*, edited by John E. Kleber, pp. 40-42. The University of Press of Kentucky, Lexington.

Granger, Joseph E., Edgar E. Hardesty, and Anne T. Bader
1991 Guthrie Beach Archaeology: Archaic and Woodland Settlement Pattern Variability on Floodplain and Upland in Jefferson County, Kentucky. In. *Studies in Kentucky Archaeology*, edited by Charles Hockensmith, pp. 27-44, The Kentucky Heritage Council, Frankfort.

1992 *Phase III Data Recovery Archaeology at Habich Site (15JF550) and Associated Manifestations at Guthrie Beach, Jefferson County, Kentucky*, Volume I: The Excavations. Edited by P. J. Wilson. Report of Investigations 90-2. Archaeology Resources Consultant Services, Louisville.

Graybill, J. R.
1978 Early Indian Village Life in West Virginia. *Mountain State Geology* 36–37.

1979 A Preliminary Report on Recent Archeological Excavations in Mason County, West Virginia. *West Virginia Archeologist* 29:1–23.

1980 Marietta Works, Ohio, and the Eastern Periphery of Fort Ancient. *Pennsylvania Archaeologist* 50(1–2):51–60.

Grayson, Donald K.
1988 Perspectives on the Archaeology of the First Americans. In *Americans Before Columbus: Ice-Age Origins*, edited by R. Carlisle, pp. 107–123. Ethnographic Monograph 12, Department of Anthropology, University of Pittsburgh.

Green, Thomas J. and Cheryl A. Munson
1978 Mississippian settlement patterns in southwestern Indiana. In *Mississippian Settlement Patterns*, edited by Bruce Smith, pp. 293-330. Academic Press, New York.

Greene, Lance K.
1992 The Penfield is Mightier than the Sword: Machine Made Bricks in Knoxville and Knox Co. Tennessee. *Proceedings of the Tenth Annual*

*Symposium on Ohio Valley Urban and Historic Archaeology* 10:92–105.

Griffin, James B.
1943 Adena Village Site Pottery from Fayette County, Kentucky. In *The Riley Mound, Site Be 15, and the Landing Mound, Site Be 17, Boone County, Kentucky*, by William S. Webb, pp. 666–672. Reports in Anthropology Vol. V, No. 7. Department of Anthropology and Archaeology, University of Kentucky, Lexington.

1952 The Late Prehistoric Cultures of the Ohio Valley. *Ohio State Archaeological and Historical Quarterly* 61(2):186-195.

1961 Some Correlations of Climatic and Cultural Change in Eastern North American Prehistory. *Annals of the New York Academy of Sciences* 95:710–717.

1978 Late Prehistory of the Ohio Valley. In *Handbook of North American Indians: Northeast* (Vol. 15), edited by B.G. Trigger, pp. 547–559. Smithsonian Institution, Washington, D.C.

Grove, Jean M.
1988 *The Little Ice Age*. Metheun, London.

Guetig, Peter Richard and Conrad Selle
2001 Bottle-making. In *Encyclopedia of Louisville*, ed. John E. Kleber, pp. 105-106. The University Press of University, Lexington.

Gurcke, Karl
1987 *Bricks and Brickmaking: A Handbook for Historical Archeology*. University of Idaho Press, Moscow, Idaho.

Hafendorfer, Ken
1991 *Perryville: Battle for Kentucky*. KH Press, Louisville.

Hassan, Fekri A.
1978 Sediments in Archaeology: Methods and Implications for Palaeoenvironmental and Cultural Analysis. *Journal of Field Archaeology* 5(2):197-213

Hemmings, E. Thomas
1977 West Virginia Radiocarbon Dates and Prehistory. Paper presented at the 28th Annual Meeting of the West Virginia Archeological Society, St. Albans, West Virginia.

1978 Exploration of an Early Adena Mound at Willow Island, West Virginia West Virginia Geological and Economic Survey, *Report of Archaeological Investigations* RAI-7.

1985 West Virginia Radiocarbon Dates and Prehistory. *West Virginia Archeologist* 37(2):35-45.

Herndon, Richard L. and Paul D. Bundy
2006 Phase I Surface and subsurface Survey for THE PROPOSED EAST END Bridge OF the Ohio River Bridges Project (LSIORBP) IN JEFFERSON COUNTY, KENTUCKY (ITEM NO. 5-118). Cultural Resource Analysts, Inc. Contract Publication Series 06-028. Lexington, KY.

Hilgeman, Sherri L.
1992 Pottery and Chronology of the Angel Site, A Mississippi Center in the Lower Ohio Valley. Ph.D. Dissertation, University of Indiana.

Hockensmith, Charles D.
1997 A Study of Frankfort Bricks and Brickmaking, Franklin County, Kentucky. *Tennessee Anthropologist* 22(2):121-176.

Holscher, H.H.
1965 *Hollow and Specialty Glass: Background and Challenge*. Reprint from the Glass Industry, Volume 46, June-November. Owens-Illinois, Toledo, Ohio.

Hu, Feng Sheng, Dirk Slawinski, Herbert E. Wright, Jr., Emi Ito, Robert G. Johnson, Kerry R. Kelts, Reed F. McEwan, and Amy Boedigheimer
1999 Abrupt Changes in North American Climate During Early Holocene Times. *Nature* 400:437–440.

Hughes, Bernard, and Therle Hughes

1968 *English Porcelain and Bone China: 1743-1850*. Frederick A. Praeger, New York, New York.

IMACS Users Guide
1990 *Intermountain Antiquities Computer System Users Guide*. Revised. University of Utah, Bureau of Land Management, U.S. Forest Service. Originally published 1984.

Inashima, Paul Y.
1981 Regression for Flat Glass. In *Square 22 in Washington, D.C.: An Archaeological Investigation of the Historical Past*. Potomac River Archaeology Survey, Washington, D.C.

Janzen, Donald E.
1972 Archaeological Investigations in Louisville and Vicinity: A Historical Sketch. The *Filson Club History Quarterly* 46(4).

1977 An Examination of Late Archaic Development in the Falls of the Ohio Area. In *For the Director: Research Essays in Honor of James B. Griffin*, edited by Charles E. Cleland, pp. 123-143. University of Michigan Anthropological Papers No. 61. Ann Arbor.

Jefferies, Richard W.
1988 Archaic Period Research in Kentucky: Past Accomplishments and Future Directions. In *Paleoindian and Archaic Research in Kentucky*, edited by C. D. Hockensmith, D. Pollack and T. N. Sanders, pp. 85-126. Kentucky Heritage Council, Frankfort.

1990 Archaic Period. In *The Archaeology of Kentucky: Past Accomplishments and Future Directions*, Vol. 1, edited by David Pollack, pp. 143–246. State Historic Preservation Comprehensive Plan Report No. 1. Kentucky Heritage Council, Frankfort.

Jefferies, Richard W. and Brian M. Butler, editors
1982 *The Carrier Mills Archaeological Project: Human Adaptation in the Saline Valley, Illinois*. Center for Archaeological Investigations Research Paper No. 33. Southern Illinois University, Carbondale.

Jefferies, Richard W. and B. Mark Lynch
1983 Dimensions of Middle Archaic Cultural Adaptation at the Black Earth Site, Saline County, Illinois. In *Archaic Hunters and Gatherersin the American Midwest*, James L. Phillips and James A. Brown editors. Academic Press, New York.

Jennings, Jesse D.
1978 Origins. In *Ancient Native Americans*, edited by J. D. Jennings, pp. 1–42. W. H. Freeman, San Francisco.

Johnson, Eileen
1987 *Lubbock Lake: Late Quaternary Studies on the Southern High Plains*. Texas A&M University Press, College Station.

Jones, Olive and Catherine Sullivan
1985 *The Parks Canada Glass Glossary for the Description of Containers, Tableware, Flat Glass, and Closures*. Studies in Archaeology, Architecture and History. National Historic Parks and Sites Branch, Parks Canada.

Justice, Noel D.
1987 *Stone Age Spear and Arrow Points of the Midcontinental and Eastern United States*. Indiana University Press, Bloomington.

Kramer, Carl E.
2001 Bourbon Stock Yards. In *Encyclopedia of Louisville*, ed. John E. Kleber, pp. 106. The University Press of University, Lexington.

Kelly, Robert, and Lawrence Todd
1988 Coming into the Country: Early Paleo-Indian Hunting and Mobility. *American Antiquity* 53:231–244.

Kepferle, Roy C.
1974 Geologic Map of Parts of the Jeffersonville, New Albany, and Charlestown Quadrangles, Kentucky-

Indiana. Kentucky Geological Survey, Frankfort, Kentucky.

Ketchum, William C., Jr.
1983 *Pottery and Porcelain*. Alfred A. Knopf, New York, New York.

1991 *American Stoneware*. Henry Holt and Company, Inc., New York.

Kleber, John E., ed.
1992 *The Kentucky Encyclopedia*. University Press of Kentucky, Lexington.

2001 *The Encyclopedia of Louisville*. The University Press of Kentucky, Lexington.

Klippel, Walter E.
1971 *Graham Cave Revisited: A Reevaluation of its Cultural Position During the Archaic Period*. Memoir No. 9. Missouri Archaeological Society, Columbia.

Klippel, Walter E., and Paul W. Parmalee
1982 Diachronic Variation in Insectivores from Cheek Bend Cave, and Environmental Change in the Midsouth. *Paleobiology* 8:447–458.

Lehner, Lois
1980 *Complete Book of American Kitchen and Dinner Wares.* Wallace-Homestead Books, Des Moines, Iowa.

Lentz, David L.
1986 Archaeobotanical Remains from the Hester Site: The Late Paleo-Indian and Early Archaic Horizons. *Midcontinental Journal of Archaeology* 11:269–279.

Lewis, Thomas M. N. and Madeline Kneberg Lewis
1961 *Eva: An Archaic Site*. A University of Tennessee Study in Anthropology. University of Tennessee Press, Knoxville.

Little, W. L.
1969 *Staffordshire Blue: Underglaze Blue Transfer Printed Earthenware*. Crown Publishers, Inc., New York, New York.

Lofstrom, Edward U., Jeffrey P. Tordoff and Douglas C. George
1982 A Seriation of Historic Earthenwares in the Midwest, 1780-1870. *Minnesota Archaeologist* 41(1):3-29.

Louisville City Directory
1859 Louisville City Directory, Kentucky

McAvoy, James M., and Lynn D. McAvoy
1997 *Archaeological Investigations of Site 44SX202, Cactus Hill, Sussex County, Virginia*. Research Report Series No. 8. Virginia Department of Historic Resources, Richmond.

MacDonald, George F.
1968 *Debert: A Paleo-Indian Site in Central Nova Scotia.* Anthropological Papers No. 16. National Museum of Canada, Ottawa, Quebec.

McGrain, Preston and James C. Currens
1978 *Topography of Kentucky*. Kentucky Geological Survey. University of Kentucky, Lexington. Series X. Special Publication 25.

McMichael, Edward V.
1965 *Archeological Survey of Nicholas County, W. Va*. West Virginia Geological and Economic Survey Archeological Series 1.

Magne, M. P. R.
1985 *Lithics and Livelihood: Stone Tool Technologies of Central and Southern Interior B.C. Archaeology Survey of Canada*, Mercury Series No. 133, Ottawa.

Majewski, Teresita and Michael J. O'Brien
1984 *An Analysis of Historical Ceramics from the Central Salt River Valley of Northeast Missouri. Publications in Archaeology*, Number 3. American Archaeology Division, Department of Anthropology, University of Missouri, Columbia.

1987 The Use and Misuse of Nineteenth-Century English and American Ceramics in Archaeological Analysis. In, *Advances in Archaeological Method and Theory*, Volume 11, pp 97-209. Edited by Michael J. Shiffer. Academic Press, New York.

Mankowitz, W. and R. G. Haggar
1957 *The Concise Encyclopedia of English Pottery and Porcelain*. Hawthorne Books, New York, New York.

Marquardt, William H., and Patty Jo Watson
1976 Excavation and Recovery of Biological Remains from Two Archaic Shell Middens in Western Kentucky. Paper presented at the 33rd Annual Meeting of the Southeastern Archaeological Conference, Tuscaloosa, Alabama.

Marshall, Sydne B.
1978 The Paleo-Indian Component at the Shawnee-Minisink Site, Eastern Pennsylvania. Paper presented at the 43rd Annual Meeting of the Society for American Archaeology, Tucson.

Maslowski, Robert F.
1984 The Significance of Cordage Attributes in the Analysis of Woodland Pottery. *Pennsylvania Archaeologist* 54(1-2):51-60.

1985 Woodland Settlement Patterns in the Mid and Upper Ohio Valley. *West Virginia Archeologist* 36.

Mason, R.
1962 The Paleo-Indian Tradition in Eastern North America. *Current Anthropology* 3:227–278.

Maxwell, Jean A., and Margaret B. Davis
1972 Pollen Evidence of Pleistocene and Holocene Vegetation on the Allegheny Plateau, Maryland. *Quaternary Research* 2:506–530.

May, Earl Chapin
1937 *The Canning Clan: A Pageant of Pioneering Americans*. The MacMillan Company, New York, New York.

Mayer-Oakes, W. J.
1955 *Prehistory of the Upper Ohio Valley: An Introductory Archeological Study*. Annals of the Carnegie Museum Vol. 34, Anthropological Series No. 2. Carnegie Museum, Pittsburgh.

Meikle, Jeffrey L.
1995 *American Plastic: A Culture History*. Rutgers University Press, New Brunswick, New Jersey.

Meltzer, David J.
1989 Why Don't We Know When the First People Came to North America? *American Antiquity* 54:471–490.

1993 Is There a Clovis Adaptation? In *From Kostenki to Clovis: Upper Paleolithic-Paleo-Indian Adaptations*, edited by O. Soffer and N. D. Praslov, pp. 293–310. Plenum, New York.

Meltzer, David J., Donald K. Grayson, G. Ardila, A. W. Barker, Dena F. Dincauze, C. Vance Haynes, F. Mena, L. Nunez, and Dennis J. Stanford
1997 On the Pleistocene Antiquity of Monte Verde, Southern Chile. *American Antiquity* 62(4):659–663.

Miller, Rex K.
1941 *McCain Site, Dubois County, Indiana*. Prehistoric Research Series, 2(1).

Moir, Randall W.
1977 Window Glass: A Statistical Perspective. Manuscript on file, Archaeology Research Program, Southern Methodist University, Dallas, Texas.

1987 Socioeconomic and Chronometric Patterning of Window Glass. In *Historic Buildings, Material Culture, and People of the Prairie Margin*, edited by David H. Jurney, and Randall W. Moir, pp. 73–81. Richland Creek Technical Series Vol. V. Southern Methodist University, Dallas.

Morrow, Toby
1989 *Twin Ditch: Early Archaic Settlement in the Lower Illinois Valley*. Kampsville Archeological Center, Center for American Archeology, Kampsville, Illinois.

Munson, Cheryl A., and Thomas G. Cook
1980 Late Archaic French Lick Phase: A Dimensional Description. In *Archaeological Salvage Excavations at Patoka lake, Indiana: Prehistoric*

*Occupations of the Upper Patoka River Valley*. Glenn A. Black Laboratory of Archaeology Research Reports No.6:404-417.

Mocas, Stephen T.
1976 Excavations at Arrowhead Farm (15JF237). University of Louisville Archaeological Survey Report, University of Louisville, Louisville.

1992 Falls Plain: A Middle Woodland Ceramic Type from the Falls of the Ohio River Region. In *Current Archaeological Research in Kentucky*: Volume Two, pp. 55-78. Kentucky Heritage Council.

1995 The SARA Site (15Jf187): An Early Late Woodland Site in the Falls of the Ohio River Region. *In Current Archaeological Research in Kentucky*, Volume III. Kentucky Heritage Council.

Morrow, Toby
1989 *Twin Ditch: Early Archaic Settlement in the Lower Illinois Valley*. Kampsville Archeological Center, Center for American Archeology, Kampsville, Illinois.

Morse, Dan F.
1973 Dalton Culture in Northeast Arkansas. *The Florida Anthropologist* 26:23–38.

Muller, Jon
1986 *Archeology of the Lower Ohio River Valley*. Academic Press, New York.

Muller-Beck, H.
1966 Paleohunters in America: Origins and Diffusion. *Science* 152:1191–1210.

Munsey, Cecil
1970 *The Illustrated Guide to Collecting Bottles*. Hawthorn Books, Inc., New York.

Nelson, Lee H.
1968 *Nail Chronology as an Aid to Dating Old Buildings*. American Association for State and Local History, Technical Leaflet 15.

Niquette, Charles M., Albert M. Pecora, III, Richard W. Yerkes, and K. J. Saul
1991 Test Excavations at the Glasgow Site: A Stratified Terminal Early and Late Archaic Site in Kanawha County, West Virginia. *West Virginia Archeologist* 43(1&2):27-56.

Niquette, Charles M. and A. Gwynn Henderson
1984 *Background to the Historic and Prehistoric Resources of Eastern Kentucky. Cultural Resource* Series No. 1. U.S. Bureau of Land Management, Eastern States Office, Washington, D.C.

Niquette, Charles M., and Teresa K. Donham
1985 *Prehistoric and Historic Sites Archeology in the Proposed Yatesville Reservoir, Lawrence County, Kentucky*. Contract Publication Series 85-13. Cultural Resource Analysts, Inc., Lexington.

Norman-Wilcox, G.
1978 Staffordshire in a Nutshell. In *English Pottery and Porcelain*, edited by P. Atterbury, pp. 166-170. Universe Books, New York, New York.

Orser, Charles E.
1988 *The Material Basis of the Postbellum Tenant Plantation*. The University of Georgia Press, Athens, Georgia.

Pace, Robert E.
1980 Archaeological Testing of the Morton Site, Parke County, Indiana. Technical Paper on file at Indiana State University Anthropology Laboratory, Terre Haute.

Paul, John R. and Paul W. Parmalee
1973 *Soft Drink Bottling: A History with Special Reference to Illinois*. Illinois State Museum Society, Springfield, Illinois.

Pollack, David, and A. Gwynn Henderson
1989 Intraregional and Intersocietal Relationships of the Late Mississippian Caborn-Weborn Phase of the Lower Ohio River Valley. Unpublished Dissertation, Department of Anthropology. University of Kentucky.

1990 *The Archaeology of Kentucky: Past Accomplishments and Future*

*Directions*. Kentucky State Historic Preservation Comprehensive Plan Reports Nos. 1 and 2. Kentucky Heritage Council, Frankfort.

Powell, Helen
2000 *Cultural Resouces Survey for the Louisville-Southern Indiana Ohio River Bridges Project*. Commmunity Transportation Solutions, Inc. Louisville, Kentucky.

PPG Industries
2006 Facts About PPG. Electronic document, http://corporateportal.ppg.com/PPG/topnav/About/Corporate/FactsAboutPPG.htm, accessed February 13, 2006.

Price, C. R.
1979 Nineteenth-Century Ceramics in the Eastern Ozark Escarpment Region of Southeast Missouri. Paper presented to the 35th Annual Meeting of the Southeast Archaeological Conference, Knoxville, Tennessee.

1981 Early to Mid-Nineteenth Century Refined Earthenwares. In *A Guide for Historical Archaeology in Illinois*, edited by C. E. Orser, Jr., pp. 24-48. Mid-American Research Center Research Paper Number 1. Loyola University of Chicago, Chicago, Illinois.

Prufer, Olaf H.
1967 Chesser Cave: A Late Woodland Phase in Southeastern Ohio. In *Studies in Ohio Archaeology*, edited by O. H. Prufer and D. H. McKenzie, pp.1-62. Western Reserve University Press, Cleveland.

Prufer Olaf. H. and D. McKenzie
1966 Peters Cave: Two Woodland Occupations in Ross County, Ohio. *Ohio Journal of Science* 66(3):233-253.

Purrington, Burton L.
1967 Excavations in the Carr Fork Reservoir, Knott County, Kentucky. Ms. on File, Museum of Anthropology, University of Kentucky, Lexington.

Quimby, G. I.
1960 *Indian Life in the Upper Great Lakes, 11,000 B.C. to A.D. 1800*. University of Chicago Press, Chicago.

Rafferty, Janet E.
1974 The Development of the Fort Ancient Tradition in Northern Kentucky. Unpublished Ph.D. dissertation, University of Washington, Seattle.

Ramsay, J.
1947 *American Potters and Pottery*. Tudor, New York, New York.

Raycraft, Don and Carol Raycraft
1990 *Collector's Guide to Country Stoneware and Pottery*, Second Series. Collector Books, Paducah, Kentucky.

Reidhead, Van A.
1984 A Reconstruction of the Presettlement Vegetation of the Middle Ohio Valley Region. In *Experiments and Observations on Aboriginal Wild Plant Food Utilization in Eastern North America*, edited by Patrick J. Munson, pp. 386–426. Indiana Historical Society, Indianapolis.

Rennick, Robert M.
1984 *Kentucky Place Names*. University Press of Kentucky, Lexington.

Revi, Albert C.
1964 *American Pressed Glass and Figure Bottles*. Thomas Nelson and Dons, New York, New York.

Reynolds, Matthew D., Steven D. Creasman, and R. Berle Clay
2001 An Archaeological Reconnaissance of the Proposed Ohio River Bridges Project in Jefferson County, Kentucky. Contract Publication Series 00-10. Cultural Resource Analysts, Inc., Lexington, Kentucky.

Riley, John J.
1958 *A History of the American Soft Drink Industry 1807-1957*. American Bottlers of Carbonated Beverages, Washington, D. C.

Robinson, K. W. and S. D. Smith

1979 The Villier Site (15JF110 Complex). In *Excavations at Four Archaic Sites in the Lower Ohio Valley Jefferson County, Kentucky*, Vol. II. Edited by M. B. Collins. Department of Anthropology, University of Kentucky Occasional Papers in Anthropology 1:590-696.

Rock, James T.
1980 American Bottles: A Few Basics. Manuscript on file at the Klamath National Forest, Region B, USDA.

1984 Cans in the Countryside. *Historical Archaeology* Volume 18, Number 2, pp.. 97-111. Society for Historical Archaeology, Tuscon, Arizona.

Roenke, Karl G.
1978 *Flat Glass, Its Use as a Dating Tool for Nineteenth Century Archeological Sites in the Pacific Northwest and Elsewhere*. Memoir No. 4. Northwest Anthropological Research Notes, Moscow, Idaho.

Rolingson, Martha Ann
1967 Temporal Perspective on the Archaic Cultures of the Middle Green River Region, Kentucky. Unpublished PhD. Dissertation. Department of Anthropology, University of Michigan, Ann Arbor.

Sacharow, S., and R. G. Griffin
1970 *Food Packaging: A Guide for the Supplier, Processor and Distributor*. The AVI Publishing Company, Westport.

Samford, Patricia M.
1997 Response to a Market: Dating English Underglaze Transfer-Printed Wares. *Historical Archaeology* 3(2):1-30.

Sanborn Map Company
1892 City of Louisville. Microfilm on file with the Kentucky Department for Libraries and Archives, Frankfort, Kentucky.

1905 City of Louisville. Microfilm on file with the Kentucky Department for Libraries and Archives, Frankfort, Kentucky.

Shane, Linda C. K.
1994 Intensity and Rate of Vegetation and Climatic Change in the Ohio Region between 14,000 and 9,000 14C YR BP. In *The First Discovery of America: Arch aeological Evidence of the Early Inhabitants of the Ohio Area*, edited by William S. Dancey, pp. 7–22. The Ohio Archaeological Council, Columbus.

Shane, Linda C. K., Gordon G. Snyder, and Katherine H. Anderson
2001 *Holocene Vegetation and Climate Changes in the Ohio Region. In Archaic Transitions in Ohio and Kentucky Prehistory*, edited by Olaf H. Prufer, Sara E. Pedde, and Richard S. Meindl, pp. 11–55. Kent State Press, Kent, Ohio.

Shott, Michael J.
1990 *Childers and Woods: Two Late Woodland Sites in the Upper Ohio Valley, Mason County, West Virginia.* 2 vols. Archaeological Report No. 200. Program for Cultural Resource Assessment, Department of Anthropology, University of Kentucky, Lexington.

Sieber, E. and A. I. Ottesen editors.
1985 *Final Report on the Phase III Mitigation of the Clark Maritime Archaeological District, Clark County, Indiana*. Resource Analysts, Inc., Bloomington.

Smart Glass, Inc.
2006 Automotive Glass History. Electronic document, http://www.smartglassinc.com/id16.html, accessed July 20, 2006.

Smith, Bruce D.
1978 Variation in Mississippian Settlement Patterns. In *Mississippian Settlement Patterns*, edited by B. D. Smith, pp. 479-503. Academic Press, New York.

Smith, E.
1986 An Archaeological Assessment of the Swan's Landing Site (12Hr04), Harrison

County, Indiana. Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington. Submitted to Indiana Department of Natural Resources, Division of Historic Preservation and Archaeology. Copies available from Indiana Department of Natural Resources, Division of Historic Preservation and Archaeology.

Snyder, Jeffrey B.
2000 *Historical Staffordshire: American Patriots & Views*. 2nd. ed. Schiffer, Atglen, Pennsylvania.

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

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

2002 China or Prosser Button Identification and Dating. *Historical Archaeology* 36(2):111-127.

Stafford, C. Russell
1991 Archaic Foraging Strategies: A Large Scale Data Set from Southwestern Indiana. Paper Presented at the 56th Annual Meeting of the Society for American Archaeology, New Orleans.

1994 Structural Changes in Archaic Landscape Use in the Dissected Uplands of Southwestern Indiana. *American Antiquity* 59:219–237.

Stafford, C. Russell, and Mark Cantin
1992 *Test Excavations at Poffey Creek in the Ohio River Valley, Harrison County, Indiana*. Technical Report No. 11. Anthropology Laboratory, Indiana State University, Terre Haute.

Stafford, C. Russell and Steven D. Creasman
2002 The Hidden Record: Late Holocene Landscapes and Settlement Archaeology in the Lower Ohio River Valley. *Geoarchaeology: An International Journal* 17(2):117-140.

Steinlage, Forrest F.
2001 Turners/Turnveriens. In *Encyclopedia of Louisville*, ed. John E. Kleber, pp. 894-895. The University Press of University, Lexington.

Stewart Abernathy, Leslie C.
1986 *The Moser Farmstead, Independent but Not Isolated: The Archeology of a Late Nineteenth Century Ozark Farmstead*. Arkansas Archeological Survey Research Series No. 26, Fayetteville, Arkansas.

Stoltman, James B., and David A. Baerreis
1983 The Evolution of Human Ecosystems in the Eastern United States. In *The Holocene*, edited by H. E. Wright, Jr., pp. 252–268. Late Quaternary Environments of the United States, Vol. 2. University of Minnesota Press, Minneapolis.

Struever, Stuart, and Kent D. Vickery
1973 The Beginnings of Cultivation in the Midwest Riverine Area of the United States. *American Anthropologist* 75:1197–1220.

Styles, Bonnie W., Stephen R. Ahler and Melvin L. Fomler
1983 *Modoc Rock Shelter Revisited. Archaic Hunters and Gatherers in the American Midwest*, edited by J. L. Phillips and J. A. Brown, pp. 261-297. Academic Press, New York.

Tankersley, Kenneth B.
1990 Paleoindian Period. In *The Archaeology of Kentucky: Past Accomplishments and Future Directions*, Vol. 1, edited by David Pollack, pp. 73–142. State Historic Preservation Comprehensive Plan Report No. 1. Kentucky Heritage Council, Frankfort.

Toulouse, Julian H.
1969 *Fruit Jars*. Thomas Nelson & Sons, Camden, New Jersey, and Everybody's Press, Hanover, Pennsylvania.

1972 *Bottle Makers and Their Marks*. Thomas Nelson, New York, New York.

1977 *Fruit Jars, A Collector's Manual with Prices*. Everybody's Press, Inc., Hanover, Pennsylvania.

Van Rensselear, Susan
1978 Banded Creamware. In *English Pottery and Porcelain*, edited by P. Atterbury, pp. 240-244. Universe Books, New York, New York.

U.S. Army Corps of Engineers
1980 Appendix H: Social and Cultural Resources. In *Gallipolis Locks and Dam Replacement, Ohio River*. U.S. Army Corps of Engineers, Huntington District.

Vickery, Kent D.
1976 An Approach to Inferring Archaeological Site Variability. Unpublished Ph.D. dissertation, Department of Anthropology, Indiana University, Bloomington.

1980 Preliminary Definition of Archaic Study Units in Southwestern Ohio. Prepared for the State Archaeological Preservation Plan Meeting, Columbus.

Wade, Richard C.
1959 *The Urban Frontier: The Rise of the Western Cities*. Harvard University Press, Cambridge.

Wagner, Mark J. and Mary McCorvie
1992 *The Archeology of the Old Landmark. Nineteenth Century Taverns Along the St. Louis Vincennes Trace in Southern Illinois*. Illinois Department of Transportation and the Center for American Archeology, Kampsville, Illinois.

Warren, Robert E., and Michael J. O'Brien
1982 Holocene Dynamics. In *The Cannon Reservoir Human Ecology Project: An Archaeological Study of Cultural Adaptations in the Southern Prairie Peninsula*, edited by Michael J. O'Brien, Robert E. Warren, and Dennis E. Lewarch, pp. 71–84. Academic Press, New York.

Waters, Michael R.
1996 *Principles of Geoarchaeology: A North American Perspective*. The University of Arizona Press, Tucson.

Watkins, Laura Woodside
1930 *Cambridge Glass 1818 to 1888: The Story of the New England Glass Company*. Bramhall House, New York, New York.

Watson, Patty Jo
1985 The Impact of Early Horticulture in the Uplands Drainage of the Midwest and Midsouth. In *Prehistoric Food Production in North America*, edited by Richard I. Ford, pp. 99–147. Anthropological Papers No. 75. Museum of Anthropology, University of Michigan, Ann Arbor.

Webb, Thompson, III, and Reid A. Bryson
1972 Late and Post Glacial Climate Change in the Northern Midwest, USA: Quantitative Estimates Derived from Fossil Pollen Spectra by Multivariate Statistical Analysis. *Quaternary Research* 2:70–115.

Webb, Thompson, III, Edward J. Cushing, and Herbert E. Wright, Jr.
1983 Holocene Changes in the Vegetation of the Midwest. In *Late Quaternary Environments of the US*: Volume 2, edited by Herbert E. Wright, Jr., pp. 142–165. University of Minnesota Press, Minneapolis.

Webb, William S.
1946 *Indian Knoll*. University of Tennessee Press, Knoxville.

1950 *The Carlson Annis Mound, Site 5, Butler County, Kentucky*. Reports in Anthropology Vol. VII, No. 4. Department of Anthropology, University of Kentucky, Lexington.

Webb, William S. and Raymond S. Baby
1957 *The Adena People* No. 2. The Ohio Historical Society, Columbus.

Webb, William S., and William G. Haag
1939 *The Chiggerville Site, Site 1, Ohio County, Kentucky*. Reports in Anthropology Vol. IV, No. 1.

Department of Anthropology and Archaeology, University of Kentucky, Lexington.

Wesler, Kit W.
1984 A Spatial Perspective on Artifact Group Patterning within the Houselot. *Proceedings of the Second Annual Symposium on Ohio Valley Urban and Historic Archeology* 2:37-44. Edited by Donald B. Ball, and Philip J. DiBlasi. Indiana State Museum, Indianapolis.

Wetherbee, Jean
1980 *A Look at White Ironstone*. Wallace-Homestead Book Company, Des Moines, Iowa.

Whitehead, Donald R.
1973 Late-Wisconsin Vegetational Changes in Unglaciated Eastern North America. *Quaternary Research* 3:621–631.

Whitten, David
2005 Louisville Glass Factories of the 19th Century-Part 1. *Bottles and Extra*: 2-6.

Wilhite, Robert and Robert Lemke
1981 *Standard Guide to U.S. Coin and Paper Money Valuations* (8th ed.). Krause Publications, Inc., Iola, Wisconsin.

Willey, Gordon
1966 *An Introduction to American Archeology*. Volume 1: North and Middle America. Prentice Hall.

Wilkins, Gary R.
1978 Prehistoric Mountaintop Occupations of Southern West Virginia. *Archaeology of Eastern North America* 6:13–40.

Williams, David
2001 Butchertown. In *Encyclopedia of Louisville*, ed. John E. Kleber, pp. 149-150. The University Press of University, Lexington.

Williams, Steven J., and James B. Stoltman
1965 An Outline of Southeastern United States Prehistory with Particular Emphasis on the Paleo-Indian Era. In *The Quaternary of the United States*, edited by Herbert E. Wright, Jr., and David G. Frey, pp. 669–683. Princeton University Press, Princeton, New Jersey.

Winters, Howard D.
1969 *The Riverton Culture*. Monograph, No. 1, Illinois Archaeological Survey, University of Illinois, Urbana.

Wright, Herbert E., Jr.
1968 *History of the Prairie Peninsula. In The Quaternary of Illinois: A Symposium in Observance of the Centennial of the University of Illinois*, edited by Robert E. Bergstrom, pp. 78–88. Special Publication No. 14. College of Agriculture, University of Illinois, Urbana.

Yater, George H.
1987 Two *Hundred Years at the Falls of the Ohio: A History of Louisville and Jefferson County*. The Filson Club, Louisville.

2001a Prostitution. In *Encyclopedia of Louisville*, ed. John E. Kleber, pp. 731-732. The University Press of University, Lexington.

2001b. Haymarket. In *Encyclopedia of Louisville*, ed. John E. Kleber, pp. 377-378. The University Press of University, Lexington.

Zimmerman, William H.
1966 *Soil Survey of Jefferson County, Kentucky*. U.S. Soil Conservation Service, Department of Agriculture, Washington, D.C. (reissued in 1991)

# Appendix A. Historic Artifact Database

| Cat # | Zone | Bag # | Phase | Upper | Lower | Misc Prov | Group | Class | Type | Burned | N | Weight | Vessel code | Vessel part | ID | MinDate | MaxDate | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 1 | I | 0 | 5 f bgs | 1B-17 | DOMESTIC | Ceramics | Stoneware, unid. glaze/slip ext., salt glaze int. | | 1 | | | Body | | 1800 | 1925 | eroded exterior |
| 2 | | 1 | I | 0 | 5 f bgs | 1B-17 | ARCHITECTURE | Flat Glass | Window glass, 1.35 | | 1 | | | | | 1826 | 1826 | |
| 3 | | 2 | I | 0 | 5 f bgs | 1W-28 | DOMESTIC | Ceramics | Whiteware, plain | | 1 | | | Body | | 1830 | | |
| 4 | | 2 | I | 0 | 5 f bgs | 1W-28 | DOMESTIC | ABM | Clear glass | | 6 | | | Body | | 1903 | | |
| 5 | | 2 | I | 0 | 5 f bgs | 1W-28 | DOMESTIC | Other Tableware | Tableware, styrofoam | | 1 | | | | | 1962 | | 'clamshell" food container |
| 6 | | 2 | I | 0 | 5 f bgs | 1W-28 | ARCHITECTURE | Const. Mat. | Brick, machine made, non-vitrified | | 4 | 39.5 | | | | | | 10R4/6 red; no measurable fragments |
| 7 | | 2 | I | 0 | 5 f bgs | 1W-28 | ARCHITECTURE | Const. Mat. | Brick, indeterminate, non-vitrified | | 1 | 14.7 | | | | | | |
| 8 | | 2 | I | 0 | 5 f bgs | 1W-28 | ARCHITECTURE | Flat Glass | Window glass, 2.2 | | 1 | | | | | 1898 | 1898 | |
| 8 | | 2 | I | 0 | 5 f bgs | 1W-28 | ARCHITECTURE | Flat Glass | Window glass, 2.21 | | 1 | | | | | 1899 | 1899 | |
| 9 | | 3 | I | 5 | 10 f bgs | 1B-52 | ARCHITECTURE | Const. Mat. | Brick, machine made, non-vitrified | | 1 | 3.9 | | | | | | 10R5/6 red |
| 10 | | 3 | I | 5 | 10 f bgs | 1B-52 | ARCHITECTURE | Const. Mat. | Brick, indeterminate, non-vitrified | | 2 | 0.9 | | | | | | |
| 11 | | 3 | I | 5 | 10 f bgs | 1B-52 | ARCHITECTURE | Const. Mat. | Mortar | | 1 | 2.9 | | | | | | |
| 12 | | 3 | I | 5 | 10 f bgs | 1B-52 | MAINT./SUB. | General Hardware | Wire: smooth, iron/steel | | 1 | | | | | | | 2.31 mm |
| 13 | | 3 | I | 5 | 10 f bgs | 1B-52 | MAINT./SUB. | Containers | Unidentified, rim, iron/steel | | 1 | | | | | | | possibly a bucket |
| 14 | | 3 | I | 5 | 10 f bgs | 1B-52 | MAINT./SUB. | Transportation | Vehicle part, tempered glass | | 1 | | | | | 1919 | | tempered glass |
| 15 | | 4 | I | 10 | 13 f bgs | 1B-52 | DOMESTIC | ABM | Clear glass | | 3 | | | Body | | 1903 | | |
| 15 | | 4 | I | 10 | 13 f bgs | 1B-52 | DOMESTIC | ABM | Aqua glass | | 1 | | | Body | | 1903 | | |
| 16 | | 4 | I | 10 | 13 f bgs | 1B-52 | ARCHITECTURE | Const. Mat. | Brick, indeterminate, non-vitrified | | 2 | 1.4 | | | | | | |
| 17 | | 4 | I | 10 | 13 f bgs | 1B-52 | UNIDENTIFIED | Metal | Iron/ steel, item/part | | 2 | 69.2 | | | | | | 2 parts of the same item, possibly an attachment for a tool or piece of furniture |
| 18 | | 5 | I | 0 | 5 f bgs | 1B-34 | MAINT./SUB. | General Hardware | Rivet, aluminum | | 1 | | | | | | | |
| 19 | I | 6 | I | 0 | 5 f bgs | 1W-74 | DOMESTIC | ABM | Clear glass | | 2 | | | Body | | 1903 | | |
| 20 | I | 6 | I | 0 | 5 f bgs | 1W-74 | ARCHITECTURE | Const. Mat. | Brick, indeterminate, non-vitrified | | 3 | 6.4 | | | | | | |
| 21 | I | 6 | I | 0 | 5 f bgs | 1W-74 | FURNISHINGS | Decorative Elements | Unid furniture ceramic | | 1 | | | | | | | molded porcelain |
| 22 | I | 6 | I | 0 | 5 f bgs | 1W-74 | UNIDENTIFIED | Biological material | Rubber | Y | 1 | 0.8 | | | | | | |
| 23 | I | 7 | I | 0 | 6 f bgs | 1W-76 | DOMESTIC | Other Tableware | Tableware, plastic, rolled cup rim | | 1 | | Cup | Rim | | 1950 | | rolled party cup rim |
| 24 | I | 7 | I | 0 | 6 f bgs | 1W-76 | ARCHITECTURE | Const. Mat. | Brick, indeterminate, non-vitrified | | 1 | 0.8 | | | | | | |
| 25 | I | 7 | I | 0 | 6 f bgs | 1W-76 | ARCHITECTURE | Flat Glass | Plate glass | | 1 | | | | | 1917 | 1917 | |
| 26 | I | 7 | I | 0 | 6 f bgs | 1W-76 | MAINT./SUB. | Fuels | Coal | | 1 | 0.1 | | | | | | |
| 27 | II | 8 | I | 6 | 10 f bgs | 1W-76 | MAINT./SUB. | Fuels | Coal | | 1 | 3.2 | | | | | | |
| 27 | II | 8 | I | 6 | 10 f bgs | 1W-76 | MAINT./SUB. | Fuels | Cinder / slag | | 1 | 4.2 | | | | | | |
| 28 | III | 9 | I | 11.5 | 15 f bgs | 1W-76 | ARCHITECTURE | Flat Glass | Window glass, 2.36 | | 1 | | | | | 1911 | 1911 | |
| 29 | | 10 | I | 0 | 5 f bgs | 3W-206 | DOMESTIC | ABM | Clear glass | | 4 | | | Body | | 1903 | | |
| 29 | | 10 | I | 0 | 5 f bgs | 3W-206 | DOMESTIC | ABM | Clear glass, unidentified | | 1 | | | Base | | 1903 | | '...BOTTLE / ...55 84" |
| 30 | | 10 | I | 0 | 5 f bgs | 3W-206 | DOMESTIC | Metal Food Container | Beverage Can, aluminum | | 1 | | | | | 1959 | | |
| 31 | | 11 | I | 5 | 8 f bgs | 3W-206 | DOMESTIC | ABM | Amber glass | | 3 | | | Body | | 1903 | | |
| 32 | | 12 | I | 0 | 5 f bgs | 1W-27 | DOMESTIC | Ceramics | Whiteware, transfer print, black | | 1 | | | Footring | | 1828 | 1860 | |
| 33 | | 12 | I | 0 | 5 f bgs | 1W-27 | DOMESTIC | ABM | Clear glass | | 128 | | | Body | | 1903 | | |
| 34 | | 12 | I | 0 | 5 f bgs | 1W-27 | DOMESTIC | ABM | Clear glass | | 3 | | Misc. bottle | Body | | 1903 | | |
| 35 | | 12 | I | 0 | 5 f bgs | 1W-27 | DOMESTIC | ABM | Clear glass, embossed | | 3 | | | Body | | 1903 | | '?" "GOR..." *floral designs* |
| 36 | | 12 | I | 0 | 5 f bgs | 1W-27 | DOMESTIC | ABM | Clear glass, external thread | | 3 | | Misc. bottle | Lip | | 1903 | | |
| 36 | | 12 | I | 0 | 5 f bgs | 1W-27 | DOMESTIC | ABM | Clear glass, external thread | | 1 | | Misc. bottle | Lip | | 1924 | | has aluminum shell roll on cap ring attached |
| 36 | | 12 | I | 0 | 5 f bgs | 1W-27 | DOMESTIC | Container Closures | Commercial, aluminum shell roll-on cap | | 1 | | | | | 1924 | | safety ring only attached to bottle lip |
| 37 | | 12 | I | 0 | 5 f bgs | 1W-27 | DOMESTIC | ABM | Clear glass, Owen's mold | | 3 | | | Base | | 1903 | | |
| 37 | | 12 | I | 0 | 5 f bgs | 1W-27 | DOMESTIC | ABM | Clear glass, Owen's mold | | 1 | | Misc. bottle | Base | | 1903 | | '2 / ? / 23-T" |
| 38 | | 12 | I | 0 | 5 f bgs | 1W-27 | DOMESTIC | ABM | Clear glass, unidentified | | 1 | | Misc. bottle | Base | Y | 1968 | | three vertical rectangles and one horizontal rectangle embossed on base; Midland Glass Company, INC., Cliffwood, NJ (Toulouse 1972:363) |
| 39 | | 12 | I | 0 | 5 f bgs | 1W-27 | DOMESTIC | ABM | Clear glass, Owen's mold, embossed | | 1 | | Misc. bottle | Body with Base | | 1903 | | 'CWC / 3 8 10-M-133 / 12 A 78" *illegible body embossing* no information found |
| 39 | | 12 | I | 0 | 5 f bgs | 1W-27 | DOMESTIC | ABM | Clear glass, Owen's mold | | 1 | | Liquor / Beer / Wine | Base | | 1938 | | '9 13 79 / ...IQUOR BOTTLE / 3 *anchor over H* 06" Anchor Hocking Glass Corp., Lancaster, OH (Toulouse 1972:46-48) |
| 39 | | 12 | I | 0 | 5 f bgs | 1W-27 | DOMESTIC | ABM | Clear glass, Owen's mold | | 1 | | Liquor / Beer / Wine | Base | | 1903 | | "LIQU... / 22..." |
| 39 | | 12 | I | 0 | 5 f bgs | 1W-27 | DOMESTIC | ABM | Clear glass, Owen's mold | | 1 | | Misc. bottle | Base | | 1915 | | "5 10-M-109 3 / 14 M" Maryland Glass Corp., Baltimore, MD first installed an Owen's machine in 1915 (Toulouse 1972:339) |
| 39 | | 12 | I | 0 | 5 f bgs | 1W-27 | DOMESTIC | ABM | Clear glass, Owen's mold, embossed | | 2 | | Liquor / Beer / Wine | Body with Base | | 1903 | 1955 | "...ML (12.7 FL O..." on body part; mended together |
| 39 | | 12 | I | 0 | 5 f bgs | 1W-27 | DOMESTIC | ABM | Clear glass, embossed | | 1 | | Liquor / Beer / Wine | Body | | 1903 | 1955 | "ML (12.7 FL..." |
| 40 | | 12 | I | 0 | 5 f bgs | 1W-27 | DOMESTIC | ABM | Light green glass | | 2 | | Soda / Mineral Water | Body | | 1916 | | Coke bottle hobble skirt (Ball 1998) |
| 41 | | 12 | I | 0 | 5 f bgs | 1W-27 | DOMESTIC | ABM | Amber glass | | 10 | | | Body | | 1903 | | |
| 41 | | 12 | I | 0 | 5 f bgs | 1W-27 | DOMESTIC | ABM | Amber glass, Owen's mold | | 1 | | Misc. bottle | Base | | 1903 | 1955 | |
| 41 | | 12 | I | 0 | 5 f bgs | 1W-27 | DOMESTIC | ABM | Amber glass, external thread | | 3 | | Misc. bottle | Lip | | 1903 | | |
| 42 | | 12 | I | 0 | 5 f bgs | 1W-27 | DOMESTIC | ABM | Amethyst glass, unidentified | | 1 | | | Base | | 1903 | 1914 | |
| 43 | | 12 | I | 0 | 5 f bgs | 1W-27 | ARCHITECTURE | Const. Mat. | Brick, indeterminate, non-vitrified | | 1 | 0.2 | | | | | | |
| 44 | | 12 | I | 0 | 5 f bgs | 1W-27 | MAINT./SUB. | Fuels | Coal | | 1 | 1.5 | | | | | | |
| 45 | | 13 | I | 5 | 10 f bgs | 1W-27 | DOMESTIC | ABM | Clear glass | | 24 | | | Body | | 1903 | | |
| 45 | | 13 | I | 5 | 10 f bgs | 1W-27 | DOMESTIC | ABM | Clear glass, embossed | | 1 | | | Body | | 1903 | | "37..." |
| 46 | | 13 | I | 5 | 10 f bgs | 1W-27 | DOMESTIC | ABM | Clear glass, unidentified | | 1 | | | Base | | 1968 | | three vertical rectangles and one horizontal rectangle embossed on base; Midland Glass Company, INC., Cliffwood, NJ (Toulouse 1972:363) |
| 47 | | 13 | I | 5 | 10 f bgs | 1W-27 | ARCHITECTURE | Flat Glass | Window glass, 1.85 | | 1 | | | | | 1869 | 1869 | |
| 48 | | 13 | I | 5 | 10 f bgs | 1W-27 | MAINT./SUB. | Fuels | Coal | | 2 | 0.5 | | | | | | |
| 48 | | 13 | I | 5 | 10 f bgs | 1W-27 | MAINT./SUB. | Fuels | Cinder / slag | | 1 | 0.4 | | | | | | |
| 49 | | 13 | I | 5 | 10 f bgs | 1W-27 | UNIDENTIFIED | Unidentified Material | Tar | | 1 | 6.9 | | | | | | |
| 50 | | 14 | I | 10 | 15 f bgs | 1W-27 | DOMESTIC | ABM | Clear glass | | 17 | | | Body | | 1903 | | |
| 50 | | 14 | I | 10 | 15 f bgs | 1W-27 | DOMESTIC | ABM | Amber glass | | 3 | | | Body | | 1903 | | |
| 51 | | 14 | I | 10 | 15 f bgs | 1W-27 | ARCHITECTURE | Const. Mat. | Brick, indeterminate, non-vitrified | | 2 | 24.5 | | | | | | |
| 52 | | 14 | I | 10 | 15 f bgs | 1W-27 | ARCHITECTURE | Flat Glass | Plate glass | | 1 | | | | | 1917 | 1917 | |
| 53 | | 15 | I | 0 | 5 f bgs | 2W-97 | FLORAL and FAUNAL | Faunal Remains | Bone / teeth | | 1 | 0.3 | | | | | | |
| 54 | | 16 | I | 5 | 10 f bgs | 2W-97 | ARCHITECTURE | Nails | Wire nail, 7d, common, clinched | | 1 | | | | | 1880 | | |
| 55 | | 16 | I | 5 | 10 f bgs | 2W-97 | MAINT./SUB. | General Hardware | Washer: flat, iron/steel | | 1 | | | | | | | 22.57 mm |
| 56 | | 16 | I | 5 | 10 f bgs | 2W-97 | UNIDENTIFIED | Metal | Iron/ steel, amorphous | | 1 | 19.2 | | | | | | |
| 57 | | 17 | I | 15 | 20 f bgs | 2B-123 | DOMESTIC | ABM | Clear glass | | 2 | | | Body | | 1903 | | |
| 58 | | 17 | I | 15 | 20 f bgs | 2B-123 | ARCHITECTURE | Const. Mat. | Ceramic, wall/floor tile | | 1 | | | | | | | light blue glaze |
| 59 | | 17 | I | 15 | 20 f bgs | 2B-123 | ARCHITECTURE | Flat Glass | Window glass, 2.26 | | 1 | | | | | 1903 | 1903 | |
| 60 | | 18 | I | 0 | 5 f bgs | 2W-394 | DOMESTIC | ABM | Clear glass | | 1 | | | Body | | 1903 | | |
| 61 | | 19 | I | 0 | 5 f bgs | 2W-398 | DOMESTIC | ABM | Amber glass | | 1 | | | Body | | 1903 | | |
| 61 | | 19 | I | 0 | 5 f bgs | 2W-398 | DOMESTIC | ABM | Clear glass, unidentified | | 1 | | | Base | | 1903 | | |
| 62 | | 19 | I | 0 | 5 f bgs | 2W-398 | ARCHITECTURE | Flat Glass | Window glass, 2.28 | | 1 | | | | | 1905 | 1905 | |

| Cat # | Zone | Bag # | Phase | Upper | Lower | Misc Prov | Group | Class | Type | Burned | N | Weight | Vessel code | Vessel part | ID | MinDate | MaxDate | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 63 | | 37 | I | 0 | 5 f bgs | 4B-260 | DOMESTIC | Ceramics | Ironstone, plain | | 3 | | | Body | | 1840 | | |
| 64 | | 37 | I | 0 | 5 f bgs | 4B-260 | DOMESTIC | ABM | Clear glass | | 3 | | | Body | | 1903 | | |
| 65 | | 37 | I | 0 | 5 f bgs | 4B-260 | DOMESTIC | Undiag. Cont. Frag | Opaque white glass | | 1 | | | Body | | 1890 | | |
| 66 | | 37 | I | 0 | 5 f bgs | 4B-260 | ARCHITECTURE | Flat Glass | Plate glass | | 1 | | | | | 1917 | 1917 | edge |
| 67 | | 37 | I | 0 | 5 f bgs | 4B-260 | MAINT./SUB. | General Hardware | Other | | 1 | | | | | | | modern black plastic cable tie |
| 68 | | 37 | I | 0 | 5 f bgs | 4B-260 | MAINT./SUB. | Fuels | Coal | | 1 | 0.4 | | | | | | |
| 69 | | 38 | I | 5 | 10 f bgs | 4B-260 | DOMESTIC | Ceramics | Semi-Porcelain, plain | | 3 | | | Body | | 1880 | | |
| 70 | | 38 | I | 5 | 10 f bgs | 4B-260 | DOMESTIC | Ceramics | Porcelain, plain, molded design | | 1 | | | Body | | | | |
| 71 | | 38 | I | 5 | 10 f bgs | 4B-260 | DOMESTIC | Ceramics | Stoneware, Albany slip ext., Albany slip int. | | 1 | | | Body | | 1830 | | |
| 72 | | 38 | I | 5 | 10 f bgs | 4B-260 | ARCHITECTURE | Flat Glass | Plate glass | | 1 | | | | | 1917 | 1917 | |
| 72 | | 38 | I | 5 | 10 f bgs | 4B-260 | ARCHITECTURE | Flat Glass | Other glass | | 1 | | | | | | | tan colored glass |
| 72 | | 38 | I | 5 | 10 f bgs | 4B-260 | ARCHITECTURE | Flat Glass | Privacy glass | | 1 | | | | | | | |
| 73 | | 38 | I | 5 | 10 f bgs | 4B-260 | MAINT./SUB. | Transportation | Vehicle part, other | | 1 | | | | | 1919 | | tempered glass |
| 74 | | 38 | I | 5 | 10 f bgs | 4B-260 | UNIDENTIFIED | Glass | Amorphous | | 1 | 3.8 | | | | | | not burned; dark olive green |
| 75 | | 38 | I | 5 | 10 f bgs | 4B-260 | UNIDENTIFIED | Metal | Iron/ steel, rod | | 1 | 4.3 | | | | | | |
| 75 | | 38 | I | 5 | 10 f bgs | 4B-260 | UNIDENTIFIED | Metal | Iron/ steel, item/part | | 1 | 0.4 | | | | | | |
| 75 | | 38 | I | 5 | 10 f bgs | 4B-260 | UNIDENTIFIED | Metal | Iron/ steel, amorphous | | 5 | 44 | | | | | | |
| 76 | | 38 | I | 5 | 10 f bgs | 4B-260 | UNIDENTIFIED | Metal | Lead, amorphous | | 1 | 36.8 | | | | | | |
| 76 | | 38 | I | 5 | 10 f bgs | 4B-260 | UNIDENTIFIED | Metal | Other, item/part | | 1 | 1.1 | | | | | | chrome |
| 77 | | 39 | I | 10 | 15 f bgs | 4B-260 | DOMESTIC | Ceramics | Ironstone, transfer print, brown | | 1 | | | Body | | 1840 | 1860 | |
| 78 | | 39 | I | 10 | 15 f bgs | 4B-260 | DOMESTIC | Ceramics | Semi-Porcelain, plain | | 5 | | | Body | | 1880 | | |
| 79 | | 39 | I | 10 | 15 f bgs | 4B-260 | DOMESTIC | Ceramics | Stoneware, Albany slip ext., Albany slip int. | | 2 | | | Body | | 1830 | 1925 | |
| 79 | | 39 | I | 10 | 15 f bgs | 4B-260 | DOMESTIC | Ceramics | Stoneware, Bristol slip ext., Bristol slip int., blue sponge dec. | | 2 | | | Body | | 1880 | 1925 | blue sponge decoration; same vessel as rim |
| 79 | | 39 | I | 10 | 15 f bgs | 4B-260 | DOMESTIC | Ceramics | Stoneware, Bristol slip ext., Bristol slip int., blue sponge dec. | | 1 | | | Rim | | 1880 | 1925 | blue sponge decoration; same vessel as bodies |
| 80 | | 39 | I | 10 | 15 f bgs | 4B-260 | DOMESTIC | ABM | Clear glass | | 2 | | | Body | | 1903 | | |
| 80 | | 39 | I | 10 | 15 f bgs | 4B-260 | DOMESTIC | ABM | Olive green glass | | 1 | | | Body | | 1903 | | |
| 80 | | 39 | I | 10 | 15 f bgs | 4B-260 | DOMESTIC | ABM | Amber glass | | 2 | | | Body | | 1903 | | |
| 81 | | 39 | I | 10 | 15 f bgs | 4B-260 | DOMESTIC | Undiag. Cont. Frag | Clear glass | | 2 | | | Body | | 1864 | | |
| 82 | | 39 | I | 10 | 15 f bgs | 4B-260 | ARCHITECTURE | Const. Mat. | Wood, other | | 1 | 0.1 | | | | | | painted plywood |
| 83 | | 39 | I | 10 | 15 f bgs | 4B-260 | ARCHITECTURE | Flat Glass | Window glass, 1.4 | | 1 | | | | | 1831 | 1831 | |
| 84 | | 39 | I | 10 | 15 f bgs | 4B-260 | ARCHITECTURE | Flat Glass | Plate glass | | 1 | | | | | 1917 | 1917 | |
| 84 | | 39 | I | 10 | 15 f bgs | 4B-260 | ARCHITECTURE | Flat Glass | Privacy glass | | 2 | | | | | | | |
| 84 | | 39 | I | 10 | 15 f bgs | 4B-260 | ARCHITECTURE | Flat Glass | Other glass | | 1 | | | | | | | green colored glass |
| 85 | | 39 | I | 10 | 15 f bgs | 4B-260 | MAINT./SUB. | Fuels | Coal | | 1 | 0.3 | | | | | | |
| 86 | | 39 | I | 10 | 15 f bgs | 4B-260 | UNIDENTIFIED | Glass | Amorphous | | 1 | 3 | | | | | | not burned; dark olive green |
| 87 | | 39 | I | 10 | 15 f bgs | 4B-260 | UNIDENTIFIED | Metal | Iron/ steel, amorphous | | 4 | 74.1 | | | | | | |
| 88 | | 40 | I | 10 | 15 f bgs | 4B-248 | DOMESTIC | Ceramics | Whiteware, plain | | 1 | | | Body | | 1830 | | |
| 88 | | 40 | I | 10 | 15 f bgs | 4B-248 | DOMESTIC | Ceramics | Whiteware, spattered/sponged, more than one color | | 1 | | Cup | Rim | | 1830 | 1870 | red and blue exterior / blue interior |
| 89 | | 40 | I | 10 | 15 f bgs | 4B-248 | DOMESTIC | Ceramics | Ironstone, plain | | 2 | | | Body | | 1840 | | |
| 90 | | 40 | I | 10 | 15 f bgs | 4B-248 | DOMESTIC | BIM (Blown in Mold) | Aqua glass, other | | 1 | | | Body | | | | possible violin flask body fragment |
| 91 | | 40 | I | 10 | 15 f bgs | 4B-248 | ARCHITECTURE | Flat Glass | Window glass, 1.69 | | 1 | | | | | 1855 | 1855 | |
| 91 | | 40 | I | 10 | 15 f bgs | 4B-248 | ARCHITECTURE | Flat Glass | Window glass, 1.65 | | 1 | | | | | 1852 | 1852 | |
| 92 | | 40 | I | 10 | 15 f bgs | 4B-248 | UNIDENTIFIED | Metal | Iron/ steel, amorphous | | 3 | 2.5 | | | | | | |
| 93 | | 41 | I | 15 | 20 f bgs | 4B-248 | DOMESTIC | BIM (Blown in Mold) | Aqua glass | | 1 | | | Body | | | | |
| 94 | | 41 | I | 15 | 20 f bgs | 4B-248 | ARCHITECTURE | Flat Glass | Window glass, 1.78 | | 1 | | | | | 1863 | 1863 | |
| 94 | | 41 | I | 15 | 20 f bgs | 4B-248 | ARCHITECTURE | Flat Glass | Window glass, 1.44 | | 1 | | | | | 1834 | 1834 | |
| 95 | | 41 | I | 15 | 20 f bgs | 4B-248 | UNIDENTIFIED | Metal | Iron/ steel, amorphous | | 2 | 1.4 | | | | | | |
| 96 | | 43 | I | 0 | 5 f bgs | 4B-249 | DOMESTIC | ABM | Clear glass | | 1 | | | Body | | 1903 | | |
| 97 | | 44 | I | 0 | 5 f bgs | 4B-250 | DOMESTIC | Ceramics | Porcelain, plain | | 1 | | | Body | | | | |
| 98 | | 44 | I | 0 | 5 f bgs | 4B-250 | DOMESTIC | Ceramics | Semi-Porcelain, plain | | 1 | | | Body | | 1880 | | |
| 99 | | 44 | I | 0 | 5 f bgs | 4B-250 | DOMESTIC | ABM | Clear glass | | 1 | | | Body | | 1903 | | |
| 100 | | 44 | I | 0 | 5 f bgs | 4B-250 | ARCHITECTURE | Flat Glass | Window glass, 1.96 | | 1 | | | | | 1878 | 1878 | |
| 100 | | 44 | I | 0 | 5 f bgs | 4B-250 | ARCHITECTURE | Flat Glass | Plate glass | | 1 | | | | | 1917 | 1917 | |
| 101 | | 44 | I | 0 | 5 f bgs | 4B-250 | MAINT./SUB. | General Hardware | Wire: smooth, iron/steel | | 10 | | | | | | | mm = 3.97, 3.16, 2.78, 3.96, 3.40, 3.89, 3.32, 4.06, 3.96, 4.07 |
| 102 | | 45 | I | 5 | 10 f bgs | 4B-250 | DOMESTIC | ABM | Clear glass | | 2 | | | Body | | 1903 | | |
| 102 | | 45 | I | 5 | 10 f bgs | 4B-250 | DOMESTIC | ABM | Olive green glass | | 4 | | | Body | | 1903 | | |
| 103 | | 45 | I | 5 | 10 f bgs | 4B-250 | DOMESTIC | Glass Tableware | Press mold, clear | | 1 | | | Body | | 1864 | | |
| 104 | | 45 | I | 5 | 10 f bgs | 4B-250 | ARCHITECTURE | Flat Glass | Window glass, 1.86 | | 1 | | | | | 1869 | 1869 | |
| 104 | | 45 | I | 5 | 10 f bgs | 4B-250 | ARCHITECTURE | Flat Glass | Window glass, 1.93 | | 1 | | | | | 1875 | 1875 | |
| 105 | | 45 | I | 5 | 10 f bgs | 4B-250 | MAINT./SUB. | Fuels | Coal | | 4 | 1.3 | | | | | | |
| 106 | | 45 | I | 5 | 10 f bgs | 4B-250 | FLORAL and FAUNAL | Faunal Remains | Bone / teeth | | 1 | 0.2 | | | | | | |
| 107 | | 45 | I | 5 | 10 f bgs | 4B-250 | UNIDENTIFIED | Metal | Unidentified, item/part | | 1 | 3.7 | | | | | | copper colored but not soft as expected |
| 108 | | 46 | I | 10 | 15 f bgs | 4B-250 | DOMESTIC | Ceramics | Ironstone, transfer print, brown | | 1 | | | Body | | 1840 | 1860 | interior and exterior |
| 109 | | 46 | I | 10 | 15 f bgs | 4B-250 | DOMESTIC | Ceramics | Semi-Porcelain, plain | | 1 | | | Rim | | 1880 | | |
| 110 | | 46 | I | 10 | 15 f bgs | 4B-250 | DOMESTIC | ABM | Olive green glass | | 1 | | | Body | | 1903 | | |
| 111 | | 46 | I | 10 | 15 f bgs | 4B-250 | ARCHITECTURE | Nails | Cut nail, fragment | | 1 | | | | | 1830 | 1880 | late machine headed |
| 112 | | 46 | I | 10 | 15 f bgs | 4B-250 | ARCHITECTURE | Flat Glass | Window glass, 1.38 | | 1 | | | | | 1829 | 1829 | |
| 113 | | 46 | I | 10 | 15 f bgs | 4B-250 | MAINT./SUB. | General Hardware | Wire: smooth, iron/steel | | 1 | | | | | | | 3.28 |
| 114 | | 47 | I | 15 | 20 f bgs | 4B-250 | DOMESTIC | Ceramics | Whiteware, slip decorated, swirl/wormware | | 1 | | | Body | | 1830 | | |
| 115 | | 47 | I | 15 | 20 f bgs | 4B-250 | DOMESTIC | Ceramics | Semi-Porcelain, plain | | 1 | | | Body | | 1880 | | |
| 116 | | 47 | I | 15 | 20 f bgs | 4B-250 | DOMESTIC | ABM | Clear glass | | 2 | | | Body | | 1903 | | |
| 116 | | 47 | I | 15 | 20 f bgs | 4B-250 | DOMESTIC | ABM | Olive green glass | | 2 | | | Body | | 1903 | | |
| 117 | | 47 | I | 15 | 20 f bgs | 4B-250 | ARCHITECTURE | Flat Glass | Window glass, 1.15 | | 1 | | | | | 1810 | 1810 | |
| 117 | | 47 | I | 15 | 20 f bgs | 4B-250 | ARCHITECTURE | Flat Glass | Window glass, 1.29 | | 1 | | | | | 1821 | 1821 | |
| 117 | | 47 | I | 15 | 20 f bgs | 4B-250 | ARCHITECTURE | Flat Glass | Window glass, 1.69 | | 1 | | | | | 1855 | 1855 | |
| 118 | | 48 | I | 0 | 5 f bgs | 4B-267 | ARCHITECTURE | Nails | Cut nail, 9d, common, pulled | | 1 | | | | | 1830 | 1880 | late machine headed |
| 119 | | 48 | I | 0 | 5 f bgs | 4B-267 | ARCHITECTURE | Flat Glass | Plate glass | | 1 | | | | | 1917 | 1917 | |
| 120 | | 48 | I | 0 | 5 f bgs | 4B-267 | MAINT./SUB. | Fuels | Coal | | 1 | 0.9 | | | | | | |
| 121 | | 48 | I | 0 | 5 f bgs | 4B-267 | UNIDENTIFIED | Metal | Iron/ steel, amorphous | | 1 | 2 | | | | | | |
| 122 | | 49 | I | 5 | 10 f bgs | 4B-267 | DOMESTIC | BIM (Blown in Mold) | Aqua glass, unidentified | | 1 | | Misc. bottle | Lip | | | | blob lip |

| Cat # | Zone | Bag # | Phase | Upper | Lower | Misc Prov | Group | Class | Type | Burned | N | Weight | Vessel code | Vessel part | ID | MinDate | MaxDate | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 123 | | 49 | I | 5 | 10 f bgs | 4B-267 | DOMESTIC | ABM | Clear glass | | 5 | | | Body | | 1903 | | |
| 124 | | 49 | I | 5 | 10 f bgs | 4B-267 | DOMESTIC | Glass Tableware | Press mold, clear | | 1 | | Tumbler | Base | | 1864 | | shovel damage |
| 125 | | 49 | I | 5 | 10 f bgs | 4B-267 | ARCHITECTURE | Flat Glass | Window glass, 1.73 | | 1 | | | | | 1858 | 1858 | |
| 126 | | 49 | I | 5 | 10 f bgs | 4B-267 | MAINT./SUB. | Fuels | Coal | | 1 | 4 | | | | | | |
| 127 | | 49 | I | 5 | 10 f bgs | 4B-267 | FLORAL and FAUNAL | Faunal Remains | Bone / teeth | | 1 | 0.1 | | | | | | |
| 128 | | 50 | I | 10 | 15 f bgs | 4B-267 | DOMESTIC | Ceramics | Porcelain, plain | | 1 | | | Body | | | | |
| 129 | | 50 | I | 10 | 15 f bgs | 4B-267 | DOMESTIC | BIM (Blown in Mold) | Aqua glass | | 1 | | | Body | | | | |
| 129 | | 50 | I | 10 | 15 f bgs | 4B-267 | DOMESTIC | BIM (Blown in Mold) | Aqua glass, embossed | | 1 | | | Body | | 1856 | 1920 | "...CE..." |
| 130 | | 50 | I | 10 | 15 f bgs | 4B-267 | DOMESTIC | ABM | Clear glass | | 4 | | | Body | | 1903 | | |
| 130 | | 50 | I | 10 | 15 f bgs | 4B-267 | DOMESTIC | ABM | Opaque white glass | | 2 | | | Body | | 1903 | | |
| 131 | | 50 | I | 10 | 15 f bgs | 4B-267 | ARCHITECTURE | Nails | Cut nail, 5d, common, pulled | | 1 | | | | | 1830 | 1880 | late machine headed |
| 131 | | 50 | I | 10 | 15 f bgs | 4B-267 | ARCHITECTURE | Nails | Cut nail, fragment | | 1 | | | | | 1830 | 1880 | late machine headed |
| 132 | | 50 | I | 10 | 15 f bgs | 4B-267 | ARCHITECTURE | Flat Glass | Window glass, 1.46 | | 1 | | | | | 1836 | 1836 | |
| 132 | | 50 | I | 10 | 15 f bgs | 4B-267 | ARCHITECTURE | Flat Glass | Window glass, 2.16 | | 1 | | | | | 1895 | 1895 | |
| 132 | | 50 | I | 10 | 15 f bgs | 4B-267 | ARCHITECTURE | Flat Glass | Window glass, 1.77 | | 1 | | | | | 1862 | 1862 | |
| 132 | | 50 | I | 10 | 15 f bgs | 4B-267 | ARCHITECTURE | Flat Glass | Window glass, 1.8 | | 1 | | | | | 1864 | 1864 | |
| 132 | | 50 | I | 10 | 15 f bgs | 4B-267 | ARCHITECTURE | Flat Glass | Plate glass | | 1 | | | | | 1917 | 1917 | |
| 133 | | 50 | I | 10 | 15 f bgs | 4B-267 | PERSONAL | Tobacco | Pipe, stoneware, bowl fragment, molded ribs | | 1 | | | | | | | |
| 134 | | 50 | I | 10 | 15 f bgs | 4B-267 | FURNISHINGS | Decorative Elements | Other, metal | | 1 | | | | | | | brass picture hanging hardware |
| 135 | | 50 | I | 10 | 15 f bgs | 4B-267 | MAINT./SUB. | General Hardware | Rivet, iron/steel, wrought/handmade | | 1 | | | | | | | |
| 136 | | 50 | I | 10 | 15 f bgs | 4B-267 | MAINT./SUB. | Fuels | Coal | | 1 | 0.6 | | | | | | |
| 137 | | 50 | I | 10 | 15 f bgs | 4B-267 | FLORAL and FAUNAL | Faunal Remains | Bone / teeth | | 3 | 1.5 | | | | | | |
| 138 | | 50 | I | 10 | 15 f bgs | 4B-267 | FLORAL and FAUNAL | Faunal Remains | Unidentified Shell | | 3 | 3.9 | | | | | | |
| 139 | | 51 | I | 15 | 20 f bgs | 4B-267 | DOMESTIC | Undiag. Cont. Frag | Clear glass | | 1 | | | Body | | 1864 | | |
| 140 | | 51 | I | 15 | 20 f bgs | 4B-267 | ARCHITECTURE | Flat Glass | Window glass, 2.03 | | 1 | | | | | 1884 | 1884 | |
| 141 | | 51 | I | 15 | 20 f bgs | 4B-267 | FLORAL and FAUNAL | Faunal Remains | Bone / teeth | | 1 | 0.1 | | | | | | |
| 142 | | 51 | I | 15 | 20 f bgs | 4B-267 | UNIDENTIFIED | Biological material | Leather | | 1 | 3.9 | | | | | | |
| 143 | | 52 | I | 0 | 5 f bgs | 4B-270 | DOMESTIC | Ceramics | Whiteware, plain | | 4 | | | Body | | 1830 | | two mend together |
| 144 | | 52 | I | 0 | 5 f bgs | 4B-270 | DOMESTIC | Ceramics | Ironstone, plain | | 1 | | | Body | | 1840 | | |
| 145 | | 52 | I | 0 | 5 f bgs | 4B-270 | DOMESTIC | BIM (Blown in Mold) | Clear glass | | 1 | | | Body | | 1864 | | |
| 145 | | 52 | I | 0 | 5 f bgs | 4B-270 | DOMESTIC | BIM (Blown in Mold) | Aqua glass, cup/post bottom mold | | 1 | | Misc. bottle | Base | | 1850 | | post bottom embossed "...S" |
| 146 | | 52 | I | 0 | 5 f bgs | 4B-270 | DOMESTIC | ABM | Clear glass | | 2 | | | Body | | 1903 | | |
| 146 | | 52 | I | 0 | 5 f bgs | 4B-270 | DOMESTIC | ABM | Olive green glass | | 2 | | | Body | | 1903 | | |
| 147 | | 52 | I | 0 | 5 f bgs | 4B-270 | UNIDENTIFIED | Plastic | Cellophane, item/part | | 1 | | | | Y | 1971 | | part of "Munchos" packaging by Frito Lay; introduced in 1971 (PepsiCo 2006) |
| 148 | | 52 | I | 0 | 5 f bgs | 4B-270 | ARCHITECTURE | Nails | Cut nail, 12d, common, pulled | | 1 | | | | | 1830 | 1880 | late machine headed |
| 149 | | 52 | I | 0 | 5 f bgs | 4B-270 | ARCHITECTURE | Nails | Cut nail, fragment | | 1 | | | | | 1800 | 1880 | unidentified cut |
| 150 | | 52 | I | 0 | 5 f bgs | 4B-270 | ARCHITECTURE | Flat Glass | Window glass, 1.85 | | 1 | | | | | 1869 | 1869 | |
| 150 | | 52 | I | 0 | 5 f bgs | 4B-270 | ARCHITECTURE | Flat Glass | Plate glass | | 1 | | | | | 1917 | 1917 | |
| 150 | | 52 | I | 0 | 5 f bgs | 4B-270 | ARCHITECTURE | Flat Glass | Window glass, 2.24 | | 1 | | | | | 1901 | 1901 | |
| 150 | | 52 | I | 0 | 5 f bgs | 4B-270 | ARCHITECTURE | Flat Glass | Plate glass | | 1 | | | | | 1917 | 1917 | |
| 150 | | 52 | I | 0 | 5 f bgs | 4B-270 | ARCHITECTURE | Flat Glass | Window glass, 1.76 | | 1 | | | | | 1861 | 1861 | |
| 150 | | 52 | I | 0 | 5 f bgs | 4B-270 | ARCHITECTURE | Flat Glass | Window glass, 1.68 | | 1 | | | | | 1854 | 1854 | |
| 150 | | 52 | I | 0 | 5 f bgs | 4B-270 | ARCHITECTURE | Flat Glass | Window glass, 2.14 | | 1 | | | | | 1893 | 1893 | |
| 150 | | 52 | I | 0 | 5 f bgs | 4B-270 | ARCHITECTURE | Flat Glass | Window glass, 1.26 | | 1 | | | | | 1819 | 1819 | |
| 150 | | 52 | I | 0 | 5 f bgs | 4B-270 | ARCHITECTURE | Flat Glass | Window glass, 1.93 | | 1 | | | | | 1875 | 1875 | |
| 150 | | 52 | I | 0 | 5 f bgs | 4B-270 | ARCHITECTURE | Flat Glass | Window glass, 2.1 | | 1 | | | | | 1890 | 1890 | |
| 150 | | 52 | I | 0 | 5 f bgs | 4B-270 | ARCHITECTURE | Flat Glass | Plate glass | | 1 | | | | | 1917 | 1917 | |
| 150 | | 52 | I | 0 | 5 f bgs | 4B-270 | ARCHITECTURE | Flat Glass | Window glass, 2.09 | | 1 | | | | | 1889 | 1889 | |
| 150 | | 52 | I | 0 | 5 f bgs | 4B-270 | ARCHITECTURE | Flat Glass | Window glass, 1.37 | | 1 | | | | | 1828 | 1828 | |
| 150 | | 52 | I | 0 | 5 f bgs | 4B-270 | ARCHITECTURE | Flat Glass | Window glass, 1.86 | | 1 | | | | | 1869 | 1869 | |
| 150 | | 52 | I | 0 | 5 f bgs | 4B-270 | ARCHITECTURE | Flat Glass | Window glass, 1.74 | | 1 | | | | | 1859 | 1859 | |
| 150 | | 52 | I | 0 | 5 f bgs | 4B-270 | ARCHITECTURE | Flat Glass | Plate glass | | 1 | | | | | 1917 | 1917 | |
| 150 | | 52 | I | 0 | 5 f bgs | 4B-270 | ARCHITECTURE | Flat Glass | Window glass, 1.44 | | 1 | | | | | 1834 | 1834 | |
| 151 | | 52 | I | 0 | 5 f bgs | 4B-270 | CLOTHING | Buttons | Sew - through, flat, one piece, four holes, porcelain | | 1 | | | | | 1840 | | 11/16" |
| 152 | | 52 | I | 0 | 5 f bgs | 4B-270 | MAINT./SUB. | Fuels | Coal | | 4 | 5.1 | | | | | | |
| 153 | | 52 | I | 0 | 5 f bgs | 4B-270 | UNIDENTIFIED | Metal | Aluminum, flat, thin | | 1 | 0.4 | | | | | | |
| 154 | | 53 | I | | SURFACE | 1W-77 | ARCHITECTURE | Const. Mat. | Brick, handmade, non-vitrified | | 1 | 543.6 | | | | | | 2.5YR4/4 reddish brown; 5.4 cm thick, 9.9 cm wide |
| 155 | | 53 | I | | SURFACE | 1W-77 | ARCHITECTURE | Const. Mat. | Brick, machine made, non-vitrified | | 1 | 3606.06 | | | | | | 2.5YR4/6 red; 7.7 cm thick, 9.9 cm wide, 22.7 cm long; "IRONTON F.B. CO. / PAVER" (see note in folder) |
| 156 | | 54 | I | 0 | 8 f bgs | 4B-248 | DOMESTIC | ABM | Clear glass | | 1 | | | Body | | 1903 | | |
| 156 | | 54 | I | 0 | 8 f bgs | 4B-248 | DOMESTIC | ABM | Aqua glass | | 1 | | | Body | | 1903 | | |
| 157 | | 54 | I | 0 | 8 f bgs | 4B-248 | ARCHITECTURE | Const. Mat. | Brick, handmade, non-vitrified | | 1 | 581.2 | | | | | | 10R4/6 red; 5.6 cm thick, 10.3 cm wide |
| 158 | | 54 | I | 0 | 8 f bgs | 4B-248 | ARCHITECTURE | Const. Mat. | Brick, handmade, non-vitrified | | 1 | 596.7 | | | | | | 5YR5/6 yellowish red; 6.2 cm thick, |
| 159 | | 54 | I | 0 | 8 f bgs | 4B-248 | ARCHITECTURE | Flat Glass | Window glass, 1.84 | | 1 | | | | | 1868 | 1868 | |
| 159 | | 54 | I | 0 | 8 f bgs | 4B-248 | ARCHITECTURE | Flat Glass | Window glass, 2.43 | | 1 | | | | | 1917 | 1917 | |
| 160 | | 54 | I | 0 | 8 f bgs | 4B-248 | UNIDENTIFIED | Biological material | Leather | | 1 | 0.3 | | | | | | |
| 161 | | 55 | I | 0 | 5 f bgs | 4B-268 | ARCHITECTURE | Flat Glass | Plate glass | | 1 | | | | | 1917 | 1917 | |
| 161 | | 55 | I | 0 | 5 f bgs | 4B-268 | ARCHITECTURE | Flat Glass | Window glass, 2.23 | | 1 | | | | | 1901 | 1901 | |
| 161 | | 55 | I | 0 | 5 f bgs | 4B-268 | ARCHITECTURE | Flat Glass | Window glass, 1.55 | | 1 | | | | | 1843 | 1843 | |
| 161 | | 55 | I | 0 | 5 f bgs | 4B-268 | ARCHITECTURE | Flat Glass | Plate glass | | 1 | | | | | 1917 | 1917 | |
| 161 | | 55 | I | 0 | 5 f bgs | 4B-268 | ARCHITECTURE | Flat Glass | Window glass, 1.74 | | 1 | | | | | 1859 | 1859 | |
| 162 | | 55 | I | 0 | 5 f bgs | 4B-268 | FLORAL and FAUNAL | Faunal Remains | Unidentified Shell | | 2 | 1 | | | | | | |
| 163 | | 56 | I | 5 | 10 f bgs | 4B-268 | DOMESTIC | Ceramics | Whiteware, plain | | 1 | | | Base | | 1830 | | "WARRANTED / IRONSTONE CHINA / *fleur-de-lis emblem* / TRADEMARK" common motif used by many factories |
| 164 | | 56 | I | 5 | 10 f bgs | 4B-268 | DOMESTIC | ABM | Clear glass | | 4 | | | Body | | 1903 | | |
| 165 | | 56 | I | 5 | 10 f bgs | 4B-268 | ARCHITECTURE | Flat Glass | Window glass, 2.01 | | 1 | | | | | 1882 | 1882 | |
| 165 | | 56 | I | 5 | 10 f bgs | 4B-268 | ARCHITECTURE | Flat Glass | Plate glass | | 1 | | | | | 1917 | 1917 | |
| 166 | | 56 | I | 5 | 10 f bgs | 4B-268 | ARCHITECTURE | Flat Glass | Plate glass | | 1 | | | | | 1917 | 1917 | |
| 167 | | 56 | I | 5 | 10 f bgs | 4B-268 | UNIDENTIFIED | Glass | Amorphous | | 5 | 4.6 | | | | | | not burned; chipped pieces of olive green (black) glass |
| 168 | | 57 | I | 10 | 15 f bgs | 4B-268 | DOMESTIC | Ceramics | Stoneware, Albany slip ext. | Y | 1 | | | Body | | 1830 | | eroded interior |
| 169 | | 57 | I | 10 | 15 f bgs | 4B-268 | DOMESTIC | ABM | Amber glass | | 2 | | | Body | | 1903 | | |
| 170 | | 57 | I | 10 | 15 f bgs | 4B-268 | MAINT./SUB. | Fuels | Cinder / slag | | 2 | 18.9 | | | | | | |

| Cat # | Zone | Bag # | Phase | Upper | Lower | Misc Prov | Group | Class | Type | Burned | N | Weight | Vessel code | Vessel part | ID | MinDate | MaxDate | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 171 | | 57 | I | 10 | 15 f bgs | 4B-268 | UNIDENTIFIED | Glass | Amorphous | | 4 | 3.1 | | | | | | not burned; aqua chunks |
| 172 | | 57 | I | 10 | 15 f bgs | 4B-268 | UNIDENTIFIED | Metal | Unidentified white metal, flat, thin | | 1 | 1 | | | | | | |
| 173 | | 58 | I | 15 | 20 f bgs | 4B-268 | ARCHITECTURE | Nails | Cut nail, fragment | | 1 | | | | | 1800 | 1880 | unidentified cut |
| 174 | | 58 | I | 15 | 20 f bgs | 4B-268 | MAINT./SUB. | General Hardware | Other, synthetic material | | 1 | | | | | | | woven tarp fabric |
| 175 | | 58 | I | 15 | 20 f bgs | 4B-286 | MAINT./SUB. | Fuels | Cinder / slag | | 3 | 14.1 | | | | | | |
| 176 | | 58 | I | 15 | 20 f bgs | 4B-268 | UNIDENTIFIED | Glass | Amorphous | Y | 2 | 8.1 | | | | | | |
| 177 | | 59 | I | | SURFACE | 3B-363 | DOMESTIC | Ceramics | Whiteware, decal, gold | | 1 | | | Base | | 1880 | | |
| 178 | | 59 | I | | SURFACE | 3B-363 | DOMESTIC | Ceramics | Ironstone, plain | | 1 | | Cup | Footring | | 1840 | | |
| 179 | | 59 | I | | SURFACE | 3B-363 | DOMESTIC | Ceramics | Porcelain, plain | | 1 | | | Body | | | | |
| 179 | | 59 | I | | SURFACE | 3B-363 | DOMESTIC | Ceramics | Porcelain, decal, more than one color | | 1 | | | Base | | 1880 | | |
| 180 | | 59 | I | | SURFACE | 3B-363 | DOMESTIC | Glass Tableware | Press mold, opaque white | | 1 | | Bowl | Body | | 1890 | | same vessel as rim |
| 180 | | 59 | I | | SURFACE | 3B-363 | DOMESTIC | Glass Tableware | Press mold, opaque white | | 1 | | Bowl | Rim | | 1890 | | same vessel as body |
| 181 | | 59 | I | | SURFACE | 3B-363 | DOMESTIC | Other Tableware | Tableware, plastic: other | | 1 | | Bowl | Rim | | 1950 | | |
| 182 | | 59 | I | | SURFACE | 3B-363 | ARCHITECTURE | Const. Mat. | Ceramic, wall/floor tile | | 1 | | | | | | | white glaze |
| 183 | | 59 | I | | SURFACE | 3B-363 | PERSONAL | Toys and Games | Miniature: tableware, ceramic | | 1 | | Bowl | Rim | | 1880 | | decal decorated porcelain |
| 184 | | 60 | I | 0 | 5 f bgs | 5B-294 | DOMESTIC | ABM | Clear glass | | 2 | | | Body | | 1903 | | |
| 185 | | 60 | I | 0 | 5 f bgs | 5B-294 | ARCHITECTURE | Flat Glass | Window glass, 2.22 | | 1 | | | | | 1900 | 1900 | |
| 186 | | 60 | I | 0 | 5 f bgs | 5B-294 | FLORAL and FAUNAL | Faunal Remains | Unidentified Shell | | 1 | 0.4 | | | | | | |
| 187 | | 60 | I | 0 | 5 f bgs | 5B-294 | UNIDENTIFIED | Glass | Amorphous | | 1 | 2.2 | | | | | | not burned; olive green (black) glass |
| 188 | | 61 | I | 5 | 10 f bgs | 5B-294 | ARCHITECTURE | Flat Glass | Window glass, 2.3 | | 1 | | | | | 1906 | 1906 | |
| 189 | | 61 | I | 5 | 10 f bgs | 5B-294 | FLORAL and FAUNAL | Faunal Remains | Unidentified Shell | | 12 | 25 | | | | | | |
| 190 | | 61 | I | 5 | 10 f bgs | 5B-294 | UNIDENTIFIED | Glass | Item/part | | 1 | 12 | | | | | | 16.15 mm thick; possibly glass block or tile fragment |
| 191 | | 62 | I | 0 | 5 f bgs | 5B-296 | DOMESTIC | ABM | Clear glass | | 1 | | | Body | | 1903 | | |
| 192 | | 62 | I | 0 | 5 f bgs | 5B-296 | ARCHITECTURE | Const. Mat. | Brick, indeterminate, non-vitrified | | 1 | 64.9 | | | | | | |
| 193 | | 62 | I | 0 | 5 f bgs | 5B-296 | MAINT./SUB. | Transportation | Vehicle part, other | | 1 | | | | | 1919 | | tempered automotive glass |
| 194 | | 63 | I | 5 | 10 f bgs | 5B-296 | PERSONAL | Jewelry and beads | Broach clasp, brass | | 1 | | | | | | | |
| 195 | | 64 | I | 5 | 10 f bgs | 5B-298 | ARCHITECTURE | Nails | Unidentifiable nail, fragment | | 1 | | | | | | | |
| 196 | | 64 | I | 5 | 10 f bgs | 5B-298 | ARCHITECTURE | Flat Glass | Plate glass | | 1 | | | | | 1917 | 1917 | |
| 197 | | 64 | I | 5 | 10 f bgs | 5B-298 | ARCHITECTURE | Flat Glass | Plate glass | | 2 | | | | | 1917 | 1917 | |
| 198 | | 65 | I | 10 | 15 f bgs | 5B-298 | DOMESTIC | ABM | Amber glass | | 1 | | | Body | | 1903 | | |
| 198 | | 65 | I | 10 | 15 f bgs | 5B-298 | DOMESTIC | ABM | Clear glass, enameled label | | 1 | | Soda / Mineral Water | Body | | 1935 | | |
| 199 | | 65 | I | 10 | 15 f bgs | 5B-298 | ARCHITECTURE | Flat Glass | Plate glass | | 1 | | | | | 1917 | 1917 | |
| 200 | | 66 | I | 0 | 10 f bgs | 5B-304 | DOMESTIC | Ceramics | Unidentified Refined White-bodied Ware, plain | Y | 1 | | | Body | | | | |
| 201 | | 66 | I | 0 | 10 f bgs | 5B-304 | DOMESTIC | ABM | Green glass, unidentified | | 1 | | | Base | | 1903 | | |
| 201 | | 66 | I | 0 | 10 f bgs | 5B-304 | DOMESTIC | ABM | Amber glass | | 4 | | | Body | | 1903 | | |
| 201 | | 66 | I | 0 | 10 f bgs | 5B-304 | DOMESTIC | ABM | Aqua glass | | 1 | | | Body | | 1903 | | |
| 201 | | 66 | I | 0 | 10 f bgs | 5B-304 | DOMESTIC | ABM | Light green glass, unidentified | | 1 | | | Base | | 1903 | | |
| 202 | | 66 | I | 0 | 10 f bgs | 5B-304 | DOMESTIC | Undiag. Cont. Frag | Clear glass | | 2 | | | Body | | 1864 | | |
| 203 | | 66 | I | 0 | 10 f bgs | 5B-304 | DOMESTIC | Utensils | Unidentified handle, plastic: other | | 1 | | | | | 1950 | | |
| 204 | | 66 | I | 0 | 10 f bgs | 5B-304 | DOMESTIC | Openers | Church Key | | 1 | | | | | 1935 | | |
| 205 | | 66 | I | 0 | 10 f bgs | 5B-304 | ARCHITECTURE | Const. Mat. | Brick, indeterminate, non-vitrified | | 2 | 3.4 | | | | | | |
| 206 | | 66 | I | 0 | 10 f bgs | 5B-304 | ARCHITECTURE | Nails | Cut nail, 8d, finish, pulled | | 1 | | | | | 1830 | 1880 | late machine headed |
| 207 | | 66 | I | 0 | 10 f bgs | 5B-304 | ARCHITECTURE | Nails | Wire nail, 8d, common, pulled | | 1 | | | | | 1880 | | |
| 207 | | 66 | I | 0 | 10 f bgs | 5B-304 | ARCHITECTURE | Nails | Wire nail, 16d, common, pulled | | 1 | | | | | 1880 | | |
| 207 | | 66 | I | 0 | 10 f bgs | 5B-304 | ARCHITECTURE | Nails | Wire nail, fragment | | 1 | | | | | 1880 | | |
| 208 | | 66 | I | 0 | 10 f bgs | 5B-304 | ARCHITECTURE | Flat Glass | Plate glass | | 1 | | | | | 1917 | 1917 | |
| 208 | | 66 | I | 0 | 10 f bgs | 5B-304 | ARCHITECTURE | Flat Glass | Plate glass | | 1 | | | | | 1917 | 1917 | |
| 208 | | 66 | I | 0 | 10 f bgs | 5B-304 | ARCHITECTURE | Flat Glass | Plate glass | | 1 | | | | | 1917 | 1917 | |
| 208 | | 66 | I | 0 | 10 f bgs | 5B-304 | ARCHITECTURE | Flat Glass | Plate glass | | 1 | | | | | 1917 | 1917 | |
| 208 | | 66 | I | 0 | 10 f bgs | 5B-304 | ARCHITECTURE | Flat Glass | Plate glass | | 1 | | | | | 1917 | 1917 | |
| 208 | | 66 | I | 0 | 10 f bgs | 5B-304 | ARCHITECTURE | Flat Glass | Plate glass | | 1 | | | | | 1917 | 1917 | |
| 209 | | 66 | I | 0 | 10 f bgs | 5B-304 | ARCHITECTURE | Flat Glass | Plate glass | | 11 | | | | | 1917 | 1917 | |
| 210 | | 66 | I | 0 | 10 f bgs | 5B-304 | ARCHITECTURE | Fittings and Hardware | Fixture: handle, chrome plated | | 1 | | | | | | | toilet handle |
| 210 | | 66 | I | 0 | 10 f bgs | 5B-304 | ARCHITECTURE | Fittings and Hardware | Other, brass | | 1 | | | | | | | perforated tub drain |
| 211 | | 66 | I | 0 | 10 f bgs | 5B-304 | MAINT./SUB. | General Hardware | Washer: flat, iron/steel | | 1 | | | | | | | 35.25 mm |
| 211 | | 66 | I | 0 | 10 f bgs | 5B-304 | MAINT./SUB. | General Hardware | Unidentified screw, aluminum | | 1 | | | | | | | |
| 211 | | 66 | I | 0 | 10 f bgs | 5B-304 | MAINT./SUB. | General Hardware | Nut: hex, iron/steel | | 1 | | | | | | | rusted to unid. bolt |
| 211 | | 66 | I | 0 | 10 f bgs | 5B-304 | MAINT./SUB. | General Hardware | Bolt: unidentified, iron/steel | | 1 | | | | | | | rusted to hex nut |
| 212 | | 66 | I | 0 | 10 f bgs | 5B-304 | MAINT./SUB. | General Hardware | Wire: smooth, iron/steel | | 5 | | | | | | | mm = 2.58, 2.46, 3.11, 1.95, 1.02 |
| 213 | | 66 | I | 0 | 10 f bgs | 5B-304 | MAINT./SUB. | Cans | Other, removable lid | | 1 | | | | | 1906 | | turpentine cap |
| 213 | | 66 | I | 0 | 10 f bgs | 5B-304 | MAINT./SUB. | Cans | Unidentified non-food can, unknown | | 1 | | | | | | | |
| 214 | | 66 | I | 0 | 10 f bgs | 5B-304 | MAINT./SUB. | Electrical | Wire: vinyl covered | | 3 | | | | | 1950 | | |
| 215 | | 66 | I | 0 | 10 f bgs | 5B-304 | MAINT./SUB. | Transportation | Vehicle part, tempered glass | | 1 | | | | | 1919 | | tempered automotive glass |
| 215 | | 66 | I | 0 | 10 f bgs | 5B-304 | MAINT./SUB. | Transportation | Vehicle part, tempered glass | Y | 1 | | | | | 1919 | | tempered automotive glass |
| 216 | | 66 | I | 0 | 10 f bgs | 5B-304 | UNIDENTIFIED | Ceramic | Porcelain | | 1 | | | | | | | unglazed irregular rim |
| 217 | | 66 | I | 0 | 10 f bgs | 5B-304 | UNIDENTIFIED | Glass | Amorphous | | 1 | 3.2 | | | | | | not burned; olive green (black) |
| 218 | | 66 | I | 0 | 10 f bgs | 5B-304 | UNIDENTIFIED | Metal | Iron/ steel, item/part | | 5 | 77 | | | | | | 2 bracket-like items, 1 strap?, 1 oblong strip, 1 no idea |
| 218 | | 66 | I | 0 | 10 f bgs | 5B-304 | UNIDENTIFIED | Metal | Iron/ steel, flat, thick | | 1 | 6.2 | | | | | | |
| 219 | | 66 | I | 0 | 10 f bgs | 5B-304 | UNIDENTIFIED | Metal | Iron/ steel, amorphous | | 12 | 218.7 | | | | | | |
| 220 | | 66 | I | 0 | 10 f bgs | 5B-304 | UNIDENTIFIED | Metal | Lead, amorphous | | 1 | 22.8 | | | | | | |
| 220 | | 66 | I | 0 | 10 f bgs | 5B-304 | UNIDENTIFIED | Metal | Aluminum, flat, thin | | 1 | 2.3 | | | | | | |
| 221 | | 66 | I | 0 | 10 f bgs | 5B-304 | UNIDENTIFIED | Metal | Unidentified, item/part | | 2 | 47.8 | | | | | | 1 flat strip with drilled hole, 1 bracket-like item |
| 222 | | 66 | I | 0 | 10 f bgs | 5B-304 | UNIDENTIFIED | Plastic | Modern, amorphous | | 7 | 6 | | | | | | |
| 222 | | 66 | I | 0 | 10 f bgs | 5B-304 | UNIDENTIFIED | Plastic | Unidentified plastic, item/part | | 1 | 3.8 | | | | | | translucent amber-colored tube |
| 223 | | 66 | I | 0 | 10 f bgs | 5B-304 | UNIDENTIFIED | Biological material | Rubber, cut/modified | | 6 | 13.8 | | | | | | |
| 224 | | 66 | I | 0 | 10 f bgs | 5B-304 | UNIDENTIFIED | Multiple materials | Item/part | | 3 | 43.2 | | | | | | thin aluminum backed by black plastic |
| 225 | | 67 | I | 0 | 5 f bgs | 5B-319 | DOMESTIC | Ceramics | Whiteware, plain | | 1 | | | Body | | 1830 | | |
| 225 | | 67 | I | 0 | 5 f bgs | 5B-319 | DOMESTIC | Ceramics | Whiteware, plain | | 1 | | | Footring | | 1830 | | |
| 225 | | 67 | I | 0 | 5 f bgs | 5B-319 | DOMESTIC | Ceramics | Whiteware, transfer print | | 2 | | | Body | | 1828 | 1860 | one body mends to rim |
| 225 | | 67 | I | 0 | 5 f bgs | 5B-319 | DOMESTIC | Ceramics | Whiteware, transfer print | | 1 | | | Rim | | 1828 | 1860 | mends to one body |

| Cat # | Zone | Bag # | Phase | Upper | Lower | Misc Prov | Group | Class | Type | Burned | N | Weight | Vessel code | Vessel part | ID | MinDate | MaxDate | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 226 | | 67 | I | 0 | 5 f bgs | 5B-319 | DOMESTIC | Ceramics | Ironstone, plain | | 2 | | | Body | | 1840 | | |
| 227 | | 67 | I | 0 | 5 f bgs | 5B-319 | DOMESTIC | Ceramics | Stoneware, Albany slip ext. | Y | 1 | | | Body | | 1830 | 1925 | |
| 228 | | 67 | I | 0 | 5 f bgs | 5B-319 | DOMESTIC | ABM | Clear glass | | 2 | | | Body | | 1903 | | |
| 228 | | 67 | I | 0 | 5 f bgs | 5B-319 | DOMESTIC | ABM | Olive green glass | | 3 | | | Body | | 1903 | | |
| 229 | | 67 | I | 0 | 5 f bgs | 5B-319 | DOMESTIC | Glass Tableware | Undiagnostic fragment, clear, cut | | 2 | | | Body | | 1864 | | etched/sand-blasted and cut |
| 230 | | 67 | I | 0 | 5 f bgs | 5B-319 | ARCHITECTURE | Flat Glass | Window glass, 2.17 | | 1 | | | | | 1895 | 1895 | |
| 230 | | 67 | I | 0 | 5 f bgs | 5B-319 | ARCHITECTURE | Flat Glass | Plate glass | | 1 | | | | | 1917 | 1917 | |
| 231 | | 67 | I | 0 | 5 f bgs | 5B-319 | PERSONAL | Toys and Games | Doll / doll part, bisque porcelain, head | | 1 | | | | | 1860 | | |
| 232 | | 67 | I | 0 | 5 f bgs | 5B-319 | MAINT./SUB. | Transportation | Vehicle part, tempered glass | | 2 | | | | | 1919 | | tempered automotive glass |
| 233 | | 67 | I | 0 | 5 f bgs | 5B-319 | FLORAL and FAUNAL | Faunal Remains | Unidentified Shell | | 1 | 0.2 | | | | | | |
| 234 | | 67 | I | 0 | 5 f bgs | 5B-319 | UNIDENTIFIED | Glass | Amorphous | | 2 | 3.2 | | | | | | not burned; olive green (black) |
| 235 | | 67 | I | 0 | 5 f bgs | 5B-319 | UNIDENTIFIED | Stone | Slate | | 1 | 0.9 | | | | | | |
| 236 | | 68 | I | 5 | 10 f bgs | 5B-319 | DOMESTIC | Ceramics | Whiteware, plain | | 10 | | | Body | | 1830 | | |
| 236 | | 68 | I | 5 | 10 f bgs | 5B-319 | DOMESTIC | Ceramics | Whiteware, plain | | 2 | | | Rim | | 1830 | | |
| 236 | | 68 | I | 5 | 10 f bgs | 5B-319 | DOMESTIC | Ceramics | Whiteware, plain | | 2 | | Saucer | Rim | | 1830 | | |
| 236 | | 68 | I | 5 | 10 f bgs | 5B-319 | DOMESTIC | Ceramics | Whiteware, plain | | 3 | | | Footring | | 1830 | | |
| 236 | | 68 | I | 5 | 10 f bgs | 5B-319 | DOMESTIC | Ceramics | Whiteware, plain | | 1 | | Cup | Footring | | 1830 | | |
| 236 | | 68 | I | 5 | 10 f bgs | 5B-319 | DOMESTIC | Ceramics | Whiteware, transfer print, blue | | 1 | | | Rim | | 1820 | 1860 | revival style - date should be later |
| 237 | | 68 | I | 5 | 10 f bgs | 5B-319 | DOMESTIC | Ceramics | Ironstone, plain | | 3 | | | Body | | 1840 | | |
| 238 | | 68 | I | 5 | 10 f bgs | 5B-319 | DOMESTIC | ABM | Clear glass | | 28 | | | Body | | 1903 | | |
| 238 | | 68 | I | 5 | 10 f bgs | 5B-319 | DOMESTIC | ABM | Clear glass, recessed panel | | 1 | | Medicine: Patent and Pharmacy | Body | | 1903 | | |
| 238 | | 68 | I | 5 | 10 f bgs | 5B-319 | DOMESTIC | ABM | Opaque white glass | | 4 | | | Body | | 1903 | | |
| 239 | | 68 | I | 5 | 10 f bgs | 5B-319 | DOMESTIC | Glass Tableware | Press mold, clear | | 1 | | Tumbler | Base | | 1864 | | |
| 239 | | 68 | I | 5 | 10 f bgs | 5B-319 | DOMESTIC | Glass Tableware | Undiagnostic fragment, clear | | 1 | | | Rim | | 1864 | | fire polished |
| 240 | | 68 | I | 5 | 10 f bgs | 5B-319 | ARCHITECTURE | Flat Glass | Plate glass | | 1 | | | | | 1917 | 1917 | |
| 240 | | 68 | I | 5 | 10 f bgs | 5B-319 | ARCHITECTURE | Flat Glass | Window glass, 2.11 | | 1 | | | | | 1890 | 1890 | |
| 240 | | 68 | I | 5 | 10 f bgs | 5B-319 | ARCHITECTURE | Flat Glass | Window glass, 2.02 | | 1 | | | | | 1883 | 1883 | |
| 240 | | 68 | I | 5 | 10 f bgs | 5B-319 | ARCHITECTURE | Flat Glass | Window glass, 2.29 | | 1 | | | | | 1906 | 1906 | |
| 240 | | 68 | I | 5 | 10 f bgs | 5B-319 | ARCHITECTURE | Flat Glass | Window glass, 2.12 | | 1 | | | | | 1891 | 1891 | |
| 240 | | 68 | I | 5 | 10 f bgs | 5B-319 | ARCHITECTURE | Flat Glass | Plate glass | | 1 | | | | | 1917 | 1917 | |
| 241 | | 68 | I | 5 | 10 f bgs | 5B-319 | MAINT./SUB. | Fuels | Cinder / slag | | 1 | 3.2 | | | | | | |
| 242 | | 68 | I | 5 | 10 f bgs | 5B-319 | FLORAL and FAUNAL | Faunal Remains | Bone / teeth | | 1 | 0.6 | | | | | | |
| 243 | | 68 | I | 5 | 10 f bgs | 5B-319 | UNIDENTIFIED | Glass | Amorphous | | 3 | 10.3 | | | | | | not burned; olive green (black) |
| 244 | | 69 | I | 5 | 15 f bgs | 5B-325 | DOMESTIC | Ceramics | Ironstone, plain | | 1 | | Bowl | Rim | | 1840 | | |
| 245 | | 69 | I | 5 | 15 f bgs | 5B-325 | DOMESTIC | Ceramics | Porcelain, plain | | 1 | | | Body | | | | |
| 246 | | 69 | I | 5 | 15 f bgs | 5B-325 | DOMESTIC | BIM (Blown in Mold) | Aqua glass, late applied, wax sealer | | 1 | | Canning Jar | Rim | | 1860 | | |
| 247 | | 69 | I | 5 | 15 f bgs | 5B-325 | DOMESTIC | ABM | Clear glass | | 7 | | | Body | | 1903 | | |
| 247 | | 69 | I | 5 | 15 f bgs | 5B-325 | DOMESTIC | ABM | Clear glass, embossed | | 3 | | Plate | Body | | 1903 | | all illegible |
| 247 | | 69 | I | 5 | 15 f bgs | 5B-325 | DOMESTIC | ABM | Clear glass, recessed panel | | 1 | | Medicine: Patent and Pharmacy | Body | | 1903 | | |
| 248 | | 69 | I | 5 | 15 f bgs | 5B-325 | ARCHITECTURE | Nails | Wire nail, fragment | | 1 | | | | | 1880 | | |
| 249 | | 69 | I | 5 | 15 f bgs | 5B-325 | PERSONAL | Health and Grooming | Tooth brush, plastic: modern | | 2 | | | | | 1930 | | 2 different items (1 red, 1 white) |
| 250 | | 69 | I | 5 | 15 f bgs | 5B-325 | MAINT./SUB. | Farming and Gardening | Common clay flower pot | | 1 | | | | | | | |
| 251 | | 69 | I | 5 | 15 f bgs | 5B-325 | MAINT./SUB. | General Hardware | Wire: smooth, iron/steel | | 1 | | | | | | | 2.21 mm |
| 252 | | 69 | I | 5 | 15 f bgs | 5B-325 | MAINT./SUB. | Cans | Unidentified non-food can, unknown | | 4 | | | | | | | |
| 253 | | 69 | I | 5 | 15 f bgs | 5B-325 | MAINT./SUB. | Transportation | Vehicle part, gas tank cap | | 1 | | | | | | | gas tank cap |
| 254 | | 69 | I | 5 | 15 f bgs | 5B-325 | MAINT./SUB. | Fuels | Coal | | 1 | 1.1 | | | | | | |
| 255 | | 69 | I | 5 | 15 f bgs | 5B-325 | FLORAL and FAUNAL | Faunal Remains | Unidentified Shell | | 3 | 4.7 | | | | | | |
| 256 | | 69 | I | 5 | 15 f bgs | 5B-325 | UNIDENTIFIED | Glass | Amorphous | | 5 | 34.7 | | | | | | not burned; olive green (black) |
| 257 | | 70 | I | 0 | 5 f bgs | 5B-326 | DOMESTIC | Ceramics | Whiteware, chromatic glaze, brown | | 1 | | | Body | | 1930 | | |
| 258 | | 70 | I | 0 | 5 f bgs | 5B-326 | UNIDENTIFIED | Glass | Amorphous | | 2 | 1 | | | | | | not burned; olive green (black) |
| 259 | | 71 | I | 5 | 10 f bgs | 5B-326 | ARCHITECTURE | Flat Glass | Window glass, 2.35 | | 1 | | | | | 1911 | 1911 | |
| 260 | | 72 | I | 10 | 15 f bgs | 5B-326 | DOMESTIC | Ceramics | Stoneware, salt glaze ext., Albany slip int. | | 1 | | | Base | | 1830 | 1925 | |
| 260 | | 72 | I | 10 | 15 f bgs | 5B-326 | DOMESTIC | Ceramics | Stoneware, Bristol slip ext., Albany slip int. | | 1 | | | Body | | 1890 | 1925 | |
| 261 | | 72 | I | 10 | 15 f bgs | 5B-326 | DOMESTIC | BIM (Blown in Mold) | Clear glass | | 31 | | | Body | | 1864 | | |
| 261 | | 72 | I | 10 | 15 f bgs | 5B-326 | DOMESTIC | BIM (Blown in Mold) | Light green glass | | 13 | | | Body | | | | |
| 261 | | 72 | I | 10 | 15 f bgs | 5B-326 | DOMESTIC | BIM (Blown in Mold) | Amber glass | | 4 | | | Body | | 1860 | | |
| 261 | | 72 | I | 10 | 15 f bgs | 5B-326 | DOMESTIC | BIM (Blown in Mold) | Olive green glass | | 1 | | | Body | | | | |
| 262 | | 72 | I | 10 | 15 f bgs | 5B-326 | DOMESTIC | BIM (Blown in Mold) | Clear glass, late applied, prescription | | 2 | | Medicine: Patent and Pharmacy | Lip | | 1864 | 1920 | 2 vessels |
| 262 | | 72 | I | 10 | 15 f bgs | 5B-326 | DOMESTIC | BIM (Blown in Mold) | Clear glass, unidentified | | 1 | | | Lip | | 1864 | | |
| 262 | | 72 | I | 10 | 15 f bgs | 5B-326 | DOMESTIC | BIM (Blown in Mold) | Aqua glass, late applied, wine/brandy | | 1 | | Liquor / Beer / Wine | Lip | | 1860 | 1920 | |
| 263 | | 72 | I | 10 | 15 f bgs | 5B-326 | DOMESTIC | Container Closures | Home Canning Jars, glass lid for lightning | | 1 | | | | | 1877 | 1960 | |
| 264 | | 72 | I | 10 | 15 f bgs | 5B-326 | ARCHITECTURE | Flat Glass | Plate glass | | 1 | | | | | 1917 | 1917 | |
| 264 | | 72 | I | 10 | 15 f bgs | 5B-326 | ARCHITECTURE | Flat Glass | Window glass, 2.18 | | 1 | | | | | 1896 | 1896 | |
| 265 | | 72 | I | 10 | 15 f bgs | 5B-326 | ARCHITECTURE | Flat Glass | Plate glass | | 1 | | | | | 1917 | 1917 | |
| 266 | | 72 | I | 10 | 15 f bgs | 5B-326 | ARCHITECTURE | Const. Mat. | Mortar | | 1 | 3.5 | | | | | | |
| 267 | | 73 | I | 15 | 20 f bgs | 5B-326 | DOMESTIC | Ceramics | Whiteware, plain | | 1 | | | Body | | 1830 | | |
| 268 | | 73 | I | 15 | 20 f bgs | 5B-326 | DOMESTIC | BIM (Blown in Mold) | Clear glass | | 9 | | | Body | | 1864 | | |
| 268 | | 73 | I | 15 | 20 f bgs | 5B-326 | DOMESTIC | BIM (Blown in Mold) | Clear glass, embossed | | 1 | | | Body | | 1864 | | illegible |
| 269 | | 73 | I | 15 | 20 f bgs | 5B-326 | DOMESTIC | BIM (Blown in Mold) | Light green glass | | 3 | | | Body | | | | |
| 269 | | 73 | I | 15 | 20 f bgs | 5B-326 | DOMESTIC | BIM (Blown in Mold) | Light green glass, embossed | | 1 | | | Body | | 1856 | | decorative "J..." |
| 269 | | 73 | I | 15 | 20 f bgs | 5B-326 | DOMESTIC | BIM (Blown in Mold) | Light green glass, late applied, blob | | 1 | | | Lip | | 1860 | | |
| 270 | | 73 | I | 15 | 20 f bgs | 5B-326 | DOMESTIC | BIM (Blown in Mold) | Amber glass | | 2 | | | Body | | 1860 | | |
| 270 | | 73 | I | 15 | 20 f bgs | 5B-326 | DOMESTIC | BIM (Blown in Mold) | Amber glass, embossed | | 1 | | | Body | | 1860 | | "...M..." |
| 271 | | 73 | I | 15 | 20 f bgs | 5B-326 | ARCHITECTURE | Const. Mat. | Brick, handmade, vitrified | | 1 | 10.4 | | | | | | GLEY1 4/N dark gray |
| 272 | | 73 | I | 15 | 20 f bgs | 5B-326 | ARCHITECTURE | Fittings and Hardware | Stoneware water pipe | | 1 | 19.2 | | | | | | |
| 273 | | 73 | I | 15 | 20 f bgs | 5B-326 | ARCHITECTURE | Flat Glass | Plate glass | | 1 | | | | | 1917 | 1917 | |
| 274 | | 73 | I | 15 | 20 f bgs | 5B-326 | UNIDENTIFIED | Metal | Iron/ steel, flat, thin | | 3 | 1.4 | | | | | | |
| 275 | | 74 | I | 10 | 18 f bgs | 5B-328 | ARCHITECTURE | Nails | Wire nail, 7d, common, clinched | | 1 | | | | | 1880 | | |
| 276 | | 74 | I | 10 | 18 f bgs | 5B-328 | ARCHITECTURE | Nails | Unidentifiable nail, fragment | | 3 | | | | | | | |
| 277 | | 74 | I | 10 | 18 f bgs | 5B-328 | MAINT./SUB. | Fuels | Coal | | 1 | 4.1 | | | | | | |

| Cat # | Zone | Bag # | Phase | Upper | Lower | Misc Prov | Group | Class | Type | Burned | N | Weight | Vessel code | Vessel part | ID | MinDate | MaxDate | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 278 | | 74 | I | 10 | 18 f bgs | 5B-328 | UNIDENTIFIED | Glass | Amorphous | | 16 | 173.6 | | | | | | not burned; olive green (black) |
| 279 | | 20 | I | 5 | 15 f bgs | 2W-391 | DOMESTIC | Ceramics | Unidentified Refined White-bodied Ware, plain | Y | 1 | | | Body | | | | |
| 280 | | 21 | I | 0 | 5 f bgs | 2W-125 | DOMESTIC | ABM | Clear glass | | 3 | | | Body | | 1903 | | |
| 280 | | 21 | I | 0 | 5 f bgs | 2W-125 | DOMESTIC | ABM | Amber glass | | 1 | | | Body | | 1903 | | |
| 281 | | 21 | I | 0 | 5 f bgs | 2W-125 | FLORAL and FAUNAL | Faunal Remains | Bone / teeth | | 1 | 0.2 | | | | | | |
| 282 | | 22 | I | 5 | 10 f bgs | 2W-125 | DOMESTIC | ABM | Clear glass | | 1 | | | Body | | 1903 | | |
| 282 | | 22 | I | 5 | 10 f bgs | 2W-125 | DOMESTIC | ABM | Clear glass, valve mark | | 1 | | | Base | | 1903 | | valve mark |
| 283 | | 23 | I | 0 | 10 f bgs | 2W-146 | ARCHITECTURE | Const. Mat. | Brick, indeterminate, non-vitrified | | 2 | 28.7 | | | | | | |
| 284 | | 24 | I | 10 | 20 f bgs | 2W-146 | DOMESTIC | ABM | Clear glass | | 2 | | | Body | | 1903 | | |
| 285 | | 24 | I | 10 | 20 f bgs | 2W-146 | ARCHITECTURE | Const. Mat. | Brick, indeterminate, non-vitrified | | 9 | 113.9 | | | | | | |
| 286 | | 24 | I | 10 | 20 f bgs | 2W-146 | FLORAL and FAUNAL | Faunal Remains | Bone / teeth | | 1 | 0.4 | | | | | | |
| 287 | | 25 | I | 0 | 5 f bgs | 3W-208 | DOMESTIC | ABM | Clear glass | | 2 | | | Body | | 1903 | | |
| 288 | | 25 | I | 0 | 5 f bgs | 3W-208 | MAINT./SUB. | Transportation | Vehicle part, tire/tube | | 1 | | | | | | | steel belted |
| 289 | | 26 | I | 0 | 5 f bgs | 3W-209 | DOMESTIC | ABM | Clear glass | | 15 | | | Body | | 1903 | | |
| 289 | | 26 | I | 0 | 5 f bgs | 3W-209 | DOMESTIC | ABM | Clear glass | | 1 | | Misc. bottle | Body | | 1903 | | |
| 289 | | 26 | I | 0 | 5 f bgs | 3W-209 | DOMESTIC | ABM | Amber glass, individual suction | | 1 | | Misc. bottle | Base | | 1920 | | |
| 290 | | 26 | I | 0 | 5 f bgs | 3W-209 | FLORAL and FAUNAL | Faunal Remains | Unidentified Shell | | 1 | 0.4 | | | | | | |
| 291 | | 27 | I | 5 | 10 f bgs | 3W-209 | DOMESTIC | ABM | Clear glass | | 4 | | | Body | | 1903 | | |
| 292 | | 27 | I | 5 | 10 f bgs | 3W-209 | ARCHITECTURE | Fittings and Hardware | Stoneware water pipe | | 1 | 26.1 | | | | | | |
| 293 | | 27 | I | 5 | 10 f bgs | 3W-209 | FLORAL and FAUNAL | Faunal Remains | Unidentified Shell | | 1 | 0.6 | | | | | | |
| 294 | | 28 | I | 5 | 10 f bgs | 1B-32 | DOMESTIC | ABM | Clear glass | | 1 | | | Body | | 1903 | | |
| 295 | | 29 | I | 0 | 4 f bgs | 3B-364 | DOMESTIC | ABM | Clear glass | | 1 | | | Body | | 1903 | | |
| 295 | | 29 | I | 0 | 4 f bgs | 3B-364 | DOMESTIC | ABM | Clear glass, external thread | | 1 | | Misc. jar | Rim | | 1903 | | |
| 296 | | 30 | I | 4 | 10 f bgs | 3B-364 | DOMESTIC | BIM (Blown in Mold) | Clear glass, embossed | | 1 | | | Body | | 1864 | 1920 | embossed |
| 297 | | 30 | I | 4 | 10 f bgs | 3B-364 | DOMESTIC | ABM | Clear glass | | 1 | | | Body | | 1903 | | |
| 298 | | 30 | I | 4 | 10 f bgs | 3B-364 | MAINT./SUB. | Fuels | Cinder / slag | | 1 | 1.5 | | | | | | |
| 299 | | 30 | I | 4 | 10 f bgs | 3B-364 | UNIDENTIFIED | Glass | Amorphous | Y | 1 | 1.9 | | | | | | |
| 300 | | 30 | I | 4 | 10 f bgs | 3B-364 | UNIDENTIFIED | Biological material | Other, item/part | | 2 | | | | | 1851 | | hard rubber lid-like item |
| 301 | | 31 | I | 0 | 10 f bgs | 3B-183 | DOMESTIC | Ceramics | Ironstone, plain | | 1 | | | Footring | | 1840 | | |
| 302 | | 32 | I | 0 | 5 f bgs | 3R-384 | DOMESTIC | BIM (Blown in Mold) | Clear glass | | 1 | | | Body | | 1864 | | |
| 302 | | 32 | I | 0 | 5 f bgs | 3R-384 | DOMESTIC | BIM (Blown in Mold) | Aqua glass | | 3 | | | Body | | | | |
| 302 | | 32 | I | 0 | 5 f bgs | 3R-384 | DOMESTIC | BIM (Blown in Mold) | Aqua glass, recessed panel | | 1 | | Misc. bottle | Body | | | | |
| 303 | | 32 | I | 0 | 5 f bgs | 3R-384 | DOMESTIC | ABM | Clear glass | | 2 | | | Body | | 1903 | | |
| 304 | | 32 | I | 0 | 5 f bgs | 3R-384 | DOMESTIC | Other Tableware | Tableware, plastic cup rim | | 1 | | Cup | Rim | | 1950 | | disposable cup rim |
| 305 | | 32 | I | 0 | 5 f bgs | 3R-384 | ARCHITECTURE | Flat Glass | Window glass, 2.18 | | 1 | | | | | 1896 | 1896 | |
| 306 | | 32 | I | 0 | 5 f bgs | 3R-384 | ARCHITECTURE | Flat Glass | Plate glass | | 2 | | | | | 1917 | 1917 | |
| 307 | | 32 | I | 0 | 5 f bgs | 3R-384 | UNIDENTIFIED | Plastic | Modern, amorphous | | 1 | 0.1 | | | | | | |
| 307 | | 32 | I | 0 | 5 f bgs | 3R-384 | UNIDENTIFIED | Plastic | Modern, item/part | | 2 | 0.2 | | | | | | black plastic fabric with stitch holes |
| 308 | | 33 | I | 5 | 10 f bgs | 3R-384 | ARCHITECTURE | Const. Mat. | Brick, indeterminate, non-vitrified | | 4 | 86.4 | | | | | | |
| 309 | | 33 | I | 5 | 10 f bgs | 3R-384 | ARCHITECTURE | Flat Glass | Plate glass | | 1 | | | | | 1917 | 1917 | |
| 310 | | 33 | I | 5 | 10 f bgs | 3R-384 | FURNISHINGS | Decorative Elements | Unid furniture ceramic, porcelain | | 1 | | | | | | | porcelain with molded, blue glazed exterior and unglazed interior |
| 311 | | 34 | I | | SURFACE | 3R-384 | DOMESTIC | Ceramics | Stoneware, salt glaze ext., unglazed int. | | 1 | | Misc. bottle | Body | | 1800 | 1925 | |
| 312 | | 35 | I | | SURFACE | 3R-384 railroad area | ARCHITECTURE | Const. Mat. | Brick, handmade, non-vitrified | | 1 | 1292.3 | | | | | | 10R3/6 dark red; 5.6 cm thick, 10.1 cm wide |
| 313 | | 36 | I | | SURFACE | 3R-384 railroad area | ARCHITECTURE | Const. Mat. | Brick, handmade, non-vitrified | | 1 | 1271.1 | | | | | | 10R4/8 red; 5.8 cm thick, 10.2 cm wide |
| 314 | | 75 | I | 0 | 7 f bgs | 3B-197 | DOMESTIC | Ceramics | Whiteware, plain | | 1 | | | Body | | 1830 | | |
| 314 | | 75 | I | 0 | 7 f bgs | 3B-197 | DOMESTIC | Ceramics | Whiteware, plain | | 1 | | | Footring | | 1830 | | |
| 315 | | 75 | I | 0 | 7 f bgs | 3B-197 | DOMESTIC | ABM | Clear glass | | 5 | | | Body | | 1903 | | |
| 315 | | 75 | I | 0 | 7 f bgs | 3B-197 | DOMESTIC | ABM | Clear glass | | 1 | | Misc. bottle | Body | | 1903 | | |
| 315 | | 75 | I | 0 | 7 f bgs | 3B-197 | DOMESTIC | ABM | Clear glass, crown | | 1 | | Soda / Mineral Water | Lip | | 1903 | | |
| 315 | | 75 | I | 0 | 7 f bgs | 3B-197 | DOMESTIC | ABM | Clear glass, Owen's mold | | 2 | | Soda / Mineral Water | Base | | 1903 | 1955 | |
| 315 | | 75 | I | 0 | 7 f bgs | 3B-197 | DOMESTIC | ABM | Light green glass | | 1 | | Soda / Mineral Water | Body | | 1903 | | Coke bottle? |
| 315 | | 75 | I | 0 | 7 f bgs | 3B-197 | DOMESTIC | ABM | Light green glass, cup/post bottom mold | | 1 | | Soda / Mineral Water | Base | | 1903 | | "... / KY" |
| 315 | | 75 | I | 0 | 7 f bgs | 3B-197 | DOMESTIC | ABM | Aqua glass | | 1 | | | Body | | 1903 | | |
| 316 | | 75 | I | 0 | 7 f bgs | 3B-197 | DOMESTIC | Undiag. Cont. Frag | Cobalt glass | | 1 | | | Body | | 1890 | | |
| 317 | | 75 | I | 0 | 7 f bgs | 3B-197 | ARCHITECTURE | Const. Mat. | Ceramic, wall/floor tile | | 1 | | | | | | | white unglazed porcelain 3/4" square |
| 317 | | 75 | I | 0 | 7 f bgs | 3B-197 | ARCHITECTURE | Const. Mat. | Ceramic, wall/floor tile | | 1 | | | | | | | unglazed green porcelain fragment (probably same size square at white tile) |
| 317 | | 75 | I | 0 | 7 f bgs | 3B-197 | ARCHITECTURE | Const. Mat. | Ceramic, wall/floor tile | | 1 | | | | | | | yellowware tile with green opaque glaze |
| 318 | | 75 | I | 0 | 7 f bgs | 3B-197 | ARCHITECTURE | Nails | Wire nail, 6d, common, pulled | | 1 | | | | | 1880 | | |
| 318 | | 75 | I | 0 | 7 f bgs | 3B-197 | ARCHITECTURE | Nails | Wire nail, fragment | | 1 | | | | | 1880 | | |
| 319 | | 75 | I | 0 | 7 f bgs | 3B-197 | PERSONAL | Money | Nickel | | 1 | | | | | 1938 | | too corroded to read date; Jefferson obverse / Monticello reverse |
| 320 | | 75 | I | 0 | 7 f bgs | 3B-197 | MAINT./SUB. | Electrical | Battery: carbon cell | | 1 | | | | | 1888 | | 6.27 mm |