2018

Archaeological Investigations at The Old Manse, 2016-2017, Concord, Massachusetts

Alexandra Crowder

John M. Steinberg

Brian N. Damiata

Christa M. Beranek

Archaeological Investigations at The Old Manse, 2016-2017, Concord, Massachusetts

Prepared for:
The Trustees of Reservations
200 High Street
Boston, MA 02110

Prepared by:
Alexandra Crowder, John Steinberg, Brian Damiata, and Christa M. Beranek
University of Massachusetts Boston
Andrew Fiske Memorial Center for Archaeological Research

Cultural Resource Management Study No. 80

February 2018

Abstract

Two phases of archaeological investigations were conducted at the Old Manse in Concord, MA, in advance of a proposed visitor center and other construction activity at the property. In 2016, a geophysical survey was carried out over the parking lot and in the area east of the historic barn location. Although subsequent test excavations had been proposed for the same areas, these were not carried out because the construction project was put on hold. In 2017, five shovel test pits and one excavation unit were excavated in an area west of the current garden in an area that was proposed for percolation test trenches for a septic system. This report covers the results of both phases of work.

The geophysical surveys detected utilities, possible outlines of a former agricultural outbuilding (previously archaeologically tested), and broad differences in the subsurface deposits of different parts of the property. Three of the shovel test pits did not uncover significant features or deposits, but two others contained deep deposits of construction and demolition debris seemingly dated to the middle of the 18th century. One of these was expanded into a 1 by 1 m excavation unit which encountered a deeply buried (130 cm below surface) fieldstone foundation, possibly from a domestic structure the predates the standing 1770 Old Manse. Because of this potentially significant archaeological feature, percolation tests were not carried out in this area.

No intact Native features or deposits were found, but we did recover 5 quartz flakes, 3 rhyolite flakes, and 3 possible pieces of Native ceramic in mixed, historic period deposits. We also recovered a piece of colorless glass that appeared to be bifacially worked.

Acknowledgements

The authors would like to thank the other Fiske Center staff and students who took part in this work including Katie Wagner, Jared Muehlbauer (GIS), Megan Sheehan, John Crawmer, and Melody Henkel (artifact photography). Thanks also to the staff at the Trustees of Reservations for their support of this project and their commitment to the Old Manse's cultural history.

Table of Contents

List of Figures

List of Tables

Introduction

The Old Manse (CON.347; CON.9037; CON.HA.20; 19-MD-89) is a late 18th-century house located at 269 Monument Street in Concord, Massachusetts (Figs. 1 and 2). The 7 acre property abuts the Concord River and is owned by The Trustees of Reservations (TTOR). It is adjacent to Minute Man National Historical Park. The historic farm house dates to 1770 and is significant because of its association with a number of important literary and artistic figures, particularly Nathanial and Sophia Hawthorne and Ralph Waldo Emerson. The Management Plan for the Old Manse begins by stating that the property is significant because it "provides a window into Concord's political, literary, and social revolutions" through six generations of residents who were "authors, artists, philosophers, botanists, intellectual thinkers and reformers, and historians" (TTOR 2010: 2-1). Interpreting the use of the landscape through time is an important part of the current management plan for the Old Manse (TTOR 2010: Section 7), and archaeology has the potential to contribute significant information to that effort.

In addition to the standing 1770 house, which is original, an attached service wing covering the area of the former shay shed and wood shed has been reconstructed. The barn on the property burned in 1924 and was filled over the following 15 years. In ca. 2000, TTOR constructed a symbolic foundation inside the historic barn footprint. A project to build a visitor center on the location of the historic barn has been proposed, although specific plans for the structure itself are still being developed.

Archaeological investigations were undertaken by the Fiske Center for Archaeological Research from the University of Massachusetts Boston in two phases. In 2016, geophysical survey was carried out in the area east of the historic barn and over the parking lot, because these two areas would be affected by proposed visitor center construction and associated parking lot improvements. This work took place under State Archaeology Permit #3692. Shortly after our work began, TTOR decided to reconsider the potential visitor center design, so this permit was cancelled and the proposed subsurface investigations were not undertaken. The second phase of work took place from October 3-13, 2017 under State Archaeology

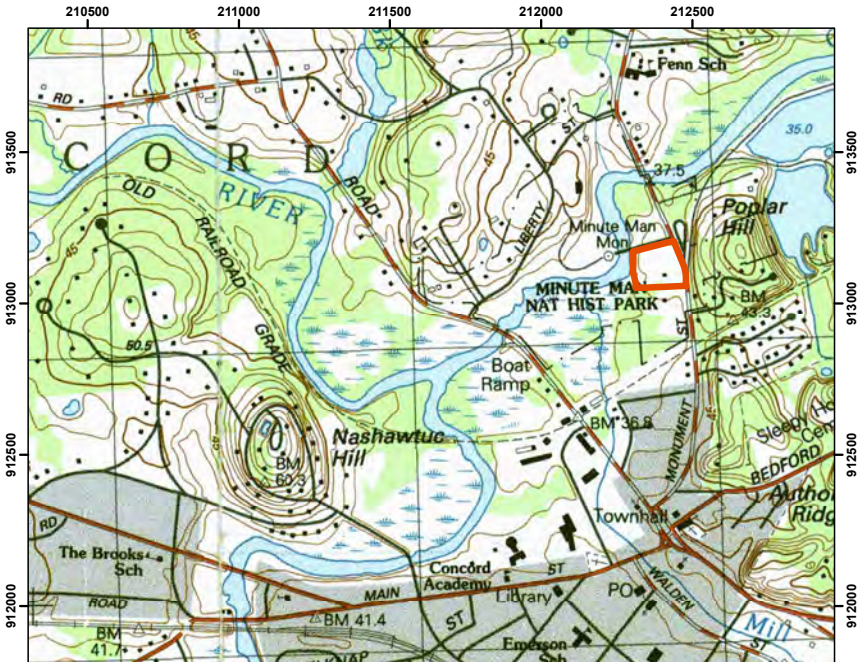


Figure 1. USGS map of Concord showing the location of the Old Manse property. Massachusetts State Plane coordinates, in meters, appear in the margins of this and other figures.

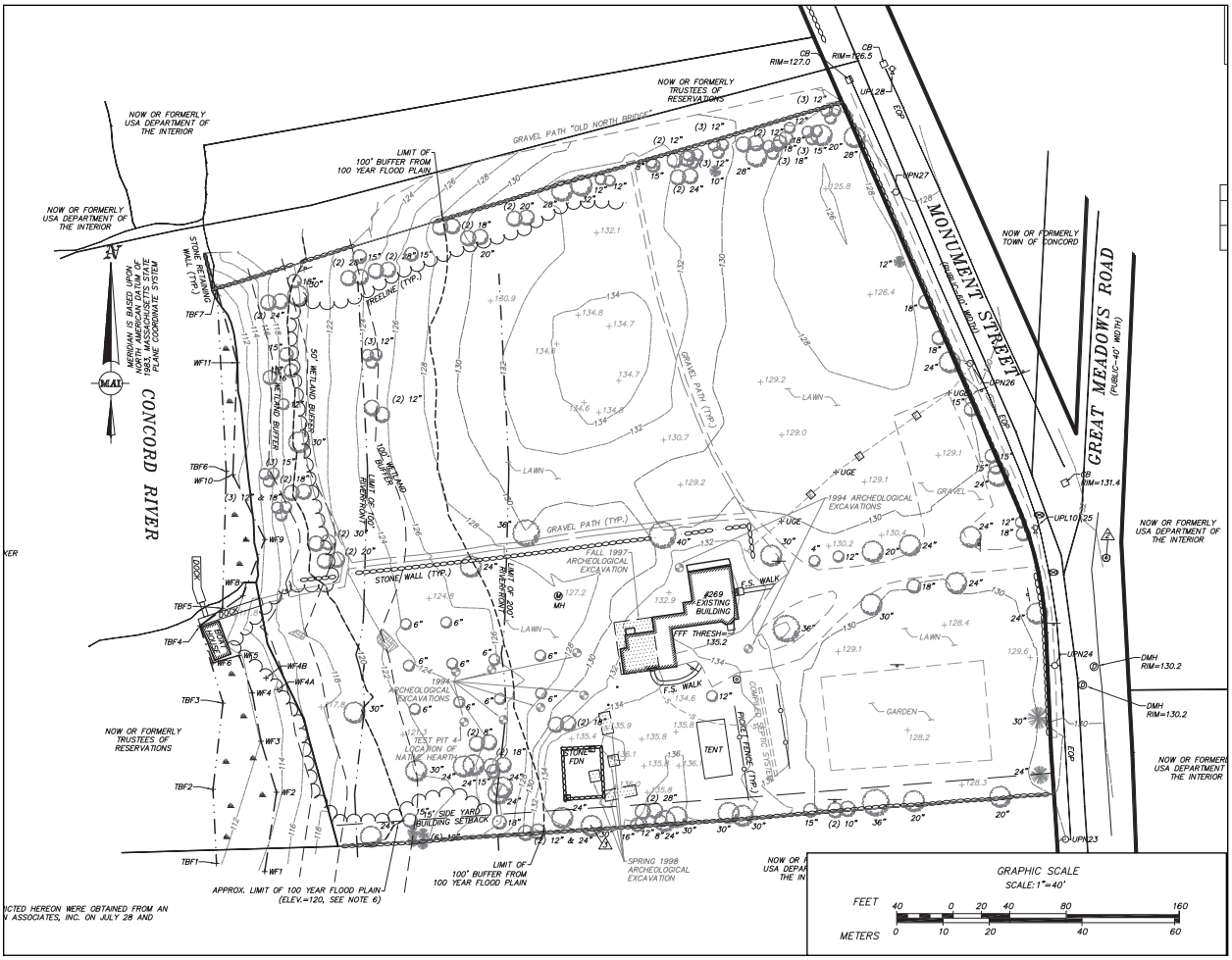


Figure 2. Detail plan of the Old Manse property.

Permit #3772. These investigations were prompted by the TTOR's plans to install a septic system that involved the excavation of percolation tests along a grassy area bounded by the garden and pathway just southeast of the Old Manse. The perc test included three proposed trenches. Shovel test pits (STPs) were planned in each of the trenches to test the project area for significant archaeological resources. The results of the 2016 geophysical survey and of the 2017 STP excavations are covered in this report.

Background

The Old Manse is a Massachusetts Archaeological and Historic Landmark (1966), a National Historic Landmark (1963), a State and National Register-listed property (1966), and subject to a preservation restriction held by the Massachusetts Historical Commission (1996). It falls within a Local Historic District (1973) and a National Register District (2002). In the MHC listings, the building is listed as CON.347 and is a contributing resource to the Minuteman National Historical Park (CON.EC), as well as being within CON.DV (North Bridge Monument Square Local Historic District). As an archaeological site it is registered with the MHC as CON.HA.20 (historic) and 19-MD-89 (Old Manse Lands Native site).

Native Context

Herbster's (2005) Archaeological Overview and Assessment of the Minute Man National Historical Park lands, which surround the Old Manse property, provides the most recent summary of

Native sites in the Concord, Sudbury, Assabet, and Shawsheen river drainages. Herbster's (2005: 21) assessment is that this river drainage system is a core of Native settlement in Eastern Massachusetts and that sites identified in this region span all occupation periods and range from small activity areas to large semi-permanent settlements. The rivers were important for transportation, as boundaries, and as hunting, gathering or collecting areas. The Old Manse property abuts the Concord River, just east of the confluence of the Sudbury and Assabet rivers. However, despite the large quantity of data (in terms of numbers of known sites), much of the data is of limited quality in that the size and occupational histories of the sites are not well known. In part, this stems from the fact that many sites in this area are known from the artifact collections of later 19th and early 20th century collectors. However, there are also avocational and professional excavations in the region.

Henry David Thoreau was one of the early collectors in Concord, and his collection is now at the Peabody Museum at Harvard University and the Fruitlands Museum. Other late 19th and early 20th-century collectors (including A. Tolman, A. Hosmer, and G. Prescott) followed, with large collections from agricultural fields along the rivers. Members of the Massachusetts Archaeological Society (MAS) also surveyed this area in the 1940s and conducted some excavations (Smith 1944). Development in this area accelerated after the 1950s, and work in recent decades has been largely in the form of CRM excavations driven by development pressure.

Known Native Sites in the Vicinity of the Old Manse

Herbster's (2005) survey of both MHC and Minute Man National Park (ASMIS) site files identified 8 Native sites in the area covered by the North Bridge unit of the National Park which surrounds the Old Manse land. Seven of these sites are on Park Service land and one is on the Old Manse property. Review of MACRIS in 2016 added 7 additional Native sites registered in the circle with a ½ mile radius centered on the Old Manse that are not on Park or Trustees land (Table 1). These are known largely from collectors and avocational excavations from the 1890s to 1940s. Of the sites for which the time period has been identified, most seem to be multi-component with Middle and Late Archaic and Middle and Late Woodland occupations. Two sites (19-MD-88 and 19-MD-101) are identified as village sites, 8 as camp sites (some with workshops), 2 as flake scatters, 1 as a rock shelter, and 2 are unidentified to a type. Burials were reportedly also found at 19-MD-88.

Of these sites, only the Old North Bridge Prehistoric Site (19-MD-487) has been subject to professional excavations that defined its boundaries and configuration (Towle 1984). It is a multi-component site with lithic debitage, tools, floral and faunal remains, and features. Herbster (2005: 103) points out that the fact that this site had portions that were intact despite subsequent historic period use means that other nearby areas with a similar land use history could have similar areas of preservation.

Other recent professional excavations had identified Native materials (and in some cases features), but none have been excavated to the extent of 19-MD-487. Two of the camps sites (19-MD-1004 and 19-MD-1104) were discovered during CRM surveys. Both found Native materials in plowed contexts and no intact Native features or deposits. Two of the sites, the Ephraim Buttrick House (19-MD-1002) and the Battle Lawn/Edwin Barrett Estate (19-MD-90), have Native tools that were identified during Park Service excavations of historic period sites. The Roads West of North Bridge site is also defined based on 2 fragmentary points in the Park collections. Finally, excavations on the Old Manse property in the 1990s identified a Middle Woodland hearth (see below). Sites not discussed above were identified by collectors and avocational work.

The Old Manse Land site (19-MD-89)

The Old Manse Lands site is known from both collectors and limited professional excavation. As listed on its MHC site form, it was collected by A. Tolman, B. L. Smith, and A. Hosmer between the 1890s and 1940s. Henry David Thoreau also reportedly collected from the Old Manse fields, but his collection, now at the Peabody Museum

Table 1. Known Native sites in close proximity to the Old Manse; time periods and site types taken from MACRIS; other information from MHC site forms.

MHC No.	Site Name	Time Periods	Site Type	Notes
19-MD-82	Flint/Carr Farm	None listed	Camp site	2 artifacts from avocational collector (Tolman) and 8 flakes in 3 STPs during a CRM survey
19-MD-88	Poplar Hill	Middle, Late, and Transitional Archaic, Middle and Late Woodland	Burial and large village	On NPS land; Identified by avocational excavators S. Hoar and G. Prescott during early 20th c house construction. Reportedly extended burials and domestic features.
19-MD-89	Old Manse Land	Middle, Late, and Transitional Archaic, Middle and Late Woodland	Camp site	Trustees of Reservations; identified by avocational archaeologists and collectors (H.D. Thoreau, A. Tolman, B. Smith; limited professional excavation (focused on historic period components) by Mrozowski found a Middle Woodland hearth.
19-MD-90	Battle Lawn (Edwin Barrett Estate)	Late Archaic	None listed	NPS; collected by Tolman in 1890s; Native artifacts noted but not collected during excavations focusing on historic period components.
19-MD-91	Liberty Hill	Middle and Late Archaic, Late Woodland	Camp site	NPS; identified by avocational collectors and excavators B. Smith and R. Wheeler.
19-MD-92	Dennis Rock/ Keyes Hill	Middle, Late, and Transitional Archaic, Late Woodland	Rock shelter	Collected by A. Tolman, B. L. Smith, and G. Keyes.
19-MD-101	Lang's Hill/ Dr. Bartlett	Middle, Late, and Transitional Archaic, Woodland	Village site	Collected by Tolman, Smith, Hosmer, and Prescott; at least 1000 artifacts but Prescott's large (ca 800 artifacts) collection could not be located as of 1981. Notable for being not directly on the river.
19-MD-102	Prescotts	None listed	Camp site	Collected by Tolman and Smith.
19-MD-103	Hosmers Rocks	Early to Transitional Archaic, Middle and Late Woodland	None listed	Concord Land Trust property. Collected by Tolman, Hosmer, and Smith.
19-MD-105	Mantatuket Rock	Late Archaic, Woodland	Camp site	Town land. Collected/excavated by Warren Moorehead and B. L. Smith. Site form suggests possible Palaeo-Indian component, but questionable.
19-MD-487	Old North Bridge	Late Archaic, Late Woodland	Workshop (LA), camp site (LW)	NPS; Professionally excavated (Towle 1984). Two components are spatially distinct. 1140 artifacts including lithics, ceramics. Evidence for tool mfr, tool repair, and cooking.
19-MD-1002	Ephraim Buttrick House	None listed	Flake scatter	NPS, Two Native artifacts in artifact collection from historic period component.
19-MD-1003	Roads West of North Bridge	None listed	Flake scatter	NPS; Two Native artifacts found along the roads.
19-MD-1004	Jonas Bateman/ David Brown	Early Archaic	Camp site	Excavated in 1987 (25-1097); 363 Native artifacts (incl 6 ceramics) in plowed fields. *NB, MACRIS lists site as EA; site form says LA/unknown.
19-MD-1104	Robbins House North locus	None listed	Workshop, camp site	Discovered during CRM survey (Dudek and Mailhot 2010); 6 of 38 STPs contained Native material; total of 8 Native artifacts in the plowzone.

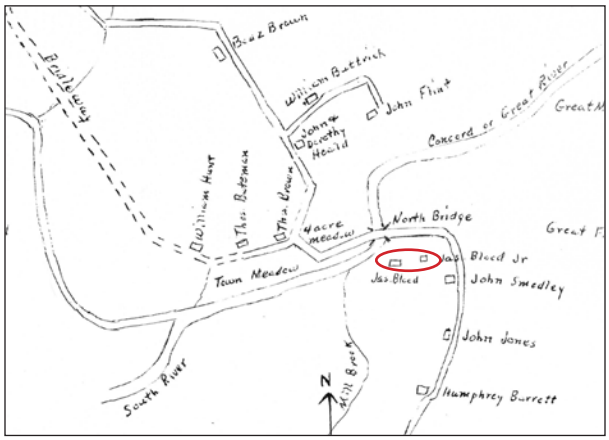


Figure 3. Sketch map based on Benjamin Brown's 1754 survey (Map found in Luzader 1968:8-9). Two buildings owned by Blood are circled.

at Harvard and the Fruitlands museum, lacks site specific provenience information for the most part. Tolman's collection reportedly includes 12 artifacts from the site; Smith's (at the Concord Antiquarian Museum) includes 75 artifacts.

Historic Context

The earliest European title for the Old Manse land was to James Blood who acquired 666 acres, including the current Old Manse property, in 1640 (TTOR 2010: 3-1). Over the next century, the Bloods maintained a working farm and orchard on the land. The location of the Blood house and barn is not known, although analysis of the existing house suggested that it might stand of the foundations of an earlier, 17th-century structure (Chase and Fannin 1991: 14). Modern sketch maps based on Benjamin Brown's 1754 survey suggest that two structures may have existed on the current Old Manse property, belonging to James Blood Sr. and James Blood Jr. (Fig. 3) (Dietrich-Smith 2004:17; Luzader 1968:8-9). The1754 Benjamin Brown town survey maps are currently held at the Massachusetts State Archives with facsimiles at the Concord Free Public Library in the Concord Map Collection. Overall, little is known about the use of the area immediately around the house prior to 1770.

In 1769, a descendant of the Bloods sold 22 acres to Rev. William Emerson. Emerson and his wife Phoebe were living in a new house (the current structure), a central hall Georgian style structure with four rooms per floor, by 1771 (TTOR 2010: 3-1). Fighting on April 19, 1775 spilled over from the North Bridge area into the field north of the Old Manse. After William Emerson died, Phoebe remarried Rev. Ezra Ripley in 1780. Under the Ripleys, the property became more of a gentleman's farm, with farming supplementing Ripley's income as a minister (TTOR 2010: 3-2). Also under the Ripleys, a number of notable literary figures stayed at the Manse. Ralph Waldo Emerson (grandson of Phoebe Emerson Ripley) stayed there for a year (1834-1835), and Nathaniel and Sophia Hawthorne rented the house from Samuel Ripley from 1842 to 1845. Hawthorne wrote about his stay there in *Mosses from and Old Manse* (1846). Members of the Ripley family, and their descendants, the Thayer and Ames families, lived there for the rest of the century. Many of them were artists and intellectuals. Archaeological excavations of the shay shed and wood shed foundations in the 1990s found some evidence for these activities in the form of paint brushes and paint tubes. By 1900 the property was primarily serving as a summer house, and in 1939 the estate of Sarah Thayer Ames sold the property to the Trustees of Reservations.

Previous Excavations

Between 1994 and 2000, Stephen Mrozowski and excavators from UMass Boston's Center for Cultural and Environmental History (predecessor to the Fiske Center) conducted excavations on the property (Fig. 4; Mrozowski and Kelley 1999; Mohler et al. 2001). The archaeological investigations took place before several projects related to the stabilization and development of the Old Manse and the surrounding landscape. The excavations were located at the corners of the house where dry wells were going to be located and in the meadow west of the house (1994), in the footprint of the former shay shed and an adjacent foundation (1997), in the area of the former barn and an adjacent outbuilding (1998), and in the area of the old boathouse (2000).

The 1994 shovel test pit (STP) survey tested around the corners of the house and in an area that had been an apple orchard in the historic period.

The test pits located in the former orchard found evidence of both Native American and Anglo-American use of the landscape. Native features included an intact Native American hearth dating to the Middle Woodland period (1600-1000 BP) in STP4. A Levanna projectile point associated with the Late Woodland period was found in the plowzone in the same area. The orchard stratigraphy indicated that the area was intensively used during the historic period as an agricultural space and may have served as an animal yard as well as being plowed. Part of a historic fence line was uncovered, as was a burn lens that was interpreted as potentially relating to an initial clearing of the landscape during the Blood occupation (Mrozowski and Kelley 1999:20-23).

The excavation areas located at the corners of the house primarily found evidence of activities taking place between 1780 and 1810, and included domestic and architectural debris. Underneath a post-1770 occupation layer and historic gravel construction layer, archaeologists identified what they interpreted as an early occupation layer that may be related to the 17th – early 18th-century occupation of the site. The early occupation layer included both Native and Anglo-American materials. The Native materials consisted primarily of undiagnostic lithic debitage. Anglo-American artifacts included nails, brick, window glass, animal bone, and redware. Several small postholes were also found in the early occupation layer, and were interpreted as possible scaffolding supports related to the construction of the Old Manse (Mrozowski and Kelley 1999:20-23).

The 1997 investigations examined a foundation adjacent to the house that was initially believed to be a privy, and the house's shay shed foundation. The shay shed historically served as a storage space for Reverend Emerson's two-wheeled buggy (chaise) and while the structure was torn down in the 1960s, site folklore suggests that shed was a second iteration of the original shed and was built sometime in the 19th century (Mrozowski and Kelley 1999:15). Excavations of the "privy" foundation recovered 19th and 20th-century ceramics, window and bottle glass, architectural debris, and artist's paint tubes. Based on the location of the feature, the nature of the fill deposits, and lack of privy residue on the walls of the feature, the foundation was interpreted as possibly supporting a small kitchen dairy or root cellar rather than a privy (Mrozowski and Kelley 1999:24-35).

The shay shed foundation excavation uncovered evidence of burned structural debris, which was interpreted as resulting from the shed burning down during the turn of the 19th century. A wide array of ceramics types were also recovered, which archaeologists interpreted as indicating of a long period of deposition. They suggested two possible scenarios for what happened to the shed foundation during the 19th century after it burned down. The first scenario was that the foundation hole was used as a refuse site until a new shed was constructed in the 20th century. The second was that a second shed was constructed soon after the first burned down, and the material found in the foundation had accumulated over time as refuse deposited in between the shay shed and nearby carriage shed washed under the shay shed due to rain (Mrozowski and Kelley 1999:24-35).

Excavations on the barn were undertaken in 1998 prior to the creation of a reconstructed barn foundation. The interior of the barn contained deep fill layers on top of a charcoal lens. The lens was interpreted as resulting from the 1924 barn fire that destroyed the structure. The majority of the material recovered from the fill layers dated to the 19th and 20th century. After burning down, the foundation was used as the property caretaker's refuse pit until it was filled in after the Trustees took ownership of the property (Mrozowski and Kelley 1999:42). A nearby outbuilding was also investigated during the barn excavations. The results of the outbuilding excavation unit suggested it was used for storing tack and tools, as well as material related to cows and dairying (Mrozowski and Kelley 1999:43-44).

In 2000, archaeologists from UMass Boston returned to the Old Manse to test the boathouse along the Concord River and western end of the adjacent meadow (Mohler et al. 2001). The STP survey again found an intact Native layer, including a buried A-horizon containing two rhyolite flakes and one jasper flake in STP 4/2 (Mohler et al 2001: 27-28). Twelve of the 15 STPs excavated

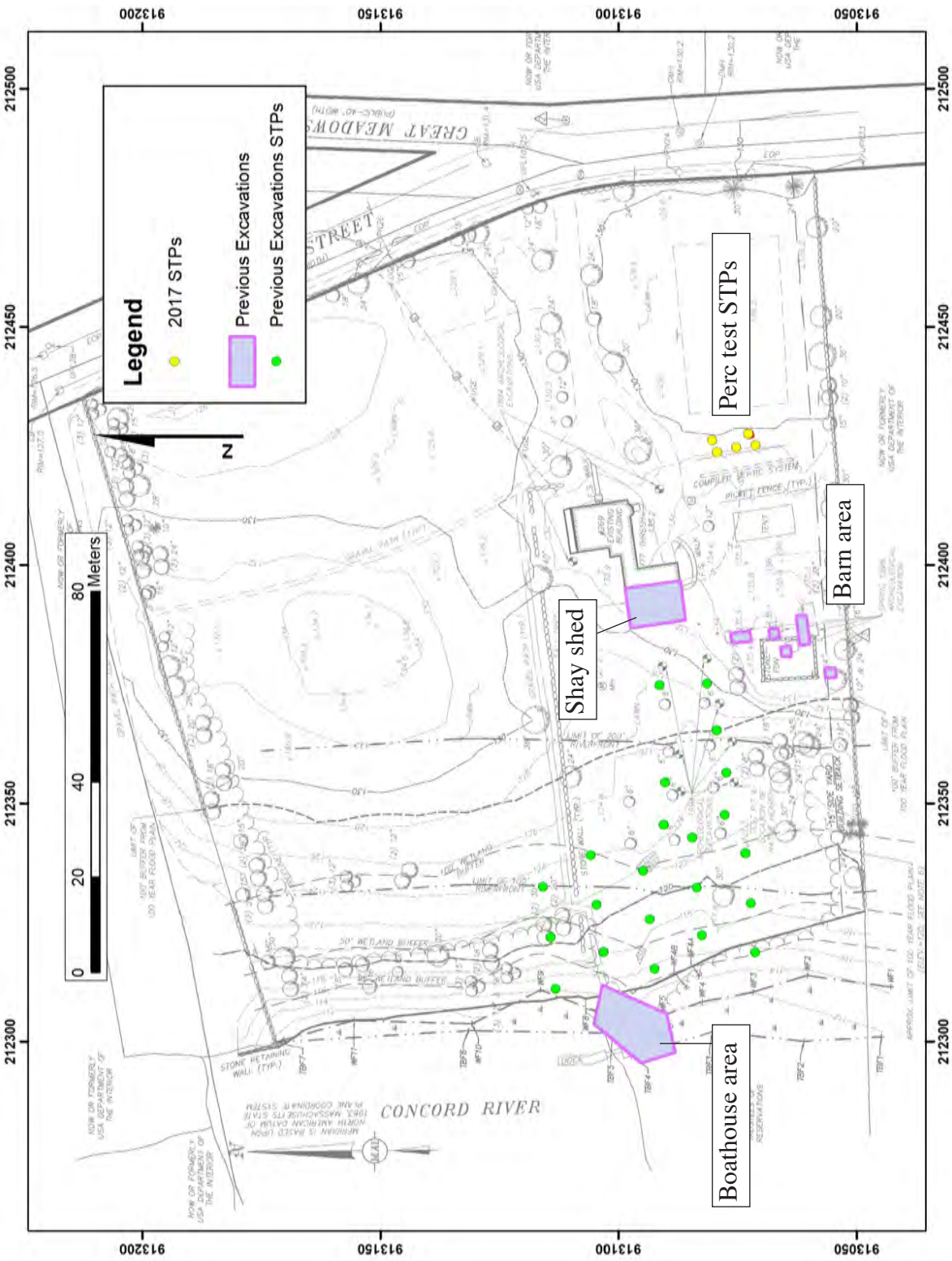


Figure 4. Archaeological excavation areas at the Old Manse.

Figure 5. Photographs of some of the land-survey benchmarks listed in Table 1. A) Manhole; B) Hillrock; C) Driveway; and D) Foundation Point.

in 2000 contained some Native material, but in all other cases it was in contexts that had been mixed during later period and also contained historic-period artifacts.

2016 Geophysical Survey by John Steinberg and Brian Damiata with John Schoenfielder

In 2016, The Trustees had developed plans for a visitor center on the Old Manse property, and the Fiske Center submitted a permit application for a site examination using both geophysical survey and excavation to investigate the nature, extent, chronology, and integrity of buried cultural resources in the areas that would be affected by construction. We began with geophysical survey in two areas: the area around the historic barn where the new visitor center was proposed and the parking lot. Shortly after we began our work, The Trustees put the construction project on hold. The geophysical investigations was completed, and the results are described below. No excavation was undertaken.

We had specific several questions about the geophysical data. In particular:

1) What types of anomalies are apparent in the geophysical data?

2) Does the geophysical data suggest possible locations of previous structures, wells, pathways, outbuildings, or other features?

Table 2. Survey benchmarks. Coordinates in the Massachusetts State Plane system.

Point	East	North	Elevation	Code‡
FOOTSTONE	212395.81	913082.104	42.068	BENCH
MANHOLE	212374.807	913100.942	40.17	BENCH
HILLROCK	212389.095	913142.497	42.108	BENCH
DRIVEWAY*	212492.953	913063.92	40.83	BENCH
FOUNDTN_PT	212376.295	913057.415	42.735	2DRY_BENCH
OLD SURVEY NAIL†	212450.299	913125.338	40.740	2DRY_BENCH

‡ "BENCH" – primary benchmark, "2DRY_BENCH" – secondary benchmark
*Sometime just before the excavation of EU1, the Driveway benchmark was destroyed by repaving.
† We do not know to which prior survey the "Old Survey Nail" was established.

Land Survey and Grid Establishment

For both geophysical surveys and archaeological excavations, quality control (QC) is critical and involves constant attention to calibration of instrumentation, consistency in field procedures, and accuracy in locating readings, features, and artifacts. The most important QC parameter is the accuracy in establishing grids for both geophysical survey and excavation. Geophysical readings must be assigned an accurate location to be meaningful. Slight differences between the actual location of a geophysical reading and the assigned coordinate can weaken or eliminate geophysical signatures. Inaccurate location can also create artificial anomalies. For archaeological excavations, the interpretation and comparison of contexts is the central method by which archaeological deposits are dated and understood. Thus, contexts require that their exact three-dimensional location be properly assigned and the record of artifacts and features associated with particular contexts be maintained.

At the Old Manse, the Massachusetts State Plane grid was used for geophysical and archaeological locations. Initially four primary benchmarks (Fig. 5), with clear views of the sky, were marked and pinpointed with a Topcon Hiper SR DGPS to an accuracy of 1-3 cm. These four benchmarks were then used as resectioning points for a Topcon GPT9005 robotic total station and then repositioned. Two additional benchmarks were also marked in areas more convenient for establishing grids for geophysical surveying and excavation. The primary and secondary benchmarks are listed in Table 2, and their locations are shown in Figure 6.

Two geophysical grids were established, one in the parking lot and the other, termed "Barn", immediately south of the standing structures (Fig. 6). The grids were staked out using multicolored PVC flags. The corners and several central points were land surveyed using the GPT9005. Along the edges of the grids, a measuring tapeline was laid and colored PVC flags were placed at integer meter positions. The locations of every even meter, odd meter, 5 m, and 10 m were marked by a specific colored flag. These flags were then used as endpoints for the transects that were traversed in the geophysical surveys. Irregularly shaped boundaries, like the eastern edge of the parking lot, were land surveyed every 5-10 m.

Note that the location of significant features within a given grid that could impact geophysical data quality or interpretations (e.g., trees, boulders and walls) were land surveyed also with the GPT9005 total station. In addition, selected points were occupied at approximate 5-m intervals within a grid to provide topographic data.

Geophysical Methodologies

The use of geophysical methods in support of archaeological investigations is widely established (Gaffney and Gater 2003; Linford 2006). For the present study, ground-penetrating radar (GPR) and frequency-domain electromagnetic (FDEM) surveys were conducted. Summarized below are the site conditions and methodologies that were employed.

Site Conditions

The soil in and around the Old Manse property (Fig. 7) is primarily classified as Deerfield loamy

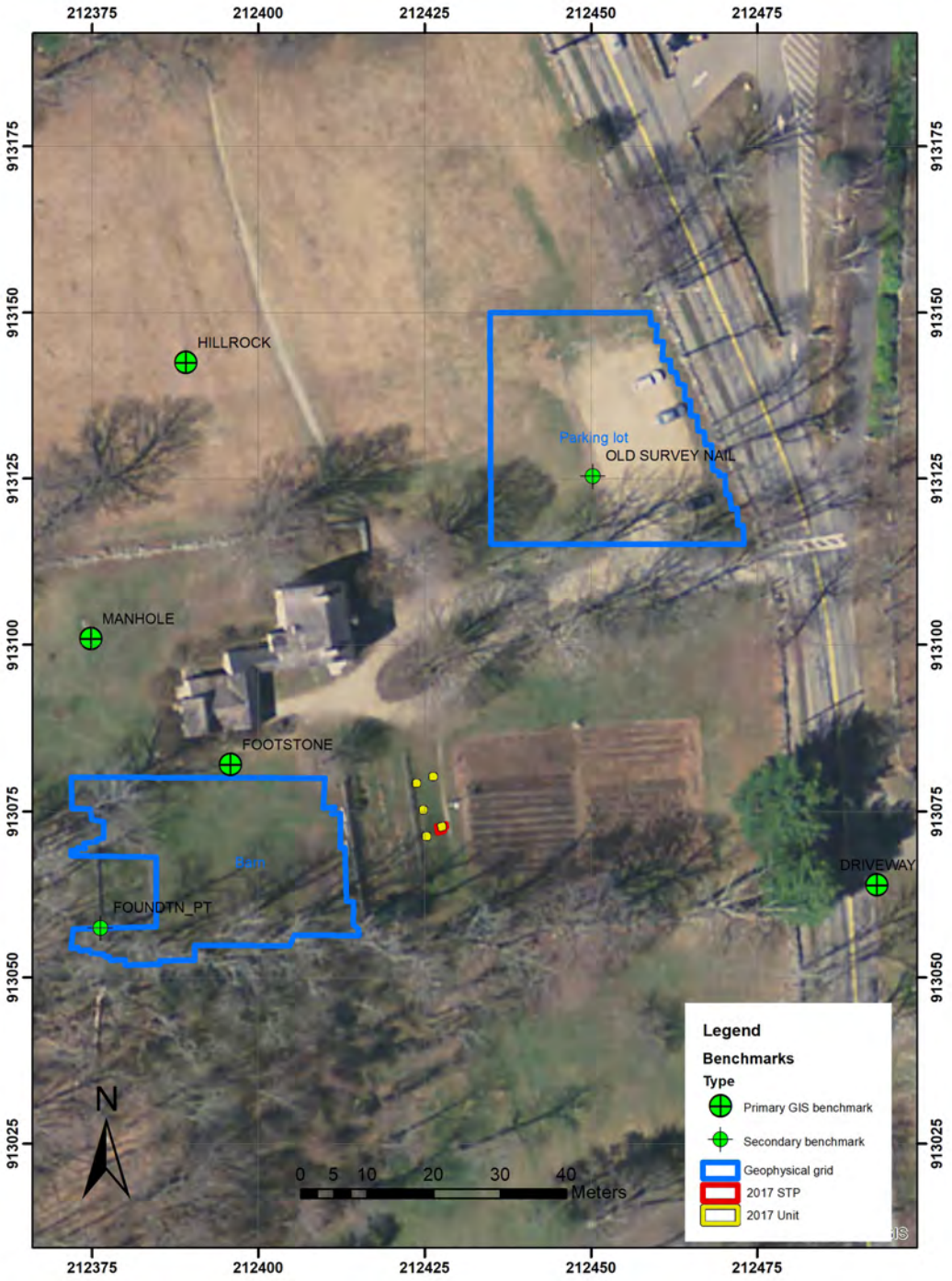


Figure 6. Distribution of primary and secondary benchmarks around the Old Manse property, along with the boundaries of two geophysical grids, superimposed on air photograph.

sand with a 0-3% slope (Clarke 2013). This soil is thick and moderately well drained. Seasonally high water that typically occurs in this soil can delay farming, limit root growth in the spring, and cause interior moisture damage to the basements of structures. In addition, this soil is not favorable to septic fields because it may not adequately filter sewage effluent. The poorly drained Wareham loamy fine sand with a 0-5% slope (unit 32B) lies to the south and west of the Old Manse property.

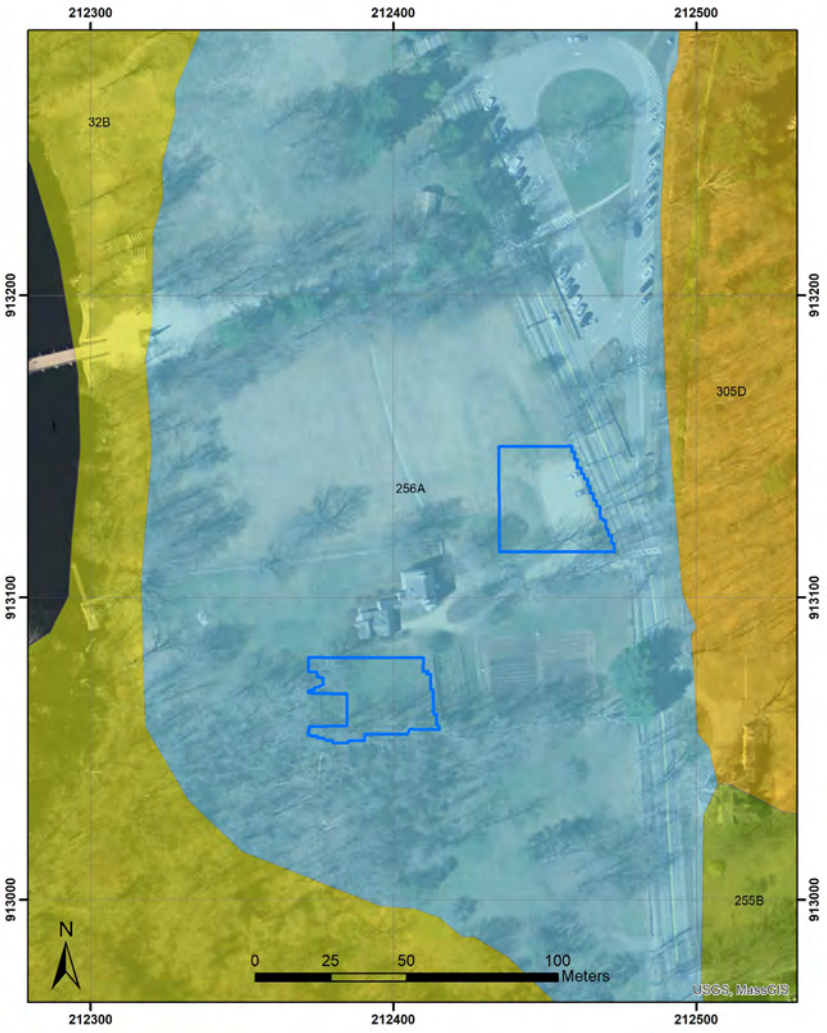


Figure 7. Soil units (Clarke 2013) around Old Manse property with geophysical grids outlined in blue. Unit 256A is Deerfield loamy sand with a 0-3% slope. Unit 32B is Wareham loamy fine sand with a 0-5% slope. Unit 305D is Paxton fine sandy loam with a 15-25% slope. Unit 255B is Windsor loamy sand with a 3-8% slope. The Concord River lies to the west.

The easily eroded Paxton fine sandy loam with a 15-25% slope (unit 305D) lies to the east, while to the southeast is the excessively drained Windsor loamy sand with a 3-8% slope (unit 255B). The Concord River lies further to the west.

The locations of the geophysical grids are rated "very highly suited" for GPR (Fig. 8) with anticipated minor attenuation of radar energy (Doolittle 2009). The Wareham loamy fine sand is rated "highly suited." For the parking-lot grid, the ground surface consists mainly of dirt; whereas it is mainly grass covered for the Barn grid. The presence of several trees at the edges of the grids created minor physical obstruction. Note that prior to surveying, surficial debris (e.g., branches, rocks, trash, metallic objects, etc.) were removed to facilitate data collection and to improve geophysical data quality.

Ground-Penetrating Radar

The GPR surveys were performed using a Malå X3M system that was equipped with a 500 MHz antenna (Fig. 9). Data were collected at a vertical scan interval of approximately 0.02 m along parallel contiguous transects that were separated by 0.25 m. (10 inches). The data collection

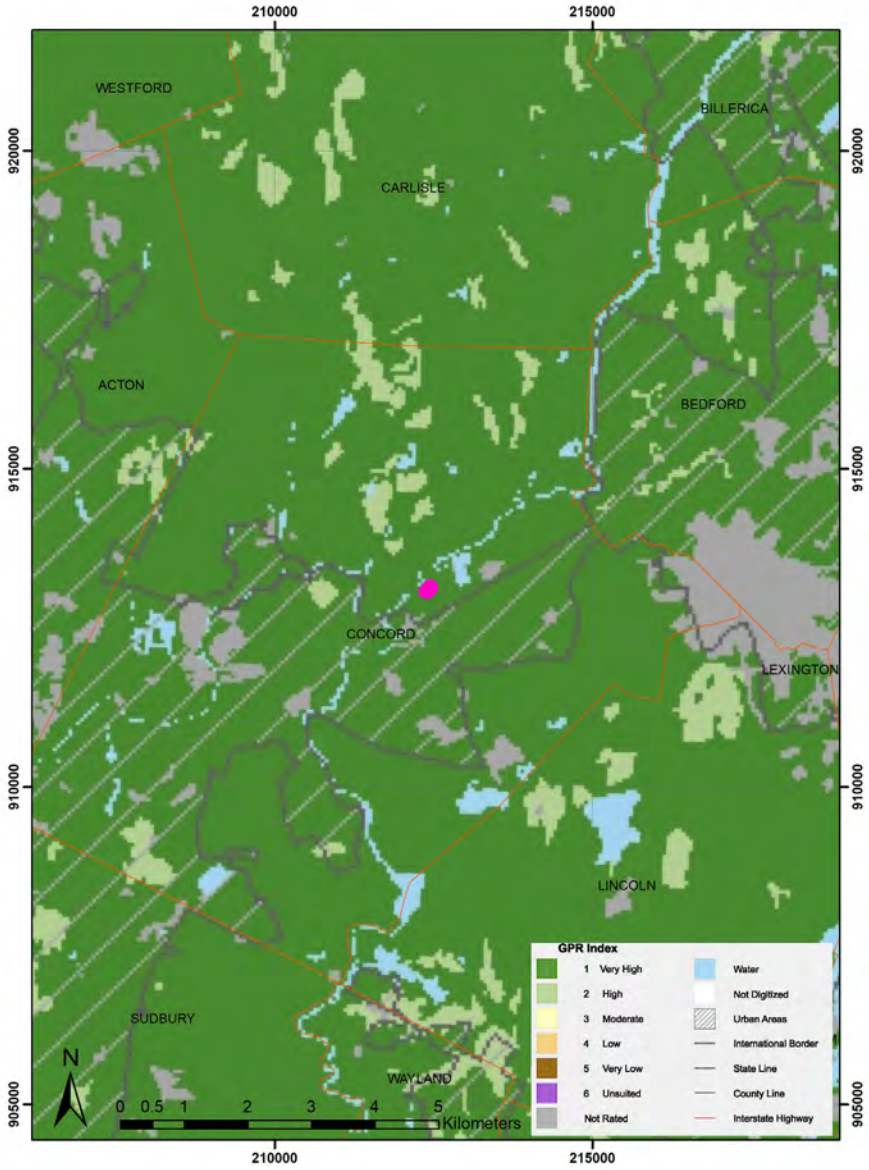


Figure 8. Map of GPR suitability for Concord and surrounding towns from Doolittle (2009). The Geophysical grids are located in the center of the map, just to the north of the town, indicated in pink.

was guided by stretching a fiberglass measuring tape between the endpoints of 1-m spaced transects. However, the actual location along a given transect was determined by using a calibrated wheel attached to the antenna. The surveys were conducted in a uni-directional manner (i.e., from west to east relative to the state-plane orientation). For the parking-lot grid; 141 radar profiles were collected and 4,388 linear meters were traversed for the survey. For the barn grid, 116 radar profiles were collected and 3,477 linear meters were traversed for the survey. Figure 10 and Figure 11 depict the approximate locations of the radar profiles, respectively.

The data were processed using GPR-Slice software (Goodman et al. 1995; Goodman et al. 2007; Goodman et al. 2008). The raw vertical scan data were gained, resampled and filtered (background removal and boxcar) to produce processed 2-D radargrams (for example see Fig.

Figure 9. Photo of GPR testing in the reconstructed foundation near the barn grid.

29). On these radargrams, the presence of strong reflectors is indicated by a black-and-white banding pattern. Note that the raw data were collected in terms of the two-way travel time of reflected energy. To convert to a depth scale, a radar wave velocity of 0.09 m/ns was assumed for both survey grids based on standard curve matching of a few hyperbolas that were identified in the data. The processed radargrams were next combined to produce a pseudo three-dimensional (3-D) data set. A total of 40 horizontal depth-slice images of approximately 0.11 m thickness with 50% overlap were generated to provide detailed spatial information on the location and depth of reflectors. In these slice images, blue indicates areas without strong geophysical reflectors for the specific time slice. Red indicates areas with strong GPR reflectors. These depth-slice images were then incorporated into the GIS database.

Frequency-Domain Electromagnetic Surveying

The FDEM surveys were performed over the same grids using a GF Instruments CMD Mini-Explorer (Fig. 12) that operates at 30 kHz over three separate dipole lengths (0.32, 0.71, and 1.18 m [13, 28, and 46 inches]). Data were collected in the vertical dipole mode at a sampling rate of 10 Hz, which yielded a measurement spacing of approximately 0.06 m (2.4 inches) when walking at a normal pace. The instrument was oriented parallel to the transect direction with the sensors located a few centimeters above the ground surface. The surveys were conducted in a uni-directional manner from west to east. Note that data collection was guided by fiberglass measuring tapes that were placed at 5-m intervals along the grids. The location of stations was determined by fiducial markers, which were placed into the data stream by the operator and assuming linear interpolation between markers. Both quadrature phase (bulk ground conductivity) and in-phase (proportional to bulk ground magnetic susceptibility) components were recorded for each of the three dipole lengths, resulting in approximately 500,000 and 375,000 combined measurements, respectively, for the two surveys.

The data were initially processed to properly adjust the starting and ending locations of transects which in some instances did not exactly fall on a 5-m interval. The data were then processed using Oasis Montaj mapping software to produce color-contoured maps. These maps were then incorporated into the GIS database.

Geophysical Interpretations

The processed GPR and FDEM data were inspected to identify anomalous areas. The main features in the parking lot grid are the gravel surface and two electrical utility lines (see Figures 13 through 20). There appears to be no obvious anomalies from the surveys that are consistent with buried archaeological features. The reflections from the surficial gravel does adversely affect the deeper GPR slices. The near-surface slices (i.e, Figs. 13 and 14), as well as the FDEM results (i.e., Figs. 19 and 20), clearly show the presence of several utilities. The strong reflection from the parking lot's gravel, and its well-defined extent, first appears in the southern portion of the grid (Fig. 14) but slightly deeper in the north (Fig. 15). One of the electrical utility lines is visible at about 75 cm bgs near the northern border of the parking lot (Fig. 16). South of that utility line, and just east of the parking lot, is a substantial north-south large reflector that should be investigated if further work is to take place in the area. At about 100 cm

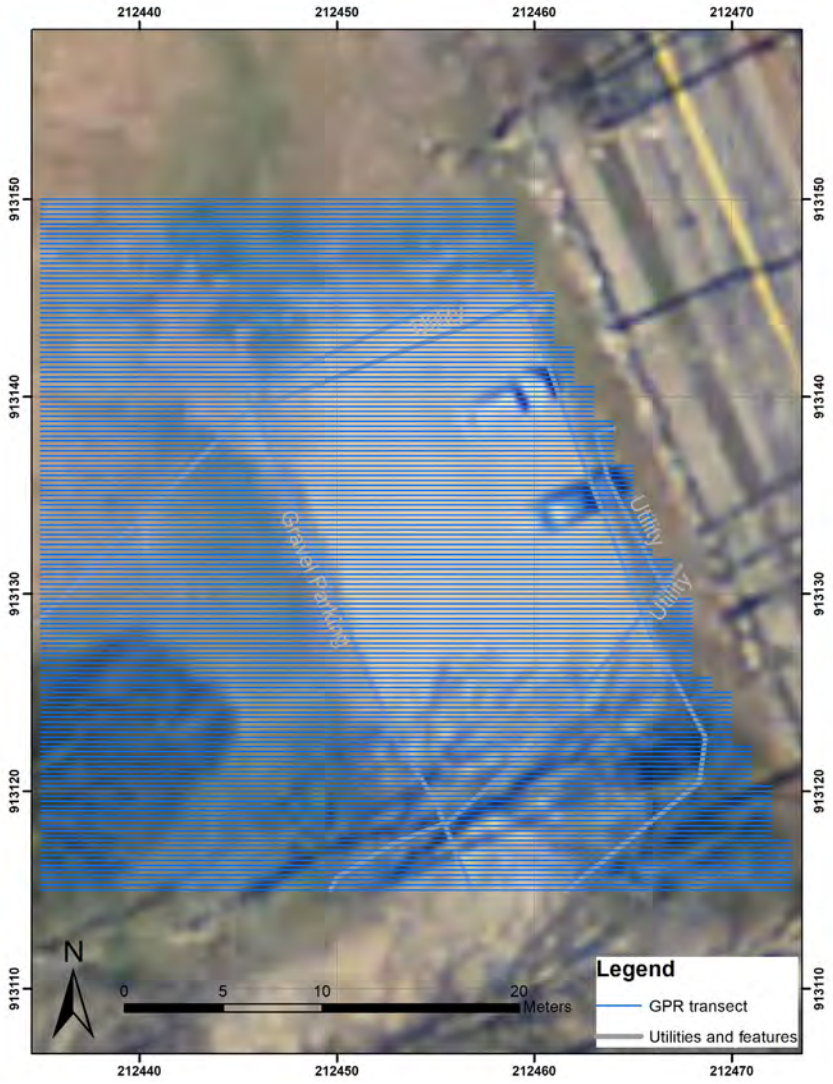


Figure 10. Map of parking-lot grid showing the approximate location of radar profiles and CMD transects in blue.

bgs (Fig. 17) the gravel in the parking lot seems to have started to weaken natural reflectors that might otherwise be there, and this is even more apparent at 150 cm bgs (Fig. 18). The FDEM results (Figs. 19 and 20) are dominated by the gravel surface of the parking lot and the electrical utility lines.

Geophysical results from the barn grid are more complex than from the parking lot. The main feature is the area directly under the event tent, which had been removed immediately prior to geophysical surveying. In the GPR results, this tented area (Fig. 12) can be seen in the shallowest slices as a strong reflector (e.g. Fig. 21) and in the FDEM results as an area of low conductivity (Fig. 23). For the deeper slices (Figs. 22-26), the area presents smaller contrasts and fewer strong reflectors than the area outside the tent. That being said, contrasts are still apparent in the radargrams in the area under the tent (Fig. 29). The explanation for these readings is multifaceted. First, the tented area was bare ground, which allowed for closer coupling of the ground with the antenna than the coupling on the surrounding grassy area. This meant that the ground wave (Annan 2009) was received sooner on the bare ground than on the grassy surface. When the radar data was filtered, the ground wave was accounted for, but the slight shift in the location of the ground wave over the

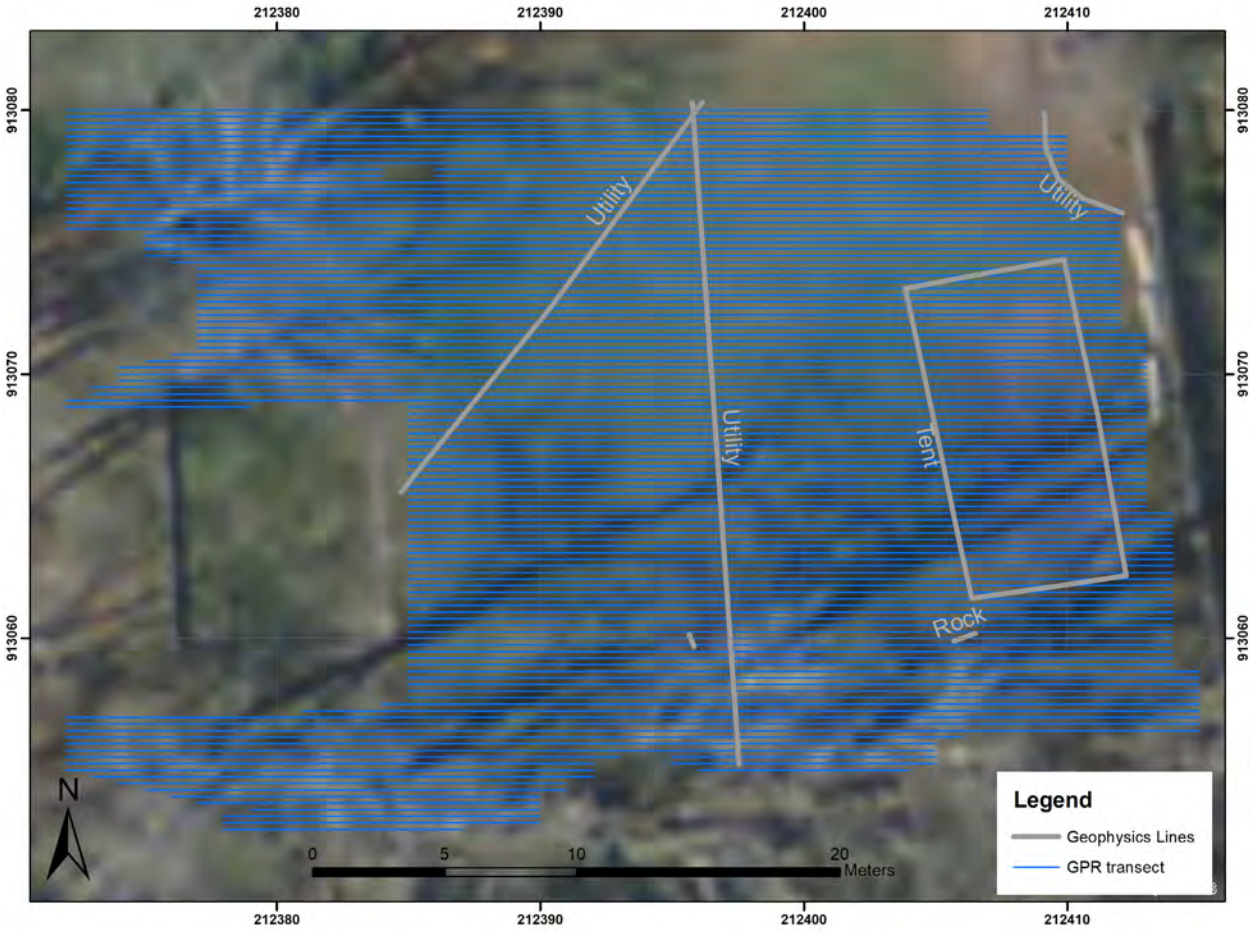


Figure 11. Map of barn grid showing the approximate location of radar profiles and CMD transects in blue.

tented area is imaged, close to the surface, as a strong reflection (Fig. 21). This shift and apparent strong reflector could be filtered. However, it is clear that, in this case, differential energy was not being lost in the ground wave in the tented area and therefore this apparent anomaly was not filtered out. That being said, the contrasts under the tented area are not as large as those elsewhere in the survey (Fig. 29) The lack of reflectors in the tent shadow is also apparent in Figures 23 through 26. The reason for the appearance of an apparent shadow with smaller contrasts under the tent is probably due to that area being drier at the time of survey than the surrounding region. Re-surveying with GPR in the early spring during the rainy season may potentially result in detection of more and larger contrasts (Boddice et al. 2017), if such features are present. This resurvey could be done as an add-on to a garden survey associated with further research based on the results of EU1.

Continuing with the results from the barn grid, the GPR slice at 37 cm bgs (Fig. 22) suggests that the western half of the grid that surrounds the recreated foundation of the barn has substantially more shallow reflectors than the eastern half. This area of relatively strong reflectors may be due to debris associated with that structure, but the nature of the reflectors does not suggest substantial preservation. While less distinct, the same general area of strong reflectors occurs in Figure 23. Superimposed in purple on Figure 23 are the approximate locations of the four areas that were excavated in 1998 (Mrozowski and Kelley 1999: 37). In general, these pits appear as areas of weaker reflections around the stronger reflections from the conjectural foundation of the barn. That being

Figure 12. Photo of FDEM surveying with the CMD Mini-Explorer. The tented area is bare ground at the far right.

said, the GPR results do not clearly delineate any of these excavations. Most of the units terminated about 10 cm below the 75 cm slice. The most southerly unit (a 2 x 6 m oriented E-W) termed D-6, D-3, and H-9 is thought to have encountered the southeastern corner of the foundation, in the area just west of the GPR grid. The unit terminated about 90 cm bgs, and still in cultural deposits. The eastern 4 m extension to D-6 (D-3 & H-9) was also excavated to about 80 cm bgs and contained soils probably excavated from the barn as well as materials linked to the barns burning and demolition. The units probably ended on a sterile subsoil. Unit D-7, to the north east of D-6, is entirely within the conjectural foundation. Eighty bags of artifacts were recovered from D-7. Unit C-3 a 2 x 2 m unit north of D-6 is on the edge of the reconstructed foundation. Unit C-3 was excavated 40 to 50 cm bgs and potentially ended on cellar ejecta. The most northerly unit, G-2 & G-3 (a N-S 2 x 4) encountered substantial cobble fill and some sand that was interpreted as part of land-leveling for a tool shed or tack room adjacent to the barn. Unit G-2 (northern 2 x 2m) ended 50 to 60 cm bgs in what appeared to be sterile soil and a STP was excavated in the northwest corner for an additional 0.38 m into sterile glacial till. Unit G-3 (southern 2 x 2m) only was excavated to about 30 cm bgs. A tack harness was recovered from the sand in the northern part of the unit.

In the deeper slices from the barn grid, such as the 100 and 150 cm bgs GPR slices (Figs. 24 and 25), the strong reflectors around the edges of the barn's foundation disappear and other strong reflections appear between the barn and the tent. Most apparent on the latter slice but still visible on the slice from 200 cm bgs (Fig. 26), is a line of strong reflectors that runs distinctly to the northwest from the southwestern corner of the tent. The orientation of this line is roughly perpendicular to the orientation of the foundation wall in EU1and is not consistent with other currently visible landscape or built features. While this line may be simply due to underlying geology, it could also have to do with some of the land leveling that was part of the construction of the shed and barn, or it may be associated with the earlier structures. In most cases, patterns identified in GPR slices at 1.5 m or below are usually associated with natural geological structures. However, given that the bottom of the barn was probably at these depths, as is the foundation identified in EU1, it is reasonable to further investigate these patterns, either with additional geophysics (in the spring before the tent is erected) or with test excavations.

The conductivity results from the barn grid (Fig. 27) suggest that the 1998 excavations are identifiable as areas of relatively lower bulk conductivity. Again, the dry area under the tent is visible as lower bulk conductivity. No other obvious features or structures are visible in the conductivity map. The in-phase results (Fig. 28) suggest the presence of some structure, specifically around the northern-most excavation unit from 1998 (G-2 & G-3), as well as the potential outline of the northeastern corner of that tack shed building.

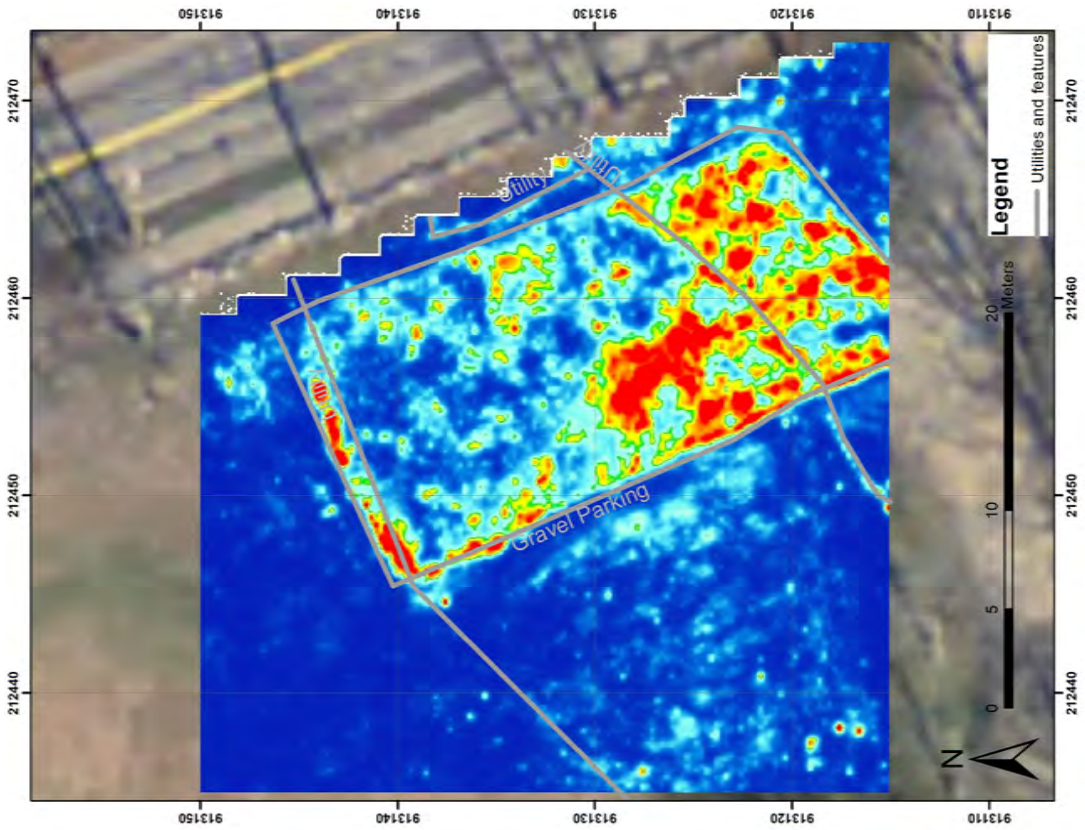


Figure 14. GPR slice at approximately 30 cm bgs of the parking-lot grid. Red denotes presence of relatively strong reflector.

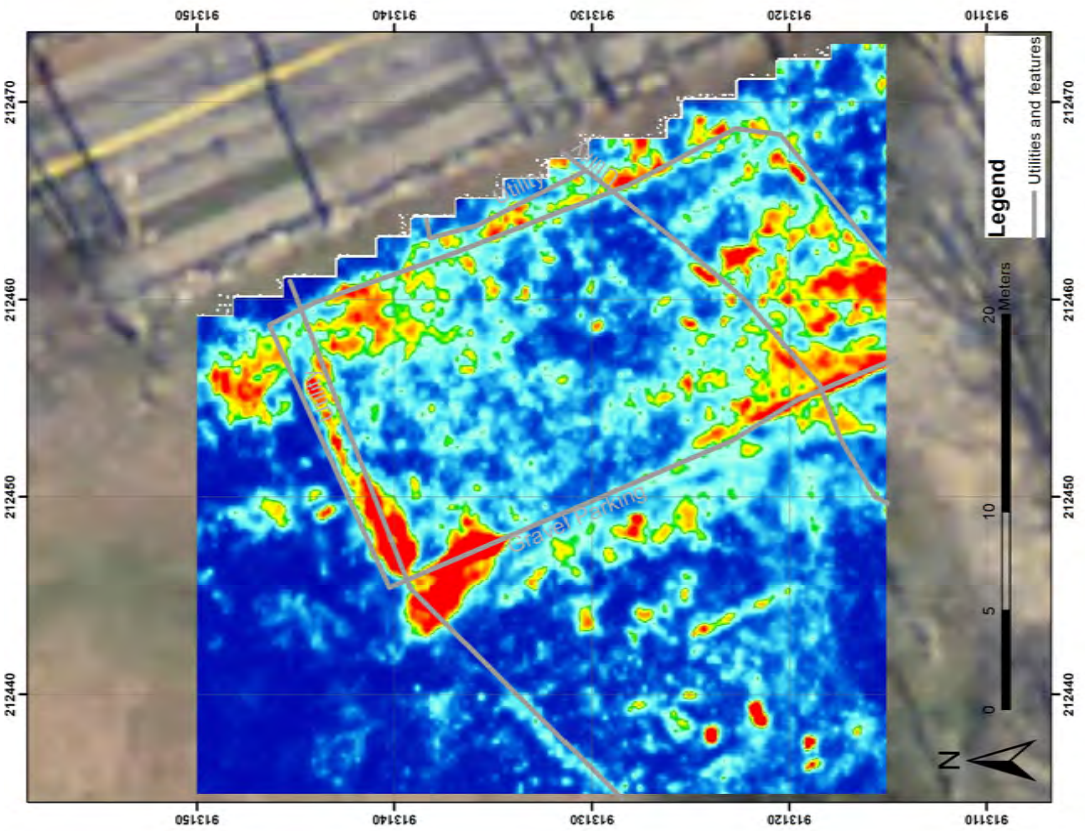


Figure 13. GPR slice at approximately 15 cm bgs of the parking-lot grid. Red denotes presence of relatively strong reflector.

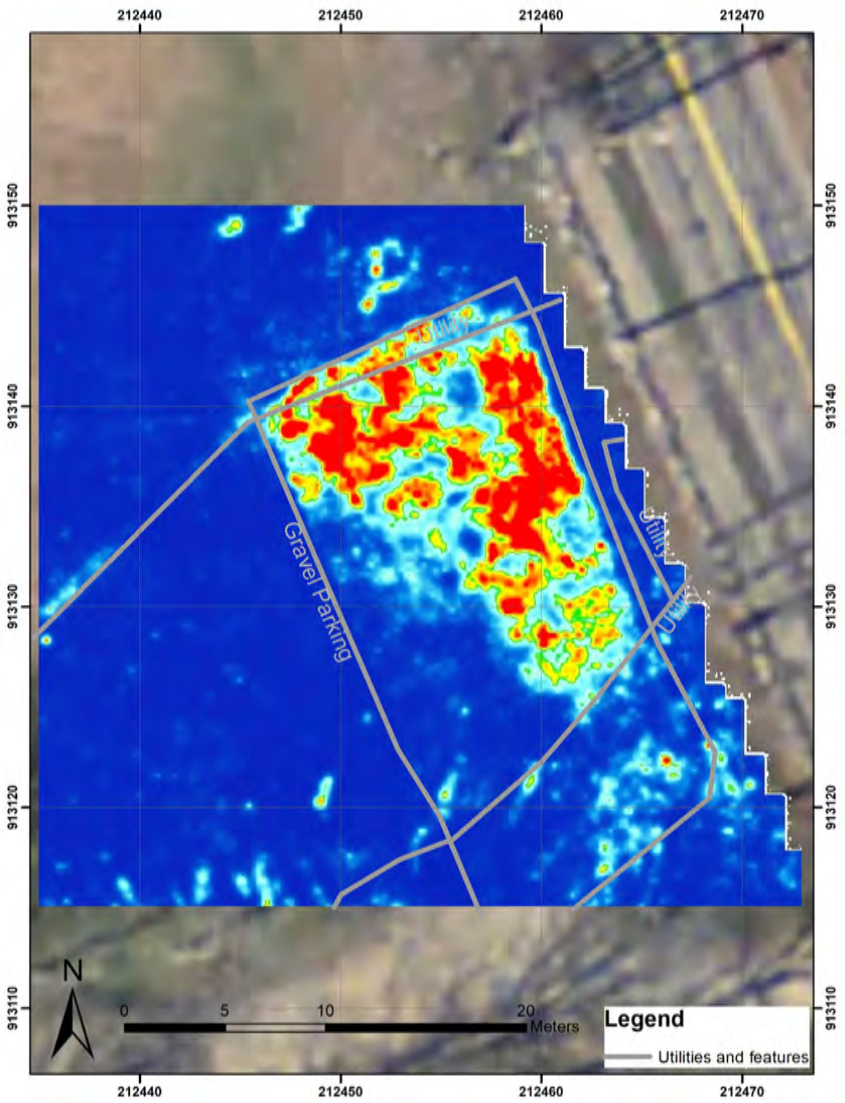


Figure 15. GPR slice at approximately 55 cm bgs of the parking-lot grid. Red denotes presence of relatively strong reflector.

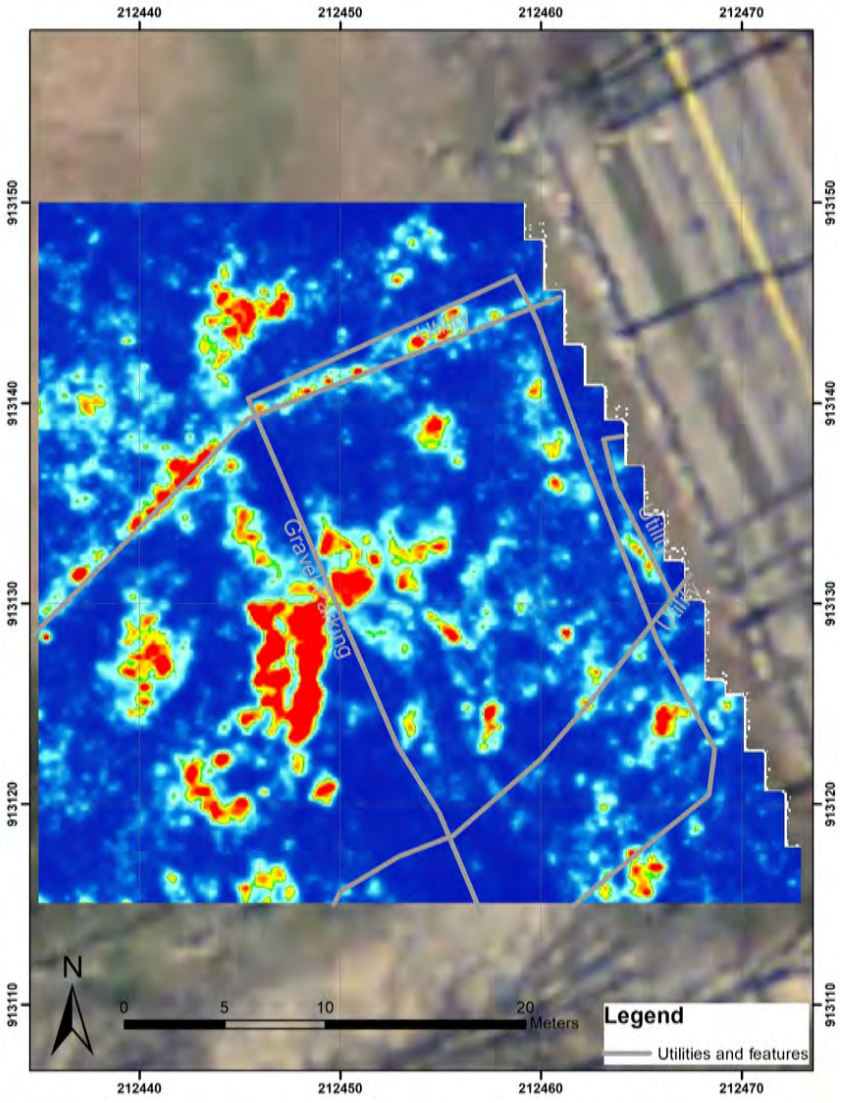


Figure 16. GPR slice at approximately 75 cm bgs of the parking-lot grid. Red denotes presence of relatively strong reflector.

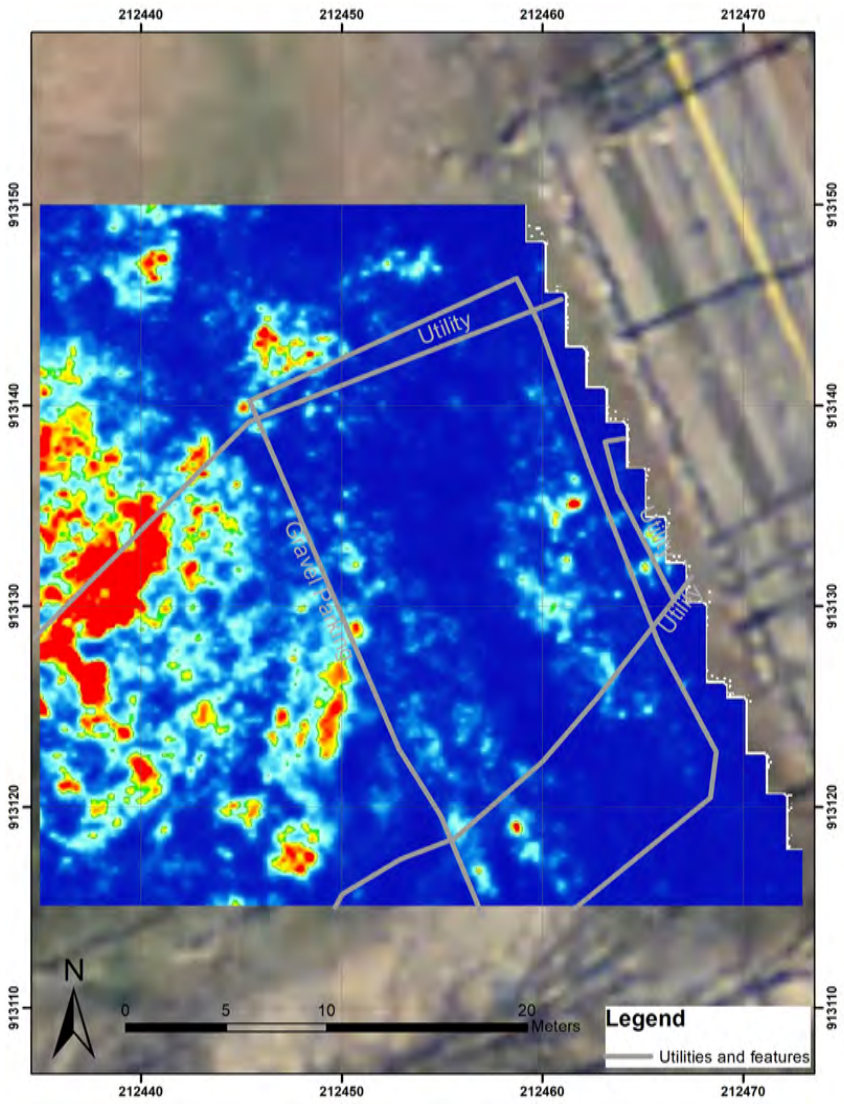


Figure 17. GPR slice at approximately 100 cm bgs of the parking-lot grid. Red denotes presence of relatively strong reflector.

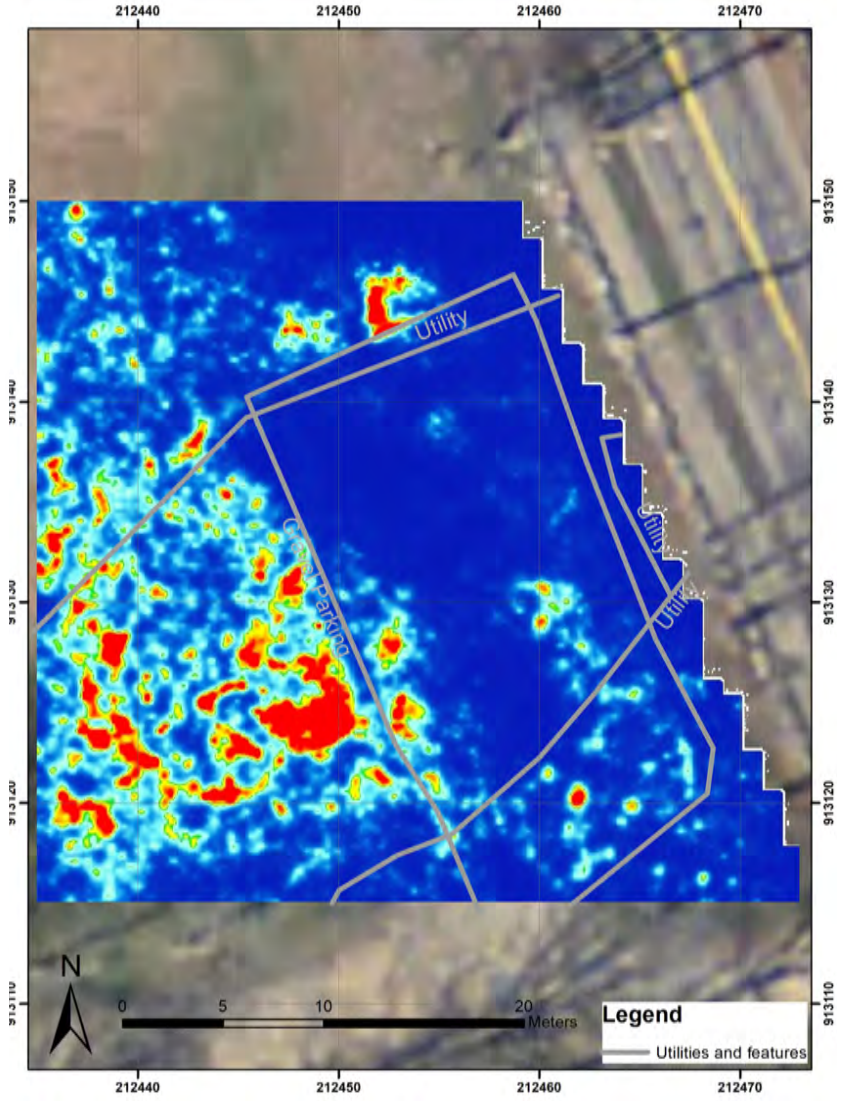


Figure 18. GPR slice at approximately 150 bgs of the parking-lot grid. Red denotes presence of relatively strong reflector.

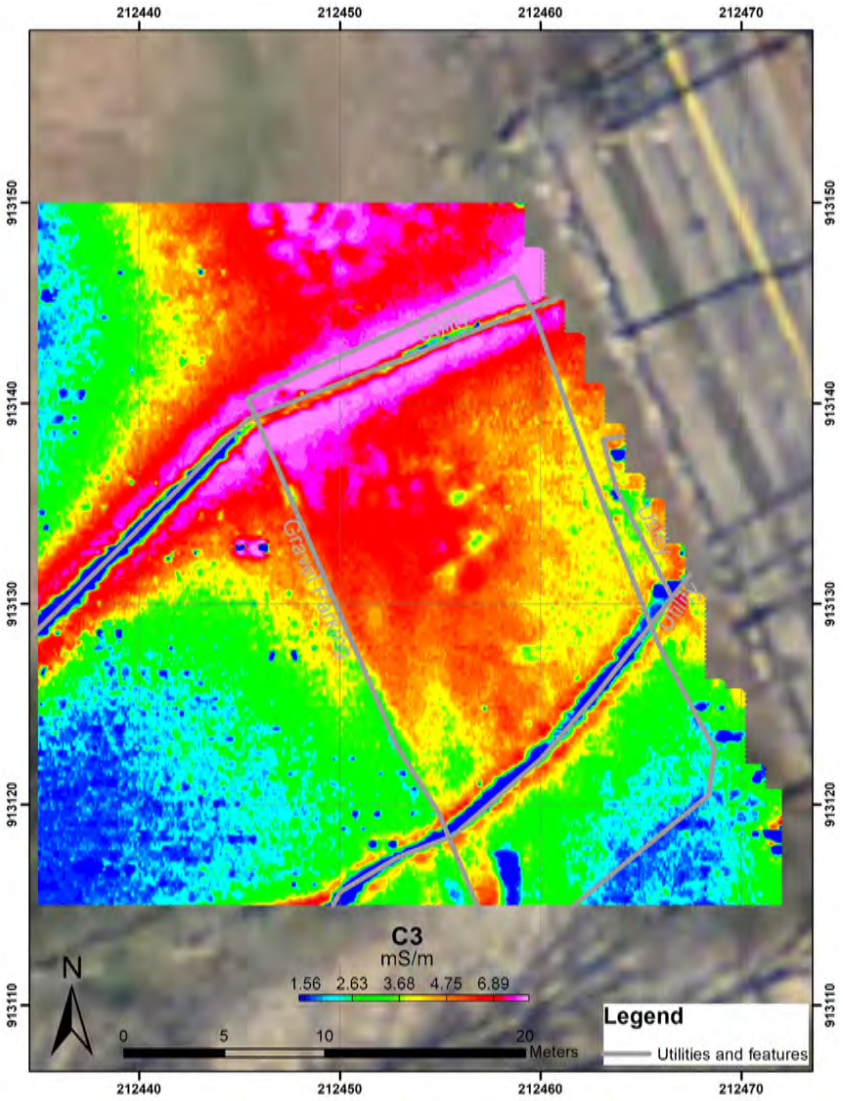


Figure 19. Apparent bulk ground conductivity image (sensor C3) of parking-lot grid.

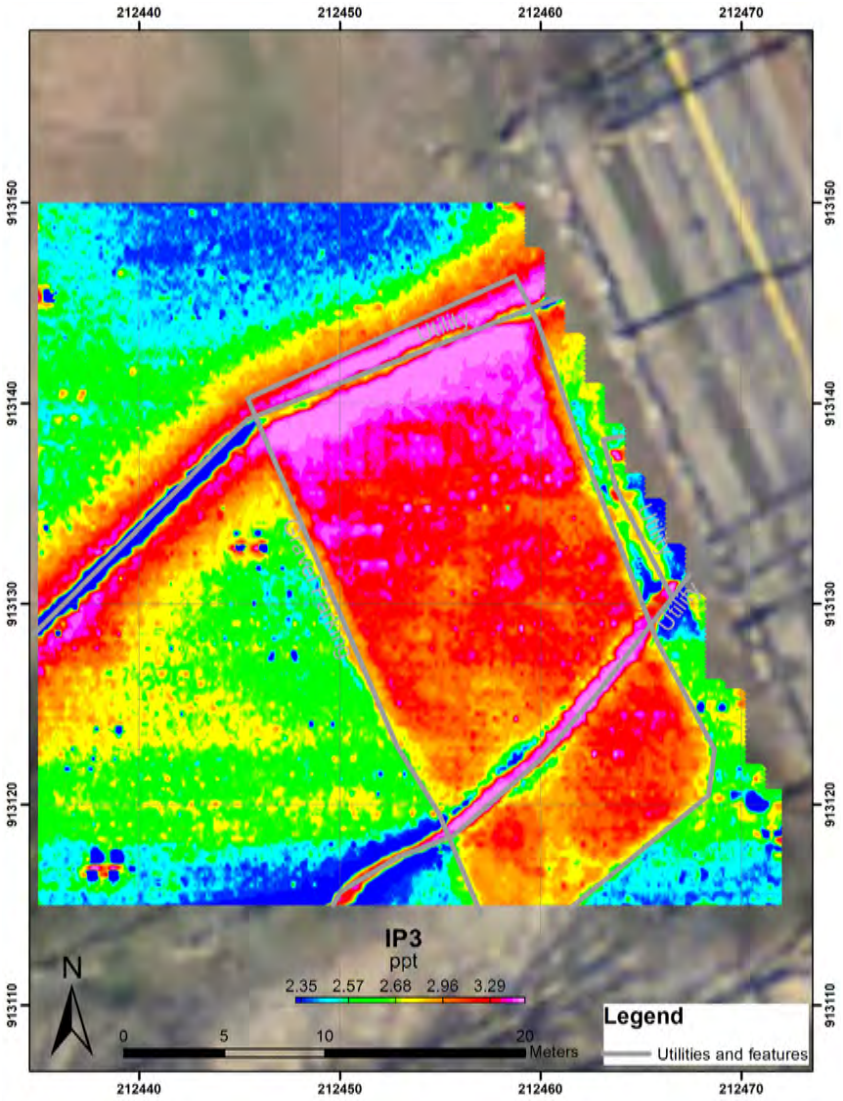


Figure 20. In-phase image (sensor IP3) of parking-lot grid.

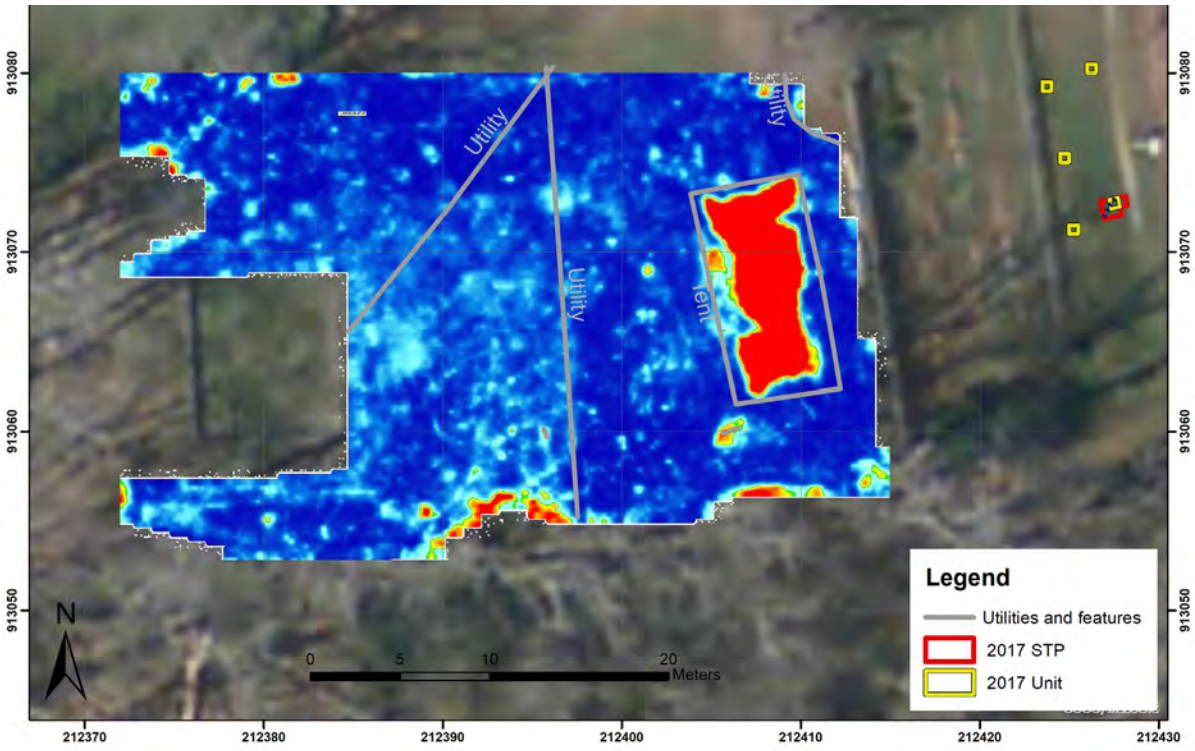


Figure 21. GPR slice at approximately 15 cm bgs of the barn grid. Red denotes the presence of a relatively strong reflector, but see the section on Geophysical Interpretations for a discussion of the red area within the "tent" outline.

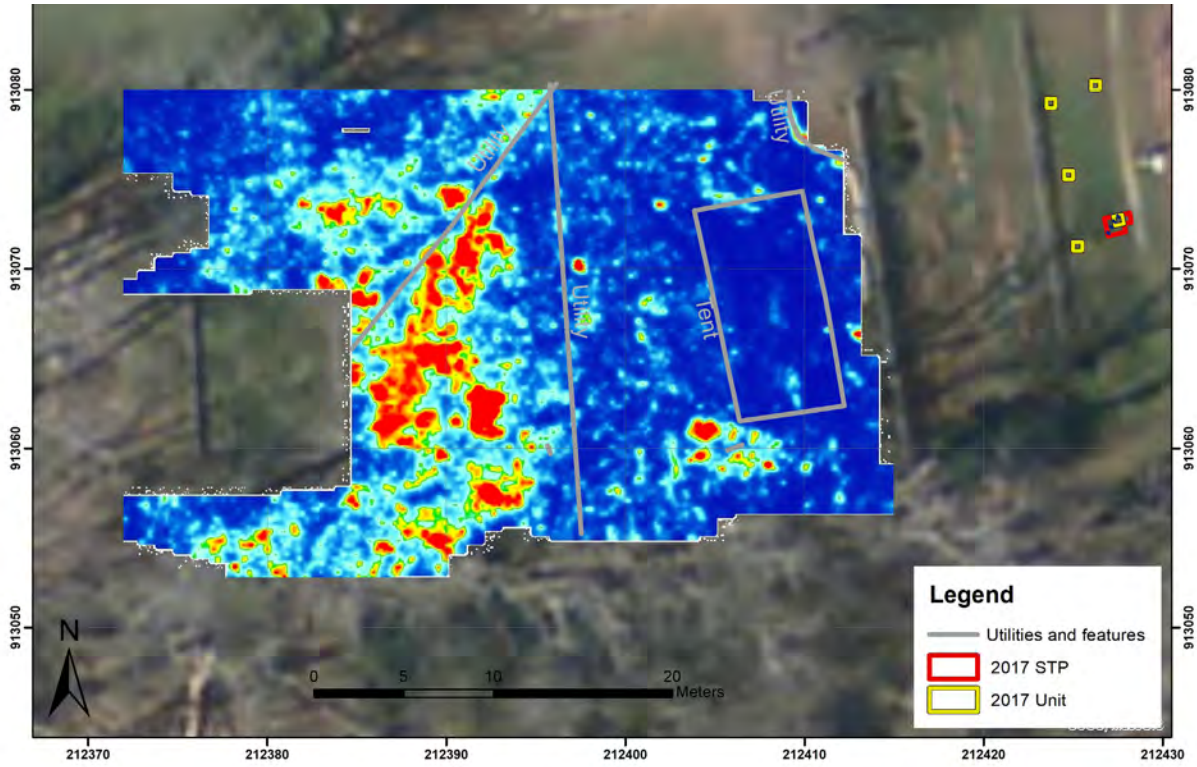


Figure 22. GPR slice at approximately 37 cm bgs of the barn grid. Red denotes the presence of a relatively strong reflector.

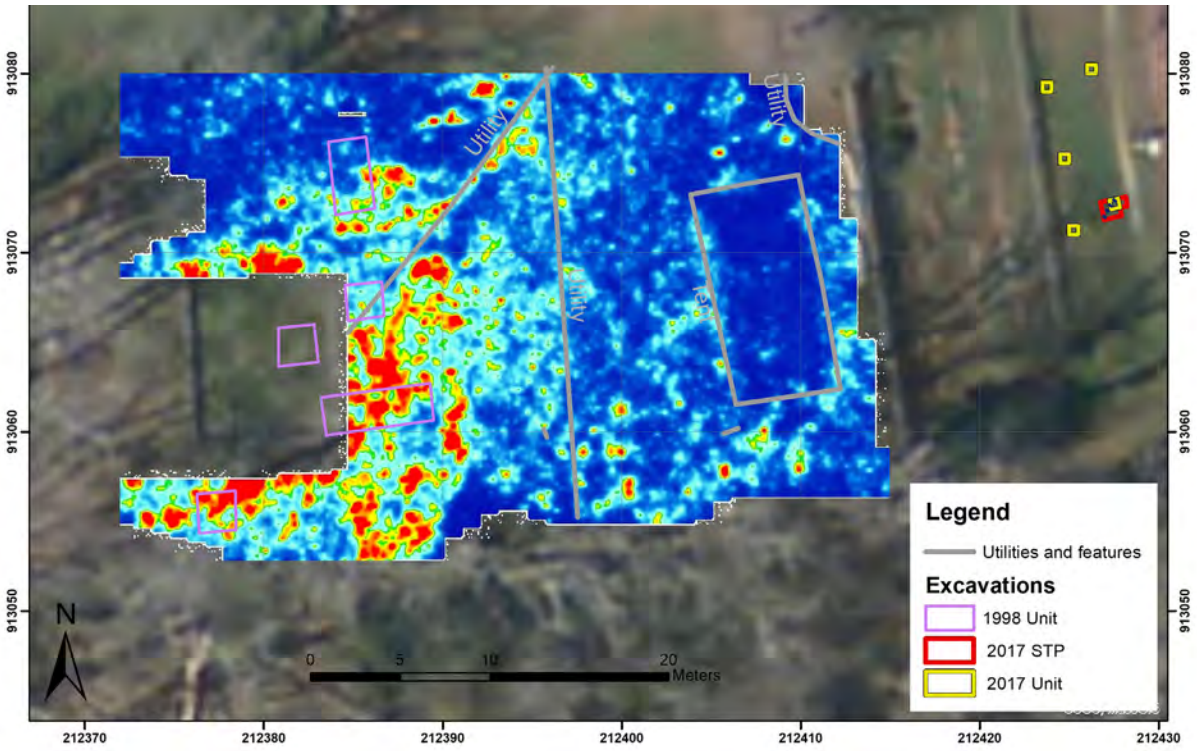


Figure 23. GPR slice at approximately 75 cm bgs of the barn grid. Red denotes presence of relatively strong reflector. Probable locations of the 1998 excavations (Mrozowski and Kelley 1999, 24) are superimposed in purple.

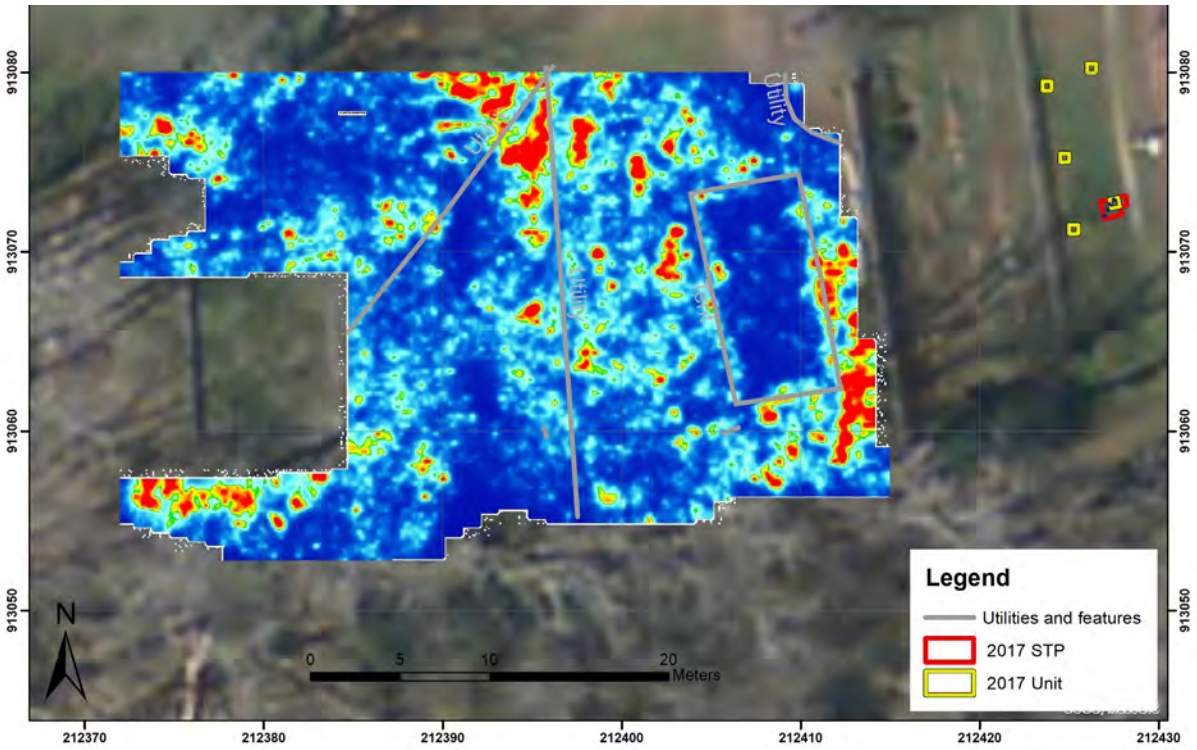


Figure 24. GPR slice at approximately 100 cm bgs of the barn grid. Red denotes presence of relatively strong reflector.

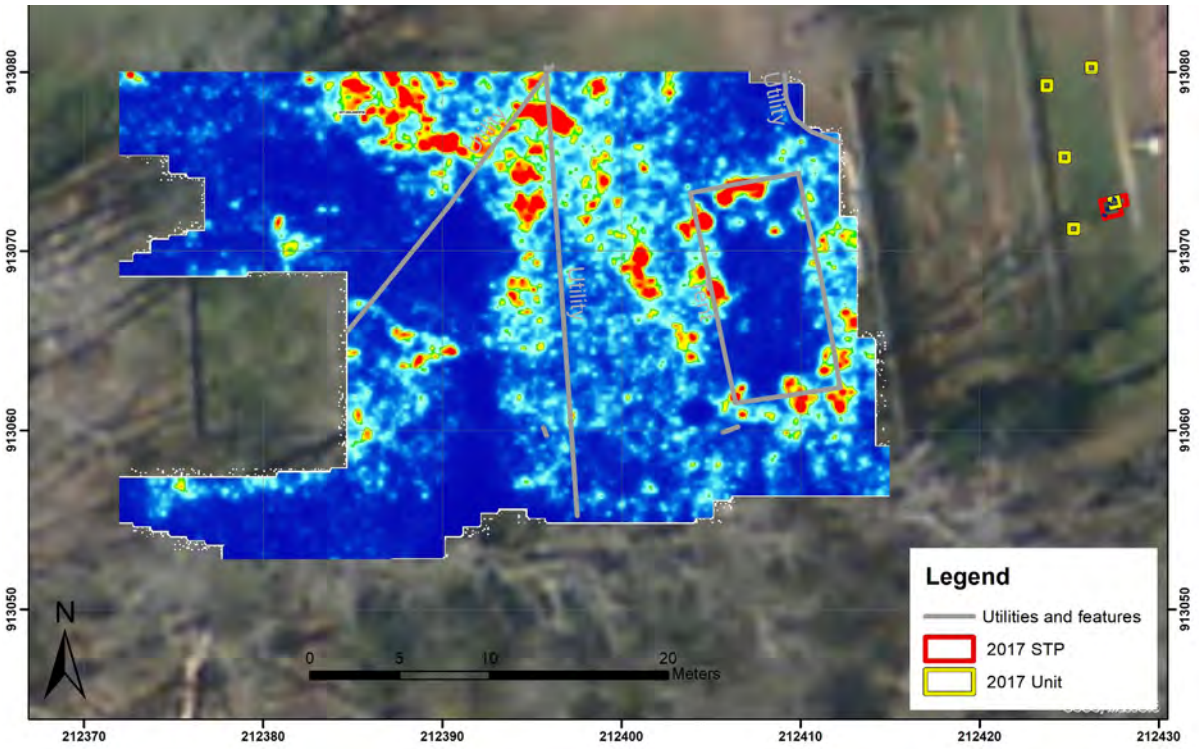


Figure 25. GPR slice at approximately 150 cm bgs of the barn grid. Red denotes the presence of a relatively strong reflector.

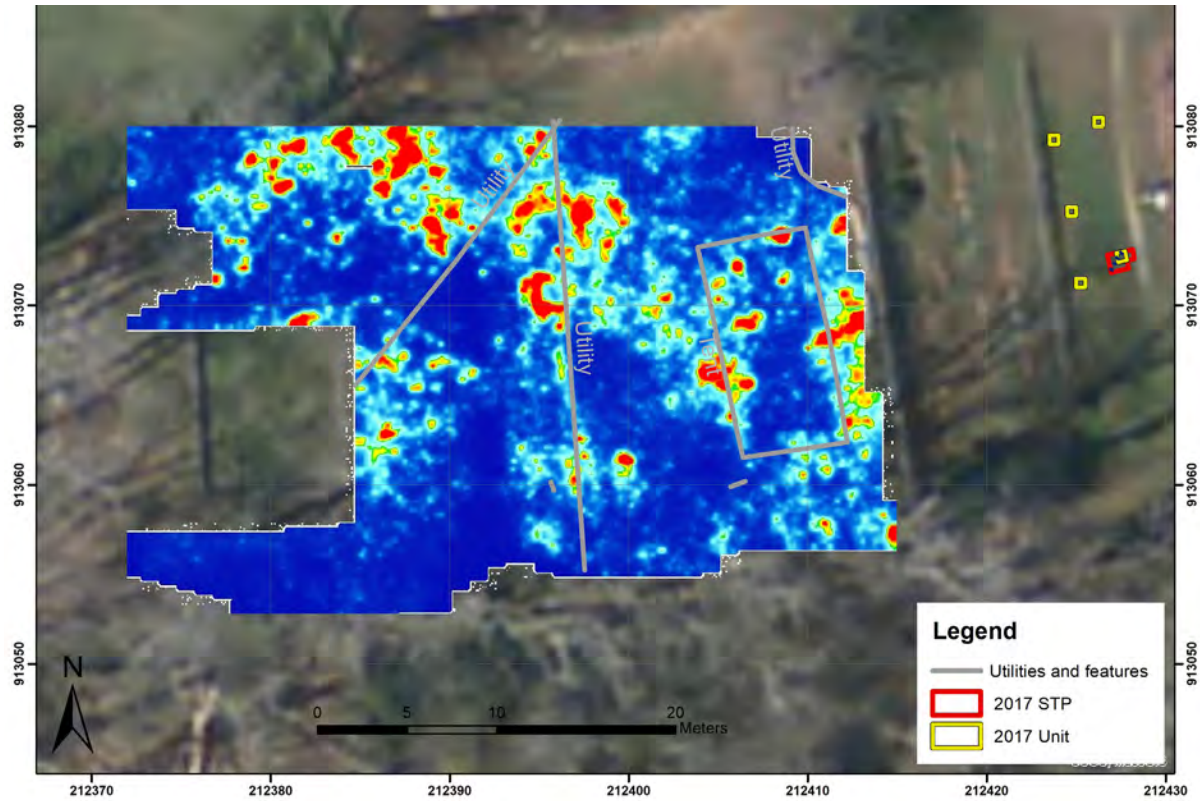


Figure 26. GPR slice at approximately 200 cm bgs of the barn grid. Red denotes the presence of a relatively strong reflector.

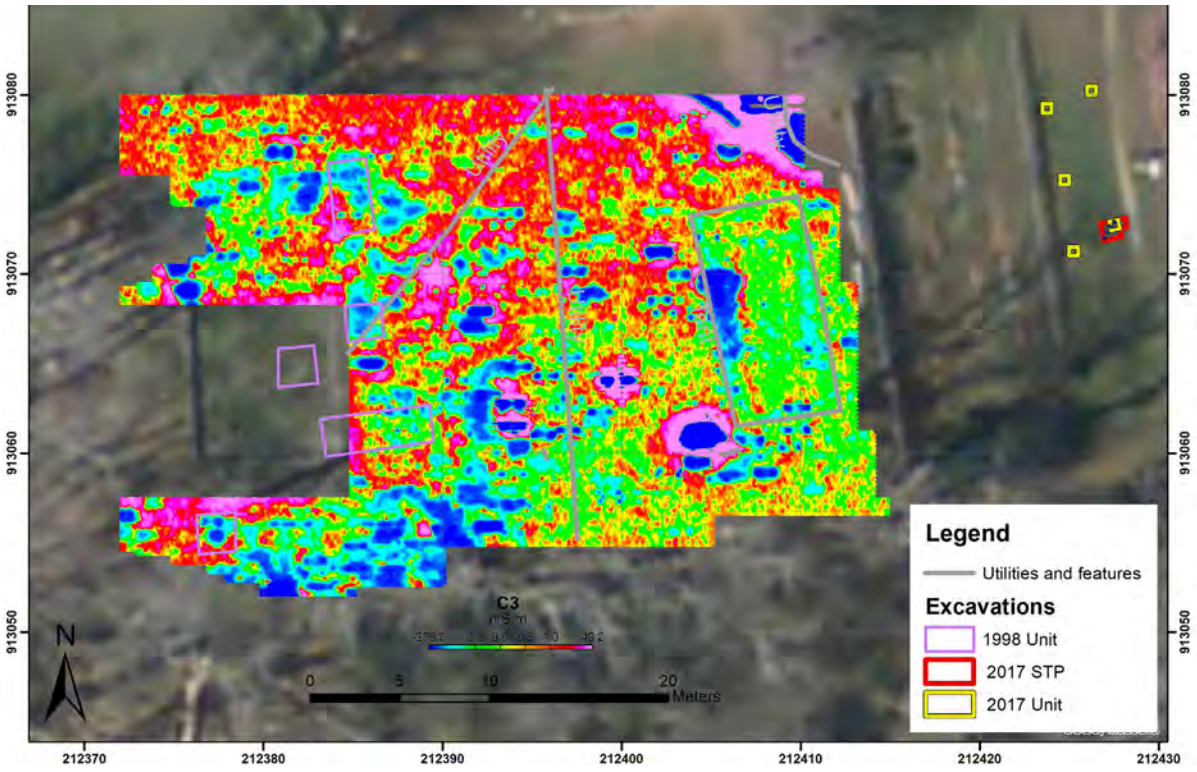


Figure 27. Apparent bulk ground conductivity image (sensor C3) of barn grid. Probable locations of the 1998 excavations (Mrozowski and Kelley 1999, 24) are superimposed in purple.

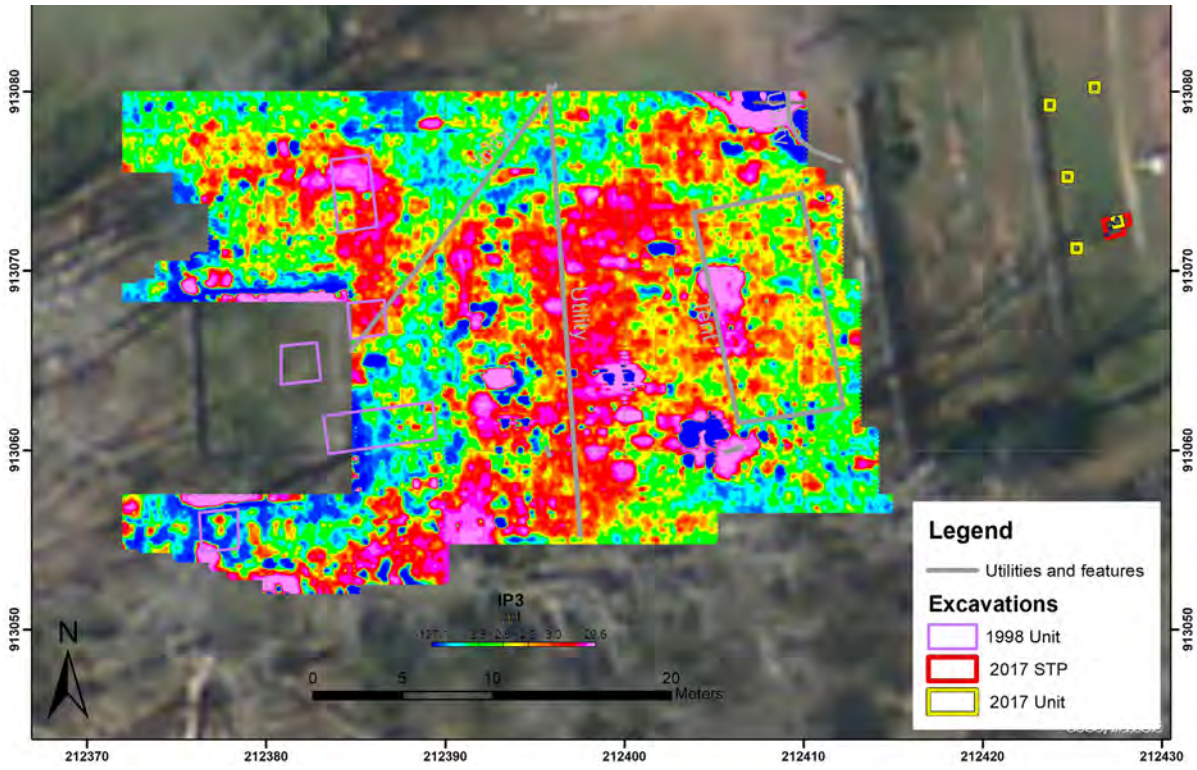


Figure 28. In-phase image (sensor IP3) of barn grid. Probable locations of the 1998 excavations (Mrozowski and Kelley 1999, 24) are superimposed in purple.

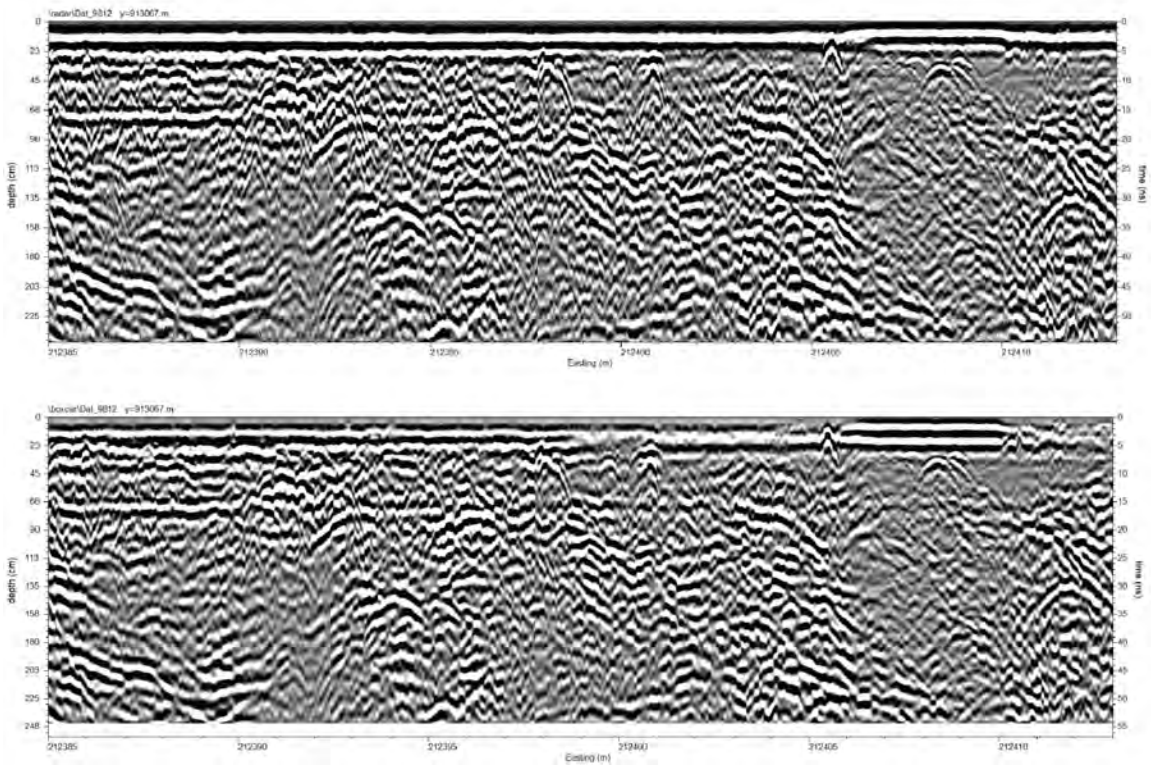


Figure 29. North 913067 radargram transect. Top image: gained, but unfiltered radargram. Bottom image: gained and filtered (background removal and boxcar) radargram. Note the strong ground wave that in the unfiltered gradrgram, that is removed in the filtered radargram. The tented areas is from E 212406 to E 212410.

2017 Intensive Survey

The 2017 Intensive Survey was prompted by plans to excavate percolation test trenches as part of a proposed septic system for the future visitor center at the Old Manse (Fig. 30). Three percolation tests were proposed, consisting of two larger trenches approximately 5 ft by 11 ft (1.5 m x 3.3 m) and one smaller trench sized 5 ft by 5 ft (1.5 x 1.5 m). Project plans called for the smaller perc test to be excavated to 2 to 3 ft below the surface and the larger ones to extend 10 ft below the surface. An intensive survey was conducted in order to investigate the nature, extent, chronology, and integrity of buried cultural resources in the specific area affected by the proposed percolation tests. Specifically, the survey was undertaken to determine what types of sub-surface sediments and archaeological deposits exist in the test areas, the date range and artifact content of the site sediments, and the types of natural and cultural depositional processes are reflected in the site record.

The project also had several research questions relating to the Old Manse landscape:

1) How did the use of this yard space around the house change as the property transformed from a working farm to a "gentleman's farm" and the home of literary and artistic figures? Is there evidence of this space functioning as a work yard?

2) Is there evidence of plowing, grading, or other landscaping activities?

3) Since the location of the earlier house on the property is not known, is there any evidence of features from the colonial period that predate the standing house (ca. 1770) in this yard?

4) Are any deposits or features from the Native occupation of the property preserved intact here in the core of the farmstead?

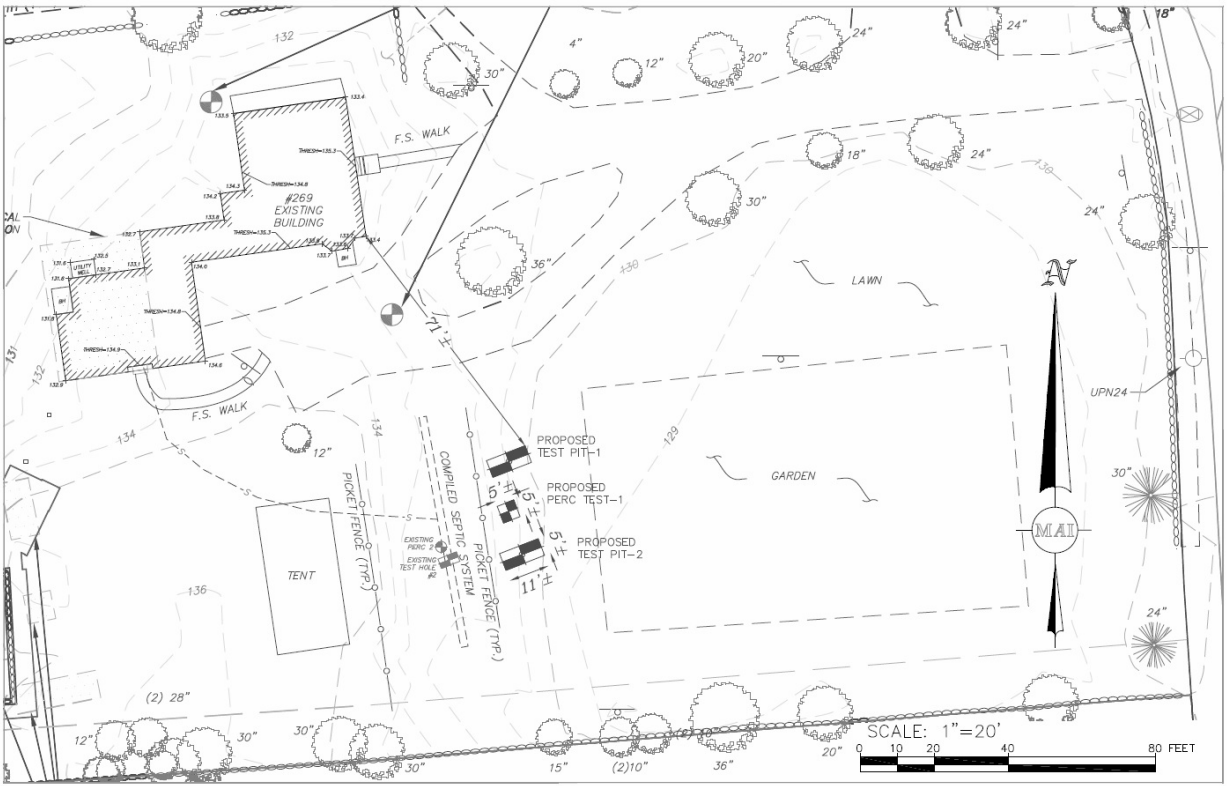


Figure 30. Map of project area showing proposed location of percolation tests.

5) Is there evidence of Native activity here that was disturbed by the colonial farm (in the form of concentrations of Native lithics or ceramics in mixed contexts)?

Methods

A total of five shovel test pits were planned, with one STP located at either end of the proposed larger percolation trenches and one in the center of the smaller percolation trench (Fig. 31). STPs 1-4 were approximately 0.5m x 0.5m in size. STP 5 was originally 0.5m x 0.5m, but was later expanded into EU 1. EU 1 was a 1m x 1m excavation unit with a 0.5m x 0.5m extension located on the north half of the east wall.

All survey and excavation locations were mapped using the Massachusetts State Plane grid. The excavation was done by hand with trowels and shovels. Soils were screened through ¼ inch hardware cloth and artifacts placed into labeled bags. The STPs and excavation unit were excavated stratigraphically and, when possible, continued to sterile subsoil. Once excavations were complete, the artifacts were brought back to the archaeological laboratories at UMass Boston. Glass, ceramic, and stable bone artifacts were washed; fragile bone and metals were dry brushed. Artifacts were identified and cataloged in FiskeCat, the Fiske Center's FileMaker database, and then re-bagged for long-term storage. Three ferrous objects were conserved using a 5% tannic acid solution. Following Fiske Center lab protocols, the objects underwent multiple treatments until they were stabilized and no longer showed signs of corrosion. An artifact catalog can be found in Appendix A.

Results

The intensive survey identified a colonial period foundation in STP5/EU1, so the proposed percolation test trenches were not opened.

STP 1

STP 1 was located in the western end of the northernmost trench. The topsoil (CXT 001) extended from 0 cm below surface

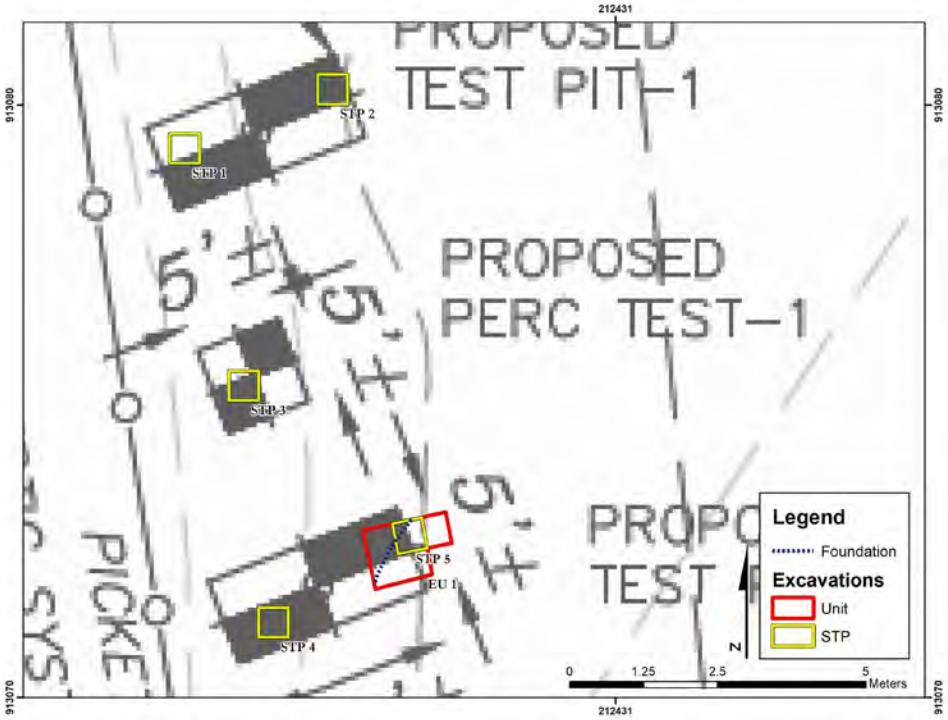


Figure 31. Map of shovel test pits relative to percolation tests.

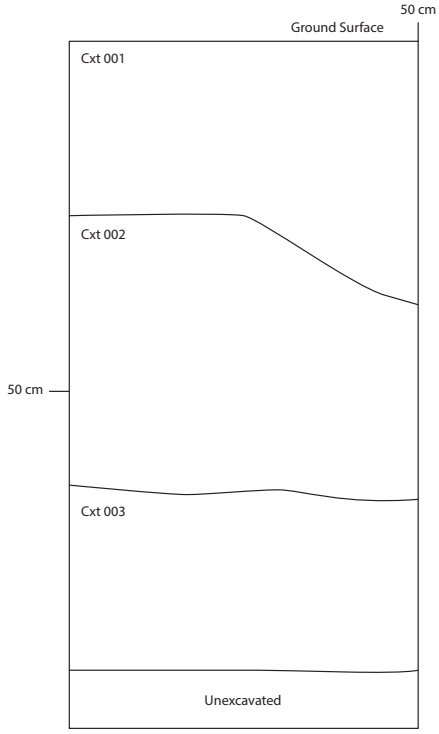


Figure 32. STP1 south wall profile. Soil descriptions in text.

(cmbs) to between 26 and 37 cmbs and consisted of a 10YR ¾ dark yellowish brown sandy silt with gravel inclusions (Fig. 32). Recovered artifacts included redware, whiteware, cut and wire nails, coal, and vessel glass. The second level (CXT 002) had an undulating surface and was interpreted as a natural B horizon. Level two was made up of a 10YR 5/8 yellowish brown sandy silt with brown mottling. Artifacts were found in the first few cm of level two and included redware, coal, and a possible Native ceramic sherd. Level two extended to approximately 63 cmbs. At the interface of levels two and three, level three (CXT 003) was made up of a mottled 10YR 7/8 yellow sand and 10YR 6/8 brownish yellow sand with gravel inclusions. As the level was excavated, the sand content increased. No artifacts were recovered and level three was interpreted as sterile subsoil. STP 1 was closed at an approximate depth of 90 cmbs.

STP 2

STP 2 was located at the eastern end of the northernmost trench. At approximately 12 cmbs, a buried electrical line was uncovered in the northeast corner of the test pit so the pit was shifted west 10cm. The topsoil (CXT 004) was made up of 10YR ¾ dark yellowish brown sandy silt and contained a large amount of gravel inclusions and cobbles. Asphalt, brick, coal, redware, refined

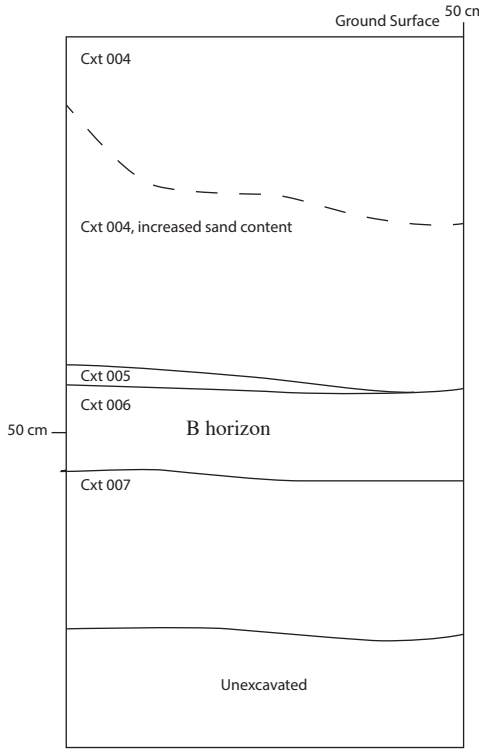


Figure 33. STP2 south wall profile. Soil descriptions in text.

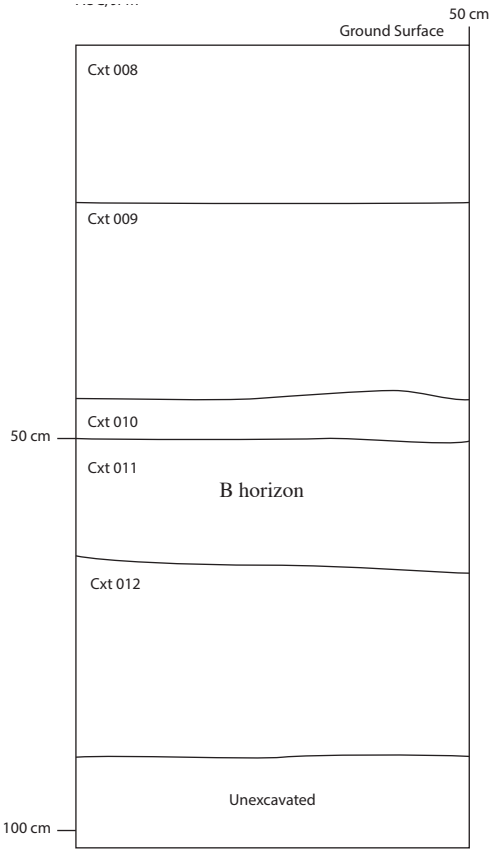


Figure 34. STP 3 south wall profile. Soil descriptions in text.

earthenware, nails, flat and curved glass, and nails were all recovered. Brick and coal were sampled and modern trash and asphalt was discarded. At approximately 20 cmbs, the topsoil had an increase in sand content (Fig. 33). Level one was closed at approximately 45 cmbs when a 10YR 3/3 dark brown sandy silt was exposed. Designated CXT 005, level two was loosely compacted with no gravel inclusions and contained porcelain, glass, bone, redware, a nail, and charcoal. Brick, coal, and coal ash were sampled. Level two was a lens originating in the east and thinning out across the unit. At its thickest in the east wall, it was ca. 4 cm thick. Level three (CXT 006) consisted of a 10YR 5/6 yellowish brown sand with dark brown silt mottling and a small amount of gravel. The level contained one charcoal fragment and was interpreted as a natural B horizon. At approximately 55 cmbs, level four was exposed. Level four (CXT 007) was made up of 10YR 6/8 brownish yellow sand with 10YR 7/6 yellow sand mottling. The level was loose and well sorted. One piece of redware was recovered from the context but was likely the result of wall fall. Level four was interpreted as subsoil. STP 2 was closed at 75 cmbs.

STP 3

STP 3 was placed in the middle of the small percolation trench. The topsoil (CXT 008) was made up of a 10YR 3/3 dark brown slightly sandy silt. Recovered artifacts included whiteware, black glazed redware, creamware, slate, a nail, and vessel glass. Brick was sampled and asphalt was discarded. Level one was closed at approximately 25cmbs when a 10YR 5/4 yellowish brown clay with dark brown silt mottling was exposed (Fig. 34). The second level, designated CXT 009, was fine grained, not compacted, and contained large cobbles. Some of the cobbles appeared to be cut, possibly for architectural purposes. Recovered artifacts include whiteware, unidentified metal fragments, and sampled brick. Level two extended down to 45 cmbs and was interpreted as a

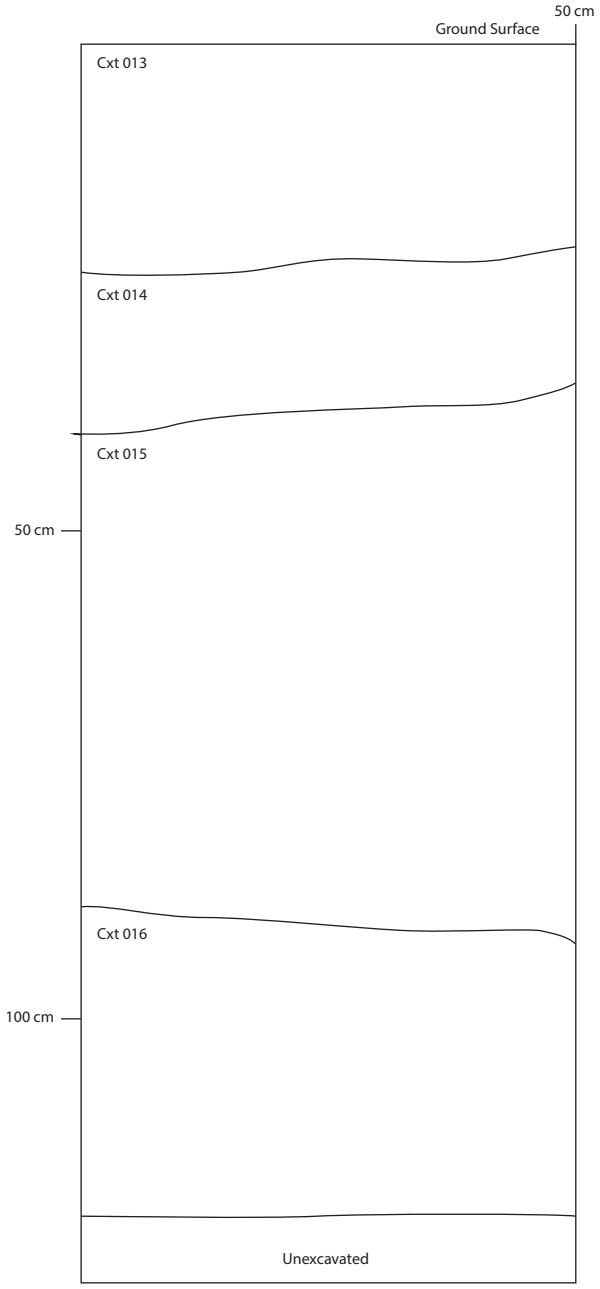


Figure 35. STP4 south wall profile. Soil descriptions in text.

fill layer. Level three (CXT 010) was made up of 10YR 4/4 dark yellowish brown sandy silt mottled with 10YR 5/8 yellowish brown sand and charcoal flecking. Extending down to 50 cmbs, level three contained nails, charcoal, bone, and unidentified metal. Level four (CXT 011) consisted of loosely compacted 10YR 5/6 yellowish brown sand with 10YR 6/6 brownish yellow sand mottling. Interpreted as a natural B horizon, level four extended down approximately 65-68 cmbs and contained charcoal flecking and unidentified metal. Underneath level four a 10YR 6/6 brownish yellow sand was exposed. Level five (CXT 012) was loosely compacted and well sorted. The level contained no artifacts and was interpreted as subsoil. STP 3 was closed at approximately 90 cmbs.

STP 4

STP 4 was located in the western end of the southernmost trench. The topsoil (CXT 013) was made up of a 10YR 3/3 dark brown sandy silt with gravel inclusions and contained brick, vessel glass, wrought nails, glazed redware, pearlware, creamware, whiteware, and modern plastic. The first level extended down approximately 23 cmbs and was closed when a level with clay and less gravel was exposed (Fig. 35).

Level two (CXT 014) consisted of a 10YR 3/2 very dark grayish brown clayey silt with a small amount of gravel inclusions. Recovered artifacts included brick, one wrought nail, flat and curved glass, porcelain, yelloware, pearlware, creamware, and glazed redware. One piece of modern plastic was also recovered. The plastic may represent an intrusion into the context or wallfall, and without it, the layer has a TPQ of 1830 based on the yelloware sherd (Miller et al 2000:12). CXT 014 was closed at approximately 40 cmbs when a new level with lighter soils and less sand was exposed.

Level three (CXT 015) was made up of a 10YR 4/4 dark yellowish brown silty clay with gravel and cobble inclusions, and a significant amount of handmade brick fragments. Artifacts recovered from level three included a quartz debitage fragment, wrought nails, green wine bottle glass, a colorless stemware base, creamware, redware, and possible Native ceramic. Several large mammal bones were also recovered, including part of a left *Bos taurus* humerus and *Bos taurus* pelvis. Brick and mortar were sampled. The artifact assemblage gave the layer a TPQ of 1762 based on the presence of creamware (Miller et al 2000:12). Level three extended down 90 cmbs and was interpreted as a demolition/fill layer.

Level four (CXT 016) was made up of 10YR 5/6 yellowish brown sand with 10YR 6/6 brown-

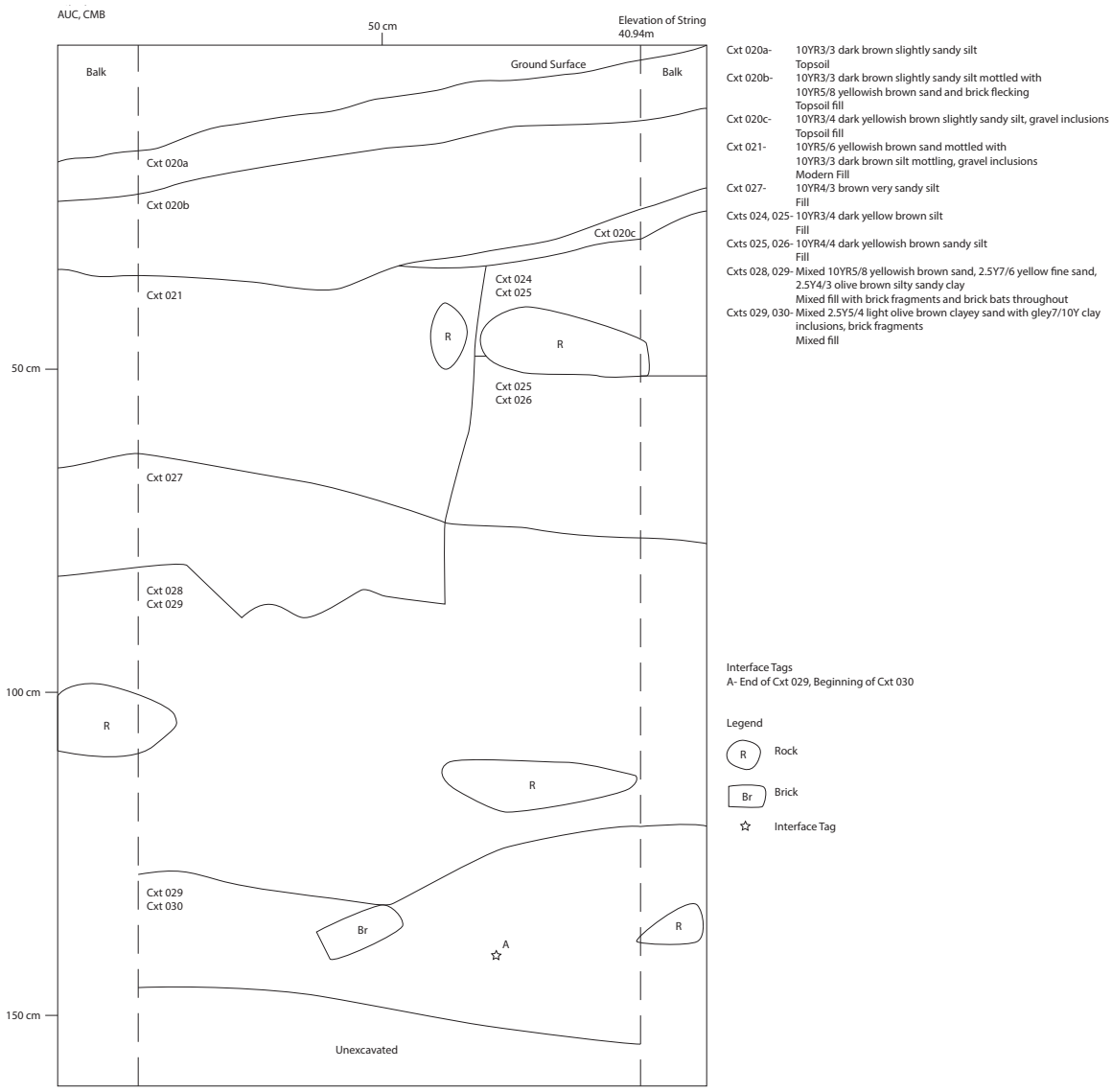
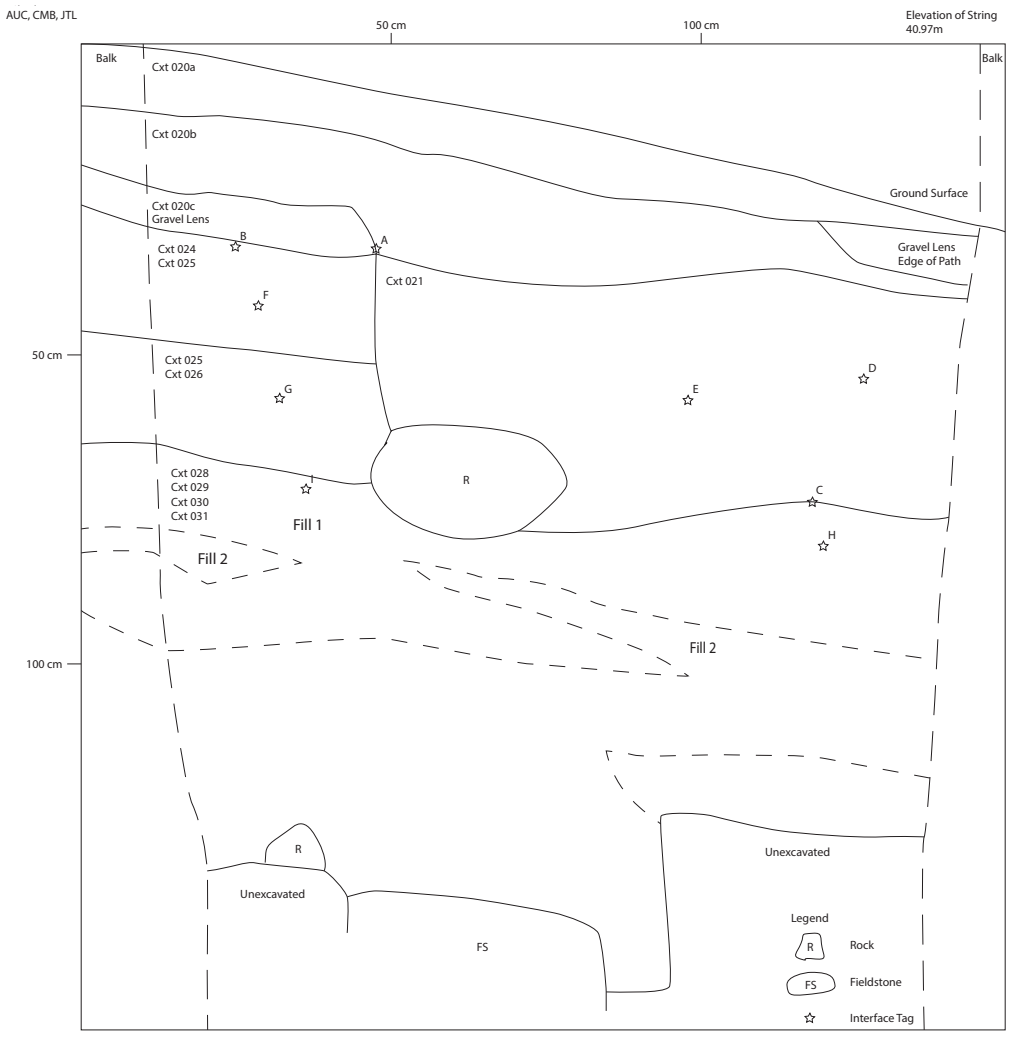


Figure 36. South wall profile of EU1.

ish yellow sand mottling. The matrix was loosely compacted and well sorted. Recovered artifacts included sampled handmade brick, redware, glass, and a wrought nail. Level four was also interpreted as a demolition/fill layer. The artifacts from level four did not contain any highly diagnostic material; however the assemblage appears consistent with material culture from the mid-18th century. At 120 cmbs, level four gave way to a 10YR 7/6 yellow sand. Due to the depth of the STP, this new level was not excavated and STP 4 was closed. It is unknown whether or not the exposed yellow sand was sterile subsoil.

STP 5/EU 1

STP 5 was located on the eastern edge of the southernmost trench, approximately 2 m northeast of STP 4. The topsoil (CXT 017) consisted of 10YR 3/4 dark yellow brown silt with occasional large cobbles. Extending down to 16 cmbs, the topsoil contained green wine bottle glass, wrought nails, and refined earthenware. Charcoal, coal, and brick were all sampled. Underneath the topsoil, level two (CXT 018) was made up of 10YR ¾ dark yellow brown silt mottled with 10YR 5/6 sandy silt with charcoal flecking. Recovered artifacts included burned bone, whiteware, and



Cxt 020a- Topsoil, 10YR3/3 dark brown slightly sandy silt
Cxt 020b- Topsoil fill, 10YR3/3 dark brown slightly sandy silt mottled w 10YR 5/8 yellowish brown sand,brick flecking
Cxt 020c- Topsoil fill with gravel, 10YR 3/4 dark yellowish brown slightly sandy silt with gravel
Cxt 021- Modern fill, 10YR5/6 yellowish brown sand mottled with 10YR3/3 dark brown silt, gravel inclusions
Cxts 024, 025- Mixed fill, 10YR3/4 dark yellowish brown silt
Cxts 025, 026- Mixed fill, 10YR4/4 dark yellowish brown sandy silt
Cxts 028, 029, 030, 031-
Mixed fill, bands of various types and colors,
generally sandier at bottom of deposit, but no stratigraphic breaks
Fill 1: 2.5Y5/4 light olive brown clayey sandy silt with brick fragments, clay inclusions
Fill 2: mix of 10YR5/8 yellowish brown sand and 2.5 7/6 yellow sand

Interface Tags
A- End of Cxt 020, Beginning of Cxt 021
B- End of Cxt 020, Beginning of Cxt 024
C- End of Cxt 021, Beginning of Cxt 027
D- End of Cxt 021, Beginning of Cxt 023
E- End of Cxt 021, Beginning of Cxt 022
F- End of Cxt 024, Beginning of Cxt 025
G- End of Cxt 025, Beginning of Cxt 026
H- End of Cxt 027, Beginning of Cxt 028
I- End of Cxt 026, Beginning of Cxt 028

Figure 37. North wall profile of EU1.

sampled brick, coal, and coal ash. The amount of artifacts increased at the interface of levels two and three. Level three (CXT 019) was opened at approximately 29 cmbs and was made up of 10YR 5/4 yellowish brown silty sand with cobbles, gravel, and charcoal flecking. Within the first few centimeters of level three, large rocks and cobbles were uncovered oriented southeast-northwest across the unit, as well as several cobbles in the southwest corner of the STP. Refined earthenware, vessel glass, brick fragments, coal ash, coal, and charcoal were all found around the cobbles. At approximately 40 cmbs, more cobbles and large stones were exposed. The stone initially appeared to be roughly coursed, though this later proved not to be the case. STP 5 was closed at 50 cmbs in the middle of level three to expand the test pit so that the stones could be further exposed.

EU 1 was 1m x 1m with a 0.5m x 0.5m expansion extending from the north half of the east wall (Figs. 36 and 37). STP 5 was the northeastern quadrant of the 1m x 1m. The material in the expansion that correlated with CXTs 017 and 018 was removed as one layer in EU 1 and designated CXT 020. In the eastern half of EU 1, removal of CXT 020 exposed CXT 021, which correlated with CXT 019 (level three of STP 5). Removal of the western half of CXT 020 exposed a gravel lens that transitioned to a compacted silt layer that was designated CXT 024. Artifacts removed from CXT 020 included vessel glass, refined earthenware, nails, terra cotta flower pot fragments, cuprous wire, stoneware, redware, and a collar stud. Brick, coal, and coal ash were sampled and modern plastic was discarded. CXT 020 had an average depth of 10-30 cm.

CXT 021 was located underneath CXT 020 in the eastern half of the unit and correlated to CXT 019 of STP 5 – sandy fill with large stones. The layer consisted of 10YR 5/4 yellowish brown silty sand with gravel, cobbles, and large stones, and was loosely compacted. Similar to CXT 019, the layer contained loosely stacked stones along the edge of the unit and extending into the 50cm x 50cm extension. The stones were both covered by CXT 021 and within it, suggesting the layer was the result of fill post-deposition of the stones. The majority of the layer contained historic artifacts including stemware, refined earthenware, glazed redware, and nails, however modern plastic was found at the bottom of the level. One flake was recovered as well. The modern artifacts, including a "Whatchamacallit" candy bar wrapper with a logo manufactured from 2002-2003 (Candy Wrapper Archive: Whatchamacallit), indicate the feature was cut within the past 30 years and that historic fill was used to backfill the trench. Originally two contexts were separated from CXT 021 and given their own designations: CXT 022 (10YR 4/4 dark yellowish brown slightly silty sand) and CXT 023 (10YR 2/2 very dark brown sandy silt with 10YR 4/6 dark yellowish brown sand mottling). Both CXTs 022 and 023 were later determined to be part of CXT 021 and were removed as the same layer. Removal of CXT 021 revealed that the context was a modern trench cut into CXT 024 and sat on top of some redeposited topsoil (CXT 027). CXT 021 ranged from 12cm to 47cm in depth.

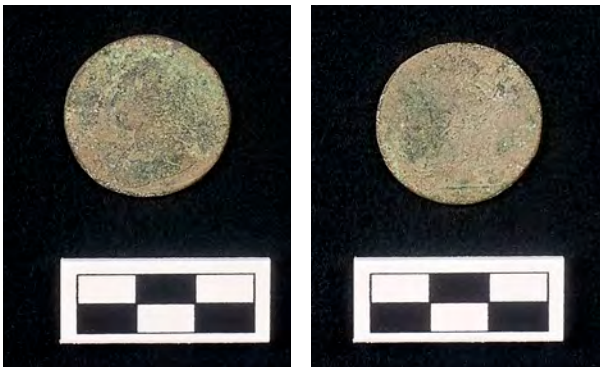


Figure 38. George II coin recovered from EU 1, CXT 027. Scale in cm.

CXT 027 was uncovered directly underneath CXT 021. Characterized as redeposited fill, the layer was at the bottom of the modern trench and did not extend across the entirety of the trench cut. Concentrated in the southern half of the trench, the layer consisted of 10YR 3/2 very dark grayish brown slightly sandy silt with 10YR 3/3 dark brown mottling. The soil was compacted with a small amount of brick inclusions. Removal of the context exposed five linear features running north-south along the trench that were cut into the underlying layer, CXT 028. The linear features had the same soil composition as CXT 027 and were removed as part of the layer. The features were likely left by whatever tools were used to create the modern trench. Artifacts recovered include redware, a nail, flat glass, mortar, plaster, and curved glass. A cuprous George II coin was found at the interface of CXTs 027 and 028 and gives CXT 027 a TPQ of 1727 (Fig. 38) (Coin Database: United Kingdom 1727-1760). At its deepest point, CXT 027 was approximately 10 cm thick.

In the western half of EU 1, removal of CXT 020 exposed a gravel lens and then CXT 024, a very compact 10YR 3/3 dark brown sandy silt layer with a small amount of gravel. Artifacts recovered from the layer include modern plastic, curved and flat glass, nails, redware, and refined earthenware. Coal and brick were sampled. CXT 024 was closed after approximately 10 cm when the soil became less compacted and three large stones were exposed.

Figure 39. William III coin recovered from EU 1, CXT 026. Scale in cm.

Figure 40. Knapped colorless glass recovered from EU 1, CXT 028. Scale in cm.

The new layer was designated as CXT 025, and consisted of 10YR 3/3 dark brown fine sandy silt with light brown mottling that increased with depth. The layer extended down to the bottom of the exposed stones and contained fragments of a redware chamber pot, polychrome pearlware, glazed redware, and nails. Whiteware was recovered from the context as well, giving CXT 025 a TPQ of 1820 (Miller et al 2000:12). After approximately 5 cm, CXT 025 was closed.

CXT 026 was exposed underneath CXT 025 and consisted of a 10YR 4/6 yellowish brown sandy silt with 10YR 3/3 dark yellowish brown mottling. The layer contained a creamware sherd, three Staffordshire slipware fragments, redware, flat glass, wrought nails, one cut nail, a pipestem and pipe bowl fragment, and charcoal. Brick and coal were sampled. A cuprous William III halfpenny minted between 1694 and 1701 was also found (Fig. 39; Coin Database: United Kingdom 1694-1701). One whiteware sherd gave the context a TPQ of 1820, however the majority of artifacts recovered from the context were older and the whiteware sherd may represent wall fall or an intrusion. Without the whiteware sherd, the presence of creamware gives the context a TPQ of 1762. The layer was interpreted as fill material potentially related to the demolition of a structure. CXT 026 was closed after approximately 20 cm when mottled silty sand with clay inclusions was uncovered (CXT 028). Contexts 024, 025, and 026 were all cut into by the modern trench and were only present in the western half of EU 1.

Context 028 stretched across the entirety of the unit. It was exposed under CXT 026 in the western half EU 1 and under CXT 027 and 028 in the eastern half and 50cm x 50cm extension of EU 1. The construction of the modern trench in the eastern half of the unit cut approximately 10 cm into CXT 028. The layer consisted of a mottled 10YR 5/6 yellowish brown and 2.5 Y 4/3 olive brown silty sand with 5Y 6/6 olive brown clay inclusions. The layer also contained brick and charcoal flecking, some small rocks, and a few large, un-coursed fieldstones. At approximately 85 cmbs, a sand lens was uncovered in the northwestern corner of the unit. It was originally interpreted as being a new context, however further excavation showed that CXT 028 continued underneath so the lens was removed as part of CXT 028. In the 50cm x 50cm extension, a 10YR 2/1 black silt lens was exposed before uncovering the sand lens. The material under the sand lens contained an increasing amount of gray clay and brick fragments, however it contained a similar enough composition to be removed as part of CXT 028. A tan sand lens was also exposed in the unit, with gray/brown mottled fill with bricks consistently appearing underneath. Artifacts recovered in CXT 028 included redware sherds, window glass, wrought nails, pipe stem fragments, flat metal, complete brick bats, brick fragments, large pieces of granite, and one quartz debitage fragment. One piece of knapped colorless glass was also recovered (Fig. 40). A small piece of foil was also recovered; however its presence is likely the result of wall fall. Without the foil,

Figure 41. Fieldstone foundation exposed at the bottom of EU 1.

the context does not contain any highly diagnostic artifacts however the assemblage appears consistent with mid-18th century material culture. After extending down approximately 40 cm, the unit had reached a depth of 120 cmbs so CXT 028 was arbitrarily closed in order to excavate an STP in the unit within the same horizontal location of STP 5. CXT 028 was interpreted as being fill related to the demolition of a structure. The sand lenses found throughout the context have been interpreted as natural B horizon and subsoil redeposited from elsewhere on the property, possibly as part of a filling event.

CXT 029 was the first layer of material removed from the EU 1 STP and consisted of the same material as CXT 028. Initially opened as a 50cm x 50cm STP in the bottom of EU 1, CXT 029 was later expanded to cover the entire 1m x 1m portion of EU 1. The context was documented as a mottled fill consisting of 2.5Y 6/6 olive yellow sand, 7.5YR 4/6 strong brown slightly silty sand, and 10YR 4/6 dark yellow brown slightly silty sand. The context contained an abundance of brick bats and fragments, as well as Gley 1 7/6 light greenish gray clay inclusions. Artifacts recovered from the context included slip decorated and undecorated redware, window glass, wrought nails, and a pipe stem fragment. Brick bats, architectural granite spalls, and clay were sampled. Similar to CXT 028, CXT 029 contained bands of yellow and yellowish orange sand and was mottled throughout. The clay inclusions appeared slightly more concentrated towards the southern portion of the unit. CXT 029 was closed somewhat arbitrarily after approximately 20 cm due to an increase in clay and silt and decrease in brick.

CXT 030 was opened underneath CXT 029. Similar to the previous context, CXT 030 initially opened as a 50cm x 50cm STP within EU 1, but was later expanded to cover the entire 1m x 1m portion of the unit. The layer consisted of 10YE 5/4 yellowish brown sand with Gley 7/16Y light greenish gray clay mottling and brick bats and fragments, cobbles, and rocks inclusions. At ap-

Figure 42. Fieldstone foundation close-up.

proximately 130 cmbs, a coursed, un-mortared fieldstone foundation was exposed (Fig. 41). The stones ran diagonally across the unit from the northeast to southwest corner, with the southeastern half of the unit located inside of the foundation. Approximately 15 cm of fill was removed from inside the foundation and a small auger was used to determine that that the fill continued for at least 20 more centimeters (at least 165 cm below the surface). Artifacts recovered from the layer included redware sherds, a possible Native ceramic, aqua window glass, wrought nails, and charcoal. None of the recovered artifacts were highly diagnostic; however the assemblage appears consistent with mid-18th century material culture.

Northwest of the coursed stones, 10YR 7/6 yellow sand was exposed and designated CXT 031. The overall depth of the unit and minimal amount of exposes strata led to only a small amount of the context being removed prior to closing EU 1. Originally interpreted as possible fill or subsoil, not enough of the context was excavated to characterize it. CXT 031 was only excavated a few centimeters and one wrought nail was the sole recovered artifact.

Once the first several courses of stones were exposed, the foundation stones were documented and CXTs 030 and 031 were closed (Fig. 42). A chaining pin was used to determine that at least one additional stone coursing was not exposed. Due to the overall depth of the unit and the scope of the project, no further excavations were undertaken and EU 1 was closed.

Discussion

Excavation results indicate that the northernmost STPs (STP 1-3) did not contain any significant archaeological features or deposits and transitioned into sterile subsoil between 55-65 centimeters below ground surface. The results from STP 4, STP 5, and EU 1 indicate that area south of STP 3, contains numerous, deep fill deposits that appear to be related to the demolition of a structure represented by the fieldstone foundation uncovered in EU 1. The depth of these deposits are unknown, but appear to extend to a depth of over 120 cmbs near STP4 and at least 165 cmbs within the vicinity of STP 5/EU 1.

The artifacts recovered from the fill deposits represent a mix of architectural material and domestic refuse (Fig. 43). Handmade brick fragments were abundant, and wrought nails and window glass were recovered frequently. At least one of the window glass fragments appears to have been part of a diamond casement window pane. Glazed and unglazed redware, several Staffordshire slipware fragments, animal bone, and vessel glass were also recovered in the historic fill deposits, suggesting they were originally deposited as domestic refuse. Notably absent from the fill deposit artifact assemblages were refined earthenwares commonly associated with late 18th-19th century assemblages including pearlware and whiteware. The general lack of these ceramics from the fill layers suggests that the original deposition of the recovered artifacts occurred before the late 18th century.

The array of both domestic and architectural artifacts, depth of the fill deposits, and construction of the coursed fieldstone foundation all seem to suggest that the exposed foundation belonged to a previously unknown domestic structure that predates the extant Old Manse. The shallow subsoil depths from STPs 1-3 compared to the deep deposits exposed in STP 4-5 and EU 1 indicate that the structure cut deeply into the surrounding

Figure 43. 18th-century artifact assemblage from EU 1 fill deposits. Left: slip decorated and lead glazed redware; center: creamware, Staffordshire slip ware, diamond paned window glass, hand wrought nails; right: cow bones, pipe stems. Scale in cm.

Figure 44. Brick bats recovered from EU 1. Scale in cm.

subsoil, likely for a basement or deep shaft feature. The stones themselves appear to have a purposely cut interior "face" (Fig. 42), which may also point to investment in the construction of the building more commonly seen with domestic structures rather than outbuildings. Given the artifact assemblage and foundation construction, it appears probable that the foundation would have been part of a building constructed and used by the Blood family sometime between 1640-1769. Further excavation will be necessary to determine the extent and characterize the nature of the foundation.

Demolition of the building appears to have involved scraping back the soils surrounding the structure. The existing top course of fieldstones is well below the subsoil depth in STPs 1-3, suggesting that the original upper courses of the structure's foundation were removed at the time the structure was demolished. Scraping back the surrounding yard would have made it easier to rob out architectural material before filling and landscaping the area. If the structure was in fact a domicile for the Blood family, the building's demolition may coincide with the construction of Old Manse in 1770.

Both the material and nature of the deposits support the interpretation of simultaneous demolition and new construction taking place. Many of the bricks recovered from the deposits were irregularly sized, fragmentary and misshapen, a common feature of handmade bricks fired used a clamp or scove kiln technique (Fig. 44) (Garvin 1994:26). The large amount of brick compared to a very small amount of recovered mortar may indicate that the area was used as a staging area for brick while Old Manse's brick chimneys were constructed. The clay inclusions found in the deeper fill layers could be excavate resulting from digging the foundation of the Old Manse.

The deposits also support the interpretation of simultaneous demolition and construction activity. Rather than demolition activity taking place immediately surrounding the structure, the deposits show massive clearing and scraping happening between STP 4 and STP 5/EU 1. This may be related to purposeful landscape reorganization and beatification that would likely have coincided with the construction of a Georgian landscape surrounding Old Manse. Removing large amounts of architectural material would have made it easier to re-landscape the immediate area into a functional or ornamental space, and the removed material

could have been used in constructing the new building.

The excavation results can also be used to answer the project's original research questions:

1) How did the use of this yard space around the house change as the property transformed from a working farm to a "gentleman's farm" and the home of literary and artistic figures? Is there evidence of this space functioning as a work yard?

There is no archaeological evidence for use of the space as a functioning work yard, however the lack of agricultural features may be related to landscape reorganization in the late 18th century. The material recovered from the bottom strata of STPs 1-3 is similar to the assemblages found in the demolition fill layers, including a mixture of redware, wrought nails, and one possible Native ceramic. It is possible that deposits related to the property's use as a working farm were scraped into the early structure's foundation hole after it was demolished.

2) Is there evidence of plowing, grading, or other landscaping activities?

The southern portion of the site shows massive landscaping efforts represented by the deep fill deposits. The deposits appear to be the result of filling in the area surrounding the early structure after it was demolished and the earth around it was scraped back. The earth removal involved in the demolition may be attributed to attempts to rob out old architectural material for new construction, and efforts to remove material so the area could be re-created into a functional or ornamental landscape.

3) Since the location of the earlier house on the property is not certain, is there any evidence of features or deposits from the colonial period that predate the standing house (ca. 1770) in this yard?

Yes. The material recovered from around the fieldstone foundation in EU 1suggests that the foundation was part a domestic structure that was demolished and filled in during the mid-18th century. A large amount of un-coursed brick and clay, as well as some possible casement window glass may indicate that the material deposited on top of the stone foundation represents both demolition fill of the earlier structure as well as construction debris from the Old Manse. The fill material extends west of the foundation, which could suggest that major landscape grading took place during the demolition of the structure with the fieldstone foundation and the construction of the Old Manse.

4) Are any deposits or features from the Native occupation of the property preserved intact here in the core of the farmstead?

The intensive survey did not uncover any intact Native features or deposits

5) Is there evidence of Native activity here that was disturbed by the colonial farm (in the form of concentrations of Native lithics or ceramics in plowed contexts)?

While there were no areas or strata that contained concentrations of Native lithics or ceramics, the presence of several possible Native ceramic sherds, a few flakes, and one piece of knapped glass provide evidence of Native occupation on the property. The knapped colorless glass may provides tantalizing evidence of some of the Native-European interactions taking place in colonial Concord.

Management Summary and Future Recommendations

Archaeological investigations were undertaken at Old Manse by the Fiske Center for Archaeological Research from the University of Massachusetts Boston in two phases. A geophysical survey was conducted in the area east of the historic barn and over the parking lot during the fall of 2016 as part of the planning process for a future visitor's center. The most significant result of the geophysical survey was an anomaly that seems to be oriented perpendicular to the foundation discovered in EU1 and may relate to the layout of the property prior to the construction of the standing house, and a strong reflector just outside the SE corner of the tent.

An archaeological survey was conducted from October 3-13, 2017 along a grassy area bounded

by the garden and pathway just southeast of the Old Manse. The archaeological survey was prompted by the The Trustees of Reservations' plans to install a septic system that involved the excavation of three percolation test trenches. The perc test included three proposed trenches, and shovel test pits were placed in each of the trenches to test the project area for significant archaeological resources.

The three northernmost STPs (STP 1-3) did not contain any significant archaeological deposits or features. STP 4 encountered a deep historic deposit marked by clay inclusions, a large amount of brick fragments, and 18th-century material that extended past 120 centimeters below ground surface. STP 5 came down on large loosely coursed rocks and cobbles in a sandy matrix with mid-19th-century material approximately 50cm below surface that led to the expansion of the STP into a 1m x 1m excavation unit (EU 1) with a 0.5m x 0.5m expansion along the north half of the east wall of the unit. Excavation of the rocks and cobbles determined that the material was part of a trench that was created sometime in the late 20th-century. The material that the trench was cut into, however, appeared to be the same as the deep deposit excavated in STP 5. EU 1 was excavated to approximately 120 centimeters below surface and was still in the middle of an 18th-century deposit. At approximately 130 cm below surface a fieldstone foundation was uncovered in the 1m x 1m. The foundation was oriented northeast-southwest and had fill material on its southeastern side, suggesting an interior of a structure. Despite minimal temporally diagnostic material recovered from the fill around the fieldstones, the artifact assemblage appears consistent with mid-18th century deposition.

The foundation has been interpreted as belonging to a possible domestic structure that pre-dates the construction of Old Manse. Prior to 1769, the property was owned by the Blood family and was a working farm, however the location of the Blood house and barn are not known. The fill deposits capping the foundation appear to be fill related to the demolition of the structure as well as construction of Old Manse. If this is the case, the activities seen archaeologically represent large-scale landscape reorganization that likely took place during the transition of the property from an active agricultural space to an organized Georgian landscape.

The structure may be related to the pre-1770 Blood family period of occupation, a period for which little is known about the physical layout of the property. The foundation appears to be a very significant archaeological feature, that is at least partially intact and important to understanding the colonial period history of the property. With that being said, further archaeological research is required to better characterize the nature of the foundation and the structure it once belonged to. Documentary research covering the period that the property was occupied by the Blood family may also be informative, particularly the 18th-century deeds and the 1754 Benjamin Brown map. Construction work should be avoided in the area south of STP 3 until the nature and extent of the foundation and its associated features have been further understood.

References Cited

Annan, A. P.
2009 "Electromagnetic Principles of Ground Penetrating Radar," In *Ground Penetrating Radar: Theory and Applications,* edited by H. M. Jol. Amsterdam: Elsevier Science, 4-40.

Boddice, D., N. Metje, and D. Chapman
2017 "Unique insight into the seasonal variability of geophysical properties of field soils: practical implications for near-surface investigations," *Near Surface Geophysics* 15: 515-526.

Candy Wrapper Archive
2008 Archive for Whatchamacallit. < http://www.candywrapperarchive.com/candy-collection/whatchamacallit/>. Accessed 1 November 2017.

Chase, Sara B., and Minxie J. Fannin
1991 Historic Structure Report: The Old Manse. Unpublished manuscript in possession of TTOR.

Clarke, C.
2013 *Soil survey of Middlesex County, Massachusetts*. Washington, DC: National Cooperative Soil Survey.

Coin Database
2006 United Kingdom 1694-1701 – William III Coins Sorted by Mint Year. British Coins sorted by Kings. <http://www.coindatabase.com/coin_libras_sort_kings2.php?id=3558>. Accessed 1 November 2017.
2006 United Kingdom 1727-60 – George II Coins Sorted by Mint Year. British Coins sorted by Kings. <http://www.coindatabase.com/coin_libras_sort_kings2.php?id=2277>. Accessed 1 November 2017.

Deitrich-Smith, Deborah
2004 Cultural Landscape Report, North Bridge Unit, Minute Man National Historical Park. Olmstead Center for Landscape Preservation, National Park Service.

Doolittle, J. A.
2009 Ground Penetrating Radar suitability - Massachusetts, Connecticut and Rhode Island (map). Lincon: National Soil Survey Center.

Gaffney, C., and J. Gater
2003 *Revealing the buried past : geophysics for archaeologists*. Stroud: Tempus.

Garvin, James L.
1994 Small-Scale Brickmaking in New Hampshire. *IA. The Journal of the Society for Industrial Archeology* 20(1/2):19-31.

Goodman, D., Y. Nishimura, and J. D. Rogers
1995 "GPR time slices in archaeological prospection," *Archaeological Prospection* 2: 85-89.

Goodman, D., S. Piro, Y. Nishimura, K. Schneider, H. Hongo, N. Higashi, J. Steinberg, and B. Damiata
2008 "GPR Archaeometry," In *Ground Penetrating Radar Theory and Applications*, edited by H. Jol. New York: Elsvier, 479-508.

Goodman, D., J. Steinberg, B. Damiata, Y. Nishimura, S. Piro, and K. Schneider
2007 "GPR Imaging of Archaeological Sites," In *Reconstructing Human-Landscape Interactions, Dig 2005 Conference, Developing International Geoarchaeology,* edited by L. Wilson, P. Dickinson and J. Jeandron. Cambridge: Cambridge Scholars Publishing, 202-217.

Herbster, Holly
2005 Archaeological Overview and Assessment, Minute Man National Historical Park, Concord, Lincoln, and Lexington, Massachusetts. PAL Report No. 1706. MHC report 25-2646.

Linford, N.
2006 "The application of geophysical methods to archaeological prospection," *Reports on Progress in Physics* 69: 2205-2257.

Luzader, John F.
1968 Major John Buttrick House, Minute Man National Historic Park, Concord, Massachusetts. Historic Structures Report Part 1:

Historical Data Section. National Park Service, Division of History, Office of Archeology and Historic Preservation.

Miller, George L., Patricia Samford, Ellen Shlasko, and Andrew Madsen
2000 Telling Time for Archaeologists. *Northeast Historical Archaeology* 29(2):1-22.

Mohler, Paul J., Katherine Howlett, Anne Hancock, and Blaine Borden
2001 Archaeological Investigations at the Old Manse Boathouse, Concord, Massachusetts. The Center for Cultural and Environmental History, University of Massachusetts Boston, Cultural Resource Management Study No. 7.

Mrozowski, Stephen A., and John Kelley
1999 Archaeological Investigations at the Old Manse, Concord, Massachusetts. The Center for Cultural and Environmental History, University of Massachusetts Boston, Cultural Resource Management Study No. 2.

Trustees of Reservations
2010 Old Manse Management Plan. The Trustees of Reservations.

Appendix A: Artifact Catalog

SW corner coordinates for the 2017 STPs.

Name	Easting	Northing
STP 1	212423.5	913079
STP 2	212426	913080
STP 3	212424.5	913075
STP 4	212425	913071
STP 5	212427	913072.5

Unit	Level	Context	Total Ceramics	Total Glass	Total Nails	Total Pipes	Total Other Materials	Total Bone+Shell
STP1	1	1	10	3	3		5	
STP1	2	2	2				1	
STP2	1	4	26	27	13		24	3
STP2	2	5	2	1	1		3	2
STP2	3	6					1	
STP2	4	7	1					
STP3	1	8	17	7	1		3	
STP3	3	10			3		2	1
STP3	4	11					1	2
STP4	1	13	6	4	2		6	
STP3	2	9	3				5	
STP4	2	14	27	6	1		5	
STP4	3	15	13	9	11	1	20	12
STP4	4	16	3	1	3		13	
STP5	1	17	6	17	4		10	
STP5	2	18	7	3	2		26	
STP5	3	19	14	8	5		25	
EU1		20	33	25	18		34	4
EU1		21	132	47	57		107	4
EU1		24	14	3	4		10	
EU1		25	16	2	4		11	
EU1		26	10	1	8	2	31	1
EU1		27	2	11	7		23	
EU1		28	13	20	40	2	20	3
EU1		29	6	2	5	1	40	
EU1		30	3	2	6		1	
EU1		31			1			

Unit Number	Context	Ceramics			Glass		Nails			Pipes		Other					Faunal	
		Count	Ware	Ware Type	Count	Object	Count	Object	Type	Count	Part	Count	Class	Subclass	Object	Comments	Count	Taxon, portion
STP1	1	1	Earthenware, coarse	Redware	1	window	1	Nails	wire			3	Fuel and furnace	coal				
STP 1	1	2	Earthenware, refined	Whiteware	1	flat, undetermined	2	Nails	cut			2	Fuel and furnace	coal and furnace products, unseparated	coal ash			
STP 1	1	1	Earthenware, refined	Creamware	1	bottle												
STP1	1	1	Earthenware, refined	Pearlware														
STP1	1	1	Earthenware, refined	Pearlware														
STP1	1	3	Earthenware, coarse															
STP1	1	1	Earthenware, coarse															
STP1	2	1	Earthenware, coarse	Redware								1	Fuel and furnace	coal				
STP1	2	1	Native American															
STP2	4	6	Earthenware, coarse		15	curved, undetermined	4	Nails	cut			3	Fuel and furnace	charcoal			2	indet, fragment
STP 2	4	1	Earthenware, coarse	Redware	1	tableware	3	Nails	cut			1	Fuel and furnace	coal			1	fragment
STP 2	4	1	Earthenware, coarse	Redware	1	stemware	1	Nails	cut			3	Fuel and furnace	coal and furnace products, unseparated	coal ash			
STP2	4	1	Earthenware, refined	Creamware	1	bottle	3	Nails	cut			1	Architectural	other	stone			
STP2	4	4	Earthenware, refined	Pearlware	1	curved, undetermined	1	Nails	wrought or cut			1	Architectural	plaster	lime	possible lime plaster "chunk"; no face		
STP2	4	6	Earthenware, refined	Whiteware	1	bottle	1	Nails	cut			8	Architectural	brick	fragments	soft, fragmentary		
STP2	4	1	Earthenware, refined	Whiteware	1	curved, undetermined						1	Architectural	brick	fragment	machine-made w/ mortar		
STP2	4	3	Earthenware, refined	Yellow Ware	1	curved, undetermined						1	Synthetic	plastic	zip-tie fragment	modern		
STP2	4	1	Earthenware, refined	Yellow Ware	1	bottle, wine						1	Metal	ferrous other	wire			
STP2	4	1	Earthenware, refined	Indeterminate earthenware	1	flat, undetermined						1	Metal	ferrous other	UID flat metal			
STP2	4	1	Earthenware, refined	Creamware	3	window						2	Metal	ferrous other	UID			
STP2	4											1	Utensils/tools/hardware	tools	possible latch			
STP2	5	1	Earthenware, coarse	Redware	1	window	1	Nails	cut			1	Fuel and furnace	charcoal			2	fragment
STP2	5	1	Porcelain	Indeterminate porcelain								1	Fuel and furnace	coal				
STP2	5											1	Fuel and furnace	coal and furnace products, unseparated	coal ash			
STP2	6											1	Fuel and furnace	coal				
STP2	7	1	Earthenware, coarse	Redware														
STP3	8	1	Earthenware, coarse	Redware	1	window	1	Nails	wrought			1	Metal	ferrous other	flat metal			
STP 3	8	1	Earthenware, coarse	Redware	2	bottle						1	Fuel and furnace	coal				
STP 3	8	1	Earthenware, coarse	Redware	1	curved, undetermined						1	Architectural	stone	slate			
STP3	8	1	Earthenware, coarse	Redware	1	curved, undetermined												
STP3	8	1	Earthenware, refined	Pearlware	1	bottle												
STP3	8	10	Earthenware, refined	Creamware	1	bottle												
STP3	8	1	Earthenware, refined	Creamware														
STP3	8	1	Earthenware, refined	Creamware														
STP3	9	3	Earthenware, refined	Creamware								4	Metal	ferrous other	unidentified			
STP3	9											1	Architectural	brick	corner of brick bat	H=4.5cm; brick glaze on one end		
STP3	10						3	Nails	wrought or cut			1	Fuel and furnace	charcoal			1	fragment, long bone
STP3	10											1	Metal	ferrous object	unidentified			
STP3	11											1	Metal	ferrous other	unidentified		2	fragment

STP4	13	1	Earthenware, coarse		2	curved, undetermined	1	Nails	wrought			1	Metal	ferrous other	unidentified			
STP 4	13	1	Earthenware, coarse	Redware	1	curved, undetermined	1	Nails	wrought or cut			1	Fuel and furnace	coal				
STP4	13	1	Earthenware, refined	Creamware	1	curved, undetermined						1	Architectural	brick	fragment			
STP4	13	1	Earthenware, refined	Pearlware								1	Architectural	brick	corner of brick bat	H=5.5cm		
STP4	13	1	Earthenware, refined	Whiteware								1	Synthetic	plastic	orange flagging tape			
STP4	13	1	Earthenware, refined	Whiteware								1	Synthetic	plastic	black sheet plastic			
STP4	14	3	Earthenware, coarse	Redware	1	curved, indet.	1	Nails	wrought			1	Architectural	brick	fragment			
STP 4	14	1	Earthenware, coarse	Redware	1	curved, indet.						2	Fuel and furnace	charcoal				
STP4	14	1	Earthenware, coarse	Redware	1	bottle, wine						1	Fuel and furnace	slag				
STP4	14	1	Earthenware, coarse	Redware	2	window						1	Synthetic	plastic	indet	discarded		
STP4	14	1	Earthenware, coarse	Tin Glazed	1	other flat glass												
STP4	14	1	Porcelain	Indeterminate porcelain														
STP4	14	1	Earthenware, refined	Yellow Ware														
STP4	14	1	Earthenware, refined	Pearlware														
STP4	14	2	Earthenware, refined	Pearlware														
STP4	14	5	Earthenware, refined	Pearlware														
STP4	14	3	Earthenware, refined	Pearlware														
STP4	14	2	Earthenware, refined	Pearlware														
STP4	14	3	Earthenware, refined	Creamware														
STP4	14	2	Earthenware, coarse	Redware														
STP4	15	4	Earthenware, coarse	Redware	1	window	1	Nails	wrought	1	bowl	1	Architectural	mortar	large piece	lime	1	Bos taurus, distal end, L humerus
STP 4	15	1	Earthenware, coarse	Redware	4	other flat glass	5	Nails	wrought			2	Architectural	plaster	small fragments	lime; no visible surface	1	Bos taurus, pelvis
STP4	15	1	Earthenware, coarse	Redware	1	bottle, wine	1	Tack	wrought			1	Fuel and furnace	charcoal			9	fragments
STP4	15	1	Earthenware, coarse	Redware	2	curved, undetermined	1	Nails	wrought			8	Architectural	brick	fragments		1	
STP4	15	1	Earthenware, coarse	Redware	1	stemware	3	Nails	wrought			1	Architectural	brick	partial bat	possibly underfired; handmade		
STP4	15	1	Earthenware, coarse	Redware								1	Architectural	brick	partial bat	H=5.5cm; handmade		
STP4	15	1	Earthenware, coarse	Redware								1	Architectural	brick	partial bat	H=6cm, W=10cm; handmade; burn residue on stretcher		
STP4	15	1	Earthenware, refined	Creamware								1	Architectural	brick	partial bat	H=5.5cm, W=10cm; machine made; burn residue on bed		
STP4	15	1	Native American									2	Metal	ferrous other	unidentified			
STP4	15	1	Earthenware, coarse	Redware								1	Architectural	other	whitewash fragment			
STP4	15											1	Lithic, Native	chipping debris	quartz debitage			
STP4	16	1	Earthenware, coarse	Redware	1	flat, undetermined	3	Nails	wrought			1	Lithic, Native	chipping debris	clear quartz debitage			
STP 4	16	1	Earthenware, coarse	Redware								3	Architectural	brick	fragments	handmade; possibly unfired - light brown & soft/fragmentary		
STP4	16	1	Earthenware, coarse	Redware								9	Architectural	brick	fragments	handmade; possibly underfired - pink/orange & soft/fragmentary		
STP5	17	1	Earthenware, coarse	Redware	3	bottle, wine	2	Nails	wrought			2	Fuel and furnace	coal				
STP 5	17	1	Earthenware, coarse	Redware	12	bottle, wine	1	Nails	wrought or cut			6	Architectural	brick	fragments			
STP5	17	1	Earthenware, coarse	Redware	1	bottle	1	Nails	wrought			1	Architectural	stone	micaceous shale			
STP5	17	2	Earthenware, refined	Creamware	1	curved, undetermined						1	Fuel and furnace	charcoal				
STP5	17	1	Porcelain	European														
STP5	18	3	Earthenware, coarse	Redware	1	bottle, wine	1	Nails	wrought			1	Lithic, Native	chipping debris	basalt	primary debitage w/ cortex		

STP 5	18	1	Earthenware, refined	Whiteware	1	curved, undetermined	1	Nails	wrought			5	Fuel and furnace	coal and furnace products, unseparated	coal ash			
STP5	18	1	Earthenware, refined	Whiteware factory-made slipware (dipt ware)	1	window						5	Fuel and furnace	coal				
STP5	18	1	Earthenware, refined	Creamware								7	Fuel and furnace	charcoal				
STP5	18	1	Stoneware, refined	White Salt Glazed								1	Organic	plant matter	nutshell fragment			
STP5	18											1	Architectural	brick	fragment			
STP5	18											1	Architectural	brick	fragment	with mortar		
STP5	18											2	Metal	ferrous other	flat metal			
STP5	18											2	Metal	ferrous other	unidentified			
STP5	18											1	Metal	ferrous other	wire			
STP5	19	4	Earthenware, refined	Indeterminate earthenware	1	bottle, wine	2	Nails	wrought or cut			2	Architectural	brick	fragments			
STP 5	19	1	Earthenware, refined	Whiteware	1	bottle, wine	2	Nails	wrought			3	Fuel and furnace	coal				
STP5	19	1	Earthenware, refined	Whiteware	1	window	1	Nails	wrought			10	Fuel and furnace	charcoal				
STP5	19	1	Earthenware, refined	Yellow Ware	1	curved, undetermined						4	Fuel and furnace	coal and furnace products, unseparated	coal ash			
STP5	19	1	Earthenware, refined	Indeterminate earthenware	1	curved, undetermined						1	Synthetic	plastic	trash bag fragment	discarded		
STP5	19	2	Earthenware, refined	Pearlware	2	curved, undetermined						1	Architectural	plaster	lime			
STP5	19	1	Earthenware, refined	Creamware	1	bottle						1	Metal	ferrous object	unidentified	flat metal shaped into a corner		
STP5	19	1	Earthenware, refined	Creamware								1	Metal	ferrous other	flat metal			
STP5	19	1	Stoneware, refined	Indeterminate stoneware								1	Architectural	other	unidentified	possible wood sealant/adhesive		
STP5	19	1	Earthenware, coarse									1	Metal	ferrous other	wire			
EU1	20	2	Earthenware, refined	Yellow Ware	1	bottle, wine	1	Nails	wire			1	Metal	nonferrous other	wire	cuprous	1	fragment - poss end of long bone
EU 1	20	5	Earthenware, refined	Indeterminate earthenware	1	bottle, wine	2	Nails	cut			6	Fuel and furnace	coal			3	
EU1	20	1	Earthenware, refined	Whiteware	3	bottle, wine	1	Nails	cut			1	Fuel and furnace	slag				
EU1	20	3	Earthenware, refined	Creamware	1	bottle, wine	1	Nails	cut			4	Fuel and furnace	coal and furnace products, unseparated	coal ash			
EU1	20	1	Earthenware, refined	Indeterminate earthenware	1	bottle	1	Nails	cut			3	Fuel and furnace	charcoal				
EU1	20	2	Earthenware, refined	Pearlware	1	curved, undetermined	5	Nails	wrought or cut			5	Metal	ferrous other	flat metal			
EU1	20	1	Earthenware, refined	Pearlware factory-made slipware (dipt ware)	5	curved, undetermined	2	Nails	wrought or cut			1	Architectural	stone				

EU1	20	8	Earthenware, refined	Whiteware	1	curved, undetermined	1	Nails	wrought			1	Small finds	adornment	collar stud	metal shank, plastic cover		
EU1	20	1	Earthenware, refined	Whiteware	2	curved, undetermined	1	Nails	wrought			2	Small finds	toys and games	game pieces	2 poss. game pieces/manuports: flat stone disks, one mica		
EU1	20	1	Stoneware, coarse	American Brown	1	curved, undetermined	1	Nails	wrought			8	Architectural	brick	fragments	soft/fragmentary		
EU1	20	1	Earthenware, coarse	Redware	1	bottle	1	Nails	wrought			1	Architectural	brick	fragment	possibly overfired		
EU1	20	3	Earthenware, coarse	Redware	1	bottle	1	Nails	wrought			1	Architectural	brick	corner of brick bat	H=5.5cm; brick glaze on one face		
EU1	20	1	Earthenware, coarse	Redware	4	window												
EU1	20	1	Earthenware, coarse	Redware	1	flat, undetermined												
EU1	20	1	Earthenware, coarse		1	curved, undetermined												
EU1	20	1	Earthenware, coarse															
EU1	21	3	Earthenware, coarse	Redware	1	stemware	2	Screw	wire			1	Architectural	stone	slate	possible slate step fragment	2	
EU 1	21	1	Earthenware, coarse	Redware	1	bottle	1	Screw	wire			1	Architectural	stone	granite countertop fragment	modern cut and polished	2	
EU1	21	1	Earthenware, coarse	Redware	2	bottle	2	Nails	wire			1	Lithic, other	non-architectural stone	mica fragment			
EU1	21	1	Earthenware, coarse	Redware	2	bottle	1	Nails	wire			3	Fuel and furnace	coal and furnace products, unseparated	coal ash			
EU1	21	6	Earthenware, coarse	Redware	1	bottle	3	Nails	wrought			3	Fuel and furnace	slag				
EU1	21	1	Earthenware, coarse	Redware	7	bottle, wine	1	Nails	wrought			1	Architectural	other	modern concrete			
EU1	21	1	Earthenware, coarse	Redware	1	bottle, wine	1	Nails	wrought			2	Architectural	plaster				
EU1	21	1	Earthenware, coarse	Redware	8	curved, undetermined	4	Nails	wrought or cut			13	Fuel and furnace	charcoal				
EU1	21	1	Earthenware, coarse	Redware	6	curved, undetermined	1	Nails	wrought or cut			9	Fuel and furnace	coal				
EU1	21	1	Earthenware, coarse	Redware	4	curved, undetermined	8	Nails	too corroded to ID			2	Synthetic	plastic	white pizza stack	discarded		
EU1	21	1	Earthenware, coarse	Redware	7	window	8	Nails	too corroded to ID			2	Synthetic	plastic	black electrical tape	discarded		
EU1	21	1	Earthenware, coarse	Redware	7	window	1	Bolt	cut			4	Synthetic	other	foil fragments	discarded		
EU1	21	1	Earthenware, coarse	Redware			4	Nails	cut			1	Synthetic	plastic	white and red straw	discarded		
EU1	21	1	Earthenware, coarse	Redware			1	Tack	cut			1	Synthetic	plastic	gold cigarette pack wrapper pull tab	discarded		
EU1	21	2	Earthenware, coarse	Redware			16	Nails	cut			3	Synthetic	plastic	disposable coffee cup lid	discarded		
EU1	21	1	Earthenware, coarse	Redware			2	Nails	cut			1	Synthetic	plastic	fountain soda lid fragment	discarded		
EU1	21	3	Earthenware, coarse	Redware			1	Screw				1	Synthetic	plastic	clear plastic	discarded		
EU1	21	1	Earthenware, coarse	Tin Glazed								1	Synthetic	plastic	black string/cord	discarded		
EU1	21	1	Earthenware, refined	Ironstone (White Granite)								1	Synthetic	plastic	candy wrapper	Hershey's Whatchamacallit candy wrapper; logo manufactured 2002-2003 (http://www.candywrapperarchive.com/candy-collection/whatchamacallit/)		
EU1	21	1	Porcelain	European								23	Architectural	brick	fragments			
EU1	21	1	Porcelain	European								1	Architectural	brick	bat	H=4.5cm; W=9cm; handmade, overfired		
EU1	21	1	Porcelain	European								4	Metal	ferrous other	wire fragments			
EU1	21	1	Porcelain	Chinese								20	Metal	ferrous other	flat metal fragments			
EU1	21	1	Porcelain	Chinese								1	Metal	ferrous object	crown bottle cap			

EU1	21	3	Earthenware, refined	Creamware								1	Utensils/tools/hardware	architectural hardware	bracket			
EU1	21	6	Earthenware, refined	Creamware								1	Utensils/tools/hardware	other	automobile light flasher	ca 1968-1970 Ford auto light flasher unit; stamped Made In USA 552-12V TS SAE J945 on the Top and AUTOLITE C8ZB-13350-B on the side		
EU1	21	7	Earthenware, refined	Pearlware								1	Metal	ferrous object	galvanized steel 2 straps	possible handle		
EU1	21	2	Earthenware, refined	Pearlware								1	Metal	ferrous object	unidentified	part of metal disk with metal extending off of it; possible portion of metal button and shank		
EU1	21	6	Earthenware, refined	Yellow Ware								1	Small finds	adornment	prosser button	4 hole, undecorated		
EU1	21	1	Earthenware, refined	Yellow Ware								1	Small finds	adornment	cufflink	blue faceted glass jewel set into a white metal setting (example: https://www.jefpat.org/diagnostic/SmallFinds/LinkedButtons-Cufflinks-Studs/Individual%20Pages/18AN339-blue.faceted.inset.htm)		
EU1	21	38	Earthenware, refined	Whiteware								1	Lithic, Native	chipping debris	quartz			
EU1	21	2	Earthenware, refined	Whiteware														
EU1	21	3	Earthenware, refined	Whiteware														
EU1	21	1	Earthenware, refined	Whiteware														
EU1	21	2	Earthenware, refined	Whiteware														
EU1	21	1	Earthenware, refined	Whiteware														
EU1	21	4	Earthenware, refined	Indeterminate earthenware														
EU1	21	1	Earthenware, refined	Whiteware														
EU1	21	2	Earthenware, refined	Indeterminate earthenware														
EU1	21	1	Earthenware, refined	Whiteware														
EU1	21	1	Earthenware, refined	Whiteware														
EU1	21	1	Earthenware, refined	Whiteware														
EU1	21	4	Earthenware, refined	Whiteware														
EU1	21	1	Earthenware, refined	Whiteware														
EU1	21	3	Earthenware, refined	Whiteware														
EU1	21	1	Earthenware, refined	Whiteware														
EU1	21	1	Earthenware, refined	Whiteware														
EU1	21	1	Earthenware, refined	Whiteware														
EU1	21	1	Earthenware, refined	Whiteware														
EU1	21	2	Earthenware, refined	Whiteware														
EU1	21	1	Earthenware, refined	Whiteware														
EU1	21	1	Earthenware, refined	Whiteware														
EU1	24	1	Porcelain		2	curved, undetermined	1	Nails	wrought			1	Architectural	brick	corner of brick bat	H=5cm		
EU1	24	1	Earthenware, coarse	Tin Glazed	1	window	1	Nails	cut			1	Architectural	brick	fragment			
EU1	24	1	Earthenware, refined	Whiteware			1	Nails	cut			1	Synthetic	plastic	white planting stake/label			
EU1	24	4	Earthenware, refined	Creamware			1	Nails	cut			1	Metal	ferrous other	flat metal	possible cast iron		
EU1	24	1	Earthenware, coarse	Redware								1	Metal	ferrous other	flat metal			
EU1	24	2	Earthenware, coarse	Redware								4	Fuel and furnace	coal				
EU1	24	2	Earthenware, coarse	Redware								1	Fuel and furnace	slag				

EU1	24	2	Earthenware, coarse	Redware															
EU1	25	1	Earthenware, refined	Whiteware	1	window	3	Nails	wrought or cut			1	Architectural	brick	fragments	handmade; soft; large pieces of temper			
EU1	25	2	Earthenware, refined	Creamware	1	stemware	1	Nails	wrought or cut			1	Architectural	brick	fragment	brick glaze on surface			
EU1	25	1	Earthenware, refined	Pearlware								4	Fuel and furnace	charcoal					
EU1	25	1	Earthenware, coarse	Redware								3	Fuel and furnace	coal					
EU1	25	1	Earthenware, coarse	Redware								2	Fuel and furnace	slag					
EU1	25	1	Earthenware, coarse	Redware															
EU1	25	1	Earthenware, coarse	Redware															
EU1	25	2	Earthenware, coarse	Redware															
EU1	25	1	Earthenware, coarse	Redware															
EU1	25	1	Earthenware, coarse	Redware															
EU1	25	1	Earthenware, coarse	Redware															
EU1	25	1	Earthenware, coarse	Redware															
EU1	25	1	Earthenware, coarse	Redware															
EU1	26	1	Earthenware, refined	Whiteware	1	window	2	Nails	wrought	1	bowl	1	Small finds	coin	William III halfpenny	cuprous; diameter = 28mm; "GVLEILMVS" and part of hairpiece visible on face of coin; nothing visible on other side; coin minted 1695-1701	1		
EU1	26	1	Earthenware, refined	Creamware			2	Nails	wrought	1	stem	1	Fuel and furnace	charcoal					
EU1	26	2	Earthenware, coarse	Staffordshire Slipware			1	Nails	cut			3	Fuel and furnace	coal					
EU1	26	1	Earthenware, coarse	Staffordshire Slipware			3	Nails	wrought or cut			24	Architectural	brick	fragments	varying hardness and colors			
EU1	26	1	Earthenware, coarse	Redware								1	Lithic, other	non-architectural stone	fire cracked rock				
EU1	26	1	Earthenware, coarse	Redware								1	Metal	ferrous other	unidentified				
EU1	26	1	Earthenware, coarse	Redware															
EU1	26	1	Earthenware, coarse	Redware															
EU1	26	1	Earthenware, coarse	Redware															
EU1	27	1	Earthenware, coarse		3	window	3	Nails	too corroded to ID			1	Small finds	coin	George II coin	cuprous George II of England coin; profile and "G" visible on face & seated figure of Brittania on other side			
EU1	27	1	Earthenware, coarse	Redware	1	window	1	Nails	too corroded to ID			3	Fuel and furnace	charcoal					
EU1	27				1	window	1	Nails	wrought or cut			4	Fuel and furnace	coal					
EU1	27				3	window	2	Nails	wrought			7	Architectural	plaster	fragments				
EU1	27				1	bottle						7	Architectural	brick	fragments	various hardness and color			
EU1	27				1	curved, undetermined						1	Architectural	brick	partial brick stretcher	H=6cm			
EU1	27				1	curved, undetermined													
EU1	28	1	Earthenware, coarse	Redware	14	window	11	Nails	wrought	1	stem	1	Lithic, Native	chipping debris	quartz		1	long bone shaft	
EU1	28	1	Earthenware, coarse	Redware	1	window	8	Nails	wrought	1	stem	1	Lithic, Native	tool, flaked	colorless glass	resembles small scraper; may just be debitage	1	Bos taurus, complete tooth; pre-molar or molar	
EU1	28	1	Earthenware, coarse	Redware	1	window	7	Nails	wrought or cut			1	Metal	nonferrous other	foil		1		
EU1	28	1	Earthenware, coarse	Redware	1	window	11	Nails	wrought or cut			3	Lithic, other	non-architectural stone	mica				

EU1	28	1	Earthenware, coarse	Redware	1	window	3	Nails	too corroded to ID			5	Architectural	brick	fragments			
EU1	28	1	Earthenware, coarse	Redware	1	window						3	Metal	ferrous object	flat metal			
EU1	28	1	Earthenware, coarse	Redware	1	curved, undetermined						2	Metal	ferrous other	UID fragments			
EU1	28	2	Earthenware, coarse	Redware								1	Metal	ferrous object	strap metal fragment			
EU1	28	1	Earthenware, coarse	Redware								1	Architectural	brick	complete bat	10.5cm x 23cm x 5.5cm; melted and misshapen on one end		
EU1	28	1	Earthenware, coarse	Redware								1	Architectural	brick	bat	mostly complete; 11cm x 6cm x 20cm; handmade		
EU1	28	1	Earthenware, coarse	Redware								1	Architectural	stone	granite	one cut face		
EU1	28	1	Earthenware, coarse	Redware														
EU1	29	2	Earthenware, coarse	Redware	1	window	3	Nails	wrought	1	stem	2	Architectural	other	clay sample			
EU1	29	1	Earthenware, coarse	Redware	1	flat, undetermined	1	Nails	wrought			3	Architectural	stone	granite fragments			
EU1	29	1	Earthenware, coarse	Redware			1	Nails	too corroded to ID			11	Architectural	brick	fragments	unfired brick		
EU1	29	1	Earthenware, coarse	Redware								12	Fuel and furnace	charcoal				
EU1	29	1	Earthenware, coarse	Redware								6	Architectural	brick	fragments			
EU1	29											2	Lithic, Native	chipping debris	felsite			
EU1	29											1	Lithic, Native	chipping debris	quartz			
EU1	29											1	Metal	nonferrous other	lead ball	small		
EU1	29											2	Architectural	brick	bat fragments	H=5.5cm		
EU1	30	2	Earthenware, coarse	Redware	2	window	2	Nails	wrought			1	Fuel and furnace	charcoal				
EU1	30	1	Native American				4	Nails	wrought or cut									
EU1	31						1	Nails	wrought									