Phase II/III Data Recovery
River Street Site
Village of Middleburgh Water System Improvement Project

Village of Middleburgh,
Schoharie County
New York

prepared for

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February 2005

Executive Summary

A combined Phase II site examination and Phase III data recovery for the River Street Prehistoric Site (A095.42.000085) located along NYS Route 30 in the village of Middleburgh, Schoharie County, New York. The site was initially identified in a backhoe trench as part of a Phase I survey conducted as part of a water system improvement project in the village of Middleburgh, Schoharie County, New York. The proposed project will involve digging a trench and placing a new water main across the known site. Because the site appeared to be potentially eligible for inclusion in the National Register of Historic Places under criterion D for its ability to address important issues about past lifeways in the Schoharie Valley, a data recovery was conducted to address these issues.

The River Street Site is located along a relatively flat floodplain approximately 600 feet north of Schoharie Creek. The site was initially identified in the west wall profile of Supplemental Test Trench 8 with artifacts ranging in depth between 50 and 81cm below the ground surface. Artifacts recovered as part of the Phase I study include seven chert flakes and flake fragments. Additionally, two areas of charcoal were noted at depths of 70 cm and 98 cm below the ground surface, respectively. All prehistoric material was brought back to our laboratory for further study. Upon further analysis, none of the seven flakes appeared to have been utilized.

The data recovery consisted of the excavation of the trench where the water main will be placed and the excavation of four 1 x 1 m excavation units. Trench walls were used to create a geomorphological framework for understanding the site. Artifacts recovered include a small but diverse amount of material, including lithic debitage, fire cracked rock, pottery and ground stone tools. No prehistoric cultural features were identified. Results of geoarchaeological studies suggest that the site is located adjacent to an abandoned tributary of Schoharie Creek, which forms a confluence approximately 450 feet (137.1 m) to the south. Results of the geoarchaeological studies suggest that the soils where the artifacts were recovered developed over the past 500–1,500 years or more, but probably not more than 3,000 years. The only temporally diagnostic artifact recovered was a small body sherd of grit-tempered pottery that likely dates to the Late Woodland Period.

One possible interpretation of the pottery would be that it is associated with the Owasco component of the Narwold No. 1 Site, which dates to early Owasco (Carpenter Brook) times. While no check stamping is present, it may be due to erosion and smoothed by frequently flooding along Schoharie Creek. An alternate hypothesis would be that the pottery is post Owasco and represents a southern extension of an apparent Mohawk presence further south. Evidence from the Vanderwerken Site, located near the village of Esperence, suggests that the northern part of the Schoharie Valley was being occupied by Mohawk populations (Cassedy, et al 1996). The River Street Site may represent a similar manifestation, although without additional information, no firm temporal attribution can be made.

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Introduction

Birchwood Archaeological Services was contracted by Delaware Engineering, Inc. to conduct a combined Phase II site examination and Phase III data recovery for the River Street Prehistoric Site (A095.42.000085), located along NYS Route 30 in the Village of Middleburgh, Schoharie County, New York (Figures 1 and 2).

The site was initially identified in a backhoe trench as part of a Supplemental Phase IB survey to identify archaeological sites as part of municipal water system improvements in the Village of Middleburgh, Schoharie County, New York. The River Street Site is located along a relatively flat floodplain approximately 600 feet north of Schoharie Creek. The site was initially identified in the west wall profile of Supplemental Test Trench 8 with artifacts ranging in depth between 50 and 81cm below the ground surface. Artifacts recovered as part of the Phase I study include seven chert flakes and flake fragments. Additionally, two areas of charcoal were noted at depths of 70 cm and 98 cm below the ground surface, respectively. All prehistoric material was brought back to our laboratory for further study. Upon further analysis, none of the seven flakes appeared to have been utilized.

Julieann Van Nest of the New York State Museum examined the trench and surrounding topography and suspected that the ditch located south of the trench may be a remnant from a larger tributary that once occurred in the immediate vicinity.

Results of the Supplemental Phase I survey indicated that the site may potentially be eligible for listing in the National Register of Historic Places under Criterion D as it appeared likely to yield valuable information about prehistoric lifeways in the Schoharie Valley. Because the site cannot be avoided by the proposed project, a Phase II/III data recovery was recommended in consultation with the New York State Office of Parks, Recreation and Historic Preservation, and a data recovery plan was developed and accepted accordingly. This report provides the results of the Phase II/III study.

Environmental Setting

Schoharie County is situated south of the Catskill Mountains in central New York State. It extends from the Mohawk Valley south to the northern foothills of the Catskills. The largest stream in the County is Schoharie Creek, which flows north from the Catskills to empty into the Mohawk River in Montgomery County. The county lies within the Glaciated Allegany Plateau physiographic region. Much of the landscape has been altered by glacial processes, as glaciers scoured hilltops and deepened valley bottoms. During this period thick deposits of silt and clay were deposited along the bottoms of glacial lakes formed when massive ice sheets blocked the Schoharie Valley. Large blankets of glacial till were deposited along the uplands. In recent times, the construction of the Gilboa Dam has allowed for the collection of much of the water from the northern part of Schoharie Creek, reducing the amount of flow. This may have in turn slowed erosion along the floodplain (Flora 1969).

The River Street Prehistoric Site is located on the Schoharie Creek floodplain on the north side of the Village of Middleburgh. While the topography of the surrounding area appears relatively level, portions of the project area appear sloped due to filling along River Street and the creation of a drainage ditch. Site elevation averages around 622 ft (189.5 m) above mean sea level, and slopes gradually to the northeast. The nearest major water source is Schoharie Creek, which passes within 500 feet of the proposed water main along NYS Route 30. Other streams in the project vicinity include Stony Creek, which flows 1,250 feet (381 m) north of the proposed tank site and Little Schoharie Creek, which flows into Schoharie Creek approximately 1,800 feet (549 m) southwest of the westernmost end of Baker Street.

Soils

The Schoharie County soil survey maps one soil unit within the site boundaries (Figure 3). Barbour and Tioga loams (Bg) Barbour series soils consist of deep, poorly drained soils formed in water-sorted materials (Flora 1969:83). These soils are commonly found on bottomlands in the vicinity of Schoharie Creek. These soils were formed in alluvium consisting mostly of sandstone and siltstone. A typical profile of Barbour loam is provided below in Table 1:

Table 1. Typical soil profile of Barbour loam.

Horizon	Depth	Description
Ap	0-6 in. (0-15 cm)	dark reddish brown (5YR 3/2) loam; weak fine granular structure; very friable.
Bw1	6-18 in. (15-46 cm)	reddish brown (5YR 4/3) silt loam; weak coarse prismatic structure parting to weak medium, fine and very fine subangular blocky; friable
Bw2	18-26 in. (46-66cm)	18 to 26 inches; reddish brown (5YR 4/3) gravelly loam; very weak fine subangular blocky structure; friable; 20 percent gravel.
2C	26-72 in. (66-183 cm)	reddish brown (5YR 4/4) very gravelly loamy sand; single grain; loose; 50 percent gravel.

Tioga series soils consist of deep, well drained soils found on bottomlands. These soils formed from recent alluvium from soils derived from gray sandstone, siltstone, and shale (Flora 1969: 112). Tioga series sols often occupy the best drained parts of bottomlands,

making them excellent for agriculture. A typical soil profile of Tioga silt loam is provided below in Table 2:

Table 2. Typical soil profile of Tioga silt loam.

Horizon	Depth	Description
Ap	0-8 in. (0-20 cm)	dark grayish brown (10YR 4/2) silt loam; moderate medium granular structure; friable.
Bw1	8-18 in. (20-46 cm)	brown (10YR 5/3) silt loam; weak fine medium subangular blocky structure; friable
Bw2	18-36 in. (46-91 cm)	yellowish brown (10YR 5/4) silt loam; weak medium subangular blocky structure; friable.
2C	36-50 in. (91-127 cm)	dark yellowish brown (10YR 4/4) silt loam; massive; friable.

The above soil profiles suggest that prehistoric resources may be present to depths ranging from 66 to 91 cm below the ground surface. Both of these profiles follow a similar Ap-Bw1-Bw2-2C progression of soil horizons and both were formed from similar parent material. While the above profiles suggest that substraum (2C) will be encountered at depths ranging between 66 and 91 cm (26–36 inches), the Holocene floodplain is likely much more complex, and it seems more likely that historically recent deposition is much deeper than suggested.

Geomorphology

Our staff was fortunate to have geoarchaeologist Juliann Van Nest visit the site on two separate occasions to help in our understanding the site sites past and present relationship with the landscape. The following information is summarized from Dr. Van Nest's Geoarchaeological reconnaissance report, which is included as Appendix G. Individuals interested in further information regarding these findings are referred to the geoarchaeological report.

Schoharie Creek occupies a deeply entrenched valley cut into gently dipping Devonian bedrock. Three main riverine landforms are readily distinguishable: the Holocene floodplain of Schoharie Creek, a Pleistocene terrace of Schoharie Creek, and a large alluvial and fluvial fan complex at the mouth of Little Schoharie Creek where it enters the Schoharie Valley at Middleburgh.

Broad expanses of Holocene floodplain are preserved above and below the village of Middleburgh. The village itself is mostly situated on a large alluvial/fluvial fan complex associated with the confluence of Little Schoharie Creek and Schoharie Creek. The age and nature of the alluvial deposits beneath all of these landforms remains little studied. Previous soil coring across a portion of floodplain north of Middleburgh yielded two radiocarbon dates from fluvial bottom stratum deposits which suggest that Holocene floodplain deposits there are no older than ca. 2,700 yr B.P. By extension, it seems likely that the deposits lying beneath the Holocene floodplain at the River Street Site are also relatively young, dating to the late Holocene.

The Holocene floodplain to the east of the Middle Fort Road area is relatively flat until it reaches the well-defined tread and scarp of a prominent Pleistocene terrace. A paleochannel with some surficial expression crosses the floodplain near the scarp (Figure 2). It is noteworthy that neither of these important geomorphological features (the paleochannel and the terrace scarp) are accurately captured at the scale of the USGS 7.5-minute topographic map. Because terraces mark the level of a former floodplain, they are important geomorphological archives of past river history. This relatively low terrace probably represents the terminal Pleistocene surface of the Schoharie Creek that was (deeply) incised in response to deglacial events in the Mohawk River Valley. Recent geoarchaeological investigations (including new radiocarbon dates) along the Cobleskill Creek at the Haviland Site, located west of the village of Cobleskill, suggest that a similar terrace near there formed by river incision ca. 11,000 yr B.P. Judging by geomorphological similarities, it seems reasonable at this time to hypothesize that the terrace at the River Street Site formed at the same time as the one near the Haviland site.

Deep river incision such as that which causes floodplain abandonment and terrace formation also creates other geomorphological situations that ripple throughout the rest of the fluvial system, from the channels through the hillslopes. Chief among these are changes associated with adjustment to a new base level. Headwater hillslopes and channel systems erode downward, creating much sediment that is differentially transported downslope and downstream. Piles of sediment called fans form where steep-gradient tributary streams meet lower-gradient master streams. Small systems producing small fans come to equilibrium rather quickly, while larger systems take longer.

The Phase I backhoe trench at the River Street exposed pedogenically modified prehistoric alluvium, in sections typical for fine-grained overbank deposits (silt loams and fine sandy loams), with surface soils exhibiting Ap-E-Bw horizonation. Based on soil benchmark studies elsewhere, including profiles in the Schoharie Valley, it is reasonable to expect that such soil profile development involved 500–1,500 years or more, but probably not more than 3,000 years (the profiles lack Bt or argillic horizons). Thus the near-surface sediments and soils in the Middle Fort Road area are comparable with those found further north in the Schoharie Valley.

Holocene deposits beneath the floodplain are relatively young, with much of the Archaic and the Paleoindian age surfaces and remains voided. Relatively thick sections of stratified alluvium spanning the Late Holocene, including buried soils and other geomorphic surfaces containing in situ remains, are of great archaeological interest. Also of interest is the fact that there is little or no historic sediment in the study area.

Although there has been some landscaping associated with the nearby buildings and roads, it is apparent that a small tributary stream of some sort entered the Schoharie at this place. Its rough configuration can still be made out from the subtle local topography, which suggests that it passed between the house located north of the trench and the River Street Implement building (Photos 7 and 8). Perhaps even more suggestive than the subtle topography, is the fact that in the trench profile the A horizon thickens, and its base has an apparent dip, to the south, in the same direction as this former channel/swale may have been (Figure 4).

Prehistoric Context

The following section provides a history of archaeology in the Schoharie Valley as well as a brief overview of culture change over the last 12,000 years.

The prehistory of the Schoharie Valley has long been a subject of debate and discussion. As Jeptha Simms noted in 1845:

> *The abundance of Indian relics formerly found there, the smallness of the tribe and its comparatively brief existence, are facts on which I predicate an opinion, that the Mohawks and Delawares, in times of peace, dwelt in and about Schoharie. This conclusion seems not only plausible but very probable, as the former, who were called the true heads of the Confederacy, lived along the Mohawk valley, and the latter inhabited along the Delaware -- the Schoharie valley being to them the natural route of intercommunication* (Simms 1845:28).

Systematic archaeological studies in the valley were slow to begin. Despite the wealth of artifacts in local collections, Arthur Parker's (1922) statewide archaeological site survey reported few sites in all of Schoharie County. Once the region and its rich sites became better known to archaeologists, however, work in the valley increased substantially. Several important events were instrumental in the development of archaeology in the Schoharie Valley. The first event was the founding of the Van Epps-Hartley chapter of the New York State Archaeological Association in 1916. While the group is headquartered in the town of Fonda, many of its more prominent and active members came from the Schoharie Valley, including Harold Zoch and Bill Ostrander. Together, the Van-Epps chapter investigated a number of smaller site located north of the village near the confluence of the Mohawk River, and eventually expanded their research further south. Harold Zoch was especially active in the Middleburgh region, identifying a number of sites throughout the village. Of the 43 known prehistoric sites located in the village of Middleburgh, 26 were initially identified by Zoch.

One of the sites identified by Zoch was the Narwohl Site, located on a broad terrace on the west side of Schoharie Creek approximately 0.3 miles (0.5 km) southwest of the River Street Site. The Narwohl site was excavated by Bob Funk and a group from the New York State Museum in 1971, and was found to represent the remains of an Owasco village dating to Carpenter Brook times, around 1,050 years ago.

Schoharie archaeology received another boost with the formation of the Schoharie Indian Museum in 1981. Much of the museum's early activities included the documentation of numerous local collections and the archaeology of the Cobleskill area. With the relocation of the museum to its present site near Howe's Cave, the archaeology department began focusing on sites throughout the valley. Most recently, the museum has been working in conjunction with SUNY Albany's field school at the 36D site and with SUNY Cobleskill's field school at the Haviland Site, both located north of the project area. Additionally, the museum has been continuing research at the Stronium Mine Site near Central Bridge, which was initially identified by Jim Osterhout prior to his passing in 1988.

Another important event in the history of Schoharie Valley archaeology came with the passage of the National Historic Preservation Act of 1966. As a result of this legislation, numerous archaeological studies have been carried out for development projects throughout the United States. The Phase I report indicated that eight previous surveys have been conducted within two miles of the River Street Site since the passage of the act, six of which identified a total of 14 previously unknown archaeological sites.

Prehistoric Overview

Glaciers covered all of Schoharie during the Wisconsin glaciation, which ended about 12,000 years ago. People may have begun occupying the area soon after the glaciers retreated. These Paleoindians were organized in highly mobile bands adapted to tundra and boreal forest environments. While archaeologists have traditionally emphasized the hunting of large megafauna such as mammoth and bison, there is increasing evidence that Paleoindians exploited a diverse array of small game and wild plants. Ritchie (1994: 4–5) notes no fluted point finds indicative of Paleoindian occupation in Schoharie County.

Around 7000 B.C., stands of Spruce and Fir rapidly gave way to a denser forest of Pine and deciduous trees, with Oak becoming a dominant species. This drier climate supported less game and provided fewer plant resources for human populations. As a result, few sites dating from this Early and Middle Archaic period have been discovered in the region. Those few sites that have been found dating to this period are often found near water sources and suggest that people lived in small mobile bands, subsisting on gathered and hunted wild resources.

Beginning around 6500 B.C., the climate became increasingly wetter, resulting in an environment similar to ours today. The large number of sites from this period suggests that Late Archaic populations increased significantly at this time. While people continued to live in small, mobile bands, there was an increasing trend toward sedentism. Subsistence practices were highly diverse and included a wide variety of aquatic and terrestrial resources. Late Archaic sites range from small upland camps to large villages near the confluences of major streams. Several late Archaic Sites occur in the Schoharie Valley, including the Schoharie Creek I Site (Reith and LoRusso 1996) and the Chance Site (Ritchie and Funk 1973).

The Transitional Period (ca. 1300-1000 B.C.) is characterized by the use of steatite vessels and smoking pipes, which gradually give way to large, thick pottery vessels. This period is very much a continuation of Late Archaic life ways, with increasing sedentism and reliance on plant resources. Evidence of Transitional cultures occurred at the Chance Site, located north of the River Street Site near the confluence of the Mohawk (Ritchie and Funk 1973).

The Woodland Period begins about 1000 B.C. and is marked by the introduction of pottery and the development of an elaborate trade and ceremonial complex. It is during this time that people gradually began to cultivate plants. The Woodland Period is usually divided into three smaller periods: the Early, Middle and Late Woodland. Early Archaic sites are comparatively more common in the Schoharie Valley, with several sites yielding artifacts from this period.

A large Early Woodland site, the Nahrwold No. 2 Site, is located less than half a miles from the River Street Site, and was excavated by the New York State Museum in 1971 (Ritchie and Funk 1973).

Middle Woodland sites tend to date to around 100 BC–1,000 AD and are marked by a more complex resource exploitation system, including the more intensive use of native plants, including sunflower, goosefoot, and wild tobacco. Artifacts from this period suggest a continuation of trade and interaction with surrounding regions, as well as smaller Jack's Reef and Fox Creek projectile points and corded and stamped pottery. Nearby sites yielding artifacts from the Middle Woodland include the Westheimer Site (Ritchie and Funk 1973) and the Schoharie II Site (Reith 2002).

The Late Woodland Period began around A.D. 1000 and is differentiated from its predecessor primarily on the basis of projectile point types, pottery styles and diet (Funk 1976). Hoe cultivation also appears during Late Woodland times. Diet was largely made up of cultigens (corn, beans and squash) and game supplemented by fishing and the gathering of aquatic and terrestrial resources. Large, permanent village sites occur along major rivers as well as defensive locations (Ritchie 1994). Small, ephemeral sites also occur, probably used as camps for resource extraction. These smaller sites are located in a wide variety of geographic contexts, ranging from wetlands and backwater drainages to forested uplands. After about A.D. 1400, the Iroquois culture was fully developed, with intensive horticulture and large, palisaded villages (Ritchie and Funk 1973). Nearby sites dating from this period include the Chance Site (Ritchie and Funk 1973) and the Nahrwold No. 1 Site (Ritchie 1994).

The Nahrwold Site is located approximately one half mile southwest of the River Street Site on a low terrace on western side of Schoharie Creek. A large number of post molds were found at the site, suggesting that a minimum of two structures once occupied the area. Other features encountered include small fire and roasting pits and human and dog burials. Among the artifacts recovered from the Nahrwold No. 1 Site include cord-marked and incised ceramics, drills, pitted stones, and lithic debitage (Ritchie and Funk 1973:276-290).

The Phase I survey report indicated that 43 prehistoric sites are known within two miles of the project area. While little is known about many of these sites, the high density strongly suggests that other prehistoric sites are likely to be found in the general vicinity.

Research Methodology

In consultation with the New York State Office of Parks, Recreation, and Historic Preservation, a series of research questions were developed to test the site's ability to address issues of seasonality, climate, resource exploitation, and site formation processes. Questions posed in the data recovery plan include:

What does the information infer about seasonality at the site?

Does the site represent a single or multiple occupation?

Are artifacts randomly distributed across the site?

What do the artifacts suggest about past activities at the site?

What are some of the ongoing natural and cultural processes at the site? How do they relate to past processes?

What prehistoric cultural groups are represented at the site?

The success of addressing these questions will ultimately be limited by the type and quantity of data derived from the Phase II investigations. In order for the research methodology to be successful, an appropriate field methodology incorporating multiple components is necessary.

Field Methodology

Phase II/III investigations at the River Street Site were conducted on October 4–14 of 2004 and were supervised by the author. The site was initially examined through a walkover to identify visible features and artifact scatters, areas of disturbance, and the general terrain and ground cover. Staff archaeologists Michael Jennings, Royce Duda, and Bennett Brumson assisted in the excavations. We were also assisted by Nick Acierno of Boy Scout Troop 30 from Middleburgh, who assisted in our excavations as partial fulfillment of the requirements for the Archaeology merit badge. The weather was relatively cool with a high temperature of 40 degrees. Photographs were taken of the project area, adjacent visible structures, and areas of disturbance (Appendix B).

After the walkover was completed, a site datum was established away from the proposed construction near the implement building so that it might be located following the construction for future study if necessary. A long section of rebar was driven into the ground and labeled as the site datum. All trenches, backhoes, and soil cores were mapped in relation to the datum to tie all of the measurements to a central point. Once the site datum was established, a number of field excavation techniques were employed. Methods involved with each of these techniques are discussed below.

All material collected as part of the Phase II/III study at the River Street Site will be curated at the Iroquois Indian Museum near Howe's Cave. All artifacts, field notes, original photographs, maps, and a copy of the final report will be housed with the collection, which will be made available for future research.

Field methods proposed for addressing issues outlined in the Research Methodology involve a series of gradually more intensive components. The methods for each of these components is described separately below.

If prehistoric features are encountered during the excavation using any of the methods mentioned below, the floor will be leveled and the feature outline drawn in plan view. The feature will then be bisected along its longest axis to allow for stratigraphic profiling. Half of each feature will be screened separately while the remaining half will be saved and submitted for flotation and paleobotanical analysis. Other samples may also be taken for other studies, including radiometric dating, pollen and phytolith analysis. Samples will be treated as cultural material and will be subject to the same rigorous chain of title procedure described later in this proposal.

Mechanized Test Trenching

Because of the dense fill on the upper ground surface, a testing strategy was developed to remove fill material and test deposits deeper than normally testable using only a shovel. A backhoe trench was excavated directly east of Supplemental Test Trench 8 as shown in Figure 4. This trench was initially excavated to a depth of one meter below the ground surface to remove the dense road fill. In order to comply with OSHA standards, no individuals will be allowed to stand in trenches greater than one meter in depth. Once the trench was excavated to this depth the trench walls were carefully scraped to examine the soil deposits and look for artifacts in the upper 3 feet of the trenches. To look for artifacts below

one meter in depth, a sample of approximately 5 gallons (3.8 liters) was collected from each bucket load of soil and screened through 1/4 inch mesh to look for artifacts. A second archaeologist monitored the backhoe to identify any features or cultural deposits before additional soil is removed from the trench. Profiles of the test trench is provided in Figure 4. Photographs were taken of the trench walls and soil profiles (Appendix B, Photos 9-12).

Shovel Testing

After the backhoe trench was excavated to a depth of one meter below the ground surface, a total of 9 shovel test pits (STPs) were excavated in 6.5 ft (2 m) intervals along the bottom of the trench (Figure 2). STPs are small (about 40 cm or 16 inch diameter) holes excavated with a shovel; sediments were screened through 1/4 inch mesh to recover artifacts. STPs were excavated and screened in natural soil layers to a depth extending at least 20 cm (8 inches) into culturally sterile parent material. Soils information provided in the Phase I survey suggested that STPs would likely extend to depths in excess of one meter below the bottom of the backhoe trench. Results of the shovel testing will be used to help guide subsequent phases of the field excavation.

Excavation Units

A total of four one-meter square (1 x 1 m) excavation units were placed in areas of high artifact concentrations or where cultural features were suspected. In some areas, these units were excavated beside one another, but were excavated and screened separately for tighter data control. Units were excavated by hand using trowels and shovels as appropriate and were tied to the existing site grid. A line level was used to measure elevational depths within the units. Units were excavated in 10 cm levels within natural soil layers to allow for tight vertical control in stratigraphic contexts. All soil was screened through ¼ inch hardware cloth to look for artifacts. All artifacts collected from the screens were bagged according to provenience and sent to our laboratory for further study. Excavation of the units proceeded to a depth of 20 cm into culturally sterile soil. Upon completion of a unit, a wall profile was drawn showing soil stratigraphy and cultural features. Walls were chosen by the excavators on the basis of clarity and ability to show complexities within the soil profile. Unit wall profiles were also cleaned and photographed prior to backfilling. Plan views of the unit floors were undertaken whenever a point on interest was noted. An STP will be excavated in the center of the bottom of each unit prior to backfilling to examine deeper soils and look for deeper cultural remains.

Soil Coring

As part of the Phase II/III study, a series of soil cores are proposed to obtain samples of plant material to aid in dating the upper stratigraphy. These soil cores will be taken by Juliann Van Nest of the New York State Museum using established geologic methods of sample retrieval and analysis. Results of the soil coring will be used to help interpret the upper soil deposits and provide a geologic context for understanding the site.

Results

Surface Inspection

Before fieldwork commenced, the site area was first subjected to a pedestrian walkover to examine the terrain and vegetation. Very little had changed at the site since the initial Phase I study was completed approximately four months prior, with the area consisting of mowed grass in the side yard of the River Street Implement Company. Engineers from Delaware Engineering, P. C. had marked out the proposed corridor in advance, which was located to the east of the existing trench away from NYS Route 30. Because the proposed corridor area was placed further east than originally planned, the ground surface along the proposed trench area sloped downward toward the south more steeply than in the west in proximity to the road.

Backhoe Trenching

Initially, a backhoe trench was excavated adjacent to Supplemental Test Trench 8 as shown in Figure 2. This trench was 15 m long and was excavated to a depth of 100 cm below the ground surface to remove the dense road fill covering the deposits. Trench walls were carefully scraped, profiled and photographed to examine soil deposits and look for artifacts and cultural features (Figure 3). No prehistoric artifacts were noted in the trench walls, although a large charcoal stain was noted in the southern part of the trench along the west wall at an upper depth of 90 cm.

Soils in the backhoe trench were similar to that found in the first backhoe trench excavated during the Phase I survey. The upper surface consisted of 7.5YR 3/2 dark brown silty loam. This upper soil appears to represent topsoil fill or modern alluvium and averaged only about 20 cm in the northern and southern parts of the trench, with none of this upper stratum occurring in the central part of the trench. Below this upper loamy fill or alluvium was a thick lens of 7.5YR 3/4 dark brown silty sand filled with dense shale deposits. Thickness of this lower fill lens ranged in depth between 50 and 90 cm below the ground surface, with the thickest part occurring in the south, where additional fill was used to help level the steep slope of the drainage ditch. Both of these upper soils appear to represent historic fill deposits.

Despite recent the fill deposition at depths in excess of 90 cm much of the natural stratigraphy below these levels appeared intact, with a Bw horizon consisting of 7.5YR 3/4 dark brown silty clay. Despite the large amount of rock and shale in the upper soils, this lower horizon was relatively free of rock, which conforms to Van Nest's model of gradual alluvial deposition and well sorted rocks and sand grains. The Bw horizon ranged in thickness between 20–100 cm and continued down below the floor of the trench in the southern part. In the northern part, the Bw horizon was overlaying a BC horizon consisting of 10YR 3/4 dark yellowish brown silty clay. This BC Horizon as also devoid of rocks, and thin bands of iron oxides were dispersed along the trench walls.

In all, the trench profile conforms to soils found during the Phase I survey. The Phase I trench suggested that a channel occurred to the south due to the thickness of the A horizon in the southern part of the trench, while the Phase II/III trench suggested a channel due to the sloping topography present along the trench area.

Shovel Testing

After the backhoe trench was excavated, profiled and photographed, a total of nine 50 cm diameter shovel test pits were excavated in 6.5 ft (2 m) intervals along the bottom of the trench Figure 2). These STPs excavated along the trench ranged in depth from 99 to 110 cm below the ground surface. Only one of the nine STPs recovered cultural material: a flake fragment and two fragments of chert shatter were collected from the upper level of STP 2 at a depth of 90–125 cm below the ground surface.

Soils in the STPs were largely homogenous, with a continuation of the BC horizon extending to a depth of approximately one meter below the bottom of the trench. In the southern part of the trench where the Bw horizon was stratigraphically lower, STPs continued to encounter the 7.5YR 3/4 dark brown silty clay of the Bw horizon to depths ranging from 15 to 40 cm below the bottom of the trench (115–140 cm below the ground surface). Soil in these southern STPs then changed to the familiar 10YR 3/4 dark yellowish brown silty clay BC horizon found throughout the STPs in the northern part of the trench.

In addition to the STPs excavated along the trench, additional STPs were excavated at the bottom of the Excavation Units to identify any deeper cultural strata. Results of these STPs are described with the unit excavations.

Unit Excavations

Following the completion of the test trench, four 1 x 1 meter excavation units were placed adjacent to the trench in two areas: Units 1 and 2 were placed adjacent to STP 2, where three pieces of lithic debitage were recovered. Units 3 and 4 were placed adjacent to the large charcoal stain noted in the southern part of the trench wall profile. Units were excavated in accordance with procedures outlined in the field methodology. Because the unit excavations took place in two separate areas to address separate issues they are discussed individually by area below.

Units 1 and 2 were placed adjacent to the trench near STP 2, where three fragments of lithic debitage were encountered. The units were oriented parallel to the trench, with STP 2 straddling the division between the units. Soils in the upper part of the units consisted of 7.5YR 3/3 dark brown silty loam and sod that extended approximately 5 to 10 cm below the ground surface. No artifacts were recovered from this thin lens. Below this topsoil lens soils consisted of the dense shale fill encountered in the trench. This shale fill was comparable in thickness to that found in the trench, ranging in thickness between 35 and 55 cm. A number of prehistoric artifacts were recovered from this soil, including four fragments of lithic debitage and two ground stone tools. These prehistoric artifacts were found in a clearly disturbed context, as brick and asphalt were both prevalent in the shale fill matrix. The bottom of the fill lens was wavy and uneven, and occurred throughout Units 1 and 2 at a depth of about 60–65 cm below the ground surface. Soil in Unit1 and the northern part of Unit 2 consisted of the 7.5YR 4/3 brown silty clay Bw horizon, while soil in the southern part of Unit 2 consisted of the 7.5 YR 3/3 dark brown clay loam BC horizon identified in the test trench. Ten fragments of lithic debitage and a fragment of fire-cracked rock were found within the thin Bw horizon.

Artifact density in the BC horizon was much less and was confined to the upper part of the level. While nine fragments of lithic debitage were recovered from Level 5 at a depth of 70-

80 cm below the ground surface, subsequent excavation to a depth of 121 cm below the ground surface failed to identify additional artifacts or evidence of cultural features. At the base of Level 9 at a depth of 121 cm, an STP was excavated in the center of the bottom of the units to examine deeper soils and look for deeper cultural remains. This STP recovered a small chert flake fragment from the first shovel full of soil. Excavation in Units 1 and 2 then proceeded to depths below the soil layer the artifacts were encountered in the STP. Two additional 10 cm (4 in) levels were excavated in both Units 1 and 2 (Levels 8 and 9), but no additional artifacts were recovered. Finally, another STP was excavated in the center of the Units, which was excavated to a depth of 202 cm below the ground surface. The same homogeneous7.5YR 4/3 brown silty clay was present to the bottom of the STP, and no prehistoric artifacts were recovered from the STP.

Units 3 and 4 were placed south of Units 1 and 2 adjacent to the large charcoal stain noted in the southern part of the trench wall (Figure 5). Both of these units were caped with a dense lens of shale, which extended as deep as 50 cm below the ground surface. A diverse array of modern and historic artifacts were recovered from the fill lens, including plastic, styrofoam, drain pipe, a rattail handle for a knife or fork, and a fragment of brown bottle glass. After the fill layer was removed from Units 3 and 4, excavation proceeded in Unit 3 to investigate the charcoal staining identified in the Backhoe Trench. A number of prehistoric artifacts were recovered from below the fill in Unit 3, although no prehistoric artifacts were recovered from anywhere in Unit 4. A hammerstone, an abrader, a flake fragment and a complete chert flake were recovered from just below the shale fill in Level 3 (70-80 cm). Another hammerstone and four flakes and flake fragments were recovered from Level 4. A core fragment and a fragment of chert shatter were recovered from Level 5 of Unit 3 (90-100 cm). Level 6 yielded a hand wrought nail and a fragment of prehistoric pottery, a grit tempered smooth body sherd (Figures 12 and 13).

When the charcoal stain identified in the west wall of the trench was initially encountered in Unit 3 at a depth of approximately 82 cm below the ground surface, it was designated Feature 1, and was drawn, photographed and bisected as described in the data recovery plan (Figure 7). Subsequent investigation of the charcoal feature determined that it consisted of a decaying post and was ultimately determined to be historic in age. More information about Feature 1 is described below. Because it was determined that Feature 1 was a relatively recent phenomena and not a prehistoric cultural feature, no further excavation was made in Unit 4 to attempt to further examine this modern feature.

Feature 1

Feature 1 consisted of a charcoal stain initially identified in the west wall of the backhoe trench at a depth of approximately 90 cm below the ground surface (Figure 7). Units 3 and 4 were placed directly adjacent to the trench where the charcoal stain was noted. This stain was subsequently identified in Unit 3 at an initial depth of approximately 82 cm below the ground surface. In plan view, the feature appeared to be the remains of rotting log or post still was still largely intact, although fragments of the wood appeared to have been rotted away with dark staining around the feature from insect activity and water leaching from above. Ultimately, it was determined that this log was likely the result of relatively recent flooding activity and did not represent a prehistoric cultural feature.

Soil Coring

As part of the Phase II/III data recovery, a series of soil cores were attempted in the vicinity of the proposed testing. These soil cores were taken by Juliann Van Nest of the New York State Museum to help interpret the upper soil deposits and provide a geologic context for understanding the site. The first soil core was located just east of the northern corner of the backhoe trench, and was successfully excavated below fill deposits to depths in excess of three meters below the ground surface. A second soil core was taken from an area southeast of the trench. This soil core could only be excavated to an approximate depth of one meter below the ground surface due to rocks and dense fill. While not complete, soil from this core was collected using standard procedures to ensure proper data collection. The location of these two soil cores is shown on Figure 2. Additional soil cores were attempted at locations throughout the site, but were unable to penetrate the thick fill deposits. As a result, soil coring was abandoned. While alternate methods of soil sample recovery were discussed, including the use of additional backhoe testing, Dr. Van Ness felt that additional mechanized trenching would be redundant since Holocene soils extend well below the limits of such testing and would be unable to obtain the samples from an oxygenated environment. Because of the lack of new data, a copy of the preliminary geomorphology report is included as Appendix G.

Analysis and Discussion

Results of STPs and backhoe trenching confirm the recent deposition of fill material along this portion of Middlefort Road, although the depth of this disturbance appeared much more minimal than previously believed, with natural stratigraphy present below the surface. While the upper stratigraphic levels appear filled and disturbed, much of the soil along the floodplain appears intact. Julieann Van Nest's geoarchaeological reconnaissance of the area suggests the Holocene deposition exhibited in the trenches along the Schoharie floodplain likely formed over the last 500-1,500 years, but no greater than 3,000 years due to the lack of Bt or argillic horizons. More detailed information regarding Van Nest's findings are discussed in her report, which is included here as Appendix G.

Artifact Analysis

A total of 42 prehistoric artifacts were recovered during the Phase II/III data recovery. While the total number of artifacts is relatively small, the assemblage is diverse, and includes chipped stone debitage, a tabular chert core, ground stone tools, fire cracked rock, and pottery. In addition to the artifacts recovered during the site examination/data recovery, a total of 7 chert flake fragments were recovered from

Supplemental Test Trench 8 as part of the Phase I survey. These Phase I artifacts are included in the following analyses and are integrated in the Artifact Catalog (Appendix E). A number of historic artifacts were also encountered in the upper levels. Each of these artifact categories is described in further detail below.

Historic Artifacts- A total of 256 historic artifacts were recovered as part of the Phase II/III study. Most of this material was recovered from fill deposits in the upper soils, although historic material was found as deep as 110 cm below the ground surface. Historic artifacts recovered include architectural material, brick, mortar, concrete, wire and hand wrought nails, and window glass), brown and clear bottle glass, and asphalt. Exactly one quarter of all of the historic artifacts recovered (n=64) consisted of fragments of redware and yellowware drainage pipe. Other artifacts recovered include the handle of a rattail knife or two-tine fork, styrofoam, coal and coal ash, and unidentifiable ferrous metal. Historic artifacts were noted and described and reburied in the field, with the exception of the bone knife or fork handle and the hand wrought nail, which was recovered in the same level as the pottery (Figure 14). These two artifacts were retained for curation along with the entire prehistoric assemblage.

Chipped Stone Artifacts- A total of 36 chipped stone artifacts were recovered as part of the Phase II/III data recovery. Also included in this discussion are the 7 flake fragments recovered during the Phase I study, bringing the total number of chipped stone artifacts to 43. All of the chipped stone tool assemblage consisted of dark grayish blue chert of good quality. The chipped stone assemblage consists of three cores, four complete flakes, 23 flake fragments, and six fragments of chert shatter.

Definitions of each of these categories are based upon Andrefsky (1998) and are provided below.

> *Complete flakes*-For the purposes of this study, flakes are defined as a fragment of lithic debitage removed from a larger chert object. Flakes have standard characteristics, including a bulb, platform, and often ripple marks from the concoidial fracture. This category is reserved for intact flakes, of for those flakes where the maximum original dimensions are known.
>
> *Flake fragments*-These are fragments of debitage that are broken flakes like that above that share one or more of the diagnostic attributes (bulb, platform, etc.) but from which the full dimensions of the original flake are unknown.
>
> *Shatter*-This category includes fragments of chert debitage which were likely produced as part of lithic reduction, but are lacking any diagnostic flake attributes. Shatter is part of a natural process in lithic reduction, since not all debitage demonstrate the same clear evidence of cultural manufacture. Additionally, cultural and natural site formation processes also break intact chert flakes and create undiagnostic shatter.
>
> *Cores*-Cores are defined as a mass of chert that show evidence of flakes detached from their surface. Cores may be uni or multi-directional and can themselves be the detached fragments of larger objects.

Each of the complete flakes were measured by their maximum length, width, and thickness as shown in Table 3. The flakes themselves are relatively small, ranging between 7.2 and 20.7 mm in length (Figure 10). Under light microscopic (x30) magnification, none of these flakes exhibited any evidence of use wear or edge damage consistent with any prehistoric activities.

Table 3.
Measurements of complete flakes from the River Street Site

Cat #	Unit Level	Depth (cm)	Mass (g)	Length (mm)	Width (mm)	Thickness (mm)
10	Unit 2 Level 3	50-60	0.1g	9.1 mm	9.8 mm	0.4 mm
14	Unit 2 Level 4	60-70	0.8g	20.7 mm	16.0 mm	1.4 mm
18	Unit 3 Level 3	70-80	0p.7g	15.9 mm	17.6 mm	1.7 mm
22	Unit 3 Level 4	80-90	<0.1g	7.2 mm	9.1 mm	0.8 mm

Three cores and core fragments were recovered as part of the Phase II/III data recovery (Figure 11). Two of these core fragments, shown on the bottom of Figure 11, are small and expended, and were likely discarded following their usefulness, while a larger multidirectional core recovered from Level 5 of Unit 3 might have been lost or misplaced. All three of the cores appear to come from uniform sized fragments of blockish tabular chert. Water worn cobbles along the banks of Schoharie Creek sometimes contain bands of tabular chert exposed due to the erosion of the softer limestone around it.

Pebble/Cobble Tools (Figure 9)- This classification includes a number of artifact groups and functional categories, including artifacts commonly referred to as ground stone tools. This category includes all tools that were not intentionally chipped along their working edges. A total of five artifacts are includes in this category, as shown in Table 4.

Table 4.
Examination of use wear on pebble/cobble tools from the River Street Site

Cat #	Unit Level	Depth (cm)	Mass (g)	Pitting	Grinding/ Abraiding	Smoothing
	Unit 2 Level 2	40-50	78.8g		X	X
	Unit 3 Level 4	80-90	194.2g	X		
	Unit 3 Level 3	70-80	100.5g	X		
	Unit 1 Level 2	40-50	43.2g	X	X	
	Unit 3 Level 3	70-80	323.7g	X	X	

One of the greatest problems regarding the classification and description of ground stone tools is that these object often show more than one form of wear, likely associated with multiple activities begin conducted with that artifact. As a result, traditional classifications of pebble/cobble tools, such as “hammerstone,” or “abraider” are useful, but fail to convey the full spectrum of uses a specific artifact might have held. Therefore, Table 4 is broken up into specific kinds of wear based upon replicative experiments of stone tools by Adams (2002). The following three kinds of wear were examined on the five examples on the assemblage. Other forms of

wear not present in the current study include polishing, drilling, incising, and secondary battering or pitting like that found on anvil stones.

> *Pitting*- Pitting appears as small holes on the edge of an object when subject to bashing in a perpendicular angle on a hard surface. Pitting implies hammer like bashing, although the degree of pitting is often determined more by the kind of stone that the artifact is made from as well as the duration of use and hardness of the material being worked.
>
> *Grinding/Abrading*-Use of grinding tools is evidenced by linear striations on the surface of the area worked, and is considered evidence of direct contact between two hard surfaces. These linear striations can all face one direction, such as on a mano, or they can be multidirectional. Grinding and abraiding are commonly associated with food preparation and are also common methods in the manufacture of other ground and chipped stone tools and objects.
>
> *Smoothing*-This form of wear is produced by rubbing an object in a circular fashion to smooth a softer material, such as leather hides or other soft material. Smoothing is sometimes associated with the development of polish or staining created by the material being processed. Macroscopically, smoothing is easiest to see in coarser grained materials, such as quartzite, which can sometimes bias the identification of smoothing. Water and other natural process can also create differential weathering that can sometimes be confused with wear from smoothing.

As shown above, it appears that 3 of the five tools showed multiple forms of wear on a single object, demonstrating a wide array of functions from the each of the artifacts. Multi-function tools are common attributes of non-sedentary people, who often limited in the number of objects they can carry. In the case of the small assemblage from the River Street Site, none of the pebble/cobble tools were very sizable, the largest weighing 323 grams. Pitting was the most common form of use wear present followed by grinding/abraiding. Only one of the pebble/cobble tools exhibited evidence of smoothing, although no evidence of polish or staining was visible. Pitting from several of the

Fire Cracked Rock- Only one example of fire-cracked rock (FCR) was recovered from the River Street Site. This example was made of dark red quartzite and was fairly small, weighing only 50.9 grams, and was recovered from Level 4 of Unit 2 at a depth of 60–70 cm below the ground surface. For purposes of this study, fire cracked rock is defined as having one or more of the following three attributes: redness, spalling, and evidence of internal fracturing. Other rocks subjected to heating may not demonstrate any of the attributes described above, as many factors, including material composition, moisture, and proximity to the heat source also affect the ability to accurately recognize this artifact type (Bellomo 1993).

Contextually, this fragment of fire-cracked rock was recovered in a mixed level containing both prehistoric artifacts (a thinning flake and a fragment of shatter) and historic refuse (redware drain pipe fragments, sheet metal, mortar). As a result, it does

not appear to come from an intact prehistoric context. While fire cracked rock is commonly associated with prehistoric food preparation and the storage of fish, there is little other evidence to suggest that these activities took place at the site.

Prehistoric Pottery- One small fragment of prehistoric pottery was recovered from Level 6 of Unit 3. The fragment is a body shed that appears to be smooth and well made (Figures 12 and 13). The smooth surface treatment does not appear directionally wiped, and doesn't appear heavily eroded. The sherd is relatively thin, measuring 4.7 mm in thickness and appears to have grit tempering, with coarse, angular silica grains visible macroscopically. This fragment consists of a small, smooth, body sherd that lacks the formal attributes necessary for more precise temporal dating. However, thin, smooth body sherds with grit tempering likely date to the Late Woodland period. Ritchie (1994:292) notes that while Oak Hill Phase body sherds are usually check stamped or smoothed checked stamped in over 90 percent of the cases, later Iroquoian body sherds are almost always smooth, suggesting that the pottery fragment may date to this period. Unfortunately, without more diagnostic attributes, a more precise temporal affiliation cannot be determined.

Artifact Distribution

A comparison of artifacts along the small area tested suggests that they do show some variability in their spatial relationships. Of the 42 prehistoric artifacts recovered from the site, 30 (71.4 percent) were recovered from STP 2 and Units 1 and 2, in the northern part of the site, while only 12 prehistoric artifacts (28.6 percent) were recovered from Units 3 and 4 in the south (Figure 2). No prehistoric artifacts were recovered from Unit 4.

While the density of prehistoric material appears concentrated in the north, artifact diversity appears more consistent throughout the site. Despite the low artifact density in the south, a diverse array of artifacts were recovered, including the only fragment of pottery, 60 percent of the pebble cobble tools, and chipped stone debitage including an expended core. The high concentration of ground stone tools in the southern part of the site may reflect an activity area, although natural and cultural processes may have also affected spatial patterning. Conversely the only fragment of fire cracked rock was recovered in the north, suggesting the potential for cooking fires or roasting pits in the vicinity. With regard to debitage, both intact flakes and flake fragments appear evenly distributed as well, suggesting that factors related to artifact breakage, such as road construction and other post abandonment processes, are also evenly distributed.

Past Activities

While the number of prehistoric artifacts recovered is smaller than one would ideally require for more detailed analysis (n=49), the diversity of artifacts is comparatively high, and includes pottery, ground stone tools, fire cracked rock, a core fragment, and chipped stone debitage in all forms. While no prehistoric cultural features were identified, the diversity of artifacts is useful in determining some of the past activities at the site. For example, the presence of pottery at the site suggests food preparation/storage, while the presence of lithic debitage in all stages suggests that tool manufacturing was conducted at the site. While much of the charcoal identified during the data recovery appeared to be historically modern and no hearths or roasting pits were identified, the presence of fire cracked rock in Unit 2 suggests that cultural fire-related features may have been present at the site, and that these features

either occur in another area of the site not tested or that these features may have been destroyed due to natural or cultural processes.

Initial speculation about the site's function was initially unclear given the lack of data recovered during the Phase I study, and it was uncertain whether the site represented a small lithic scatter or a larger camp or resource procurement area. Given the diversity of artifacts recovered as part of the Phase II/III, it appears more likely that the latter is the case and that the site represents a camp or resource procurement area.

Given the probable Late Woodland age pottery recovered and the presence of several Late Woodland sites in the immediate vicinity, it seems plausible that the River Street Site functioned in relation to some of these other sites dating from the same period, although the actual relationship between these sites is unclear. The relatively large Owasco component at the Nahrwol No. 1 Site suggests a large camp utilized over multiple occupations, while smaller Meadowood Phase sites at the northern part of the village such as the Stevenson and Cold Spring Site appear to represent resource procurement sites that were likely tied to a larger village or base camp such as Narwohl No. 1 or some other yet undiscovered site in the vicinity.

If the River Street Site is solely a resource procurement area, the resource being procured at the site remains unclear. Fishing would be the most likely candidate given the site's location near the confluence of an extinct stream with Schoharie Creek, although evidence of fishing is notably absent in the assemblage. However, the lack of fishing evidence is quite common throughout much of central New York State, with fish remains being elusive in acidic soil and net sinkers relatively uncommon even at sites where fishing was clearly the dominant site activity. Some archaeologists, such as Moeller (1992), and Kinsey (1972) and Ritchie and Funk 1976) have regarded wide, shallow roasting pits and high concentrations of fire cracked rock as indicative of fish processing, although neither occur at the River Street Site. Despite this fact, the use of the site as a fish exploitation area cannot be totally dismissed.

No unanticipated discoveries, burials or evidence of human remains were encountered during the Phase II/III study.

Temporal Distribution

Small, seasonally occupied sites seldom yield the quantities of temporally diagnostic artifacts often desired by archaeologists in understanding change through time. Only one diagnostic artifact was recovered, a fragment of prehistoric pottery recovered from Level 6 of Unit 3 (Figures 12 and 13). This fragment consists of a small, smooth, body sherd that lacks the formal attributes necessary for more precise temporal dating. However, thin, smooth body sherds with grit tempering likely date to the Late Woodland period. Ritchie (1994:292) notes that while Oak Hill Phase body sherds are usually check stamped or smoothed checked stamped in over 90 percent of the cases, later Iroquoian body sherds are almost always smooth, suggesting that the pottery fragment may date to this period.

One possible interpretation of the pottery would be that it is associated with the Owasco component of the Narwold No. 1 Site, which dates to early Owasco (Carpenter Brook) times. While no check stamping is present, it may be due to erosion and smoothed by frequently flooding along Schoharie Creek. An alternate hypothesis would be that the pottery is post

Owasco and represents a southern extension of an apparent Mohawk presence further south. Evidence from the Vanderwerken Site, located near the village of Esperence, suggests that the northern part of the Schoharie Valley was being occupied by Mohawk populations (Cassedy, et al 1996). The River Street Site may represent a similar manifestation, although without additional information, no firm temporal attribution can be made.

Seasonality

Unfortunately, no prehistoric charcoal features were encountered that could have contained carbonized plant and insect remains that would have been useful in determining when the site was occupied. As a result, inferences regarding seasonality are highly speculative. While prehistoric cultural features were lacking at the site, the diverse array of ground stone tool types, the presence multiple stages of chert debitage, and the presence of prehistoric pottery all suggest that multiple activities were taking place, rather than the extraction of a single, specific resource. While difficult to speculate, it seems plausible these activities might have been conducted by a small group intermittently throughout the year as part of a seasonal round.

Natural and Cultural Processes

A number of interrelated natural and cultural processes have been actively taking place over several thousand years at the River Street Site. Natural processes include the gradual filling of the swale and paleochannel that once extended directly south. Geoarchaeological research suggests that the soils in the project area likely developed over the past 500–1,500 years or more, but probably not more than 3,000 years (the profiles lack Bt or argillic horizons). Therefore, it seems likely that this channel may have been active at around this time.

Cultural processes are most visible in association with the construction and maintenance of NYS Route 30/River Street, which occurs to the south and west of the site. Road gravel used to elevate the roadway, has also elevated the upper surface of the River Street Site, and is clearly visible in the trench and soil profiled (Figures 4-6). The construction of this road has undoubtedly changed the water flow patterns at the site and has likely also affected other natural processes, such as vegetation and rodent activity adjacent to the roadway. The construction of a ditch immediately south of the site has likely also resulted in changes in these cultural and natural processes (Figure 2, Photo 5).

Part III: Summary and Conclusions

A combined Phase II site examination and Phase III data recovery has been conducted for the River Street Prehistoric Site (A095.42.000085), located along NYS Route 30 in the village of Middleburgh, Schoharie County, New York. The site was initially identified in a backhoe trench as part of a Phase I survey conducted as part of a water system improvement project in the village of Middleburgh, Schoharie County, New York. The proposed project will involve digging a trench and placing a new water main across the known site. Because the site appeared to be potentially eligible for inclusion in the National Register of Historic Places under criterion D for its ability to address important issues about past lifeways in the Schoharie Valley, a data recovery was conducted to address these issues.

The data recovery consisted of the excavation of the trench where the water main will be placed and the excavation of four 1 x 1 m excavation units. Trench walls were used to create a geomorphological framework for understanding the site. Artifacts recovered include a small but diverse amount of material, including lithic debitage, fire cracked rock, pottery and ground stone tools. No prehistoric cultural features were identified, although use wear on the pebble cobble tools suggest activities associated with grinding and pecking, while the presence of two expended and one multidirectional core suggest lithic reduction activities. Results of geoarchaeological studies suggest that the site is located adjacent to an abandoned tributary of Schoharie Creek, which forms a confluence approximately 450 feet (137.1 m) to the south. The results of the geoarchaeological studies also suggest that the soils where the artifacts were recovered developed over the past 500–1,500 years or more, but probably not more than 3,000 years. The only temporally diagnostic artifact recovered was a small body sherd of grit-tempered pottery that likely dates to the Late Woodland Period.

One possible interpretation of the pottery would be that it is associated with the Owasco component of the Narwold No. 1 Site, which dates to early Owasco (Carpenter Brook) times. While no check stamping is present, it may be due to erosion and smoothed by frequently flooding along Schoharie Creek. An alternate hypothesis would be that the pottery is post Owasco and represents a southern extension of an apparent Mohawk presence further south. Evidence from the Vanderwerken Site, located near the village of Esperence, suggests that the northern part of the Schoharie Valley was being occupied by Mohawk populations (Cassedy, et al 1996). The River Street Site may represent a similar manifestation, although without additional information, no firm temporal attribution can be made.

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Appendix A.

Figures

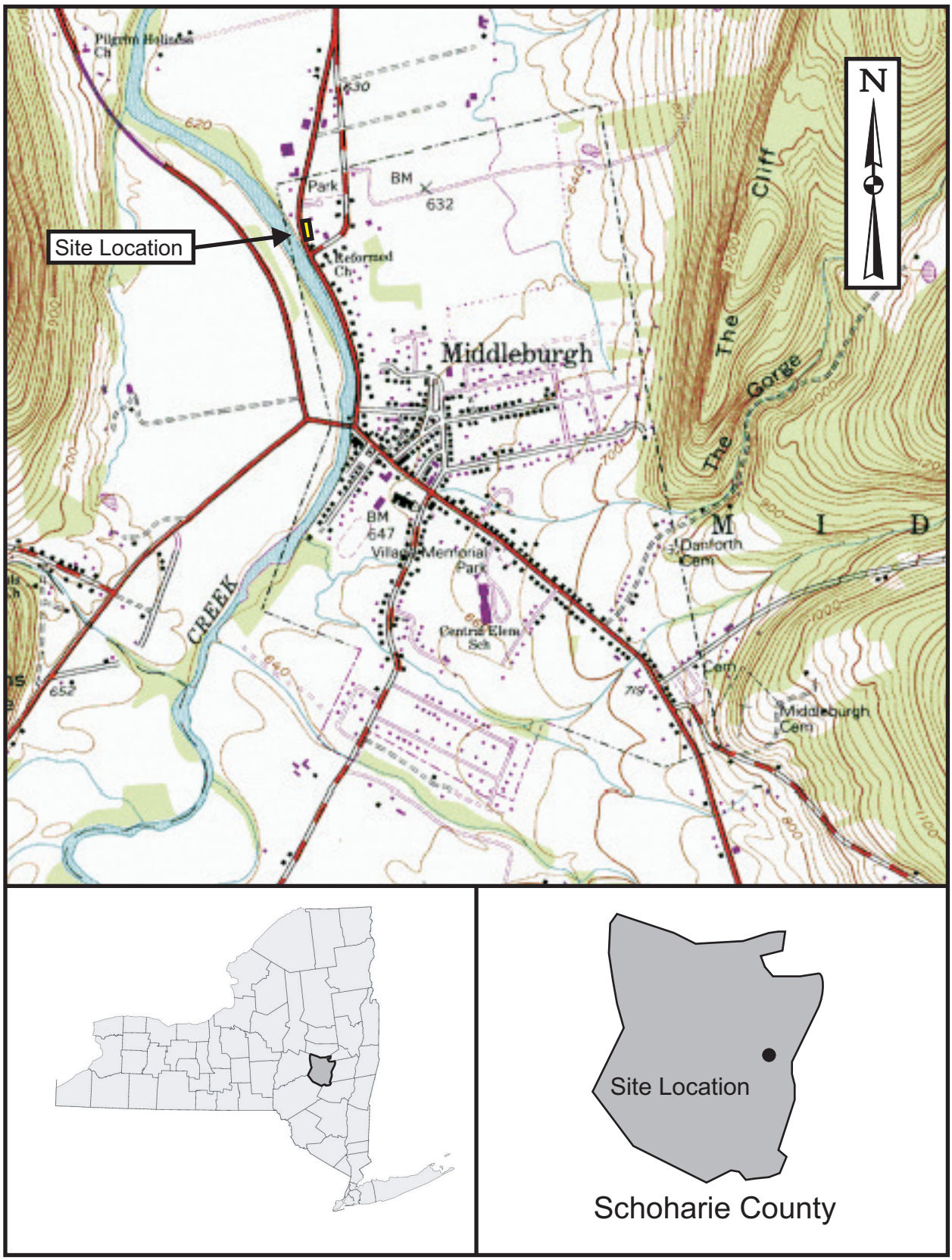

Figure 1. Map showing the location of the River Street Site on USGS Middleburgh topographic map.

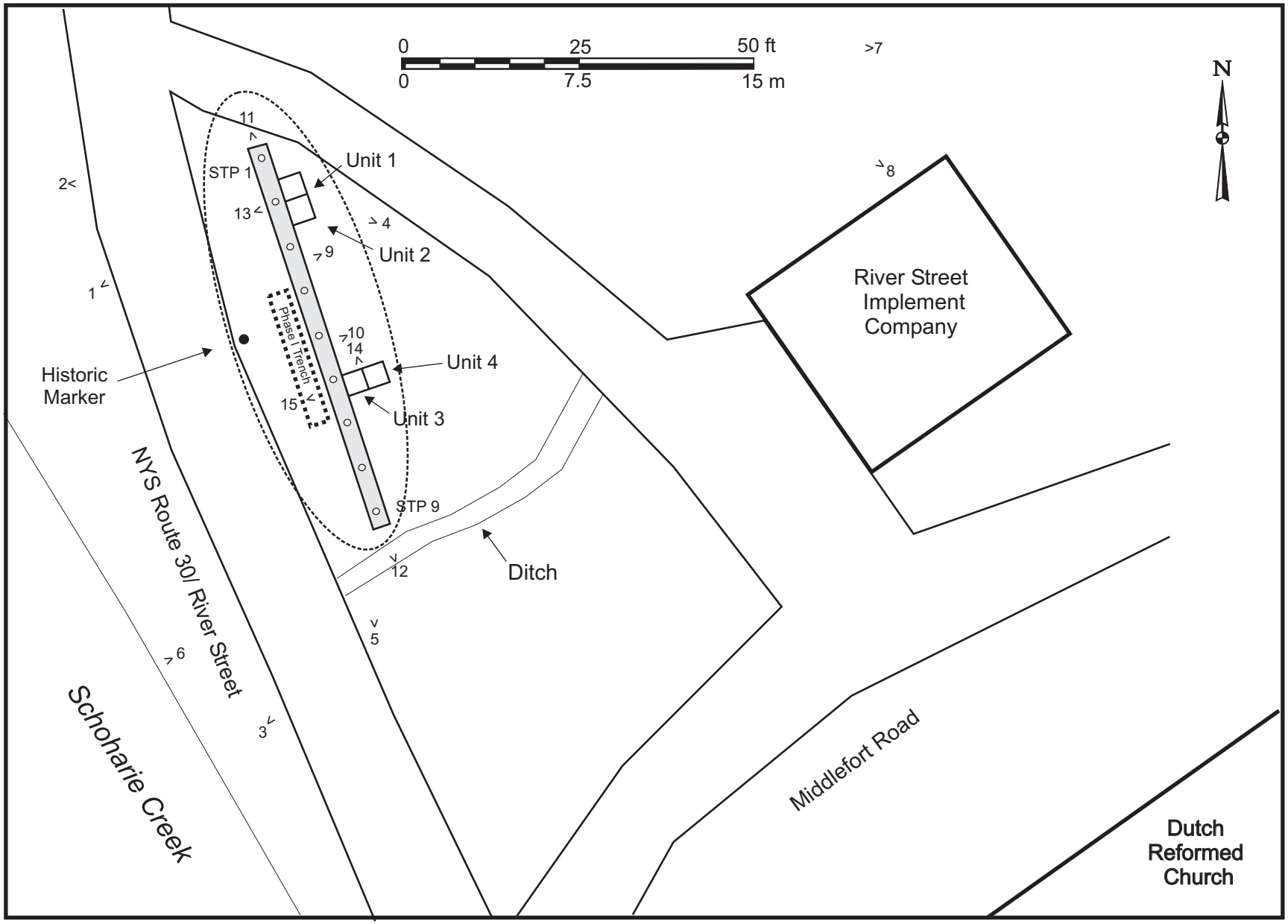

Figure 2. Map showing the location of the River Street Site and subsurface testing.

Figure 3. Portion of USDA soils map showing the location of the River Street Site.

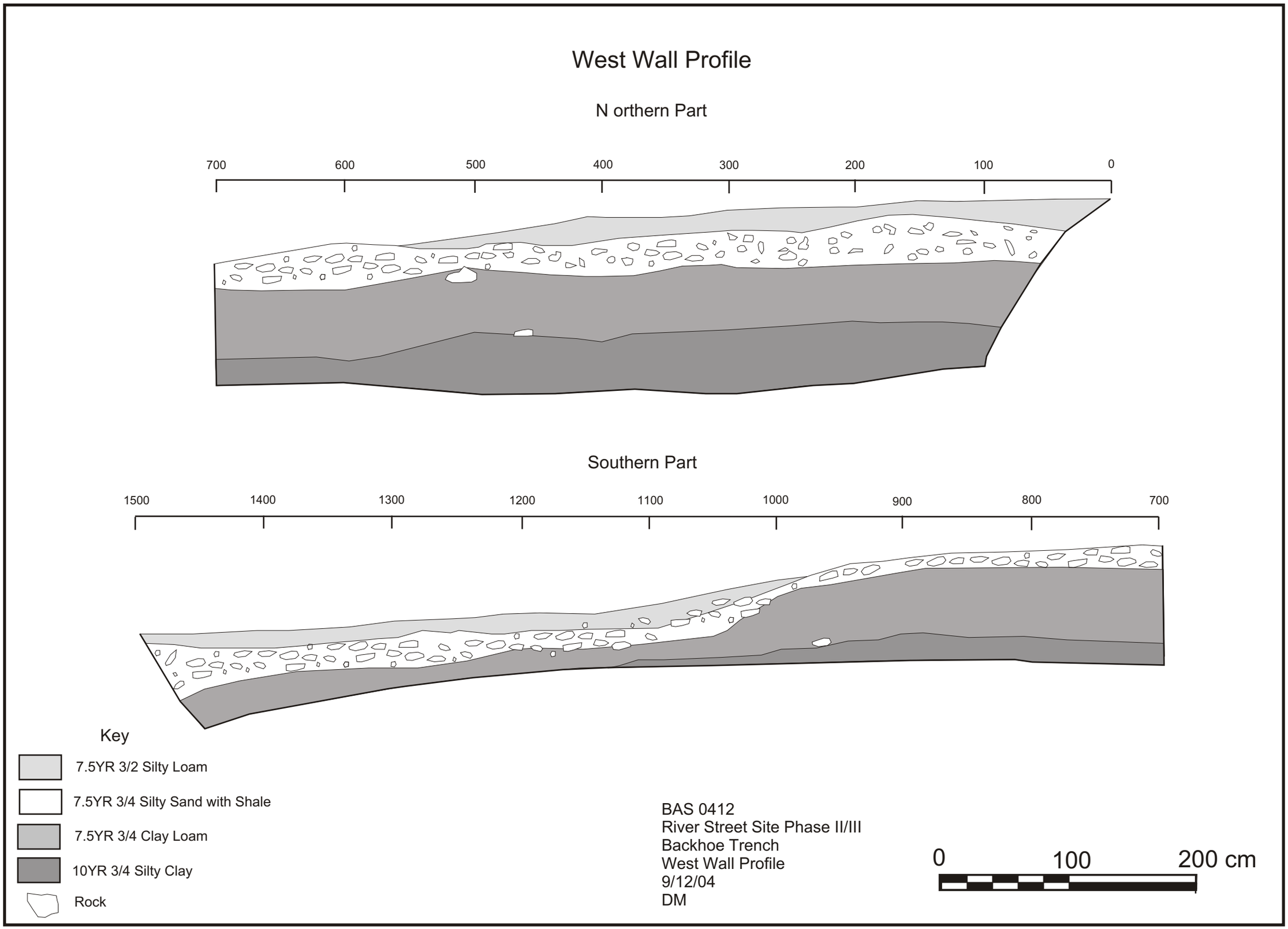

Figure 4. West wall profile of the test trench.

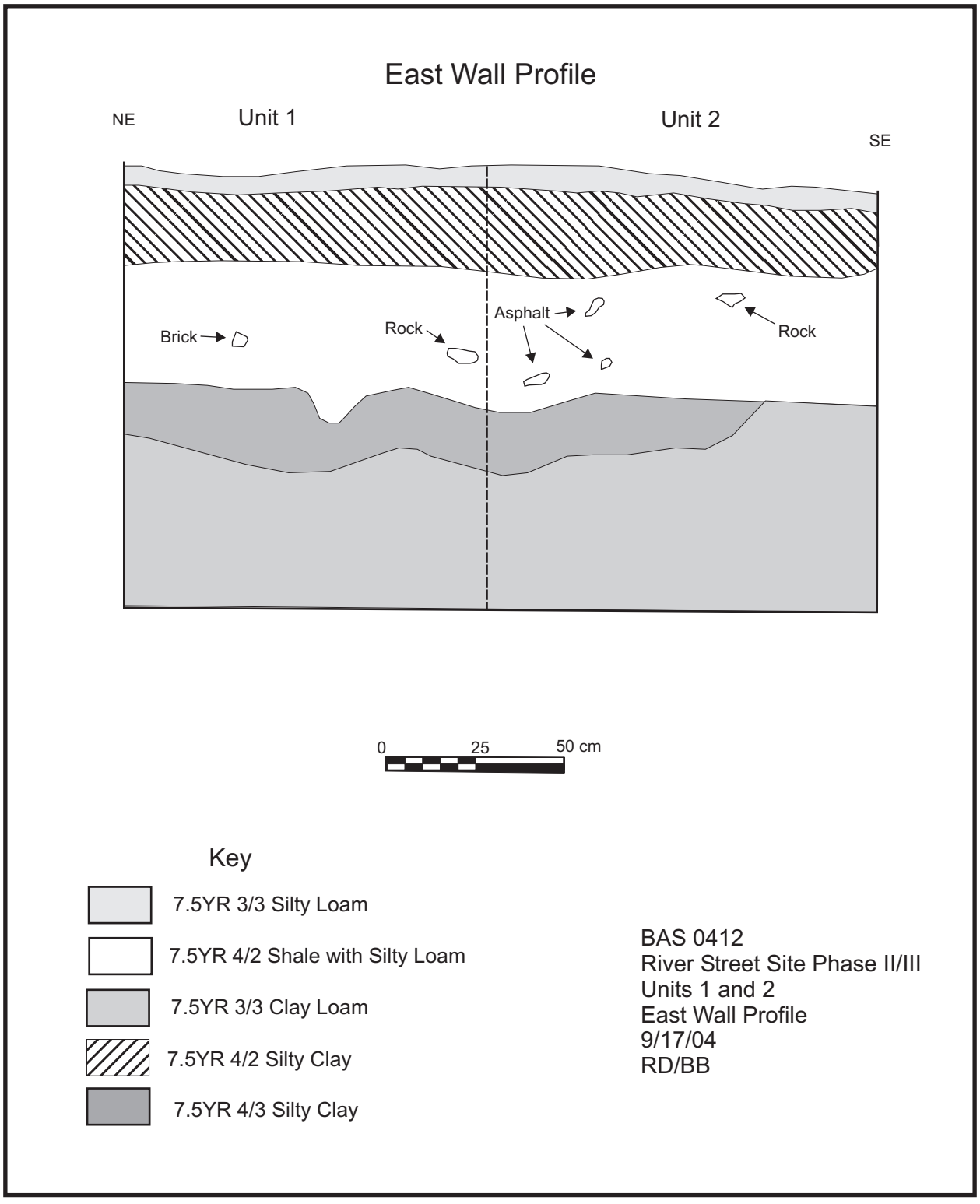

Figure 5. East wall profile of units 1 and 2.

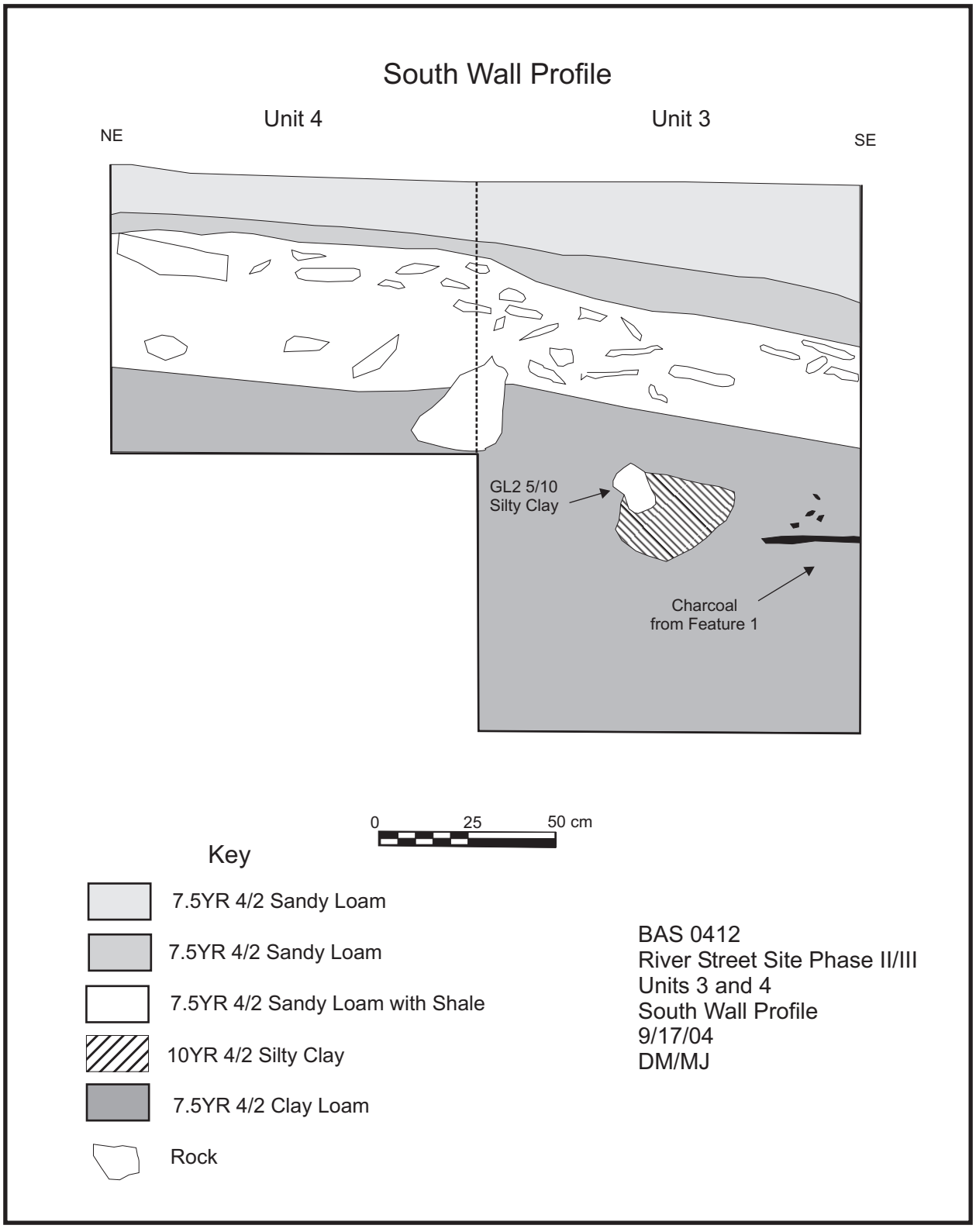

Figure 6. South wall profile of Units 3 and 4.

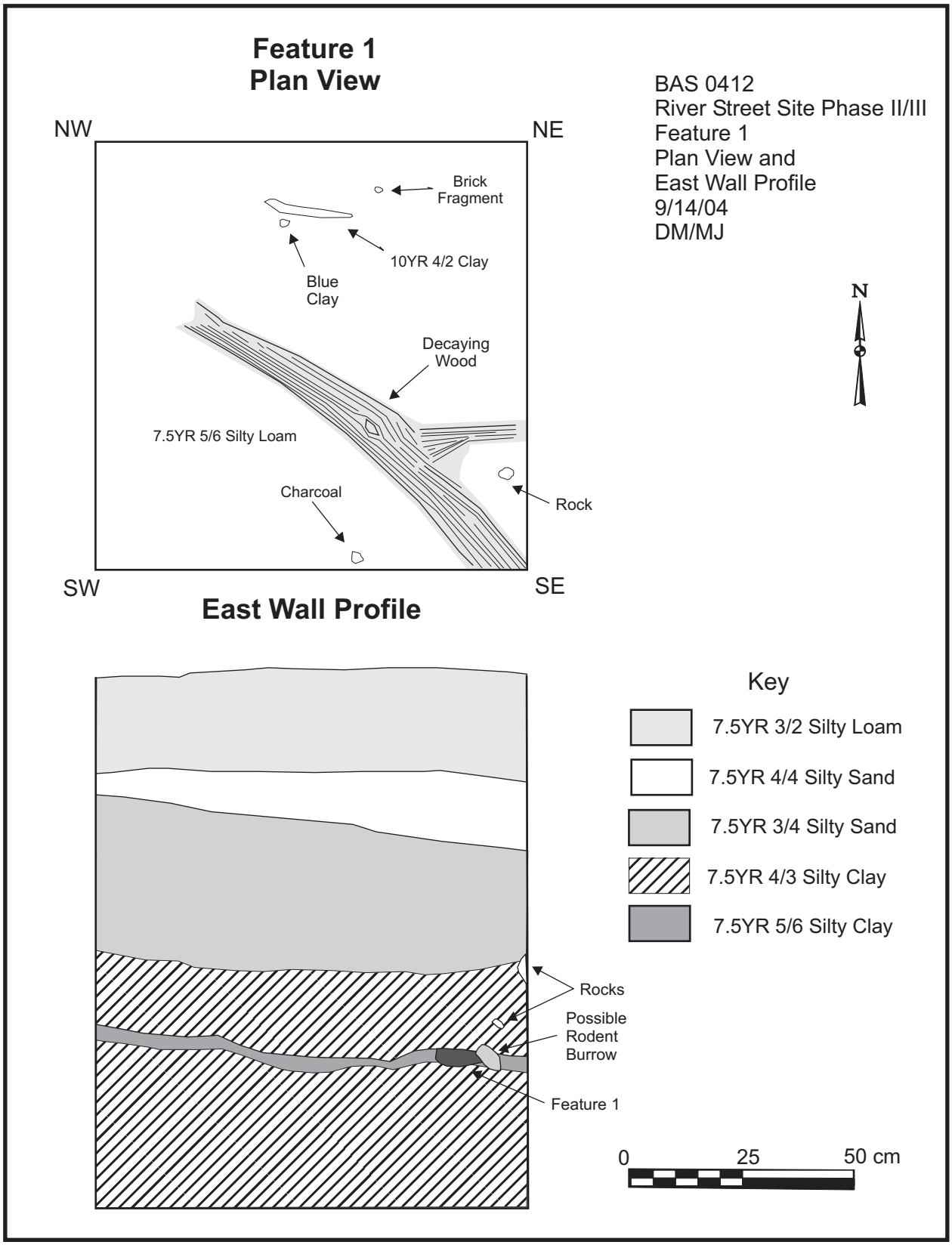

Figure 7. Plan view and profile of Feature 1.

Figure 8. Infrared digital orthoimage showing the location of the River Street Site.

Figure 9. Hammer and Nutting Stones from the River Street Site in Middleburgh (beginning at top left, Catalog #s 4, 21, 25, 9, and 20).

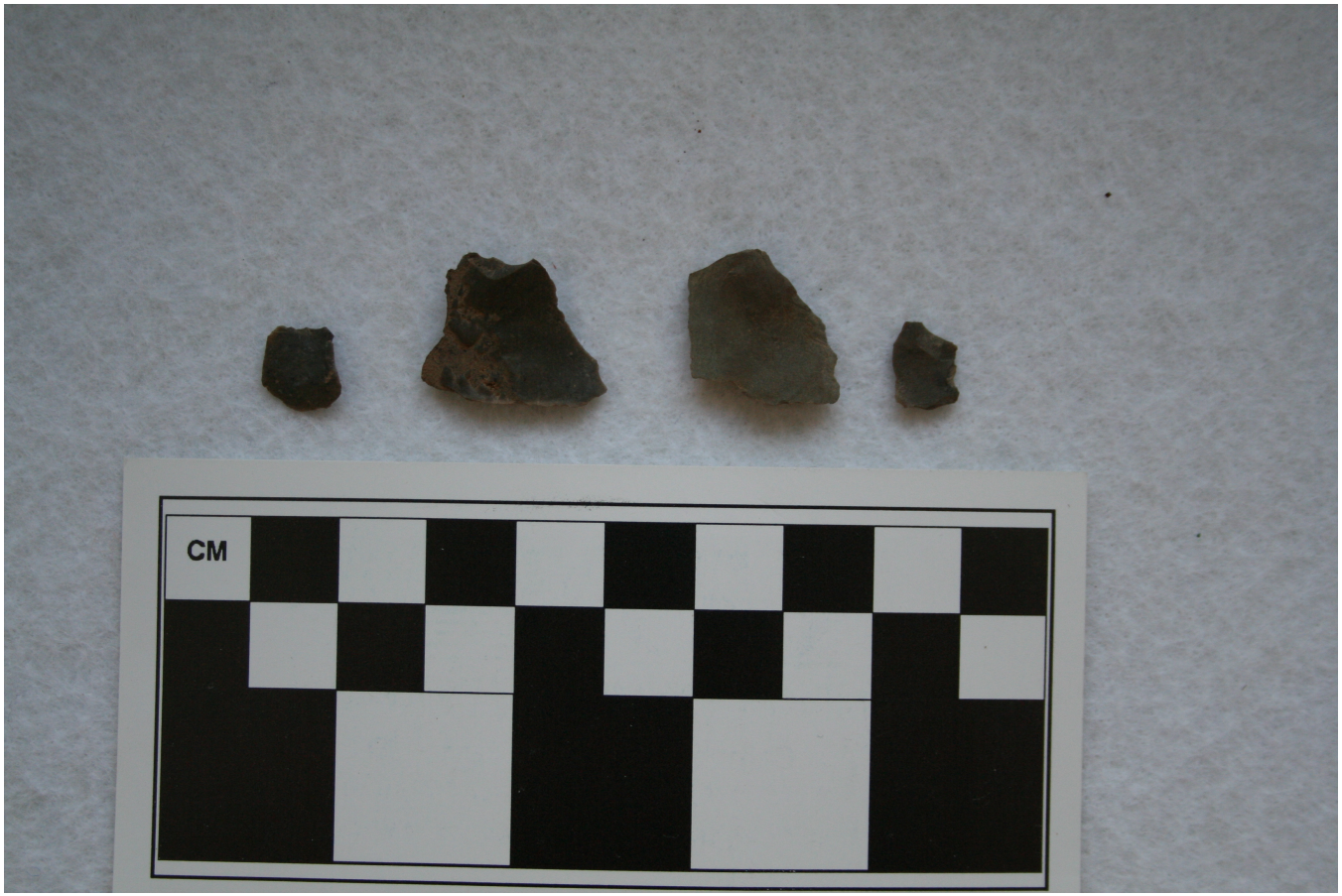

Figure 10. Chert flakes from the River Street Site in Middleburgh (beginning at left, Catalog #s 10, 14, 18, and 22).
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Figure 11. Chert cores from the River Street Site in Middleburgh (beginning at top, clockwise, Catalog #s 26, 6, and 3).

Figure 12. Pottery, exterior view, from the River Street Site in Middleburgh (Catalog # 28).

Figure 13. Pottery, interior view, from the River Street Site in Middleburgh (Catalog # 28).

Figure 14. Bone utensil handle (Catalog # 30) and wrought nail (Catalog # 29) comprising historic cultural material from the River Street Site, Middleburgh.

Appendix B.

Photographs

Photo 1. View of the River Street Site from the west side of NYS Route 30, facing northeast.

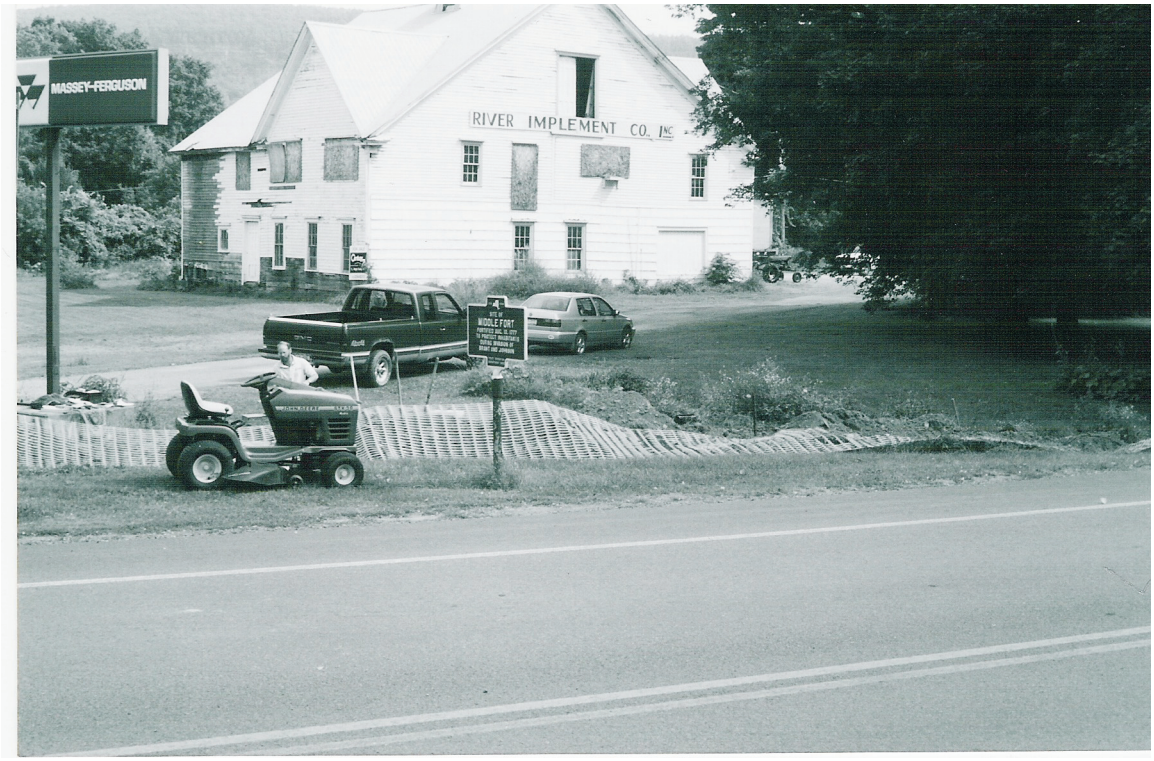

Photo 2. View of the River Street Site from the west side of NYS Route 30, facing east.

Photo 3. View of the River Street Site from the west side of NYS Route 30, facing northeast.

Photo 4. View of the northern part of the River Street Site, facing northwest.

Photo 5. View from the southern end of the River Street Site, facing north.

Photo 6. View of the confluence of Schoharie Creek and the abandoned tributary, facing west.

Photo 7. View of the River Street Site showing sloped topography from the abandoned channel, facing west.

Photo 8. View of the River Street Site showing sloped topography from the abandoned channel, facing northwest.

Photo 9. View of the northern part of the west wall profile of the backhoe trench, facing southwest.

Photo 10. View of the southern part of the west wall profile of the backhoe trench, facing southwest.

Photo 11. View along the backhoe trench showing STPs, facing southeast.

Photo 12. View along the backhoe trench showing STPs, facing northwest.

Photo 13. Units 1 and 2 east wall profile, facing east.

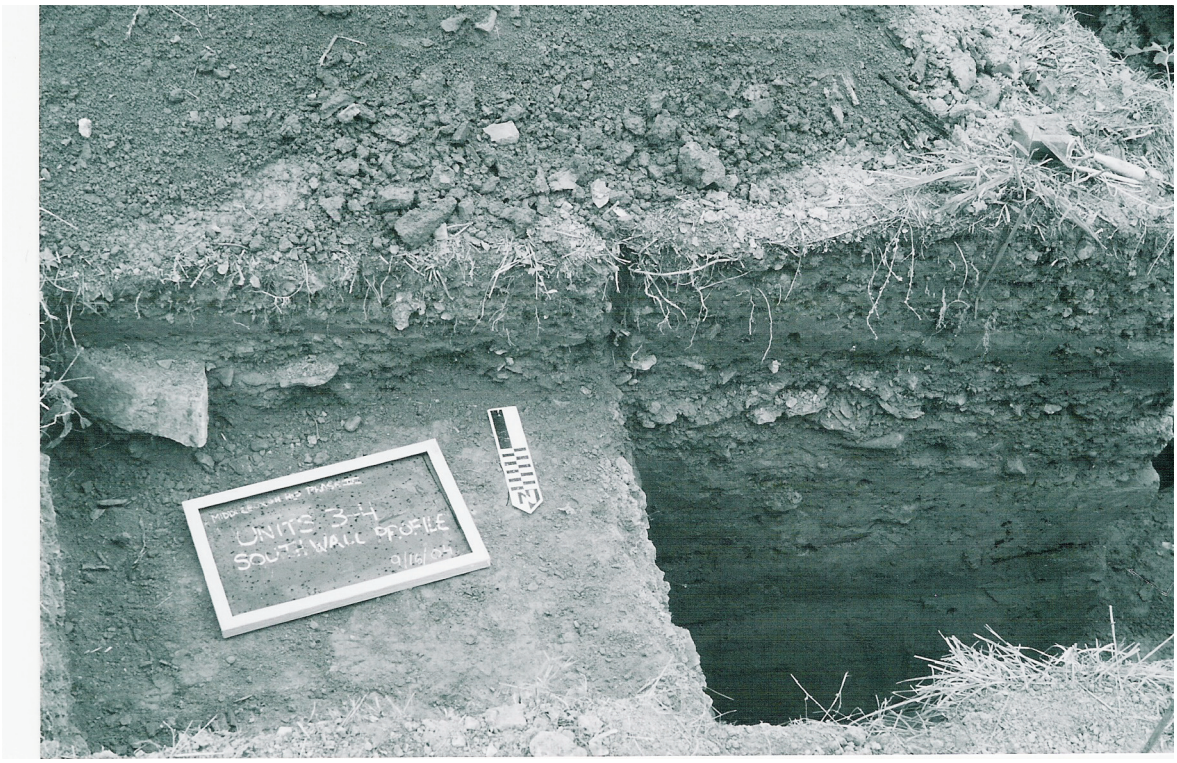

Photo 14. Units 3 and 4 north wall profile, facing north.

Photo 15. Plan view of Feature 1 in Units 3 and 4, facing east.

Appendix C.

Shovel Test Pit Records

Appendix C.
Shovel Test Pit Record

STP	Level	Depth (cm)	Soil description	Artifacts (Y/N)	Comments
STP-1	1	100-192	7.5YR 3/3 reddish brown silty loam	Y	Flake
STP-2	1	100-202	7.5YR 3/3 reddish brown silty loam	Y	Flake
STP-3	1	100-200	7.5YR 3/3 reddish brown silty loam	N	
STP-4	1	100-200	7.5YR 3/3 reddish brown silty loam	N	Charcoal discarded
STP-5	1	100-152	7.5YR 3/3 reddish brown silty loam	N	
STP-5	2	152-172	7.5YR 3.2 very dark grayish brown silty loam	N	
STP-5	3	172-210	7.5YR 3/4 dark brown silty clay	N	
STP-6	1	100-136	7.5YR 3/3 reddish brown silty loam	N	Charcoal flecks
STP-6	2	136-160	7.5YR 3.2 very dark grayish brown silty loam	N	Charcoal flecks
STP-6	3	160-200	7.5YR 3/4 dark brown silty clay	N	
STP-7	1	100-146	7.5YR 3/3 reddish brown silty loam	N	Charcoal flecks
STP-7	2	146-166	7.5YR 3.2 very dark grayish brown silty loam	N	
STP-7	3	166-200	7.5YR 3/4 dark brown silty clay	N	
STP-8	1	100-149	7.5YR 3/3 reddish brown silty loam	N	
STP-8	2	149-169	7.5YR 3.2 very dark grayish brown silty loam	N	
STP-8	3	169-199	7.5YR 3/4 dark brown silty clay	N	
STP-9	1	100-135	7.5YR 3/3 reddish brown silty loam		
STP-9	2	135-160	7.5YR 3.2 very dark grayish brown silty loam		
STP-9	3	160-205	7.5YR 3/4 dark brown silty clay		

Appendix D.

Unit Summaries

Appendix D.
Unit Summaries

Unit	Lvl	Depth (cm)	Soil Description	Cultural Material	Comments	Date	Excavators
1	1	0-40	7.5YR 3/3 dark brown silty loam	Asphalt, coal, glass, metal	Excavated 40 cm level to remove fill & overburden	9/13/04	RD/BB
	2	40-50	7.5YR 3/4 dark brown silty sand with shale	hammerstone, coal asphalt, brick, nails, glass	Fill lens	9/13/04	RD/BB
	3	50-60	7.5YR 3/4 dark brown silty sand with shale	Concrete, metal, asphalt, coal, drain tile	Fill lens; some minor charcoal flecking noted	9/14/04	RD/BB
	4	60-70	Mixed 7.5YR 3/4 dark brown silty sand/7.5YR 4/3 brown silty clay	Flakes (8); core fragment (1), drain tile (2), mortar (3).	Transition into Bw horizon	9/14/04	RD/BB
	5	70-80	7.5YR 4/3 brown silty clay loam	Flakes (5)	No features noted.	9/14/04	RD/BB
	6	80-90	7.5YR 4/3 brown silty clay	no cultural material	In BC horizon-no features noted	9/14/04	RD/BB
	7	90-100	7.5YR 4/3 brown silty clay	no cultural material	No cultural material in previous 20 cm. STP excavated between Units 1 and 2	9/14/04	RD/BB
	8	100-110	7.5YR 4/3 brown silty clay	no cultural material	STP yielded artifact. Excavation in units to continue	9/15/04	RD/BB
	9	110-120	7.5YR 4/3 brown silty clay	no cultural material	Second sterile level. Excavation terminated	9/15/04	RD/BB
	STP	120-202	7.5YR 4/3 brown silty clay	Flake fragment (1)	Excavation to continue	9/14/04	RD/BB

Unit	Lvl	Depth (cm)	Soil Description	Cultural Material	Comments	Date	Excavators
2	1	0-40	7.5YR 3/3 dark brown silty loam	Asphalt, coal, glass, metal	Excavated 40 cm level to remove fill & overburden	9/13/04	RD/BB
	2	40-50	7.5YR 3/4 dark brown silty sand with shale	Grinding stone, coal asphalt, brick, nails, glass	Fill lens	9/13/04	RD/BB
	3	50-60	7.5YR 3/4 dark brown silty sand with shale	Flakes, shatter, coal, mortar, brick, asphalt, iron, drainage tile.	Fill lens	9/14/04	RD/BB
	4	60-70	Mixed 7.5YR 3/4 dark brown silty sand/7.5YR 4/3 brown silty clay	Flake (1), shatter (1), fire cracked rock (1), coal, asphalt, iron frag (1)	Transition into Bw/BC horizons	9/14/04	RD/BB
	5	70-80	Mixed 7.5 YR 3/3 dark brown clay loam/7.5YR 4/3 brown silty clay	Flakes (3), shatter (1)	7.5 YR 3/3 clay loam in north; 7.5YR 4/3 brown silty clay in south half	9/14/04	RD/BB
	6	80-90	7.5YR 4/3 brown silty clay	no cultural material	In BC horizon	9/14/04	RD/BB
	7	90-100	7.5YR 4/3 brown silty clay	no cultural material	No cultural material in previous 20 cm. STP excavated between Units 1 and 2	9/14/04	RD/BB
	8	100-110	7.5YR 4/3 brown silty clay	no cultural material	STP yielded artifact. Excavation in units to continue	9/15/04	RD/BB
	9	110-120	7.5YR 4/3 brown silty clay	no cultural material	Second sterile level. Excavation terminated	9/15/04	RD/BB
	STP	120-202	7.5YR 4/3 brown silty clay /Same as Unit 1 STP			9/14/04	RD/BB

Unit	Lvl	Depth (cm)	Soil Description	Cultural Material	Comments	Date	Excavators
3	1	0-40	7.5YR 4/3 brown sandy loam with road gravel/fill	Plastic, styrofoam, drain pipe, brown bottle glass	Excavated 40cm level to remove fill & overburden	9/14/04	DM/MJ
	2	40-70	7.5YR 3/4 dark brown sandy loam with gravel		Removed gravel overburden	9/14/04	DM/MJ
	3	70-80	10YR 3/2 very dark grayish brown silty loam and 10YR 4/3 brown clay loam	Brick, wire nails, bottle glass, wire, flakes, hammer and nutting stones		9/15/04	DM/MJ
	4	80-90	10YR 3/2 very dark grayish brown silty loam and 10YR 4/3 brown clay loam	Barbed wire, brick, charcoal, plastic, metal, flakes, shatter, hammer/nutting stone	Feature 1 identified as a root run, first noticed in the trench wall, 87cmBD	9/16/04	DM/MJ
	5	90-100	10YR 3/2 very dark grayish brown silty clay	Metal, nail frags., whiteware, core frag., shetter		9/16/04	DM/MJ
	6	100-110	10YR 3/2 very dark grayish brown silty clay	Brick, wrought nail frag, pottery		9/16/04	DM/MJ
	7	110-120	10YR 3/2 very dark grayish brown silty clay	no cultural material		9/16/04	DM/MJ
	8	120-130	10YR 3/2 very dark grayish brown silty clay	no cultural material	No cultural material, excavation terminated.	9/16/04	DM/MJ
	STP	130-203	10YR 3/2 very dark grayish brown silty clay	No cultural material			
4	1	0-40	7.5YR 4/3 brown sandy loam with road gravel	Bone utensil handle	Excavated 40cm level to remove fill & overburden; excavation of Unit 4 halted at his point.	9/14/04	DM/MJ

Appendix E.

Artifact Catalog

Artifact Catalog

Catalog #	Provenience	Depth (cm)	Quantity	Material	Object Description	Mass	Comments
1	STP 2 Level 1	100-135	1	Chert	Shatter	0.2g	
2	STP 2 Level 1	100-135	1	Chert	Flake fragment	0.4g	
3	STP 2 Level 1	100-135	1	Chert	Core fragment	10.1g	
4	Unit 1 Level 2	40-50	1	Quartzite	Hammerstone/abrader	43.2g	
5	Unit 1 Level 4	60-70	7	Chert	Flake fragments	7.2g	
6	Unit 1 Level 4	60-70	1	Chert	Core fragment	13.2g	
7	Unit 1 Level 5	70-80	1	Chert	Flake fragment	1.9g	
8	Unit 1 Level 5	70-80	4	Chert	Flake fragments	3.4g	
9	Unit 2 Level 2	40-50	1	Quartzite	Grinder/smoother	78.8g	
10	Unit 2 Level 3	50-60	1	Chert	Flake	0.1g	9.1mmx9.8mmx0.4mm
11	Unit 2 Level 3	50-60	2	Chert	Flake fragments	2.1g	
12	Unit 2 Level 3	50-60	1	Chert	Shatter	2.5g	
13	Unit 2 Level 4	60-70	1	Quartzite	FCR	50.9g	
14	Unit 2 Level 4	60-70	1	Chert	Flake	0.8g	20.7mmx16mmx1.4mm
15	Unit 2 Level 4	60-70	1	Chert	Shatter	0.4g	
16	Unit 2 Level 5	70-80	3	Chert	Flake fragments	1.7g	
17	Unit 2 Level 5	70-80	1	Chert	Shatter	0.5g	
18	Unit 3 Level 3	70-80	1	Chert	Flake	0.7g	15.9mmx17.6mmx1.7mm
19	Unit 3 Level 3	70-80	1	Chert	Flake fragment	<0.1g	
20	Unit 3 Level 3	70-80	1	Quartzite	Nuttingstone	100.5g	
21	Unit 3 Level 3	70-80	1	Quartzite	Hammerstone/abrader	323.7g	
22	Unit 3 Level 4	80-90	1	Chert	Flake	<0.1g	7.2mmx9.1mmx0.8mm

Catalog #	Provenience	Depth (cm)	Quantity	Material	Object Description	Mass	Comments
24	Unit 3 Level 4	80-90	1	Chert	Shatter	0.5g	
25	Unit 3 Level 4	80-90	1	Quartzite	Hammer/Nutting stone	194.2g	
26	Unit 3 Level 5	90-100	1	Chert	Core fragment	65.0g	
27	Unit 3 Level 5	90-100	1	Chert	Shatter	0.2g	
28	Unit 3 Level 6	100-110	1	Ceramic	Pottery, tempered	11.6g	4.7mmTh
29	Unit 3 Level 6	100-110	1	Metal	Nail frag., hand wrought	5.6g	
30	Unit 4 Level 1	0-40	1	Bone	Bone utensil handle	11.4g	Rat tail
31	Unit 1 and 2STP	100-132	1	Chert	Flake Fragment	1.1g	
32	Trench Wall	3-5 feet	1	Chert	Flake fragment	0.9g	

Appendix F.

Qualifications
Of the
Principal Investigator

David Moyer, RPA
2948 County Highway 35
Sidney Center, NY 13839
Phone: (607) 265-3444

EDUCATIONAL EXPERIENCE

1999 Master of Arts in Anthropology, University of Montana, Missoula, MT.

1996 Bachelor of Arts in Anthropology, State University of New York at Binghamton, Binghamton, NY.

FIELD EXPERIENCE

8/02-present **Owner/Principal Investigator**: Birchwood Archaeological Services, Sidney Center, NY. Overseeing all duties in the operation of a small Cultural Resources consulting firm.

8/00-8/02 **Project Archaeologist:** Office of the State Archaeologist, Highway Archaeology Program, University of Iowa. Duties include agency coordination, report preparation, supervision of field and laboratory personnel, and budgetary tracking.

3/00-8/00 **Field Director:** SWCA Environmental Consultants, Inc., Salt Lake City, UT. Duties include supervision of field and lab personnel, budgetary tracking, agency coordination, and report writing.

1/00-3/00 **Staff Archaeologist:** Cultural Resource Heritage Services, Inc., North Wales, PA. Duties include report writing, cultural landscape documentation and agency coordination for a series of historic sites within the Delaware Water Gap National Recreation Area.

1/00-3/00 **Project Manager:** Hindsite Archaeology, Inc., Hamlin, PA. Duties include report writing, HABS/HAER documentation, budgetary tracking, and the preparation of National Register nominations.

11/99-1/00 **Director of Archaeology:** Ecoscience, Inc., Moscow, PA. Duties included the management of field, lab and office personnel, budgetary tracking, proposal preparation and agency coordination.

4/99-11/99 **Principal Investigator:** Ecoscience, Inc., Moscow, PA. Duties included the supervision of field crews, performing background research, proposal preparation, budgetary tracking, and the creation of National Register nominations and final reports.

9/97-4/99 **Director:** Mount Jumbo Archaeological Survey, Missoula MT. Cultural resources inventory and historical research undertaken for the City of Missoula. Duties include field surveying, coordinating volunteers, report writing, and the interpretation of historic landscapes.

9/97-9/98 **Architectural Historian:** Missoula City Preservation Office, Missoula MT. Duties included the identification and evaluation of historic properties, small format photography, and the interpretation of urban residential districts.

2/97-7/98 **Research Associate:** Heritage Research Center, Missoula, MT. Duties include the inventory of historic and prehistoric sites, writing proposals and budgets, National Register nominations and final reports, and the creation of maps and report illustrations.

11/96-2/97 **Field Technician:** Cultural Resources Heritage Office, University of Montana, Missoula, MT. Duties include excavation, note taking and stratigraphic profiling.

8/96-11/96 **Research Associate:** Heritage Research Center, Missoula, MT. Duties included the inventory of historic and prehistoric sites, mapping, historical research with primary documents/title research and land deeds.

6/96-7/96 **Field Technician:** Renewable Technologies, Inc., Butte, MT. Duties included the inventorying and mapping of historic mining features and the analysis of historic cultural material.

4/96-6/96 **Research Associate:** Heritage Research Center, Missoula, MT. Duties included the inventory of historic sites, mapping, historical research with primary documents/title research and land deeds.

6/94-10/95 **Field Director:** Public Archaeology Facility, Binghamton, New York. Job Duties included the supervision of field crews during surveys and excavations of phase I, II and III projects, writing professional reports and analysis of prehistoric and historic materials.

6/93-6/94 **Field Technician:** Public Archaeology Facility, Binghamton, New York. Job duties included the survey, excavation and mitigation of historic and prehistoric sites throughout the northeastern United States.

6/92-9/92 **Volunteer:** Fort Edward Field School, Fort Edward, New York. As a volunteer my duties included the survey and excavation of a French and Indian War fortification as well as a stratified Late Woodland site.

6/91-9/91 **Field School Participant:** Fort Edward Field School, Fort Edward, New York. As a participant, duties included survey and excavation of a mid 18 century British military fort.

5/89-9/89 **Volunteer:** New York State Department of Parks, Recreation, and Historic Preservation, Albany, New York. Volunteer position. Duties included the cleaning, identification and conservation of historic and prehistoric material culture.

SELECTED REPORTS AND PAPERS
(writing samples available upon request)

2003 Moyer, David
Phase IA/IB Cultural Resources Survey for the Tully Agricultural Management Assistance Drainage Project, Town of Macomb, St. Lawrence County, NY. Prepared by Birchwood Archaeological Services for the New York State Office of the Natural Resource Conservation Service. On file at New York State Office of Parks, Recreation and Historic Preservation, Waterford, New York.

2003 Moyer, David
Phase IA Cultural Resources Survey for the Park Avenue Sewer Improvements Project, Town of Ticonderoga, Essex County, NY. Prepared by Birchwood Archaeological Services for Robert Dedrick and Victor Putman, Town of Ticonderoga. On file at New York State Office of Parks, Recreation and Historic Preservation, Waterford, New York.

2003 Moyer, David
Phase IA Cultural Resources Survey for the Blue Point Acres Project, Town of Highland, Ulster Count,y NY. Prepared by Birchwood Archaeological Services for Joe Brunning**.** On file at New York State Office of Parks, Recreation and Historic Preservation, Waterford, New York.

2003 Moyer, David
Phase IA Cultural Resources Survey for the Ticonderoga Water Expansion Project, Town of Ticonderoga, Essex County,NY. Prepared by Birchwood Archaeological Services for Kestner Engineering. On file at New York State Office of Parks, Recreation and Historic Preservation, Waterford, New York.

2003 Moyer, David
Phase IA/IB Cultural Resources Survey for the Herkimer County Industrial Development Agency Schuyler Business Park, Town of Schuyler, Herkimer County, New York. Prepared by Birchwood Archaeological Services for O'Brien & Gere Engineers, Inc. On file at New York State Office of Parks, Recreation and Historic Preservation, Waterford, New York.

2003 Moyer, David
Phase II Cultural Resources Survey Pine Brook Subdivision, Town of North Elba, Essex County, New York. Prepared by Birchwood Archaeological Services for Robert M. Sutherland, P.C.. In progress, to be on file, New York State Office of Parks, Recreation and Historic Preservation, Waterford, New York.

2003 Moyer, David
Phase IA/IB Cultural Resources Survey Gifford Wetland Reserve Easement Project, Town of Pittston, Rensselaer County, New York. Prepared by Birchwood Archaeological Services for the New York State Office of the Natural Resource Conservation Service. On file, New York State Office of Parks, Recreation and Historic Preservation, Waterford, New York.

2003 Moyer, David
Phase IA/IB Cultural Resources Survey Krieger Wetland Replacement Project, *Town of Franklinville, Cattaraugus County, New York*. Prepared by Birchwood Archaeological Services for the New York State Office of the Natural Resource Conservation Service. On file, New York State Office of Parks, Recreation and Historic Preservation, Waterford, New York.

2003 Moyer, David
Phase IA/IB Cultural Resources Survey Delaware Opportunities, Inc. Office Complex Construction Project, Town of Hamden, Delaware County, New York. Prepared by Birchwood Archaeological Services for Delaware Opportunities, Inc. On file, New York State Office of Parks, Recreation and Historic Preservation, Waterford, New York.

2003 Moyer, David
Phase IA/IB Cultural Resources Survey, Water System Improvements Project, Village of Sherburne, Chenango County, NY. Prepared by Birchwood Archaeological Services for O'Brien & Gere Engineers, Inc. On file, New York State Office of Parks, Recreation and Historic Preservation, Waterford, New York.

2003 Moyer, David and Andy Black
Phase I Cultural Resources Survey, Meadows Edge Subdivision, Town of Champlain, Clinton County, NY. Prepared by Birchwood Archaeological Services and Black Drake Consulting for Earth Sciences Engineering. On file, New York State Office of Parks, Recreation and Historic Preservation, Waterford, New York.

2003 Moyer, David
Phase IA/IB Cultural Resources Survey Gilligan Manure Storage Facility Town of Ellisburg, Jefferson County, NY. Prepared by Birchwood Archaeological Services for New York State Office of the Natural Resource Conservation Service. On file, New York State Office of Parks, Recreation and Historic Preservation, Waterford, New York.

2003 Moyer, David and Rebecca Moyer
Phase IA/IB Cultural Resources Survey, Kingston-Rhinecliff Bridge Bulkhead, Ramp & Access Road Project, Town of Kingston, Ulster County, NY. Prepared by Birchwood Archaeological Services for LKB Engineers, Inc. On file, New York State Office of Parks, Recreation and Historic Preservation, Waterford, New York.

2003 Moyer, David
Phase IA/IB Cultural Resources Survey, Erwin Smith Gravel Mine, Town of Unadilla, Otsego County, NY. Prepared by Birchwood Archaeological Services for Margaret and Erwin Smith. On file, New York State Office of Parks, Recreation and Historic Preservation, Waterford, New York.

2003 Moyer, David
Phase IA/IB Cultural Resources Survey, Static Outdoor Aircraft Display, Glenn H. Curtiss Museum, Town of Urbana, Steuben County NY. Prepared by Birchwood Archaeological Services for Trafford L. Doherty of the Glenn H. Curtiss Museum. On file, New York State Office of Parks, Recreation and Historic Preservation, Waterford, New York.

2003 Moyer, David
Phase IA/IB Cultural Resources Survey Pine Brook Subdivision, Town of North Elba, Essex County, NY. Prepared by Birchwood Archaeological Services for Robert M. Sutherland, P.C. On file, New York State Office of Parks, Recreation and Historic Preservation, Waterford, New York.

2003 Moyer, David
Phase IB Cultural Resources Survey Canastota Wetland Reserve Program, Towns of Sullivan and Lennox, Madison County, NY. Prepared by Birchwood Archaeological Services for New York State Office of the Natural Resource Conservation Service. On file, New York State Office of Parks, Recreation and Historic Preservation, Waterford, New York.

2003 Moyer, David
Phase IB Cultural Resource Survey,Butler Estates Subdivision Project, Town of Throop, Cayuga County, NY. Prepared by Birchwood Archaeological Services for David W. Butler. On file, New York State Office of Parks, Recreation and Historic Preservation, Waterford, New York.

2003 Moyer, David and Rebecca Moyer
Phase IA/1B Archaeological Survey, Marshall Pit Gravel Project, Town of Ithaca Tompkins County, NY. Prepared by Birchwood Archaeological Services for Alfred & Nelson Eddy. On file, New York State Office of Parks, Recreation and Historic Preservation, Waterford, New York.

2003 Moyer, David
Phase IA/IB Archaeological Survey, Cayuga Marina Expansion Project, Aurelius Township, Cayuga County, New York. Prepared by Birchwood Archaeological Services for Gary Goodnough of Cayuga Marina. On file, New York State Office of Parks, Recreation and Historic Preservation, Waterford, New York.

2003 Moyer, David
Phase IA Archaeological Survey, Butler Estates Subdivision Project, Throop Township, Cayuga County, New York. Prepared by Birchwood Archaeological Services for David Butler. On file, New York State Office of Parks, Recreation and Historic Preservation, Waterford, New York.

2002 Moyer, David
Phase IA/IB Cultural Resources Survey, Swart-Wilcox Barn Relocation Project, City of Oneonta, Otsego County, New York. Prepared by Birchwood Archaeological Services for the Friends of Swart-Wilcox, Inc. On file, New York State Office of Parks, Recreation and Historic Preservation, Waterford, New York.

2002 Moyer, David
Petroglyph Investigations at the Pilot Rock Site (13CK101). *Journal of the Iowa Archaeological Society* 49: 87–94

2002 Moyer, David
A Phase I Archaeological Survey of Primary Roads Project STP-3(9)--2J-39 a.k.a PIN 99-71101-1, Greene County, Iowa. Office of the State Archaeologist, Highway Archaeology Program, Project Completion Report, Volume 25 No. 24. Prepared for the Office of Environmental Services, Iowa Department of Transportation, Ames, Iowa.

2002 Moyer, David
A Phase I Archaeological Survey of Primary Roads Project NHSX-30-3(28)--3H-37 a.k.a PIN 99-59060-1, Greene County, Iowa. Office of the State Archaeologist, Highway Archaeology Program, Project Completion Report, Volume 25 No. 22. Prepared for the Office of Environmental Services, Iowa Department of Transportation, Ames, Iowa.

2002 Moyer, David
A Phase I Archaeological Survey of Primary Roads Project BRF-923-0(10)--38-92 a.k.a PIN 99-59101-1, Washington County, Iowa. Office of the State Archaeologist, Highway Archaeology Program, Project Completion Report, Volume 25 No. 17. Prepared for the Office of Environmental Services, Iowa Department of Transportation, Ames, Iowa.

2002 Moyer, David
The Prehistoric Rock Art of Iowa. Paper presented at the Iowa Archaeological Society Meeting, Ottumwa, Iowa.

2002 Moyer, David
A Phase I Archaeological Survey of Primary Roads Project BRF-281-1(32,33)--38-39 a.k.a PIN 99-07040-1, Black Hawk County, Iowa. Office of the State Archaeologist, Highway Archaeology Program, Project Completion Report, Volume 25 No. 11. Prepared for the Office of Environmental Services, Iowa Department of Transportation, Ames, Iowa.

2002 Moyer, David
A Phase I Archaeological Survey of Primary Roads Project BRF-923-0(12)--38-92 a.k.a PIN 00-920101-1, Washington County, Iowa. Office of the State Archaeologist, Highway Archaeology Program, Project Completion Report, Volume 25 No. 10. Prepared for the Office of Environmental Services, Iowa Department of Transportation, Ames, Iowa.

2002 Moyer, David
A Phase I Archaeological Survey of Primary Roads Project BRF-923-0(11)--38-92 a.k.a PIN 00-920101-1, Washington County, Iowa. Office of the State Archaeologist, Highway Archaeology Program, Project Completion Report, Volume 25 No. 9. Prepared for the Office of Environmental Services, Iowa Department of Transportation, Ames, Iowa.

2002 Moyer, David
A Phase I Archaeological Survey of Primary Roads Project BRF-140-1(4)—38-97 a.k.a PIN 98-97131-1, Woodbury County, Iowa. Office of the State Archaeologist, Highway Archaeology Program, Project Completion Report, Volume 25 No. 8. Prepared for the Office of Environmental Services, Iowa Department of Transportation, Ames, Iowa.

2002 Moyer, David and Marlin Ingalls
A Phase I Archaeological Survey and Historic Architectural Evaluation of Primary Roads Project BRF-173-2(2)—38-83 a.k.a PIN 98-83030-1, Shelby County, Iowa. Office of the State Archaeologist, Highway Archaeology Program, Project Completion Report, Volume 25 No. 5. Prepared for the Office of Environmental Services, Iowa Department of Transportation, Ames, Iowa.

2002 Moyer, David
A Phase I Archaeological Survey of Primary Roads Project BRF-14-2(28)—38-59 a.k.a PIN 99-59101-1, Lucas County, Iowa. Office of the State Archaeologist, Highway Archaeology Program, Project Completion Report, Volume 25 No. 4. Prepared for the Office of Environmental Services, Iowa Department of Transportation, Ames, Iowa.

2001 Moyer, David
A Phase I Archaeological Survey of Primary Roads Project STPN-5-3(40)--2J--63 a.k.a PIN 01-63010-1, Marion County, Iowa. Office of the State Archaeologist, Highway Archaeology Program, Project Completion Report, Volume 24 No. 18. Prepared for the Office of Environmental Services, Iowa Department of Transportation, Ames, Iowa.

2001 Moyer, David
A Phase I Archaeological Survey of Primary Roads Project BRF 169-1(33)--38-80 a.k.a PIN 98-180030-1, Ringgold County, Iowa. Office of the State Archaeologist, Highway Archaeology Program, Project Completion Report, Volume 24 No. 12. Prepared for the Office of Environmental Services, Iowa Department of Transportation, Ames, Iowa.

2001 Moyer, David
A Phase I Archaeological Survey of Primary Roads Project BRF 175-4(10)--38-81 a.k.a PIN 98-81070-1, Sac County, Iowa. Office of the State Archaeologist, Highway Archaeology Program, Project Completion Report, Volume 24 No. 10. Prepared for the Office of Environmental Services, Iowa Department of Transportation, Ames, Iowa.

2001 Moyer, David
A Phase I Archaeological Survey of Primary Roads Project BRF 988-0(6)--38-78 a.k.a PIN 95- 7884470-2, Pottawattamie County, Iowa. Office of the State Archaeologist, Highway Archaeology Program, Project Completion Report, Volume 24 No. 8. Prepared for the Office of Environmental Services, Iowa Department of Transportation, Ames, Iowa.

2001 Moyer, David
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2000 Moyer, David
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Register of Professional Archaeologists (RPA)
Society for Historical Archaeology (SHA)
American Committee for the Preservation of Archaeological Collections (ACPAC)
American Rock Art Research Association (ARARA)
Plains Anthropological Society
Association of Historic Archaeologists of the Pacific Northwest (AHAPN)
Upper Susquehanna Chapter, New York Archaeological Association

Appendix G.

Geoarchaeological Reconnaissance Report

Geoarchaeological Reconnaissance of the Municipal Water Improvements Project, Middleburgh, New York

by

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Submitted to

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16 July 2004

Outline

Geomorphological Overview of the Project Area

This report provides a brief geoarchaeological assessment of soils and sediments that would be exposed in a series of trenches cut for new water lines in the village of Middleburgh, New York. A total of seven trenches in two project subareas were shallowly excavated and examined on 9 and 10 June 2004. Each trench was briefly examined before being immediately re-filled. Six of the seven trenches exposed a portion of the Holocene floodplain of Schoharie Creek in the Middle Fort Road area on the northern outskirts of the village. A single trench located on Nickerson Avenue in the village exposed the fan deposits that lie beneath much of the village of Middleburgh (Figure 1).

Schoharie Creek occupies a deeply entrenched valley cut into gently dipping Devonian bedrock (Figure 2). Three main riverine landforms are readily distinguishable: a) the Holocene floodplain of Schoharie Creek, b) a Pleistocene terrace of Schoharie Creek, and c) a large alluvial and fluvial fan complex at the mouth of Little Schoharie Creek where it enters the Schoharie Valley at Middleburgh.

Broad expanses of Holocene floodplain are preserved above and below the village of Middleburgh (Figure 2). The village itself is mostly situated on a large alluvial/fluvial fan complex associated with the confluence of Little Schoharie Creek and Schoharie Creek. The age and nature of the alluvial deposits beneath all of these landforms remains little studied. With the kind permission of Frank Lacko, Jr., the author recently completed a transect of core holes across a portion of floodplain above Middleburgh (Figure 2), where two radiocarbon dates from fluvial bottom stratum deposits suggest that Holocene floodplain deposits there are no older than ca. 2,700 yr B.P. By extension, it seems likely that the deposits lying beneath the Holocene floodplain below Middleburgh are also relatively young, dating to the late Holocene.

The Holocene floodplain to the east of the Middle Fort Road area is relatively flat (Figure 3a) until it reaches the well-defined tread and scarp of a prominent Pleistocene terrace (Figure 3b). A paleochannel with some surficial expression crosses the floodplain near the scarp (Figure 2). It is noteworthy that neither of these important geomorphological features (the paleochannel and the terrace scarp) are accurately captured at the scale of the USGS 7.5-minute topographic map. Because terraces mark the level of a former floodplain, they are important geomorphological archives of past river history. This relatively low terrace probably represents the terminal Pleistocene surface of the Schoharie Creek that was (deeply) incised in response to deglacial events in the Mohawk River Valley. Recent geoarchaeological investigations (including new radiocarbon dates) along the Cobleskill Creek at the Haviland Site, located west of the village of Cobleskill, suggest that a similar terrace near there formed by river incision ca. 11,000 yr B.P. Judging by geomorphological similarities, it seems reasonable at this time to hypothesize that the terrace at Middleburgh formed at the same time as the one near the Haviland site.

Deep river incision such as that which causes floodplain abandonment and terrace formation also creates other geomorphological situations that ripple throughout the rest of the fluvial system, from the channels through the hillslopes. Chief among these are changes associated with adjustment to a new base level. Headwater hillslopes and channel systems erode downward,

creating much sediment that is differentially transported downslope and downstream. Piles of sediment called fans form where steep-gradient tributary streams meet lower-gradient master streams. Small systems producing small fans come to equilibrium rather quickly, while larger systems take longer. The amount of "lag" time involved in these responses is currently a topic of debate in geomorphology. One model of landscape development—paraglacial response—holds that these lag response times are measured in millennia, and even that some Holocene systems are still responding to these initial terminal Pleistocene events.

Deposits Beneath the Holocene Floodplain

We saw no deposits of historic alluvium, and besides a small amount of road fill, we saw little or no historic fill in the trenches cut in the Middle Fort Road area (Figure 1). There was some verbal discussion that the open field near the pharmacy was all made ground and fill, and that this area could not contain any useful archaeological materials. Even if the central portion of this field might contain some fill, we found in situ soils and sediment along and near the road right-of-ways where the trenches were cut. The trenches expose pedogenically modified prehistoric alluvium, in sections typical for fine-grained overbank deposits (silt loams and fine sandy loams), with surface soils exhibiting Ap-E-Bw horizonation (Figure 4). Based on soil benchmark studies elsewhere, including profiles in the Schoharie Valley, it is reasonable to expect that such soil profile development involved 500–1,500 years or more, but probably not more than 3,000 years (the profiles lack Bt or argillic horizons). Thus the near-surface sediments and soils in the Middle Fort Road area are comparable with those at the upstream sections at the Lacko farm (Figure 2).

A near-surface buried soil was present in some of the Middle Fort Road trenches (Figure 4b), but we found no artifactual debris associated with this buried surface. Soil anomalies infilled with surficial A horizon soil materials were seen to cross-cut the E and Bw horizons in the northern end of Trench "A". These are marked in Figure 4b by the four rectanguloid-shaped sample excavations cut into the wall. Because of their regular spacing, and because they were found only in this portion of this trench, it is my opinion that they may have an anthropogenic origin (i.e. be cultural features), regardless of whether they contain artifactual debris.

Buried artifacts were found in a trench cut near the Implement Store, along NY 30 not far its junction with Middle Fort Road (Figures 1 and 5). These included chipped stone flaking debris and one small cobble-sized piece of sandstone rock whose size in this context suggests that minimally it is a manuport, even if the object itself showed no obvious cultural modifications. These remains occurred below the plow zone in pedogenically modified brown silt loam alluvium. As shown in Figure 5, this trench was located near the margin of the NY 30 roadbed. The trench demonstrates that although minor modification of the plow zone was made during road building (the plow zone does contain some crushed rock clasts), the surface soil, now partially buried, largely remains intact underneath this portion of the road. This is because road construction at this locale involved filling rather than cutting. Although there has been some landscaping associated with the nearby buildings and roads, it is apparent that a small tributary stream of some sort entered the Schoharie at this place. Its rough configuration can still be made out from the subtle local topography, which suggests that it passed between the house located north of the trench and the Implement Store (Figure 5a). Perhaps even more suggestive than the

subtle topography, is the fact that in the trench profile the A horizon thickens, and its base has an apparent dip, to the south, in the same direction as this former channel/swale may have been.

The Fan(s) at Middleburgh

The Middleburgh fan complex is well expressed on the USGS topographic map (shaded yellow area on Figure 2), and by map unit TcA on the county soil survey (Tunkhannock and Chenango gravelly loams). The gently sloping surface of the fan underlies much of the village. The presence of this landform may have been one of the original attractions for settlement, although a significant portion of the village located closer to the river does lie on the Holocene floodplain and is subject to inundation during flood events. A closer look at the topographic map also shows that this macro landform is a composite of at least two smaller subsystems. The northern half of the fan complex, which emanates from "the Gorge" and another small unnamed tributary, has a steeper gradient than the fan to the south emanating from Little Schoharie Creek. This probably reflects the morphometric relationship of fans to their basin areas. In general, relatively small basins produce larger, steeper-gradient fans than their larger tributary counterparts, which carry larger flood flows and typically are more competent to remove more sediment into the mainstem.

We examined the profile of one trench cut into fan deposits along Nickerson Avenue (Figures 1 and 6). No archaeological remains were seen. These gravelly deposits most likely relate to a former position of the Little Schoharie Creek channel or one of its distributaries. The trench exposed clast-supported gravel with predominantly cobble and pebble-sized clasts, and a few small boulders. Matrix deposits were sandy with little or no mud. A moderately well-developed soil profile with A-E-Bw-BC soil horizonation shows that these are prehistoric gravel deposits. The lower dark-colored horizon seen in Figure 6b owes its color entirely to coatings of ferromanganese oxides on the cobbles. The color is a metallic black with a "sheen", suggesting that manganese oxides dominate, rather than the more familiar rust-colored iron oxides. The oxides occur as continuous and near-continuous thin coatings on the gravel clasts, and as soft to moderately hard nodules formed within the matrix deposits. This is a striking and notable accumulation of secondary mineral deposits, and it is tempting to suggest great antiquity of soil formation, on the order, say, of thousands of years or more. But that would be premature, because much less is known about time as a factor in these sorts of pedogenic features, in general, and more local conditions may be at play, in particular, diagenetic processes associated with ground water flow, that are not related to surface soil phenomena. In either case, the gravel is almost certainly postglacial, and prehistoric.

Buried and Surface Site Potentials

Based on general geomorphological theory, and many specific Midcontinental studies, it can be hypothesized that the Little Schoharie Creek fan was largely emplaced in response to base level changes associated with the same terminal Pleistocene river incision event that left the terrace downstream. Thus it can be predicted that much of the Middleburgh fan is latest Pleistocene and Holocene and age, and that because of its size, the sedimentary bodies which comprise it forms a complex subsurface mosaic of Holocene deposits of varying ages. Because the fan complex has multiple feeder streams ranging greatly in size, it seems reasonable to

hypothesize at this time that some of the near-surface deposits are quite old, while others are quite young, and that the surface of the fan contains many surfaces of different ages. Thus we may potentially expect artifactual remains as old as the Archaic to be present in some surficial settings, but materials as old as the Paleoindian are likely to be buried beneath fan deposits.

In contrast, the Holocene deposits beneath the floodplain are relatively young, with much of the Archaic and the Paleoindian age surfaces and remains voided. Relatively thick sections of stratified alluvium spanning the Late Holocene, including buried soils and other geomorphic surfaces containing in situ remains, are of great archaeological interest. Also of interest is the fact that there is little or no historic sediment in the study area.

Recommendations

None of the trenches reach to the base of Holocene deposits, and so it is not really possible to know how the deposits exposed fit into the larger paleogeographic landscape. Even though the present-day floodplain surface appears monotonous, many studies show that similarly flat Holocene floodplains prove to be much more complex in the subsurface, that sedimentation rates at individual locales may have varied substantially, despite the whole system ultimately aggrading to the same level. By far, the best way to study the paleogeographic setting of archaeological remains in floodplain deposits is by coring. Coring is a quick and inexpensive way to sample soils and deposits, and to reach below water tables to obtain plant materials that allow the deposits to be dated. If the archaeological remains discovered in the Implement Trench are to be tested further, I would recommend that coring at and near the discovery site be undertaken, in order to gain a better understanding of the context of these remains.

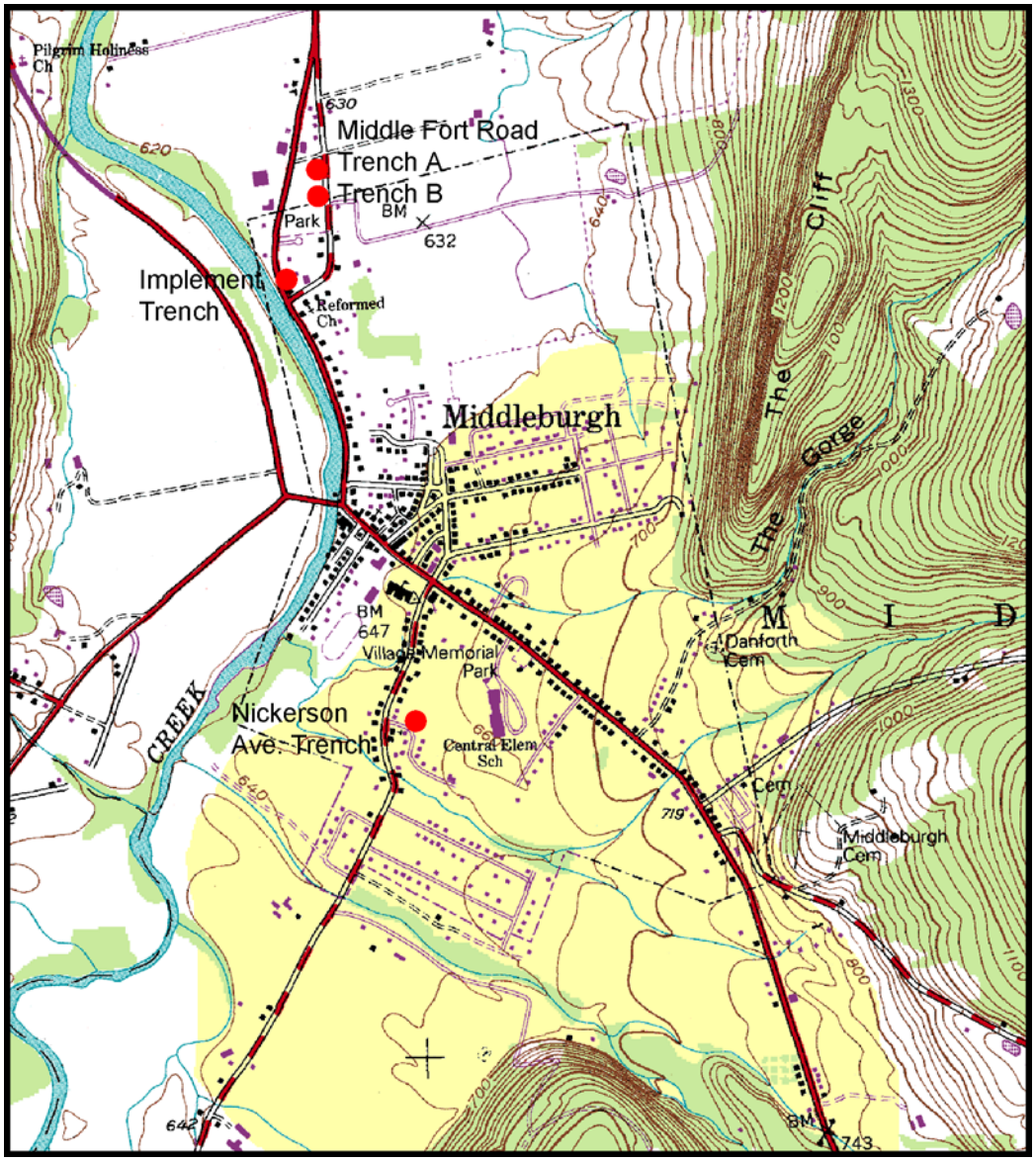
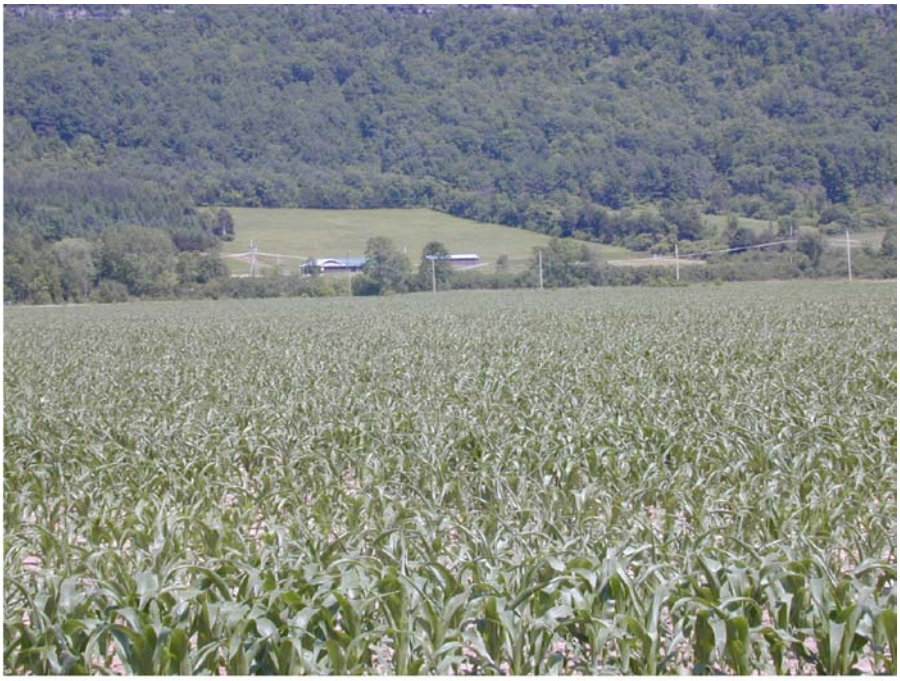


Figure 1. Portion of the USGS Middleburgh 7.5 minute topographic quadrangle showing the locations of the trenches mentioned in the text (modified from USGS GeoTIFF DRG 1:24000 Quad of Middleburgh Product:388279). Yellow shading shows the approximate limits of the large alluvial/fluvial fan complex that underlies Middleburgh.

Figure 2. Portion of a high altitude color infrared image showing the major geomorphological features of this reach of Schoharie Valley (USGS NAPP 8759-29, 30 April 1997).



(a)

(b)

Figure 3. The Holocene floodplain of Schoharie Creek east of the Middle Fort area. (a) The Middleburg Rod and Gun Club is situated on a Pleistocene terrace. (b) The tread and scarp of this terrace, as viewed north from the road leading to the Rod and Gun Club.

(a)

(b)

Figure 4. Trench exposures of near surface deposits below the Holocene floodplain in the Middle Fort Road area, near the pharmacy. (a) View to the east from Trench "B". Vast amounts of Holocene alluvium are stored beneath this surface. The farm and tree-line in the distance are near the scarp of the Pleistocene terrace. (b) A buried soil exposed in Trench "A".

(a)

(b)

Figure 5. Holocene alluvium exposed by trench excavation near the Implement store, Middleburgh, New York. (a) The site appears to be located on the north bank of a small tributary near its confluence with the Schoharie (arrows). (b) The A horizon thickens in the direction indicated by the arrow, suggesting the site is near a bank edge. Prehistoric chipped stone flaking debris was found in sub-plow zone contexts in this trench.

(a)

(b)

Figure 6. Fan deposits exposed along Nickerson Avenue, Middleburgh, New York. (a) View up the gently sloping fan from Nickerson Avenue. (b) Exposure of clast-supported fluvial gravel with in situ soil profile developed into it. The lower black horizon is due to near-continuous coatings of ferromanganese oxides on the cobbles.