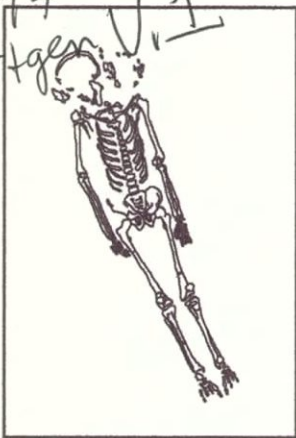
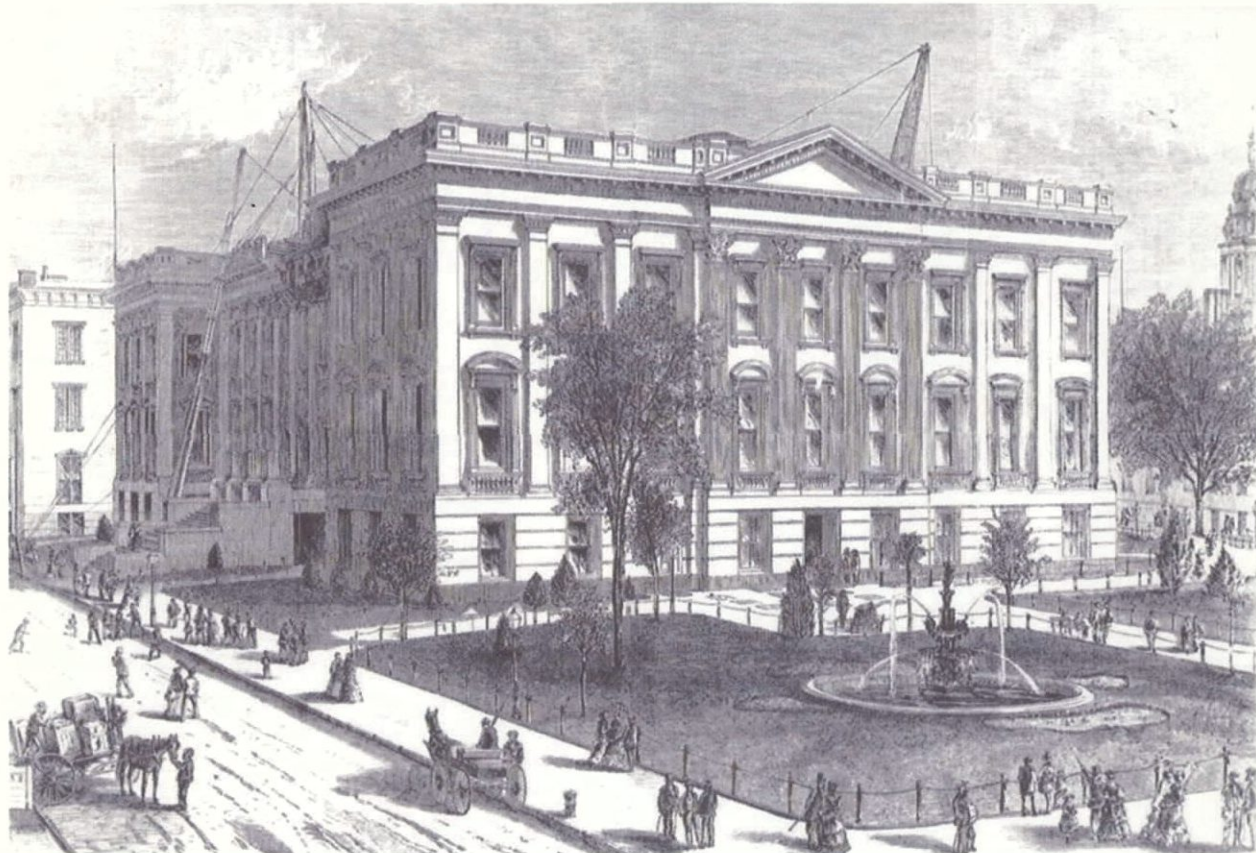


5497
Hartgen V.1



Tweed Courthouse Archeological Survey and Data Retrieval Investigations



Volume I



Submitted To:
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Color illustration of Second Almshouse and City Hall c. 1825 from the collections of
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Drawing of Tweed Courthouse from *Harper's Weekly*, Sept. 9, 1871.

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ABSTRACT

This report presents the results of the combined archeological monitoring, testing, and mitigation study conducted for the Tweed Courthouse renovation project located at 52 Chambers Street in the Borough of Manhattan, New York County (Map 1). This study was conducted in 2000 and 2001 for the New York City Economic Development Corporation (EDC) under the Landmarks Law of 1965 (New York City Charter Section 3020; Title 25, Chapter 3 of the New York City Administrative Code) and the 1977 City Environmental Quality Review Act (New York City Mayor's Executive Order No. 91).

In order to meet the objective of mitigating impacts to archeological resources on the Tweed Courthouse property, the recovery and analysis of artifacts, their context and distribution, and other pertinent data were necessary for an adequate evaluation and interpretation of the site prior to construction. All work conducted for this project followed the guidelines outlined in the 1994 NYAC *Standards for Cultural Resource Investigations and the Curation of Archaeological Collections in New York State* (New York Archaeological Council [NYAC] 1994).

The New York City Landmarks Preservation Commission's (LPC) assessment of archeological sensitivity for this project varied by location around the courthouse. Archeological sensitivity was primarily based on previous finds of intact burials and fragmentary human remains. All areas potentially containing human burials were considered to have a high archeological sensitivity. These areas were subject to the excavation of archeological test units prior to construction. Alternatively, areas known to be characterized by heavy disturbance were considered to have none to low archeological sensitivity. These areas were archeologically monitored with no formal testing prior to construction activities.

The research design for this project was guided by both the archeological sensitivity study and the construction plans for ground-disturbing activities surrounding the courthouse. Excavation was only required by the LPC in areas of project impacts. These areas included construction of new sidewalks, installation of uplights (ground lights which highlight the building's facade) and lampposts, a handicapped access ramp, pneumatic bollards at the courthouse entrances, two fire hydrants, and utility lines, such as electrical and waterlines. Formal archeological testing was required only in areas of high archeological sensitivity, while monitoring was used in areas of low sensitivity.

During the archeological fieldwork, 28 intact, partially intact, and heavily disturbed historic burials were identified within the boundaries of the project. All of the burials were identified on the north (Chambers Street) side of the courthouse. In addition to the intact burials, 16,626 disarticulated or disturbed human remains were identified and removed from the north, east, and south sides of the building and Chambers Street. The fieldwork also identified eight significant features including two stone foundation walls, a brick drain, a storm sewer or well, a privy, a brick wall, a cold storage shed, and a large ossuary-like deposit of disturbed human remains. Several of

these features were likely associated with the former almshouse building and/or military barracks that once stood on the courthouse property.

Several constraints limited the types of data that could be collected during this project. These constraints include the LPC policy stipulating that intact burials be left in situ; the fragmentary nature of the burials; the lack of artifacts included within the burials; and the lack of historic documentation clearly outlining burial grounds. However, the project did identify that, despite the amount of disturbance to the area, numerous burials still remain intact. Conclusions regarding the origin of the burials remain speculative, although it is known that they likely derive from one or more of three sources: the African Burial Ground (1712-1794), the First Almshouse (1736-1797), and burials of Revolutionary War prisoners (1776-1782).

While the Tweed Courthouse renovation project has been completed, there remains a high potential for uncovering additional intact cultural resources in this area. There is a particularly high potential for the presence of fragmentary human remains and intact burials including those already identified and protected during this project and others that may lie just outside the various boundaries of impact for the project. Several potentially intact burials were already observed in the walls of several construction trenches and test units excavated during this fieldwork. This investigation has confirmed that the potential for discovering other intact cultural features remains high as well. Based on these factors, it is recommended that if any further ground disturbance is proposed for the courthouse grounds, Chambers Street, or associated sidewalks, further archeological monitoring and testing should be required.

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INTRODUCTION

This report presents the results of the combined archeological monitoring, testing, and mitigation study conducted for the Tweed Courthouse renovation project located at 52 Chambers Street in the Borough of Manhattan, New York County (Map 1). This study was conducted for the New York City Economic Development Corporation (EDC) under the Landmarks Law of 1965 (New York City Charter Section 3020; Title 25, Chapter 3 of the New York City Administrative Code) and the 1977 City Environmental Quality Review Act (New York City Mayor's Executive Order No. 91). The EDC was required to mitigate impacts to archeological resources identified on this property since Tweed Courthouse is located within the landmarked African Burial Ground and Commons Historic District regulated by the New York City Landmarks Preservation Commission (LPC), and because as a city agency, the EDC is required to follow CEQR regulation.

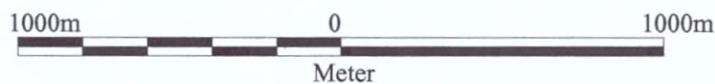
In order to meet the objective of mitigating impacts to archeological resources on the Tweed Courthouse property, the recovery and analysis of artifacts, their context and distribution, and other pertinent data were necessary for an adequate evaluation and interpretation of the site prior to construction. All work conducted for this project followed the guidelines outlined in the 1994 NYAC *Standards for Cultural Resource Investigations and the Curation of Archaeological Collections in New York State* (New York Archaeological Council [NYAC] 1994).

PROJECT INFORMATION

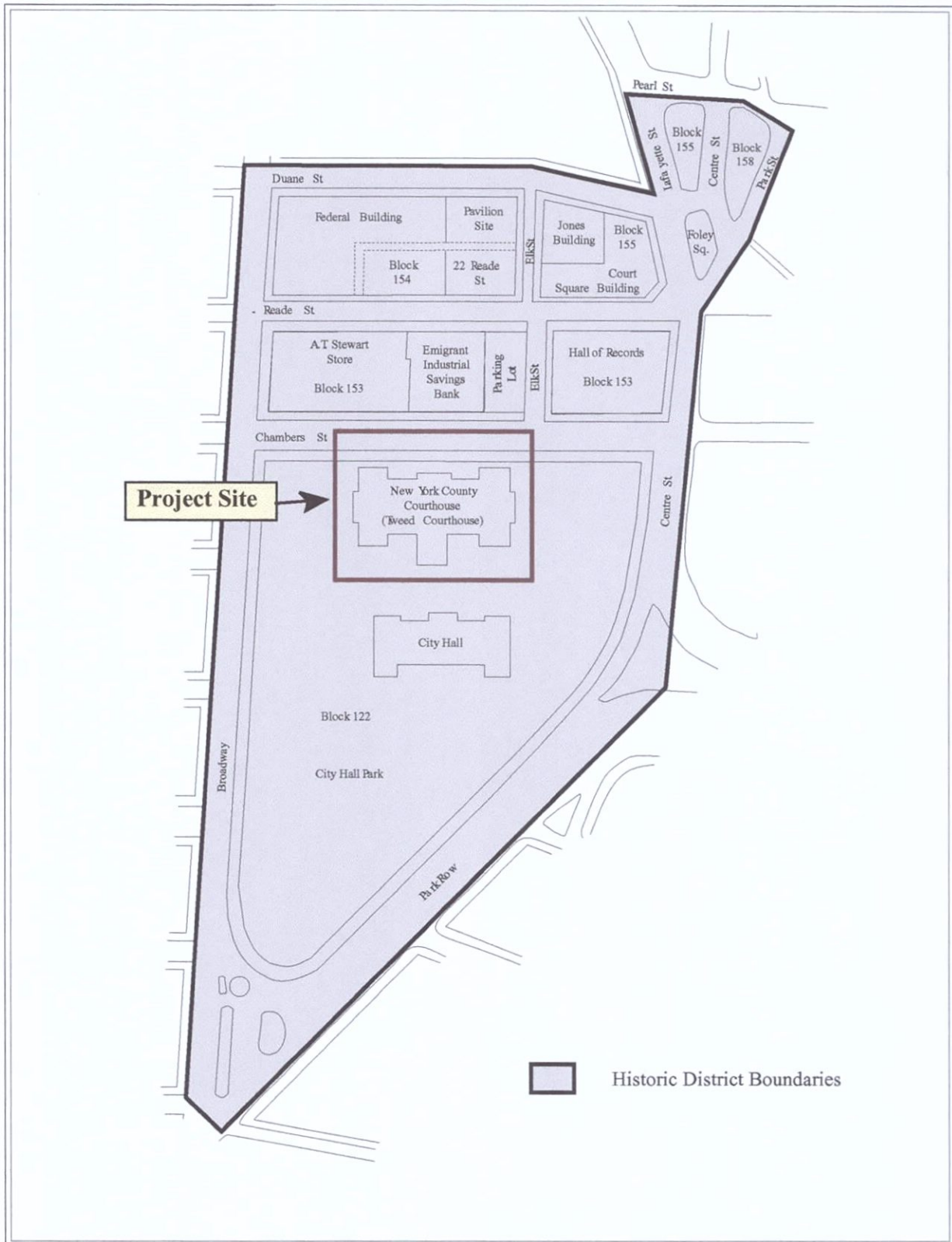
In 1999, the City of New York directed the EDC to proceed with the restoration of the Tweed Courthouse. This work included ground-disturbing activities that had the potential to impact significant historical resources. The courthouse is located within the African Burial Ground and Commons Historic District (Map 2), a designated New York City historic district.

The Tweed Courthouse property, as well as Chambers Street and adjacent public sidewalks, are characterized by high sensitivity for the presence of historic cultural resources, particularly human burials. During previous construction in this area in the 1980s and 1990s, several historic burials as well as disturbed human remains were identified beneath Chambers Street, the south sidewalk, the grounds of the courthouse, and in the surrounding park area.

Hartgen Archeological Associates, Inc. was hired to conduct archeological monitoring and excavation work on the courthouse grounds, the public sidewalk on the north side of the building, and beneath Chambers Street itself. The fieldwork was carried out in April, September, and October of 2000 and from June through November 2001. As required by the LPC, due to the high potential for the presence of human remains and intact burials, Carol A. Raemsch, Ph.D., bioarcheologist, was Project Manager and Field Director for all of the archeological site work. Karen S. Hartgen, R.P.A. was the Principal Investigator.



MAP 1
Location of Tweed Courthouse
1979 USGS *Central Park* and 1981 *Weehawken*
7.5' Topographic Quadrangles



MAP 2
2002 NYC Landmarks Preservation Commission
Boundaries of the African Burial Ground
and the Commons Historic District

ENVIRONMENTAL CONTEXT

The Tweed Courthouse is situated approximately one-half mile west of the East River and one-half mile east of the Hudson River in downtown Manhattan in New York County. Manhattan is located within the Southern New England physiographic province, nearly one-third of which consists of urban land. Approximately one-quarter of this province is agricultural land, including eastern Long Island, northern New Jersey, and the Connecticut River Valley. Forested areas include a mixture of oak-hickory and other hardwoods, white pine-red pine forest, and pine-oak woodlands or barrens (United States Department of the Interior Bureau of Land Management 2002). The project area is in an urban park setting with some tree cover including flowering trees and evergreens in the adjacent City Hall Park.

Topography in the area of the project ranges from 20-30 feet (6-9 m) above mean sea level. The project area itself is characterized by level topography with an elevation of approximately 30 feet (9 m) above mean sea level. Underlying bedrock in this area consists of Middle Ordovician through Lower Cambrian age eugeosynclinal (rise-rock) thrust sheets intensely deformed with carbonate slivers along faults (Fisher et al. 1971). Riverhead soils are found in the vicinity of the proposed project area. The Riverhead soil series consists of very deep, well-drained soils formed in glacial outwash deposits primarily from granitic materials. These soils are found on outwash plains, valley trains, beaches, and water-sorted moraines. Slopes range from 0-50 percent (United States Department of Agriculture 2002).

HISTORIC CONTEXT

Previous studies (LPC 1993; Hunter Research, Inc. 1994) have summarized the background of the historic commons area, within which the current project is located. A general history of the area is summarized here followed by a more detailed history of the site area itself.

Early New York

Following Henry Hudson's arrival in 1609, the New York City area transformed into a primarily European settlement rather quickly. The first permanent settlement on Manhattan (New Amsterdam) was established by the Dutch in 1624 on the southern tip of the island. The Dutch established a variety of settlements in New Amsterdam including isolated farms, nucleated farm villages, and large plantation-like estates (Cantwell and Wall 2001:259). By 1639, Dutch plantations lined the East River and other land purchases extended settlement to the western end of Long Island. Settlement in Queens began c. 1635, and in 1642 three villages were joined to form "Breukelen" (Hombberger 1994:30). By 1643, the colony had a population of about 400-500 and had "a flour mill, two saw mills, a shed for shipbuilding, goat pens, a local midwife, a church, and a bakery" (Hombberger 1994:28).

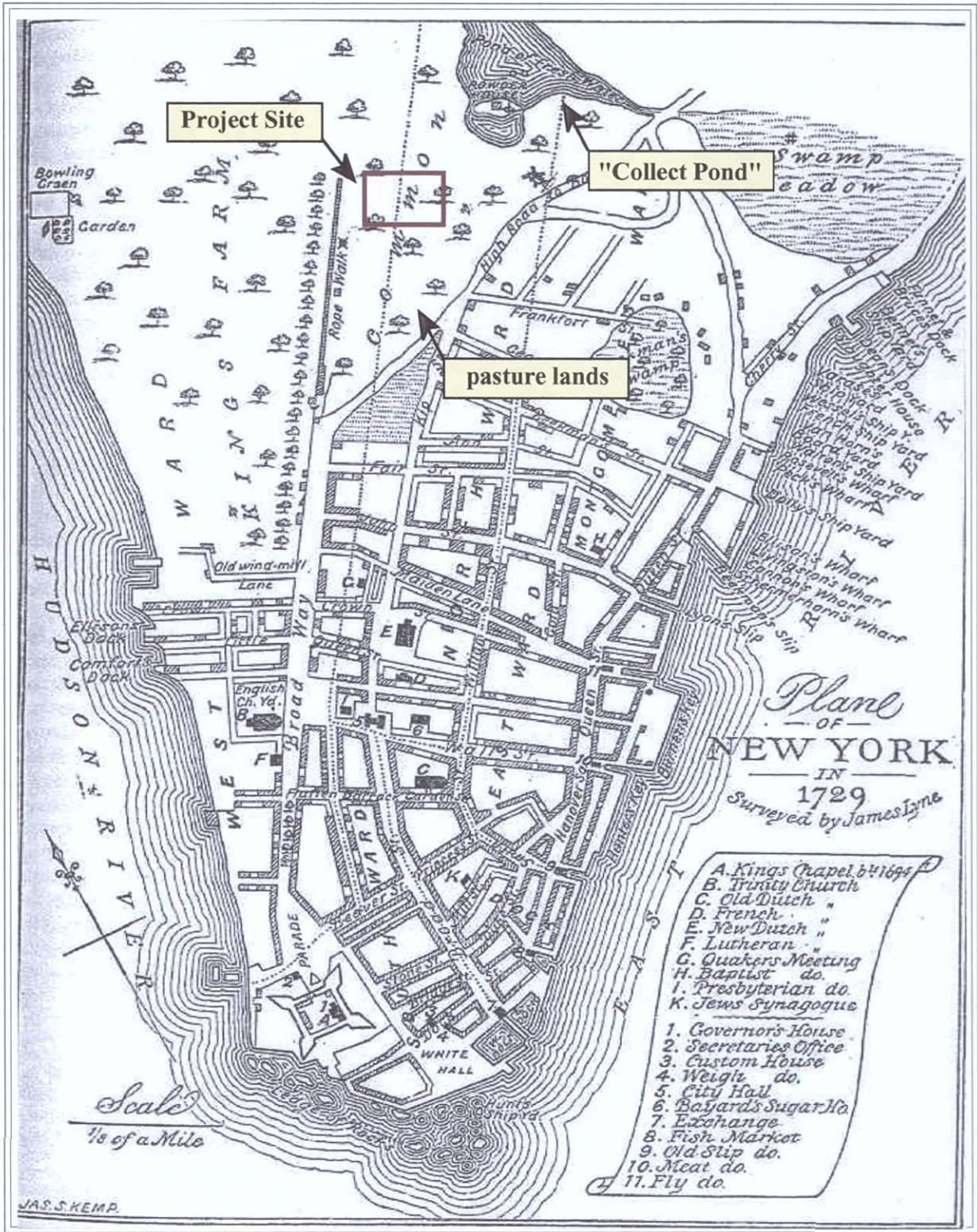
The Commons and City Hall Park

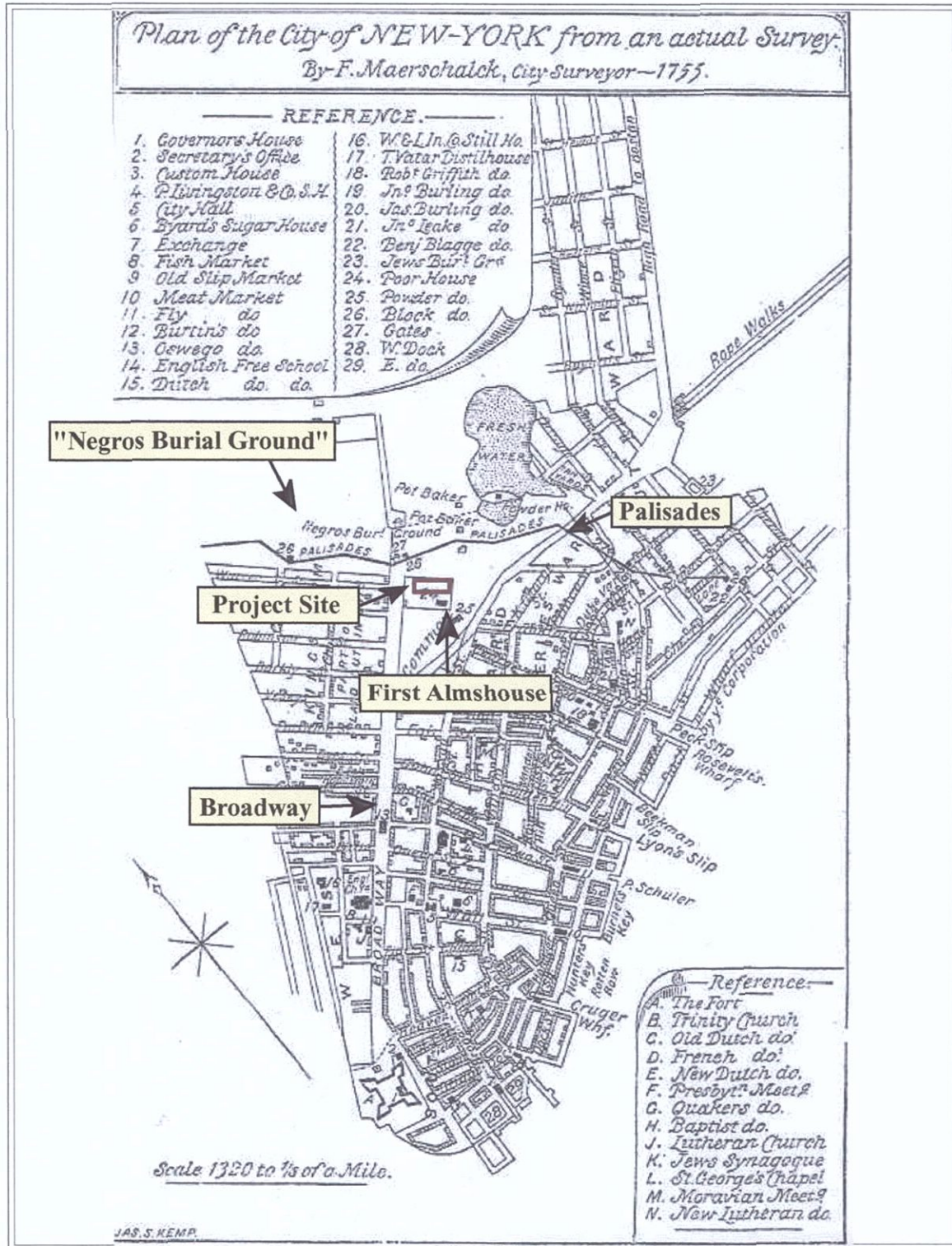
By 1660, colonial herdsmen were employed to maintain a triangular piece of pastureland near today's Chambers Street in a ravine leading east-northeast from Broadway (Map 3). The pastures were located near what was called Collect Pond (LPC 1993:5), a deep spring-fed pond that provided early New Yorkers with drinking water into the 1800s (Koeppel 2000:11). This communal pastureland encompassed the area which is now City Hall Park. The area later became known as "the Commons" where, by the 1720s, various civic activities such as executions, parades, mass meetings, and the construction of several institutions occurred. The City Hall Park portion of the commons was "one of the city's earliest gathering places where the community assembled for both celebration and protest" (LPC 1993:3).

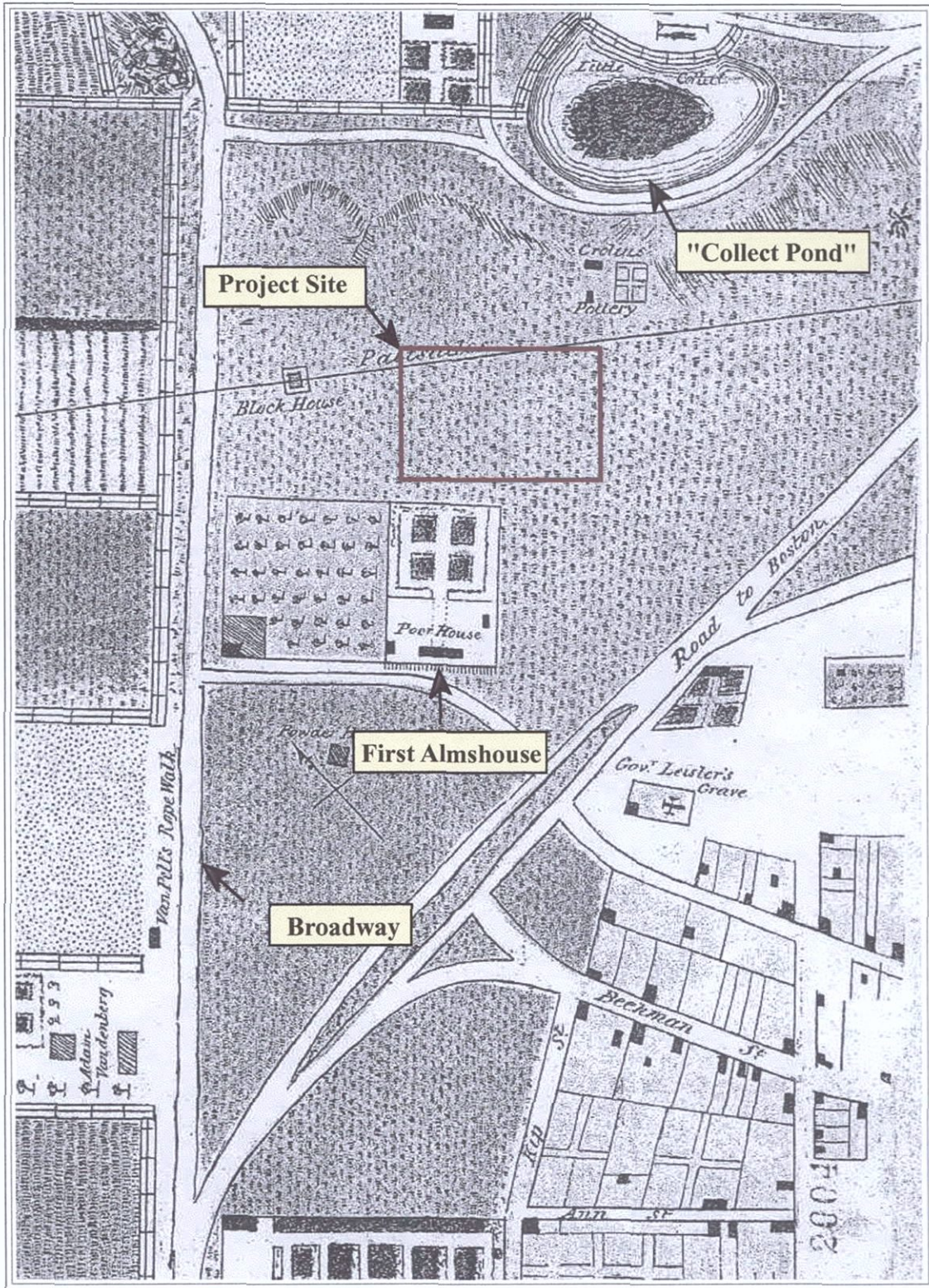
The African Burial Ground and the Commons Historic District (designated in 1993) makes up a large portion of the commons area. The burial ground used in the 18th century and possibly as early as the late 17th century was located in the northern segment of the commons in the several blocks north of the courthouse (Map 4). New York City's First Almshouse (1735) was built in the southern part of the commons (south of the burial ground) where City Hall stands today (Map 5). By the mid-18th century, the commons "became more firmly established as the appropriate site for the location of welfare and punitive institutions at the northern edge of the city with the construction of the "New Gaol" in 1757-1759 and the Bridewell for vagrants in 1775" (LPC 1993:3). The military used the northern commons area (the area where Tweed Courthouse now stands) to build a palisade with blockhouses and barracks in use from 1757-1790 (Maps 4, 6, and 7). The First Almshouse was demolished in 1797, and a second was built in 1796-1797 in the northern area of the commons, again in the vicinity of Tweed Courthouse (Map 8). Areas surrounding these buildings and features were used as burying grounds for these various institutions.

The exact locations of cemeteries associated with these institutions were not recorded on any surviving historic maps. However, as described in Inskeep (2000:6), the records of the New York City Common Council indicate that a small burial ground was established in 1757 "to the eastward of and adjoining to the fence of the said workhouse of the length of two boards to be enclosed and fenced in for a burial place for the poor belonging to the said workhouse." In August of 1785, the City Council designated a piece of ground behind the barracks as a burial ground for the Almshouse and Bridewell dead. In December 1785, a committee charged with finding a proper place for the burial ground suggested that it would be more economical to build "two large vaults in the back of the Almshouse garden" (Inskeep 2000:6).

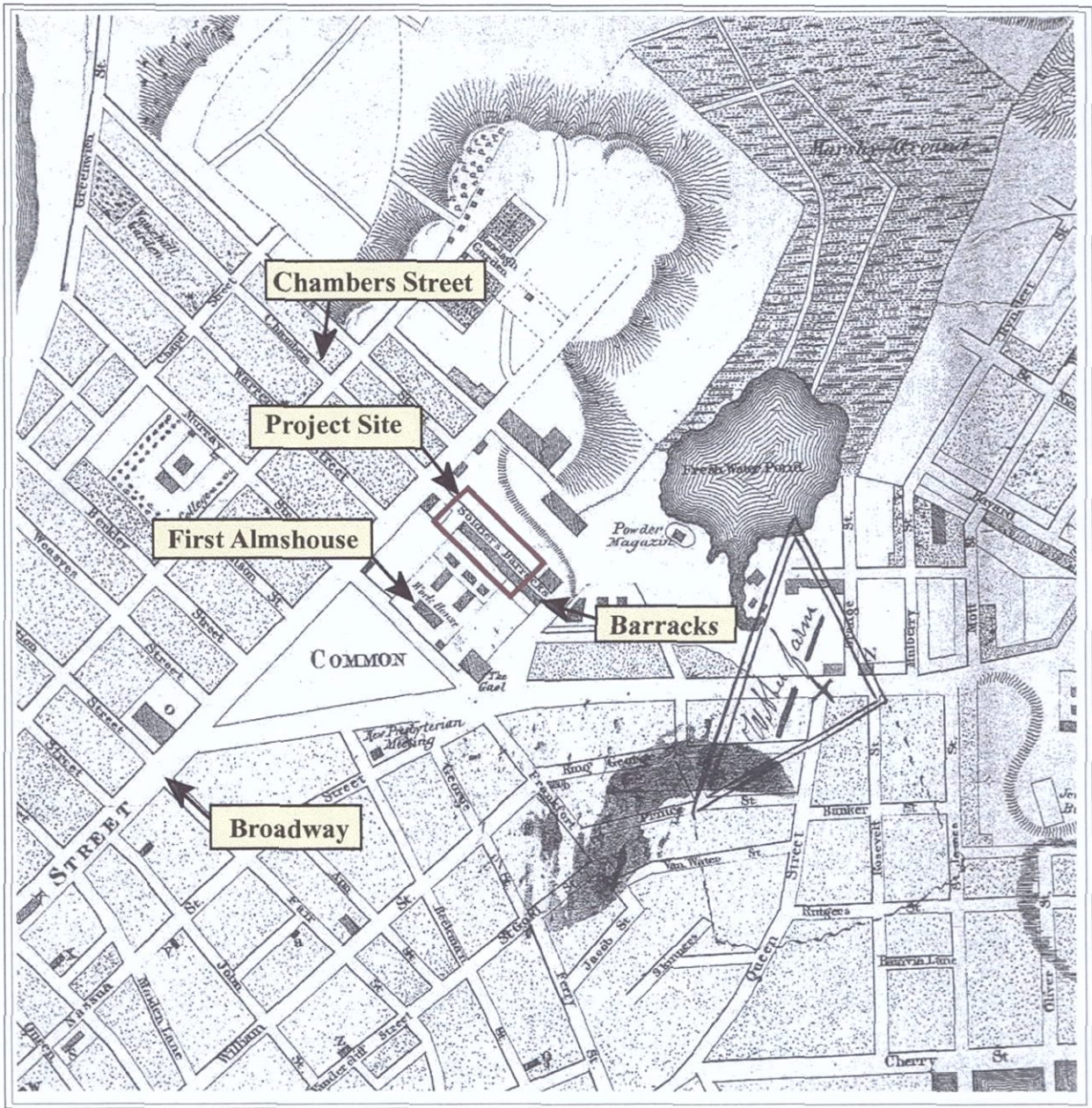
By the end of the 18th century, the commons area was transformed into the seat of local government with the building of City Hall in 1803. In addition, the area was divided into lots for the development of various buildings. Chambers Street, built in 1796, over took a portion of the African Burial Ground, as noted in the city's Board of Alderman records which explicitly state that "on or



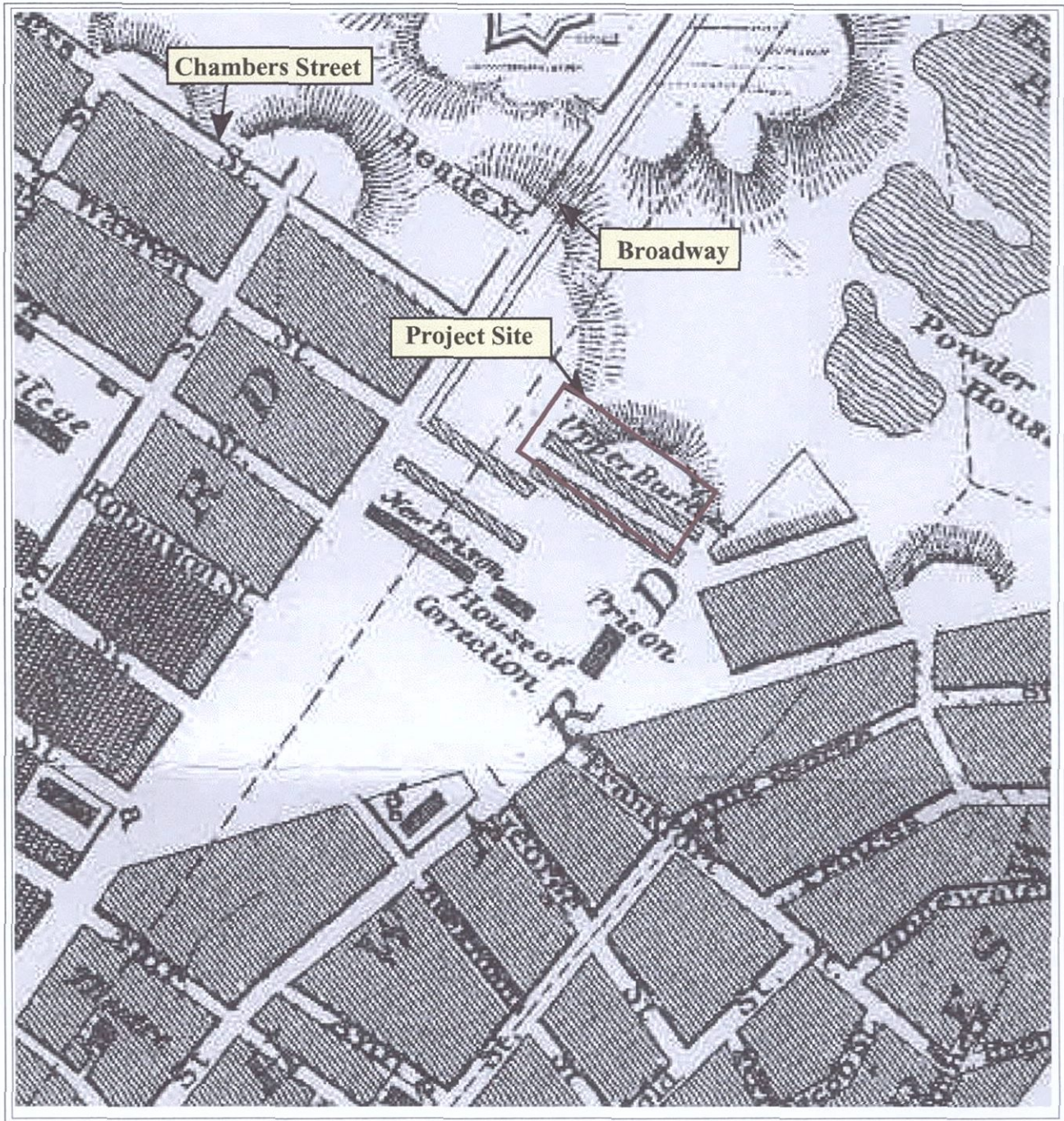




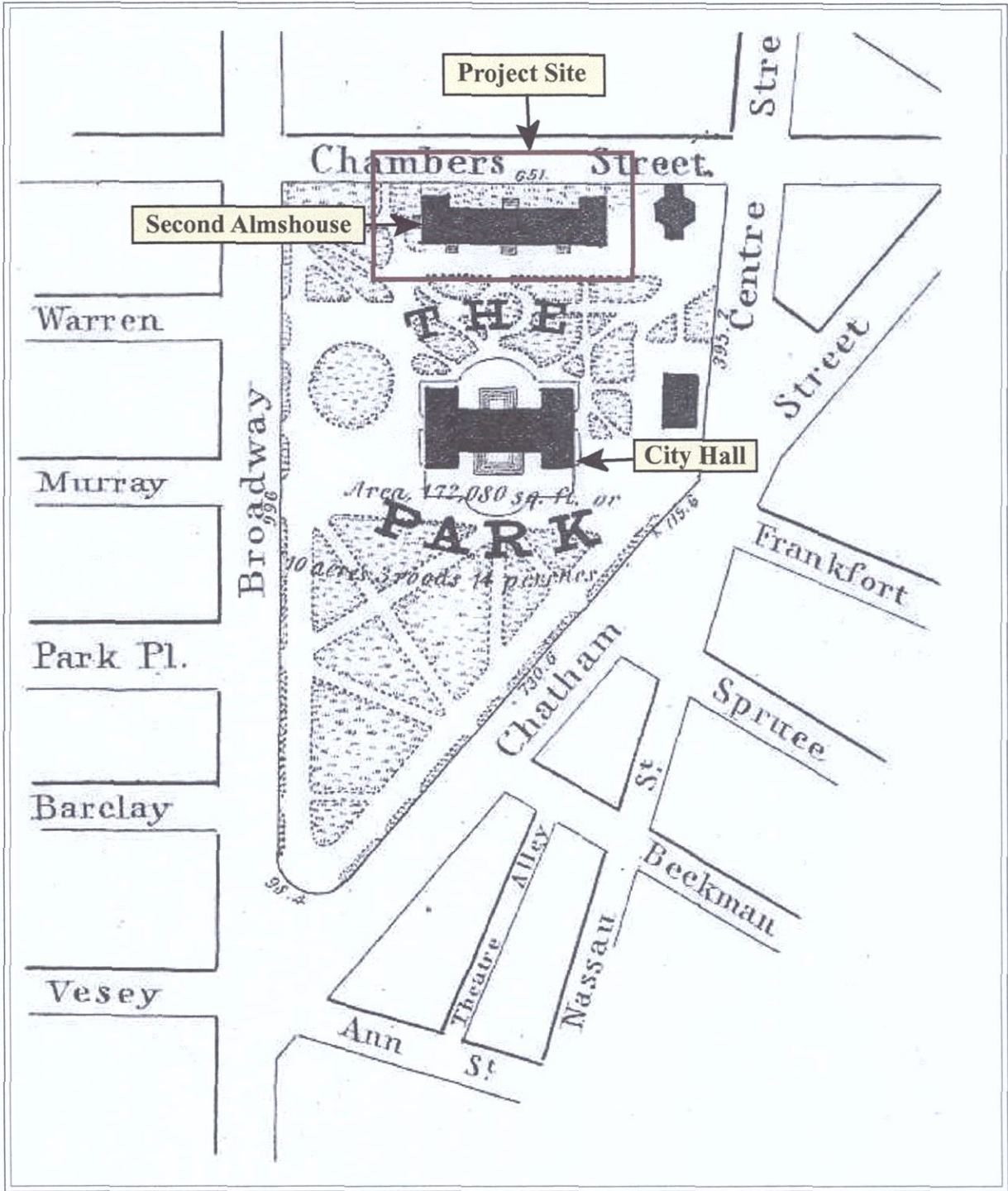
MAP 5
1813 Grim
Part of New York in 1742



MAP 6
1776 Holland
Plan of the City of New-York



MAP 7
1782 Hills
City of New York



MAP 8

1838 Nicholson
The Second Almshouse, City Hall, and the Park



about 1792, in opening Chambers-street, it passed through the burying ground of the Africans” (City of New-York 1833, Document 76:391). The remainder of the burial ground was built over during the 19th century (LPC 1993:4).

The Second Almshouse remained as such until 1816, when it became the New York Institution, a home for various cultural institutions including the Academy of Arts, the Literary and Philosophical Society, the New-York Historical Society, the New York Society Library, and John Scudder’s American Museum (Fig. 1). In 1830, the building was converted into offices and courtrooms and was later demolished in 1857, just a few years before the construction of the Tweed Courthouse. Map 9 shows the placement of the courthouse building along Chambers Street.

In 1830, the jail was remodeled to become the Hall of Records. This building was later demolished in 1903. Several other buildings were built in this area in the 19th century including the New York County (Tweed) Courthouse (1861-1881) and the U.S. Post Office (1870-1875), which no longer stands.

Given this information, it is clear that this area “has undergone intense public use since the mid-seventeenth century, resulting in the overlay of many significant historic improvements and resources—both above ground and below—all of which document the changing nature of this important area long devoted to communal, public, and civic purposes” (LPC 1993:3).

Tweed Courthouse

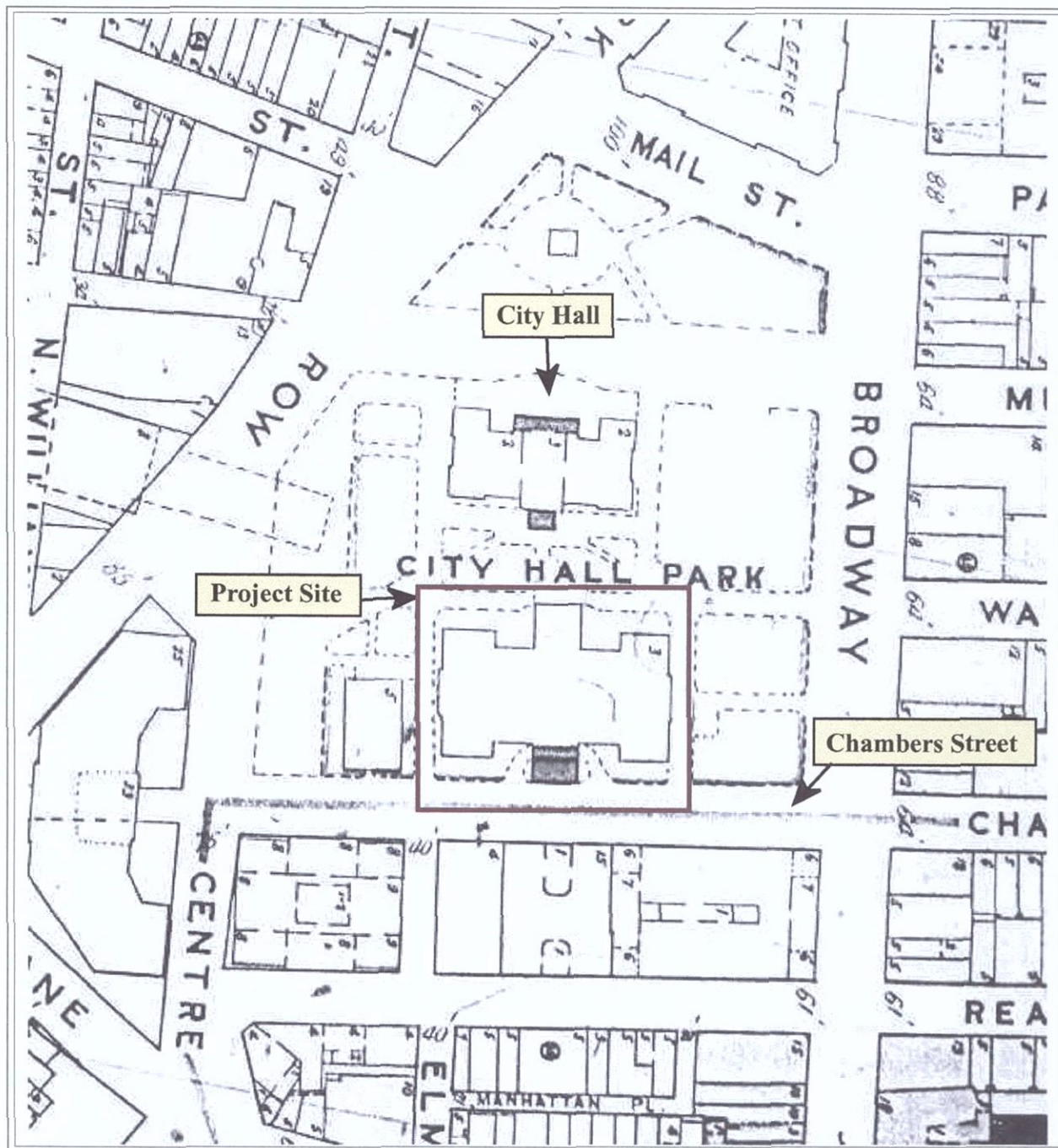
Tweed Courthouse, historically the New York County Courthouse, is considered one of New York City’s greatest civic monuments, as well as one of the most architecturally significant public buildings constructed in the third quarter of the 19th century (John G. Waite Associates [JGWA] 2001:3). The courthouse was built over a period of 20 years between 1861 and 1881 by John Kellum and Leopold Eidlitz, two of New York’s most prominent 19th-century architects (JGWA 2001:3). Built of New York and Massachusetts marble, the courthouse is a unique blend of Kellum’s neoclassical and Eidlitz’s Romanesque styles. The building was listed on the National Register of Historic Places in 1974 and designated a National Historic Landmark in 1976.

Originally, construction of the building (Figs. 2 and 3) was controlled by Tammany Hall boss William M. Tweed, notorious for his corrupt political machine. Construction of the courthouse was highly controversial as it took 20 years, two architects, and over \$15 million to complete. The corruption associated with the building of the courthouse was exposed in 1871, and the courthouse became a classic symbol of the Tweed corruption (JGWA 2001:6).

Once completed in 1881, the building served as the county courthouse until 1929, a city court until 1961, then as a family court and later as city offices (JGWA 2001:7). The courthouse was threatened with demolition several times including as recently as the 1970s. Under the direction of the New York City EDC, John G. Waite Associates Architects began extensive renovation of the



Figure 1. View east from Broadway of the American Museum (formerly the Second Almshouse), the Gaol (later the Hall of Records), and City Hall in 1825. From the collections of The Museum of the City of New York.



MAP 9
1913 Sanborn
Map showing Tweed Courthouse, City Hall and the Park

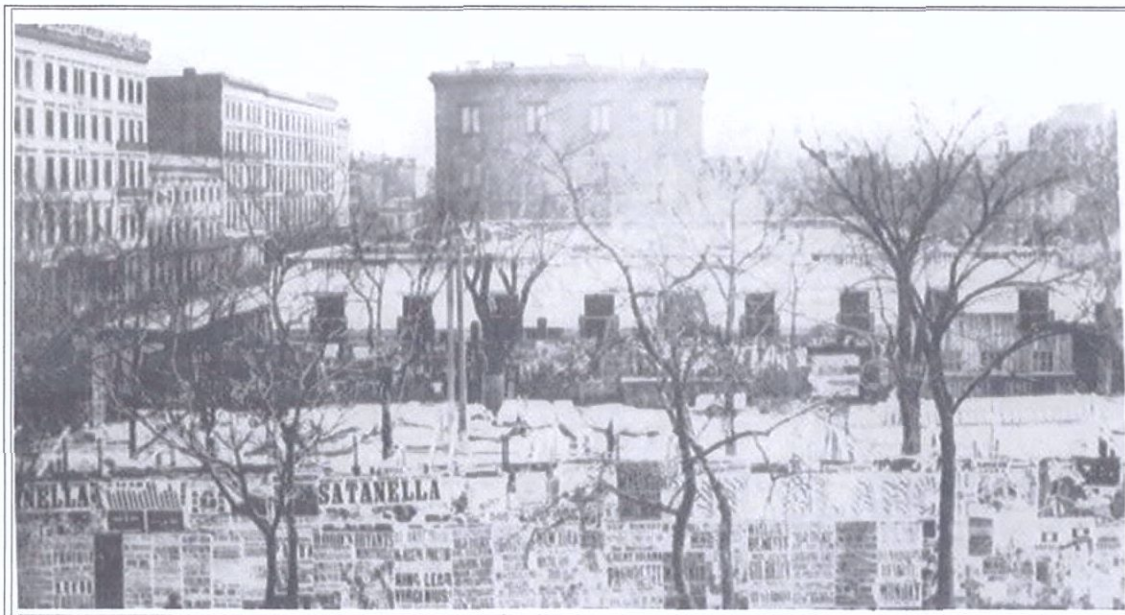


Figure 2. View east of the early stages of Tweed Courthouse construction, c.1863. Chambers Street is on the left. From the Collections of The New-York Historical Society.

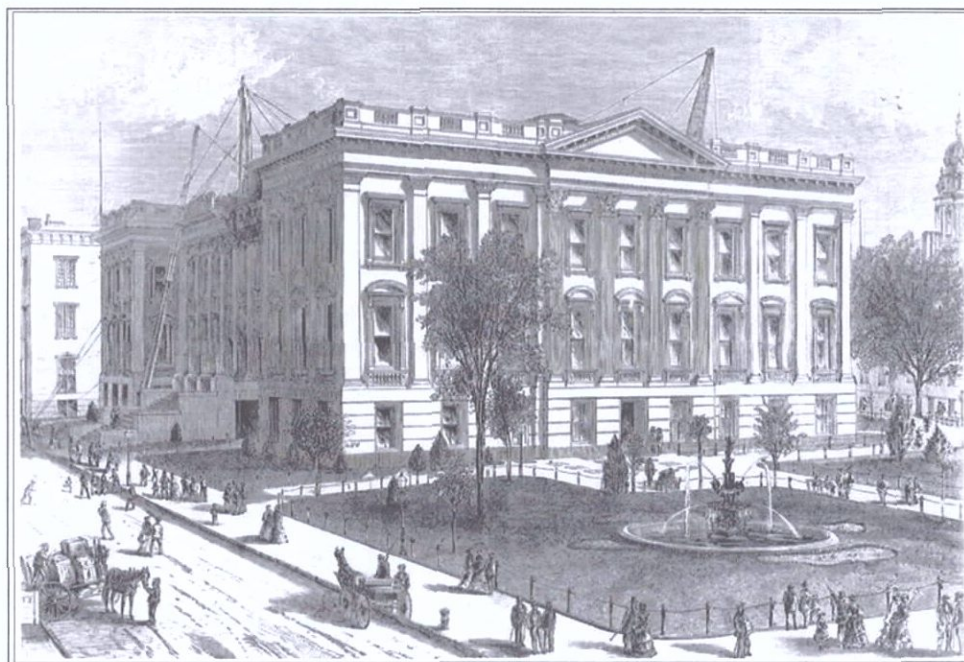


Figure 3. An illustration of Tweed Courthouse still under construction in 1871. From *Harper's Weekly*, Sept. 9, 1871.

building in 1999. The restoration was completed in late 2001, and the building now serves as the home of the Board of Education and other city offices.

PREVIOUS CULTURAL RESOURCE STUDIES IN THE VICINITY OF TWEED COURTHOUSE

Several previous archeological investigations were conducted within the African Burial Ground and the Commons Historic District, as well as the immediate bounds of the Tweed Courthouse 2000-2001 project. Since a formal sensitivity study (Hunter 1994) and various other publications (e.g., LPC 1993) have summarized previous archeological work in this area (see discussion below), only those investigations that overlap with the Tweed Courthouse project area are discussed within this report.

Utility corridor between City Hall and Tweed Courthouse

In 1988, preliminary field testing of a utility corridor between City Hall and Tweed Courthouse (Grossman and Associates, Inc. 1988) identified a partial brownstone wall apparently associated with an 18th-century building. In 1989, the City Archaeology Program of the LPC and the Brooklyn College Summer Archaeological Field School undertook a mitigation study of this site. This portion of the site is located in the southern section of the utility corridor closer to City Hall than to the courthouse (Baugher and Lenik 1997:3, Fig. 2). This work uncovered nearly 7,000 artifacts including ceramics, glass, smoking pipes, and metal materials and over 4,000 faunal remains (Baugher et al. 1990). One thousand thirty-seven artifacts were identified as being associated with the 18th- century First Almshouse (1736-1797). Within a concentrated deposit of building debris, five large sections of intact brick wall were identified within the utility corridor. No wells, cisterns, or privies, outbuildings or other features were identified within this corridor (Baugher and Lenik 1997:12). Based on the size of the foundation walls and the contents of the associated deposits, these structural remains were most likely a kitchen structure associated with the almshouse rather than the almshouse itself (Baugher and Lenik 1997:19).

Con Ed electrical conduit trench, Chambers Street

In 1993, Con Ed excavated a backhoe trench in Chambers Street in front of Tweed Courthouse for the purpose of installing electrical lines. During this excavation, human remains were discovered. Hunter Research, Inc. (Hunter) was called in to monitor the excavations and extract human remains from the backdirt piles. No intact or partially intact burials were identified and no intact crania or long bones were recovered (Hildebrant 1994). It was estimated that about one dozen individuals (including both children and adults) were represented by the remains recovered from the Con Ed trench. No other features were identified, but 4,576 artifacts were recovered from the trench fill.

Chambers Street backhoe trench

In 1994, Barbara S. Hildebrant, M.A., conducted archeological investigations in association with a 60 foot (18.3 m) backhoe trench excavated in Chambers Street in front of Tweed Courthouse. The trench was 10 feet (3.05 m) wide and 10 feet (3.05 m) in depth. Human remains were identified only in the back dirt soils. No intact or partially intact burials were identified, and no intact crania or long bones were recovered. Based on the remains identified, it was estimated that a minimum of 12 individuals was represented by the remains. This estimate includes two individuals under the age of 20 years. No other cultural features were identified during this investigation.

Tweed Courthouse to Broadway electrical conduit trench

In 1994, Barbara S. Hildebrant, M.A. conducted archeological investigations for the City Hall Park electrical conduit trench from Tweed Courthouse to Broadway (Hildebrant 1995). The 120 foot (36.6 m) trench extended from the west side of the courthouse west through the northwestern quadrant of the park to Broadway. Only one possible 18th-century feature, a segment of a wall foundation, was observed during the project. Predominantly late 18th- to early 19th-century cultural materials were identified within the fill deposits. These materials reflect the more intensive domestic and military use of the commons area in the period between c. 1750 through 1850 (Hildebrant 1995:5-2). No human remains were identified during this project.

31-52 Chambers Street utility trench

From October 1995 through June 1996, Linda Stone, M.A., conducted archeological monitoring, testing, and mitigation studies within the 31-52 Chambers Street utility trench project (Stone 1997). Excavations followed the path of the 1916 clay pipe trench with the intention of minimizing impacts to potential archeological resources. Additional work was also conducted outside of this trench. The trench began at the Surrogate's Court building at 31 Chambers Street and continued south to the northeast sidewalk of the courthouse, west to the eastern side of the Tweed driveway, south along the driveway and west again into the Tweed east door. The study identified 64 fragments of human remains. No intact burials were identified. Also identified were 931 faunal bones and 1,015 diagnostic artifacts. Three features including a footing, decomposing marble, and a brick vault were identified. The first two features were identified as part of the Second Almshouse (1796-1854). The brick features were likely part of a warehouse from the second half of the 19th century.

Chambers Street water main

In October 1998, excavations by the Department of Environmental Protection for a water main break in Chambers Street revealed the presence of fragmentary human remains within historic fill deposits excavated from several utility trenches. Kise Straw & Kolodner Inc. (KSK) and The Public Archaeology Laboratory (PAL) were hired to recover the remains and to monitor additional DEP excavations in this area (KSK 2000). Of four trenches excavated during this work, human remains were identified only in the Elk Street Trench. The recovery effort revealed 2,108 human bones and bone fragments, all within a discrete deposit at a depth of approximately four feet below

street grade. Analysis of the remains indicated that at least ten individuals were represented by the remains, which were highly fragmentary and poorly preserved. The sample included both adults and children. KSK hypothesized that the remains originated from redeposited fill from the City Hall Park area (2000:15). No intact burials or other significant intact cultural features were identified during the investigation.

City Hall Park 1999 excavations

In 1999, Parsons Engineering Science, Inc. (PES) conducted archeological investigations in City Hall Park prior to the park restoration project. The project identified over two dozen burials as shallow as six inches below the ground surface, as well as scattered fragmentary remains. Burials were found in the northwest corner of the park at Broadway and Chambers Street and in the northeast corner east of Tweed Courthouse a few yards from the subway entrance. Several ossuary-like burial pits were also identified including one containing at least a dozen infants and three pits with the remains of at least a dozen adults each (Anderson 2001). The results of the artifact assemblage have not been published yet, as analysis of the materials is currently underway at Brooklyn College. However, a preliminary report of the burials was completed by London and Jones in 2000.

London and Jones (2000) reported finding at least six intact or partially intact burials, two ossuary-like burial pits, and scattered remains in at least 22 additional locations. Three intact burials were identified in the northwest quadrant of the park, including one (PES Feature 45) which was reexcavated by HAA, Inc. (HAA Burial 26) during the 2001 investigations at Tweed Courthouse. Two ossuary-like burials were identified in the northeast quadrant of the park, one of which was identified along the west drive of Tweed Courthouse beneath a large tree. HAA, Inc. also identified additional remains from this feature (PES Feature 137; HAA Unit 48) in 2001. The PES study of this feature identified a minimum of 21 individuals (18 adults and 3 children). The second deposit of commingled remains contained at least one male adult and the remains of 23 children, mostly under the age of five years. The partial remains of as many as 37 more individuals were identified in 22 other locations throughout the park during this excavation. More details of this investigation will be provided in Marilyn London's final report.

SENSITIVITY ASSESSMENT

An archeological sensitivity assessment of the African Burial Ground and Commons Historic District, which includes the Tweed Courthouse property, was completed by Hunter Research, Inc. (Hunter) in 1994. The sensitivity study followed the formal designation of the area as a landmark district in 1993 in order to provide a planning and review tool for planners and the LPC (Hunter 1994:1). Given the high sensitivity of this region for the presence of archeological resources, including historic burials, formal review by the LPC of all ground disturbing activity within the district was required from this point forward.

While the initial designation report for the district provided basic background information concerning potential historic and archeological resources throughout the area (LPC 1993), a more extensive assessment was completed in order to provide details regarding the location of all potential cultural resources identified through historical documents, such as historic maps and photographs,

city records, institutional records; personal accounts, such as journals; and previous archeological investigations.

The Hunter (1994) study was reviewed prior to HAA, Inc.'s fieldwork in order to identify potential historic archeological resources within the Tweed Courthouse project area. This review identified over two dozen potential historic resources in the form of archeological features, such as privies, building remains, streets, historic utility trenches, as well as human burials. Appendix 1 includes the LPC maps suggesting the former location of various structures in the vicinity of Tweed Courthouse. While all of these resources occur somewhere within the bounds of the Tweed Courthouse property and/or Chambers Street, in many cases it is unknown exactly where they are located, and for several it is speculated that they were destroyed by construction of 19th - and 20th - century buildings, utilities, and/or the subway system.

The sensitivity assessment completed by Hunter (1994) and the recommendations of the LPC prior to HAA, Inc.'s fieldwork established the field methods and research design used throughout the project. As summarized above, the Tweed Courthouse property, adjacent sidewalk, and Chambers Street are considered highly sensitive for the presence of archeological resources including both primary (or intact) burials and fragmentary remains (or secondary burials) dating from the late 18th to the early 19th century. According to the LPC standards, primary burials are "burials which have not been disturbed since interment or which have been only potentially disturbed" (LPC 2002:17). These burials "may contain remains of coffins, complete skeletons, and artifacts associated with the burial, such as shroud pins, buttons, or jewelry" (LPC 2002:17). Fragmentary remains are defined as disarticulated bones and bone fragments (LPC 2002:17). These are also called secondary burials since the remains were either intentionally or inadvertently displaced from their original context or place of burial.

LPC's assessment of archeological sensitivity for this project varied by location around the courthouse. Archeological sensitivity was primarily based on previous finds of intact burials and fragmentary human remains. All areas potentially containing human burials were considered to have a high archeological sensitivity. These areas were subject to the excavation of archeological test units prior to construction. Alternatively, areas known to be characterized by heavy disturbance were considered to have none to low archeological sensitivity. These areas were archeologically monitored with no formal testing prior to construction activities.

RESEARCH DESIGN AND RESEARCH QUESTIONS

The research design for this project was guided by both the archeological sensitivity study and the construction plans for ground-disturbing activities surrounding the courthouse. Excavation was only required by the LPC in areas of project impacts. These areas included construction of new sidewalks, installation of uprights (ground lights which highlight the building's facade) and lampposts, a handicapped access ramp, pneumatic bollards at the courthouse entrances, two fire hydrants, and utility lines, such as electrical and waterlines. Formal archeological testing was required only in areas of high archeological sensitivity, while monitoring was used in areas of low sensitivity.

Several research questions for this project were developed prior to the field study and were based primarily on Hunter's (1994) sensitivity study. Due to the nature of the project (primarily monitoring and testing rather than a well-defined mitigation study), only generalized research questions were developed prior to the fieldwork. These questions include:

- Are archeological resources located within the project site? Specifically, are human burials located within the project area? If so, are the burials primary, secondary, or both?
- If burials are secondarily deposited, what caused the disturbance and when? How many individuals are represented in the deposits?
- If primary burials are present, what is the range of burial forms and types? Do all burials originate from the same cemetery and time period? Are all demographic categories (i.e., adults, children, men, and women) included in the cemetery?
- Are features associated with other historic uses of the property present and intact on site? If so, what are they and to what time period do they date?

The methods employed during the Tweed Courthouse fieldwork were designed to address these research questions.

FIELD METHODS AND COLLECTION PROCEDURES

Methods of investigation

The field methods utilized for the Tweed Courthouse archeological work were determined by the LPC based on prior information concerning archeological sensitivity around the courthouse property. In certain areas of impact, LPC required archeological monitoring only, while in other areas the excavation of archeological test units was required prior to any ground-disturbing activities. When significant resources were identified, archeological mitigation measures were employed in order to document and remove the resources, or in the case of intact burials, measures were taken to protect the resources from further disturbance. The two work scopes developed for the 2000 and 2001 fieldwork are included in Appendices 1 and 2.

In archeologically sensitive areas, LPC required that all excavation of soils be done by hand. In 2000, excavation was primarily completed by construction laborers with no archeological experience. When significant resources were identified, HAA, Inc. stopped the excavations temporarily in order to investigate the find, but in most cases excavation by laborers continued except when intact burials were identified. Because of the amount of damage to the human remains during excavation in 2000, HAA, Inc. requested that all hand excavation in moderate to high sensitivity areas during the 2001 project be conducted only by archeologists.

Archeological monitoring

Archeological monitoring is “the observation of construction activity by an archaeologist in order to identify, recover, protect and/or document archaeological information or materials” (NYAC 2002:1). Monitoring is often employed in urban settings where traffic and other logistical considerations are a factor (NYAC 2002:1). Certain segments of a project area or archeological site that are characterized by relatively low sensitivity for the presence of intact archeological resources may also be monitored.

During the Tweed Courthouse project, monitoring was required during utility trench excavations in Chambers Street and in other areas on the courthouse grounds that were previously determined to have low archeological sensitivity. Areas with low sensitivity included the south side of the courthouse and all areas immediately adjacent to the courthouse foundation. These areas were determined through previous research and archeological studies to be characterized by excessive prior disturbance.

Archeological monitoring involves close watch of the excavator(s), whether the work is being done by hand or machine, and observation of excavated soils and trench walls for cultural materials, archeological features, and human remains. HAA, Inc. staff archeologists were required to stop excavation work if significant cultural resources or human remains were observed. The archeologists were then allotted the time required to properly document and collect or protect the resources prior to continuing excavation. In areas with substantial resources, the soils were carefully excavated and screened.

In areas requiring archeological monitoring, depending on the size of the area, between one and six archeologists were present to monitor the excavations, and when significant resources were found, screen the soils. For example, in areas where small trenches were being excavated by hand for the placement of electrical lines (i.e., on the south side of the building), one to two archeologists were on hand to monitor the work. In areas where long trenches were being excavated by backhoe, three to six archaeologists were present to monitor the work, screen the soils, and collect cultural material and other relevant data.

Archeological testing

Areas of the project characterized by moderate to high archeological sensitivity were subject to archeological testing prior to construction activity. In some cases, this included excavation of test units along the path of a proposed trench line, i.e., such as the main trench excavated in Chambers Street. The proposed location of test units, testing intervals, and methodology are outlined in Appendices 2 and 3. This information is also summarized in sections below that describe each area of the project.

In general, test units were 1 x 1 meter (3.28 x 3.28 ft) in size and were excavated to no more than one foot (30.48 cm) below the proposed project impact depth. Depending on the archeological sensitivity of a particular section of the project, test units were excavated at either 5- or 10-foot (1.5

or 3 m) intervals. In some cases where archeological sensitivity was moderate or where a pocket of cultural resources was inadvertently discovered in low sensitivity areas, test pits were excavated in place of the units in order to expedite the project. Shovel tests were 40 centimeters (15.75 in) in diameter and were excavated at 5 foot (1.5 m) intervals.

All excavated soil from each test or trench was sifted using a 0.25 inch (0.64 cm) hardware cloth screen, and was examined for cultural material. All historical artifacts found within the tests were collected except for glass, coal, nails, and bricks which were sampled. Collection methods for human remains are described below. The stratigraphy of each test unit or trench was recorded including soil type and depth of each stratum, and the test locations and trenches were recorded on a project map. Artifacts were collected by provenience in paper field bags. Each bag included the project name, project area (i.e., Chambers Street or the appropriate side of the courthouse), trench or excavation unit number and level, excavator, and date in black permanent marker. Following excavation, all field bags were numbered with red permanent marker and recorded in a field bag log. While fragmentary, most of the artifacts were well-preserved and in good condition. The sample of artifacts which were unstable and required conservation were stored in separate containers with soil from the artifact's original context in order to preserve the materials until laboratory processing.

Archeological mitigation (data recovery)

During the fieldwork, numerous human remains, burial features, and other archeological features were identified within areas of project impact. In cases where disturbed human remains were identified, they were collected following the methods outlined below. In cases where burials and other archeological features were encountered during grading, topsoil stripping, excavation, or archeological testing, additional methods were employed to properly identify, document, and mitigate adverse effects to these resources.

As described above, while the general methodology for archeological testing was the excavation of 1 x 1 meter (3.28x3.28 ft) units, once significant resources were identified, other methods were employed to adequately study these resources. In cases where significant and/or intact cultural resources were identified, the unit dimensions (including depth) were expanded to explore the entirety of the resources.

One special circumstance that arose during the work that modified the original plan of excavating test units at regular intervals was the discovery of numerous intact burials, particularly those with discernible grave shafts and coffin outlines. It was determined by HAA, Inc. staff that the test unit excavations were not appropriate for a relatively dense cemetery area, as this method was not adequately identifying the preserved burial features. Instead, fill levels overlying burials were excavated by hand in order to search for grave shafts. This is comparable to stripping the overlying soils to search for features, rather than risking excavation directly into the features inadvertently destroying their integrity.

Burial identification and removal of human remains

Following LPC regulations, only previously disturbed human remains were removed from the ground during the Tweed Courthouse archeological fieldwork. Intact remains (primary burials) were left in situ and protected from further disturbance according to the LPC standards (see following section). Disturbed human remains (secondary burials) refer to those remains that either have been removed from their original place of interment or that have been subject to extensive disturbance so that the burial no longer remains intact. Most of the disturbed remains in the Tweed Courthouse area consist of disarticulated and/or fragmentary bones. In some cases, complete or nearly complete bones were collected and in a few cases, remains were still partially articulated and were also removed because of extensive prior disturbance.

While thousands of secondarily deposited remains were identified throughout the course of the project, numerous intact or partially intact burial features were also identified. These features were discernible in three different ways. Often, distinguishable grave shafts that outlined the location and extent of a burial were identified. In many cases, decayed coffin remains in the form of relatively faint, narrow wood stains were also identified. Finally, in cases where grave shafts or coffin stains were not present (typically because of heavy disturbance to the level of the remains), the placement and position of a set of human remains identified the burial.

As per LPC regulations, a bioarcheologist was present during all excavation and removal of human remains. Excavation was carried out either directly by the bioarcheologist or by the field crew under direct supervision of the bioarcheologist. At least one bioarcheological assistant (a field crew member trained in the identification of human remains) was present during all excavations as well. Except in a few unique cases, each identifiable burial feature was excavated only to the point of judging whether the burial was primary or secondary. In several cases, as described below in the field results section, whether a burial was completely intact could not be determined until the remains were at least partially uncovered. Because prior disturbances either intruded into the burials or occurred to levels just overlying the human remains, it was difficult to assess how much if any of the human remains were still intact. The marked prior disturbance that affected the majority of the burials often removed any visible signs of a grave shaft or coffin outline. Due to these factors, several burials were partially or fully uncovered in order to assess the level of prior disturbance and to distinguish whether they were disturbed to an extent that warranted removal. In the few cases where grave shafts and/or coffin outlines were observed prior to the discovery of human remains, the feature was not excavated, thus preserving the burial in place. Often, however, due to prior disturbance and poor preservation these features were not noted until after the human remains were identified.

Following LPC regulations, all disturbed human remains were removed. Human remains were collected by provenience in separate containers from artifacts. If a bone fragment was not readily identifiable in the field as human or faunal it was collected with the human remains for later sorting in the lab. As human remains were removed from the ground, they were placed in packets formed of aluminum foil and filled with soil from the context in which the remains derived. The purpose of this methodology is to store the remains in an air-tight environment similar to that in

which the remains have been in situ. Plastic was not used as there is a greater potential for retaining moisture within the containers. In addition, aluminum foil is a more rigid material to use than plastic bags. The foil containers were labeled in permanent marker with the project name, project area, provenience information, the collector's initials, and the date. The abbreviation "HR" (for "human remains") was written in red permanent marker on each foil bag. Following their collection, each package of remains was labeled with a bag number. The foil packages were then stored in plastic bins to protect them from being crushed or disturbed.

Preservation and data collection of primary burials

Following LPC regulations, intact burials were protected in place using the methods outlined by the LPC and based on recommendations provided by Gary McGowan, conservator (Appendix 4). A few minor modifications were made to this approach, however, following several observations made during the reexcavation of a burial preserved by these methods during the 1999 City Hall Park study. Located along the City Hall Park fence line along the sidewalk between the west gate of the courthouse and Broadway, this burial was only partially excavated during the previous archeological work in the park. However, as described in the field results section below, the burial (HAA, Inc. Burial 26) was within the Tweed project area and was reexcavated and protected prior to the sidewalk reconstruction.

The methods outlined by McGowan and the LPC designated a 6-inch (15.24 cm) minimum coverage of a burial (top and sides) with sand and vermiculite, followed by coverage with a one-inch (2.54 cm) plywood or pine box and 4-inch (10.16 cm) concrete cap prior to installation of the required mortar bed and bluestone paving for finishing the sidewalk.

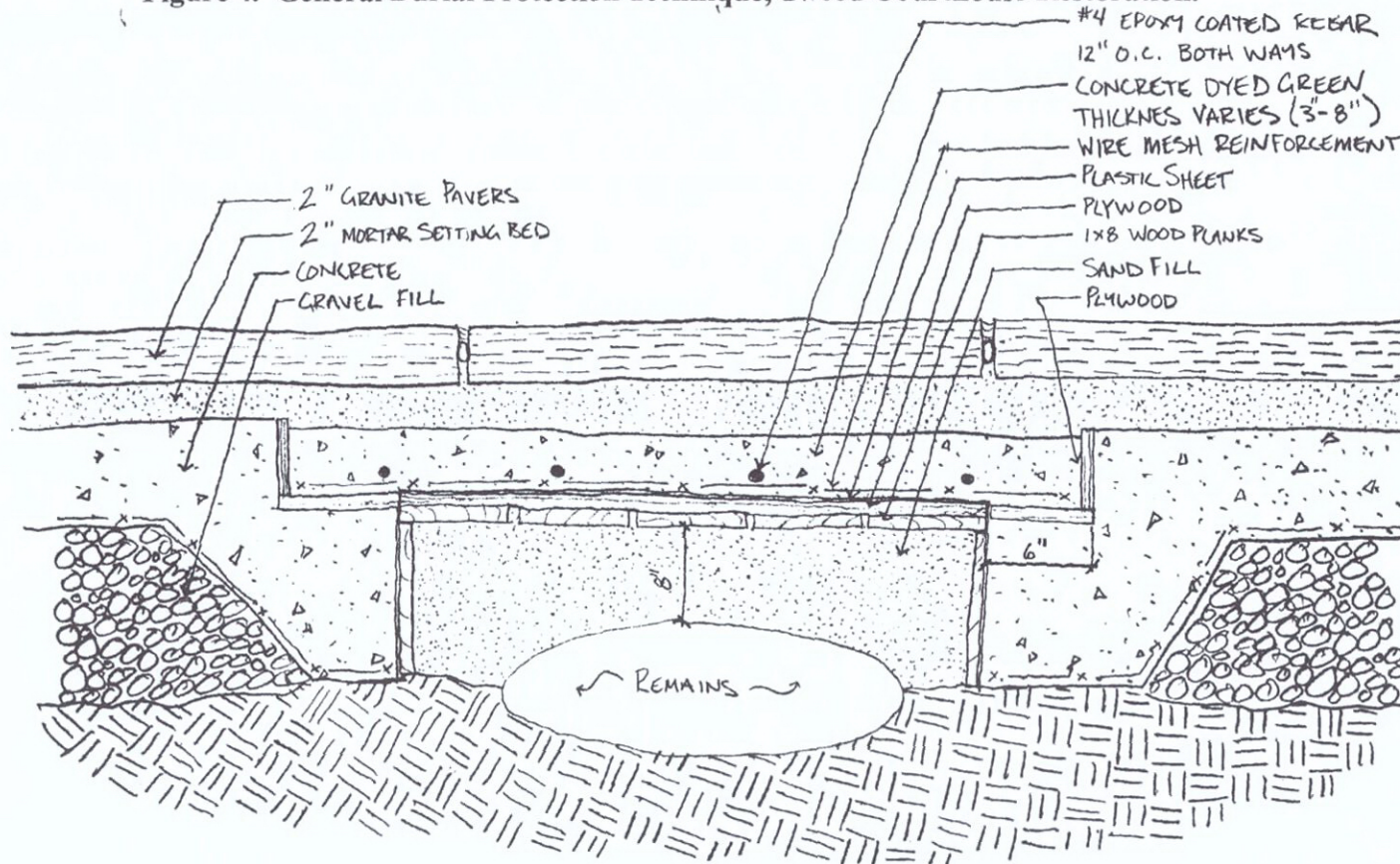
Following HAA, Inc.'s excavation of the overlying sand fill and vermiculite covering Burial 26, it was discovered that the remains were coated in a fine silty mud and that a layer of black landscape fabric was placed over the cranium. The vermiculite and landscape fabric were obviously used in an attempt to extend in situ preservation of the human remains. Both of these materials have water-retention properties which would tend to draw moisture to the remains. The remains were in relatively good condition. However, the landscape fabric which allows for water flow-through had a winnowing effect depositing a thin layer of fine wet silt on the remains (Photo 1). In addition, the small mica-like flakes in the vermiculite passed through the fabric and were deposited on the remains. Due to these factors the vermiculite and landscape fabric were not used as part of the HAA, Inc. burial protection methodology. This modification of the preservation plan was approved in the field by LPC staff during HAA, Inc.'s excavation of Burial 26 in July 2001.

Figure 4 illustrates the general method employed in the protection of burials found during the Tweed Courthouse excavations. The overall technique for burial protection included covering intact burials with 6-12 inch (20.3-30.5 cm) of clean sand, a 1-inch (2.54 cm) thick plywood box, which included a 6-12 inch (15.24-30.5 cm) buffer around the human remains, and heavy plastic sheeting (Photos 2-3). An additional factor noted during excavation of Burial 26 was that the four inches (10 cm) of sand fill used to cover the remains included a deposit of trash with an iced tea can, string, plastic, and a candy wrapper. Extra care was taken by HAA, Inc. staff during the preservation phase to ensure that the sand covering the burials was clean of all debris.



Photo 1. Condition of burial preserved during City Hall Park archeological excavations in 1999 (PES Feature 45). The remains were covered in a thin silty mud and mica flecks from the vermiculite used to preserve the remains.

Figure 4. General Burial Protection Technique, Tweed Courthouse Restoration.



SK
 178b

 TWEED COURTHOUSE RESTORATION (AS-BUILT SKETCH)
 SECTION - SIDEWALK PAVEMENT OVER ARCHEOLOGICAL FEATURE
 NOT TO SCALE 7-25-01 YGWANYC



Drawing provided by John G. Waite Associates.



Photos 2 and 3. Burial protection techniques used to cover intact and partially intact burials. The remains were covered with clean sand fill and covered with pine or plywood boxes and plastic sheeting. These photos are of Burial 26 on the northwest sidewalk.

In most of the cases in which burials were identified in the path of new sidewalks and curbing, the burial boxes were covered over by concrete. Following archeological coverage of the burial, a concrete slab was poured over the remains prior to the laying of the sidewalk stone (Photos 4-5). In a few isolated cases where burials were identified adjacent to the sidewalk, the boxes were covered with sod (Photo 6).

As much data as possible were collected for each burial or partial burial that was left in place. In general, at least the size, position, and orientation of the grave could be documented, as well as the presence or absence of cultural materials, such as coffin nails, other coffin hardware, and personal items. In several cases, information concerning the sex of the individual and relative age was decipherable. Finally, a series of photographs of the burials and burial boxes were recorded and several drawings and plan views of each burial were generated.

Storage of artifacts and human remains

During the 2000 fieldwork, the artifacts and human remains were stored in the archeologist's trailer on site throughout the work week and transported by HAA, Inc. staff to the HAA, Inc. facilities in North Greenbush and Albany, New York, at the end of each week. The human remains were transferred to the osteology laboratory at the University at Albany, and the artifacts were taken to the HAA, Inc. lab in North Greenbush. During the 2001 fieldwork, the remains were stored in a secured temporary lab on the 4th floor of the courthouse. Following completion of the fieldwork, the remains were transported by the EDC to HAA, Inc.'s Brooklyn, New York, laboratory for cleaning, processing, analysis, and curation. At the same time, the collection of human remains and artifacts were transferred from the osteology and HAA, Inc. laboratories to the Brooklyn lab.

FIELD RESULTS

Carol A. Raemsch, Ph.D., bioarcheologist, directed all field investigations conducted in 2000 and 2001. During the 2000 fieldwork the field crew included J. W. Bouchard, Maura Calabrese, M.Phil., M.S.Eng., M.Eng., Lisa Cartwright, John Ham, Matthew Kirk, M.A., Erin Kuns, Angela Markessinis, Stephen Sherwood, and John Wilkinson. The 2001 field crew included Dan Boggs, Neni Isaac, Matthew Kirk, M.A., David Klinge, M.A., Erin Ross Klinge, Bonnie McCarthy, Darrell Pinckney, Patrick Sabol, Stephen Sherwood, and John Wilkinson. Project maps, figures, and drawings included in the report were completed by Evangelia Tsesmeli, M.A., Stephen Houk, and Carol Raemsch.

During the archeological work in 2000 and 2001, a total of 28 intact, partially intact, and heavily disturbed historic burials were identified within the boundaries of the project. All of the burials were identified on the north (Chambers Street) side of the courthouse. In addition to the intact burials, a total of 16,626 disarticulated or disturbed human remains were identified and removed from the north, east, and south sides of the building and Chambers Street. The fieldwork also identified eight significant features including two stone foundation walls, a brick drain, a storm sewer or well, a privy, a brick wall, a cold storage shed, and a large ossuary-like deposit of disturbed



Photos 4 and 5. Preparation (Photo 4) and covering (Photo 5) of Burial 26 (foreground) and Burial 9, northwest sidewalk (view west).



Photo 6. View west of northeast corner and east gate of Tweed Courthouse. Numerous burials are located beneath the sod just south of the sidewalk curb line.

human remains. Several of these features were likely associated with the former almshouse building and/or military barracks that once stood on the courthouse property.

The field results are first summarized by area (side of the building) followed by a description of each individual burial and other archeological features. The burials are described in the general order in which the fieldwork was completed, as units, burials, and other features are numbered in order as they were completed, in general beginning on Chambers Street and going around the courthouse counter-clockwise from west to north.

Description of excavation areas and general results

This section describes the eight major sections of the Tweed Courthouse archeological work. A summary of the excavation methods employed and the general results of the archeological work in each area are described. Table 1 summarizes the eight project areas and the archeological units excavated in these areas. Appendices 5-7 include the trench, shovel test pit, and unit data recorded in the field.

Table 1. Archeological Test Locations by Area.

Area Designation	Trench Nos.	STP Nos.	Unit Nos.
Chambers Street Monitoring	1, 2, 3	—	1-8, 100A, 200-700
Chambers Street Staircase	— — monitoring only — —		
Northeast Sidewalk	—	1-15	9-17
Northwest Sidewalk	—	16-29A	29-45
West Side of Courthouse	monitoring of electric utility trench	—	18-28
South Side of Courthouse	— — monitoring only — —		
East Side of Courthouse	monitoring of electric utility trench	35-43	46-53,56-62, 67-72,74-76
North Side of Courthouse	monitoring of electric utility trench	29-34	54-55, 63-66, 73, 73E, 77-106

Chambers Street

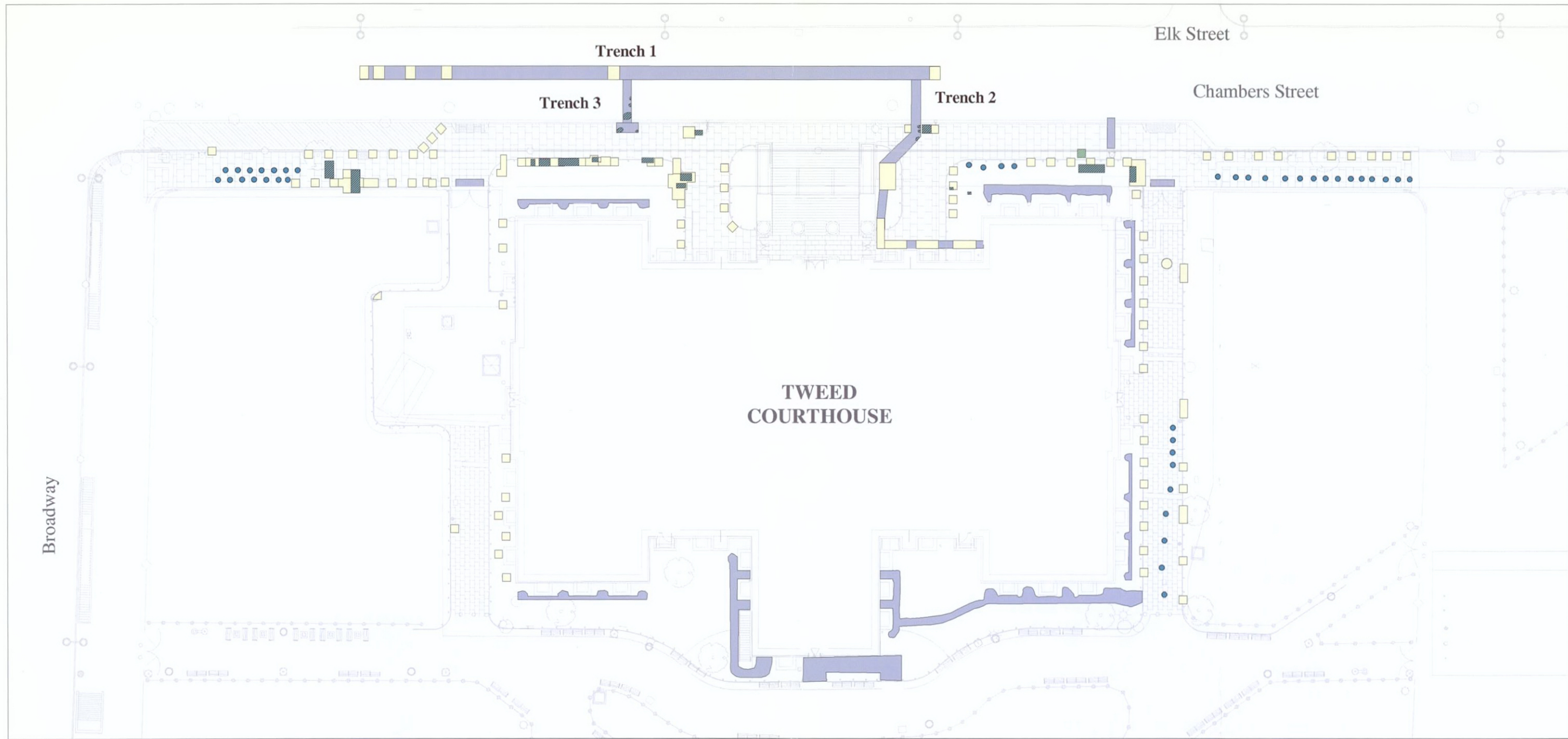
In September and October of 2000, HAA, Inc. staff conducted archeological monitoring of three trenches for the installation of new waterlines following an east-west alignment under Chambers Street and turning south to Tweed Courthouse (Map 10). The proposed impact depth for the trench work was 5 feet (1.5 m), the depth of the historic water pipe scheduled for replacement.

Chambers Street itself is considered moderately to highly sensitive for the presence of archeological resources, especially human remains. Depending on the section of the street, however, archeological sensitivity can vary from none to high. Certain areas that have been disturbed by modern construction (various utility lines) are characterized by no to minimal sensitivity; areas disturbed by historic construction of utilities are moderately to highly sensitive, particularly for the presence of disturbed human remains. Other areas that have not been impacted by historic or modern construction are highly archeologically sensitive. Due to a lack of records and the extent of underground work along Chambers Street over the centuries, however, pinpointing the exact location of undisturbed versus disturbed areas of the street is not always possible. Therefore, archeological testing is necessary for an adequate assessment of which areas have been subject to modern, historic, or no prior disturbance. Prior to the trench excavations, several test units were excavated in Trenches 1 and 2 in order to assess these factors.

Trench 1

Trench 1 was excavated on an east-west alignment in the west-bound lane of Chambers Street from the east side of the staircase west for 300 feet (91.44 m) to the west driveway of the courthouse (Map 10; Photo 7). The purpose of this trench was to excavate a 6-7 foot (1.8-2.1 m) deep trench to access, remove, and replace a 19th-century water main pipe. Prior to hand excavation of this trench, HAA, Inc. was required by LPC to excavate three 4-foot (1.2 m) deep test units distributed along its length in order to identify the presence/absence and degree of any prior disturbance along this segment of the street. Two of three tests identified historic fill deposits containing secondarily deposited human remains, as well as scattered historic materials (see Appendix 8 for artifact catalog) at depths between 4 inch (10 cm) and 6.5 foot (1.98 m) below the base level of the street.

In general, older sections of Chambers Street consist of a 6-8-inch (15-20 cm) layer of concrete underlying a 3-4-inch (8-10 cm) layer of Belgian brick cobbles beneath a 4-5-inch (10-12 cm) layer of pavement. Sections of the street that have been more recently accessed for modern construction are comprised of 12-inch (30 cm) layer of pavement overlying a 12-inch (30 cm) layer of concrete. The presence/absence of the Belgian brick layer provides some clue to the timing of the last disturbance, since these cobbles have been removed in areas of more recent (modern) construction.



Map 10. Tweed Courthouse Project Map: Archeological Monitoring, Testing and Data Recovery Investigations.

- Shovel Tests
- Burials
- Excavated Units
- Trench Monitoring

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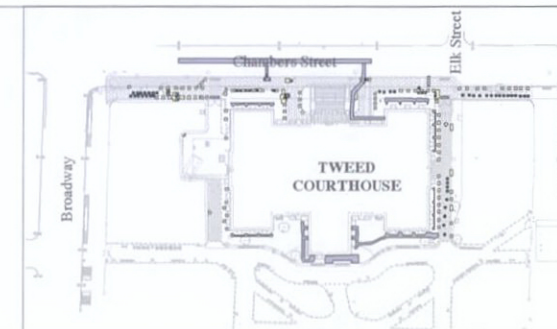
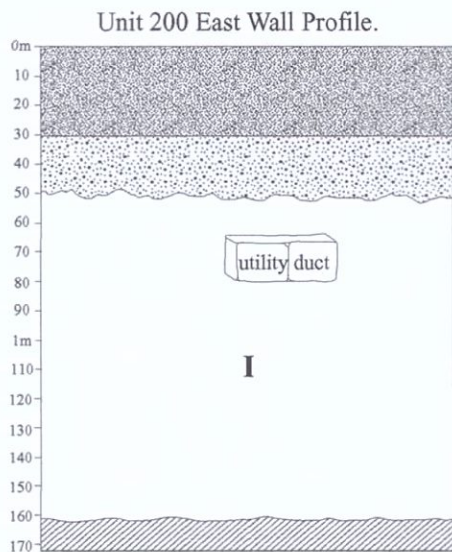
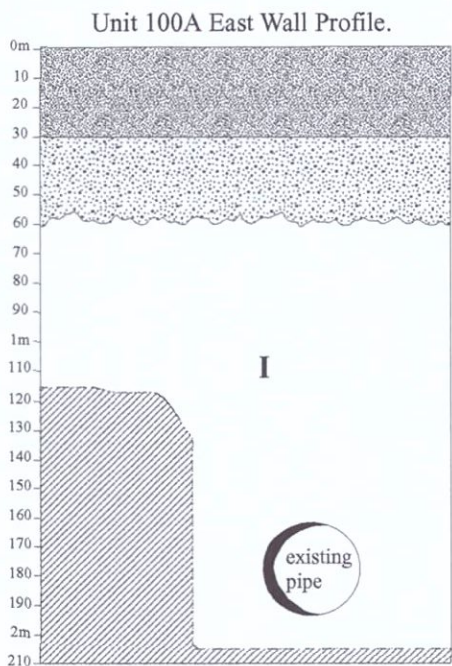


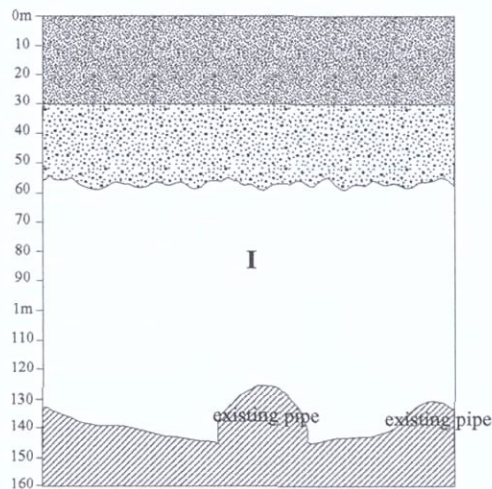
Figure 5. Units 100-300 Profiles in Trench 1.



I Mottled black, dark yellowish brown, and very dark grayish brown sand

I Yellowish brown coarse sand fill

Unit 300 East Wall Profile.



I Mottled black, dark yellowish brown and very dark grayish brown sandy loam

- Pavement
- Concrete
- Unexcavated





Photo 7. View east of Trench 1, west bound lane of Chambers Street.

Test Unit 100A (Fig. 5) was excavated at Station +1.00 at the west end of Trench 1. This test revealed a 6.5 foot (2 m) deep layer of historic sand fill with gravel and cultural materials including samples of ceramic, glass, ferrous metals, faunal bone fragments, and 78 fragmentary human remains. The human remains were encountered beginning 4 inches (10 cm) below the concrete base level of the street and continuing down to the level of the historic water main pipe at approximately 6.5 feet (2 m). The remains were scattered throughout the fill and were mostly fragmentary with only a small number of nearly complete bones.

Test Unit 200 (Fig. 5) was excavated at Station +3.25 at the east end of the trench. This test consisted of 5 feet (1.5 m) of recent sand fill with only modern trash (such as a rubber band, a cigarette butt, and a Ruffles® potato chip bag) and one human bone fragment (a humerus). This test obviously hit a recent trench excavated by Con Edison during their 1993 replacement of utility lines in this area, which were evident at about 5 inches (13 cm) below the base level of the street (Photo 8). The humerus most likely fell into the utility trench from the historic fill in the wall of the trench.

Test Unit 300 (Fig. 5) was excavated at Station +2.00 in the middle of the trench. Given the presence of human remains in two of three units, Unit 400 (Fig. 5) was added as a test unit at Station +1.10. Similar to Test 100A, both tests contained historic coarse sand fill with gravel and scattered human bone fragments beginning at a depth of 2.2 feet (70 cm). Unit 300 contained 88 fragmentary human remains, and Unit 400 contained a total of 166 human remains in a concentrated deposit 2.3 feet-3.8 feet (70 cm-115 cm) in depth.



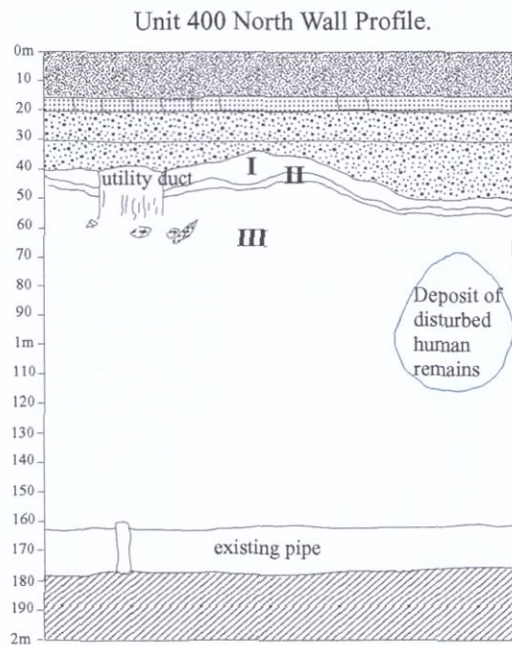
Photo 8. East profile of Unit 200 containing modern disturbance and sand fill associated with previous Con Ed utility work at the east end of Trench 1.

In order to carefully monitor and test for additional remains east of Unit 400, Unit 500 was excavated at Station 1.25. This unit contained historic coarse sand fill with scattered historic materials and a brick feature, mostly likely an old sewer casing, but no human remains (Fig. 6). The brick feature was located at a depth of approximately 3.3-4.4 feet (100-135 cm) and was approximately 19.7 inches (50 cm) wide in the south wall of the trench.

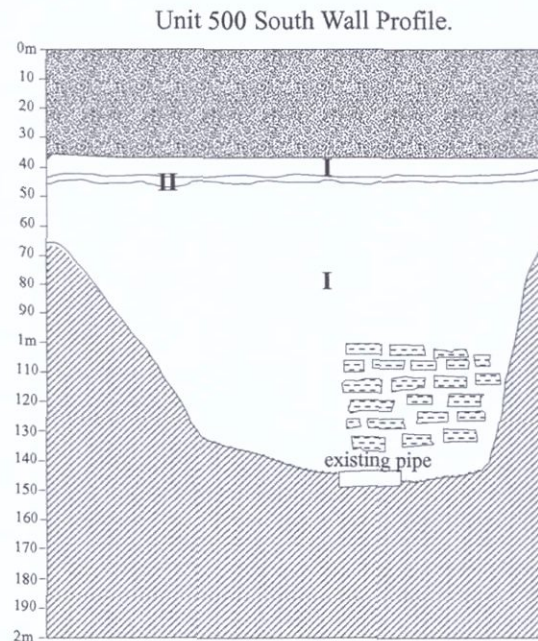
Unit 600 was excavated at the far west end of the trench in order to assist in locating a connector cap. This unit did not successfully locate the cap but a modern water pipe was located at the bottom of this test unit suggesting this was the location of the 1998 water main break. The connector cap was later found during monitoring at Station +0.60. The soils in this area consisted of recent yellow sand fill with gravel. The unit was comprised of recent fine to coarse sand fill with no cultural materials (Fig. 6).

The results of these tests guided monitoring of the trench excavation, as areas of high versus low or no archeological sensitivity were distinguishable through differences in the historic fill. When areas of modern yellow sand fill were identified in the trench, excavation proceeded at a normal pace since no cultural materials are present in this modern fill. Areas containing historic fill were excavated at a moderate pace until human remains were identified. Once the remains were identified, excavation proceeded at a slow pace and all soils were screened by the archeologists. All excavations in historic fill were directed by the archeologists.

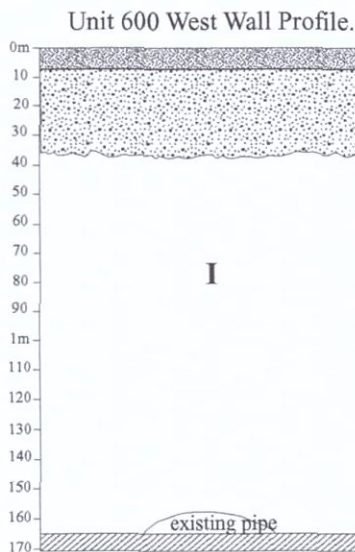
Figure 6. Units 400-700 Profiles in Trench 1.



- I Mottled silty sand
- II Black sandy silt
- III Dark yellowish brown silty sand fill



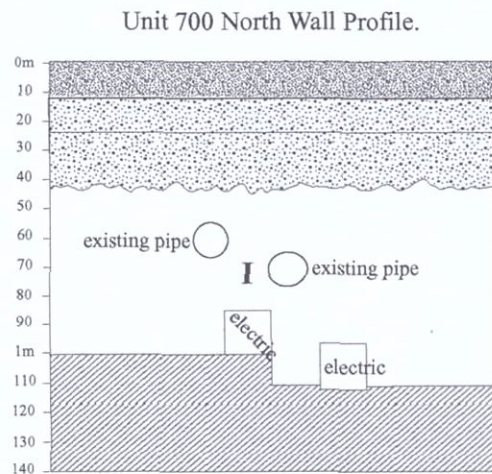
- I Dark yellowish brown coarse sand fill
- II Black silty sand



- I Yellowish brown coarse sand fill with pebbles



- Pavement
- Belgian Brick
- Brick
- Concrete
- Unexcavated
- Human remains



- I Dark yellowish brown coarse sand fill



The highest concentrations of fragmentary human remains were identified at Station +3.00 (west of Unit +2.00); Station +2.00 (Unit 300) east to Station +2.55; Station +1.50 east to Station +1.75; Station +0.75 east to +1.00 (Unit 100A). In total, 1,505 secondarily deposited human bone fragments were identified within Trench 1 (see Appendix 10 for human remains catalog). The presence of the remains in historic fill down to the level of the historic water pipe (including directly on top of the pipe) indicate that human burials were disturbed during the original installation of the pipe. Any areas of the trench containing modern utilities are characterized only by clean sand fill, and areas with disturbance more recent than the historic waterline only contain human remains at a level below that disturbance (i.e., Unit 400), if at all.

Trench 2

Trench 2 was excavated from the eastern end of Trench 1 for 75 feet (22.86 m) south to the courthouse foundation and then east along the foundation wall for approximately 40 feet (12.19 m). The trench was excavated to a depth of 5 feet (1.5 m). Prior to the excavation of this trench, LPC required the excavation of test units along the foundation of the courthouse where the trench was scheduled to parallel and head into the courthouse (see Map 10). Five test units were excavated in April 2000, and three additional units were excavated in October 2000.

All tests excavated adjacent to the courthouse contained two levels of historic fill with miscellaneous cultural materials including fragments of ceramics, glass, various building materials, and some personal items including smoking pipes, coins, toys, and buttons (see Appendix 8 for artifact catalog). Test Units 2, 4, and 5 also contained fragments of human remains. Level 1 was a dark brown, coarse sand with gravel and Level 2 was a dark yellowish brown coarse sand with gravel. These tests revealed the exterior courthouse stone foundation from 1.3-6 feet below (.40-1.8 m) current grade.

Since human remains were identified in the April 2000 test units, prior to trench work in October 2000, three additional units (Units 6-8) were excavated between Units 1-5 in order to test for and recover any additional human remains in this area. Soils in these units were equivalent to that in Units 1-5. Units 6 and 8 contained a small sample of fragmentary human remains. Units 1-5 were reexcavated in order to complete the trench, but the soils were not screened.

In order to assist in the excavation of the hole for the phone box underneath the sidewalk between the courthouse and Chambers Street, one additional test (Unit 700) was excavated in Trench 2. This unit was 5.3 x 8.5 feet (1.6 x 2.6 m) in size and 4 feet (120 cm) in depth, as specified by the contractor. The unit consisted of dark brown, coarse sand fill with gravel, miscellaneous historic materials, and a total of 18 fragmentary human remains. Two utilities, a gas and an electric line, were located at depths of 4 inches (10 cm) and 1.3 feet (40 cm) below the base level of the street (see Fig. 6).

In general, Trench 2 consisted of brown, coarse sand fill with gravel and numerous utility ducts. During the work in October 2000, three burials (Burials 1, 2, and 8) and 226 scattered human remains were identified within this trench (see Appendix 10). The intact burials were identified in

the east wall of the trench approximately 30 feet (9 m) south of the north end of the trench where it joins Trench 1. The burials were identified at the location of a slight (45°) turn in the trench line to the southwest. The burials were identified at depths of approximately 1.3 feet (40-45 cm) below current grade. The burials are described in detail in the *Description of burial features* section (p. 68). Similar to Trench 1, the disarticulated human remains were identified in sections of Trench 2 containing historic fill.

Trench 3

Trench 3 was excavated from the center of Trench 1 south for 25 feet (7.62 m) to the sidewalk curb on the west side of the staircase (see Map 10). This trench was excavated for the purpose of installing a fire hydrant line off of the main trench to the sidewalk in front of the courthouse; however, this location was abandoned for that purpose since five burials (Burials 3-7) were identified at a shallow depth in the trench underneath the sidewalk. The burials were identified as shallow as 2 feet (60 cm) below current grade which is equivalent to 4 inches (10cm) below the base concrete level of the street (see *Description of burial features* section, p. 68). Similar to the other two trenches, scattered human remains were identified in the historic fill as well. In all, 385 remains were collected from this trench (see Appendix 10).

In general, previously disturbed sections of this trench (those areas not containing intact burials) consisted of olive brown, coarse sand fill with gravel, as well as several utility ducts in the north end of the trench. All human remains and the intact burials were identified south of the utilities.

Chambers Street staircase

Archeological monitoring conducted in association with sidewalk removal in front of the Chambers Street staircase and recovery of the original foundations of the 1860s staircase was performed by Celia Bergoffen, Ph.D. prior to HAA, Inc.'s work beginning in May 2001. The results of this work were reported in a letter to the LPC (Bergoffen 2001, see Appendix 11). In summary, very few cultural items were recovered: only samples of pottery, glass, faunal bone, metal, and oyster shell (Bergoffen 2001:2). No intact features (with the exception of the original stairway footing) were observed during this work, and no human remains were identified.

Northeast sidewalk (Map 11a)

A section of the northeast sidewalk from the centerline of the east gate of the courthouse 100 feet (30.48 m) east was archeologically tested on May 31 and June 1 and archeologically monitored on June 6, 2001. A total of nine 1 x 1 meter (3.28 x 3.28 ft) units and 15 shovel test pits were excavated in this section (Map 11a). In addition, archeological monitoring was completed during

final grading of the area for the construction of the new sidewalk. The proposed impact depth in this section was 12 inches (30.48 cm) along both the curb line and length of the sidewalk. As proposed, the archeological test units were excavated an additional 6 inches (15.24 cm) in depth as a buffer to ensure that no cultural resources were present immediately beneath the proposed construction impacts.

All of the soils investigated during the unit excavations and monitoring were disturbed deposits of historic fill containing historic artifacts and often some modern items as well. The stratigraphy of the test units excavated along this portion of the sidewalk was generally comprised of three levels of fill including a 6-8-inch (15-20 cm) level of dark yellowish brown sand with asphalt and stone (Level 1) overlying a 9.8-11.8-inch (25-30 cm) level of mottled dark brown and light olive brown sand with historic artifacts including faunal bone, ceramics, glass, and ferrous metals (Level 2). The tests were excavated between 4.0 and 11.8 inches (10 and 30 cm) into the third level of fill comprised of a yellowish red, silty sand with similar historical artifacts. Levels 2 and 3 frequently contained various utility lines, such as gas, electric, and waterlines.

Of the 24 excavation units, two (Units 12 and 13) contained fragments of human remains, totaling 17 identifiable and 17 unidentifiable bone fragments. The identifiable remains included vertebral fragments, a partial sternum, rib fragments, and one hand phalange. The remains were all found in Level 3 of the units consisting of reddish brown sand with gravel fill containing samples of historic artifacts such as faunal bone, ceramics, and scrap metal. Level 3 was identified at an approximate depth of 16-22 inches (40-55 cm) below the existing sidewalk curb.

No intact cultural features or burials were identified in this section during the test unit excavations. Archeological monitoring at the western end of this area identified the remnants of a previously disturbed feature, most likely a 19th-century midden. It appeared that a section of the original feature had been displaced from its original location as it consisted of a compact deposit of materials inadvertently deposited as part of the fill in this area of the sidewalk. The deposit was overlying additional historic fill episodes. The remnants of the feature whose contextual information is lost contained samples of ceramic, glass, faunal bone, building materials, and a few personal items, including bone buttons and a marble.

Northwest sidewalk (Map 11b)

The majority of the northwest sidewalk, extending 140 feet (42.67 m) west from the centerline of the courthouse's west gate to Broadway was archeologically tested and monitored from June 22 to 28 and from July 3 to 13, 2000. Additional units were excavated at the eastern end of this area on October 22, 25, and 26. Nineteen 1 x 1 meter (3.28 x 3.28 ft) test units, and 17 shovel test pits were excavated in this area (Map 11b). In addition, areas requiring grading prior to the sidewalk construction were archeologically monitored. Similar to the northeast sidewalk, the proposed impact depth in this section was 12 inches (30.48 cm) along the curb line and the length of the sidewalk. The units were excavated to the required 18-inch (45.72 cm) depth.

As mentioned above, prior to HAA, Inc.'s excavations at Tweed Courthouse, one intact burial was identified in the northwest sidewalk during the City Hall Park archeological excavations in 1999. Since the burial fell within the impact zone of sidewalk work for this project, the complete burial was reexcavated in order to define its limits and fully protect it. In addition, a second partially intact burial was identified close by and was also protected in place prior to the sidewalk construction. These two burials (Burials 26 and 9) are described below in the *Description of burial features* section (p. 68).

With the exception of the intact burials, most of the soils investigated during the test unit excavations and monitoring were disturbed deposits of historic and/or modern fill. Some sections contained culturally sterile historic soils. Test units excavated along the alignment of the northern sidewalk curb along Chambers Street (Units 29-36 and 97-99) were characterized by one level of fill to the proposed construction depth of 12 inches (30.48 cm) plus the 6-inch (15.24 cm) buffer. The northern 7.8 inches (20 cm) of the unit consisted of dark brown, coarse sand historic fill with historic refuse. The southern 31.5 inches (80 cm) consisted of mottled dark brown, brown, and yellowish brown modern fill associated with previous sidewalk curb and road construction. Two units (Units 97 and 99) identified modern utility lines in Level 1. One unit (Unit 31) contained fragmentary human remains in the historic fill (Level 1), including fragments of a sternum, radius, a metatarsal, and two unidentifiable fragments. The modern fill contained no cultural materials.

Test units along the southern sidewalk curb paralleling the City Hall Park fence (Units 37-45, 105-106) were characterized by a 6-10-inch (15-25 cm) level of grayish to olive brown, modern silty sand fill with stones and gravel overlying a 4-10 inch (10-15 cm) level of dark brown to strong brown, sandy historic fill with stones and gravel. Several tests in this area contained a third level of dark reddish to yellowish red historic coarse sand beginning at a depth of approximately 11.8-15.75 inches (30-40 cm). Two units excavated in this area (40 and 41) contained Burial 26, a primary intact burial. Of the nine remaining units, one contained fragmentary human remains in Level 2, one had remains in Level 3, and two had remains in both levels. Units containing human remains in the third level were excavated until culturally sterile soils were reached, up to a depth of 2.6 feet (80cm). In total, 587 disarticulated adult bones and bone fragments were identified in 5 of the 11 units. The majority of the remains (82.6%) originated from the 4 inches (10 cm) of historic fill above Burial 26.

Due to the presence of fragmentary human remains identified in the units along the southern half of the sidewalk, a series of shovel tests was excavated along the central portion of the sidewalk prior to the grading. None of the shovel test pits contained human remains, yet 402 disarticulated adult bones and bone fragments and one partially intact burial (Burial 9) were found during archeological monitoring east of the test pits. All of the remains originated from fill deposits. Of the 402 fragmentary remains, 86.5% (N=348) were identified in the historic fill overlying and surrounding the Burial 9 feature.

West side of courthouse (Map 11c)

Archeological testing on the west side of the courthouse was completed between June 5-9 and June 14-15. One section of this area (near the underground vault) was considered high in archeological sensitivity due to a previous find of a historic burial in this area. However, no significant features or human remains were found in test units or during monitoring on this side of the courthouse.

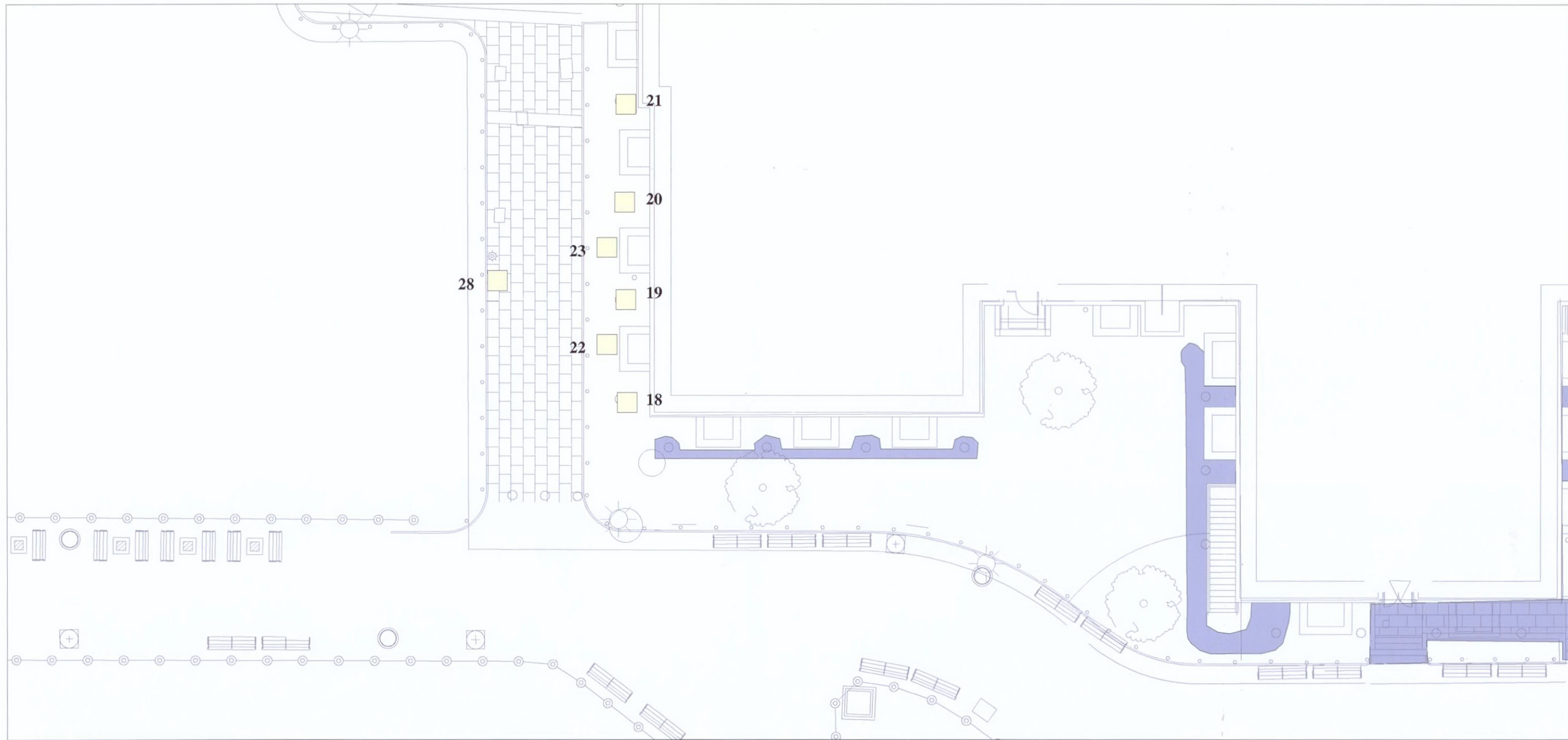
Eleven units were excavated on this side of the building, nine along the sidewalk curb footing (Units 18-26) and two in the proposed lamppost locations bordering the Tweed property and the park (Units 27 and 28). Monitoring was conducted during the excavation of ten uprights along the building facade, the electrical utility trench running between the uprights, and the installation of pneumatic bollards at the end of the west gate (Map 11c). All monitoring activities on this side of the courthouse revealed various fill deposits resulting from numerous episodes of historic and modern disturbance.

In general, the tests along the building facade (Photo 9) were composed of a 16-19-inch (40-48 cm) level of mottled black, very dark brown, and very dark grayish brown, silty sand fill with pebbles containing samples of historic ceramics, glass, ferrous metal, brick, shell, and faunal bone overlying a dark brown, coarse sand fill with stones and pebbles containing similar cultural materials. The second level was excavated to a depth of 20-40 inches (50-90 cm).

Unit 27 was placed on the western edge of the sidewalk adjacent to the underground vault, an area assessed as highly sensitive for the presence of historic burials. A burial was previously identified in this area in association with construction of the vault. However, the test unit revealed only fill deposits. The unit was comprised of 24-32-inch (60-80 cm) very dark grayish brown, silty sand modern fill containing construction debris including concrete chunks and large stones mixed with ferrous metal, glass, and other miscellaneous historic artifacts. This upper level of fill was overlying a mottled dark brown and black sandy modern fill with similar materials including more construction debris and modern trash including plastic caution tape. Unit 28, also excavated on the western edge of the sidewalk, had similar stratigraphy with modern debris in Level 1 and historic fill and debris in Level 2.

South side of courthouse (Map 11d)

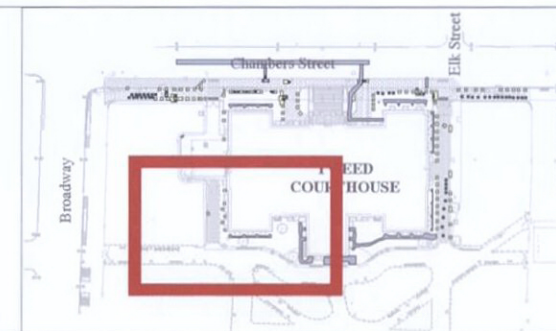
The southern grounds of the courthouse were identified by LPC as low in archeological sensitivity; therefore, all work on this side of the building was archeologically monitored. Monitoring occurred in this area at various points between July 18 and July 30. Monitoring involved observing excavation of trenches for 18 uprights and electrical lines along the building's facade (Photo 10), the construction of a handicapped ramp and entrance, and general grading and leveling of the area. Map 11d shows the locations of this work.

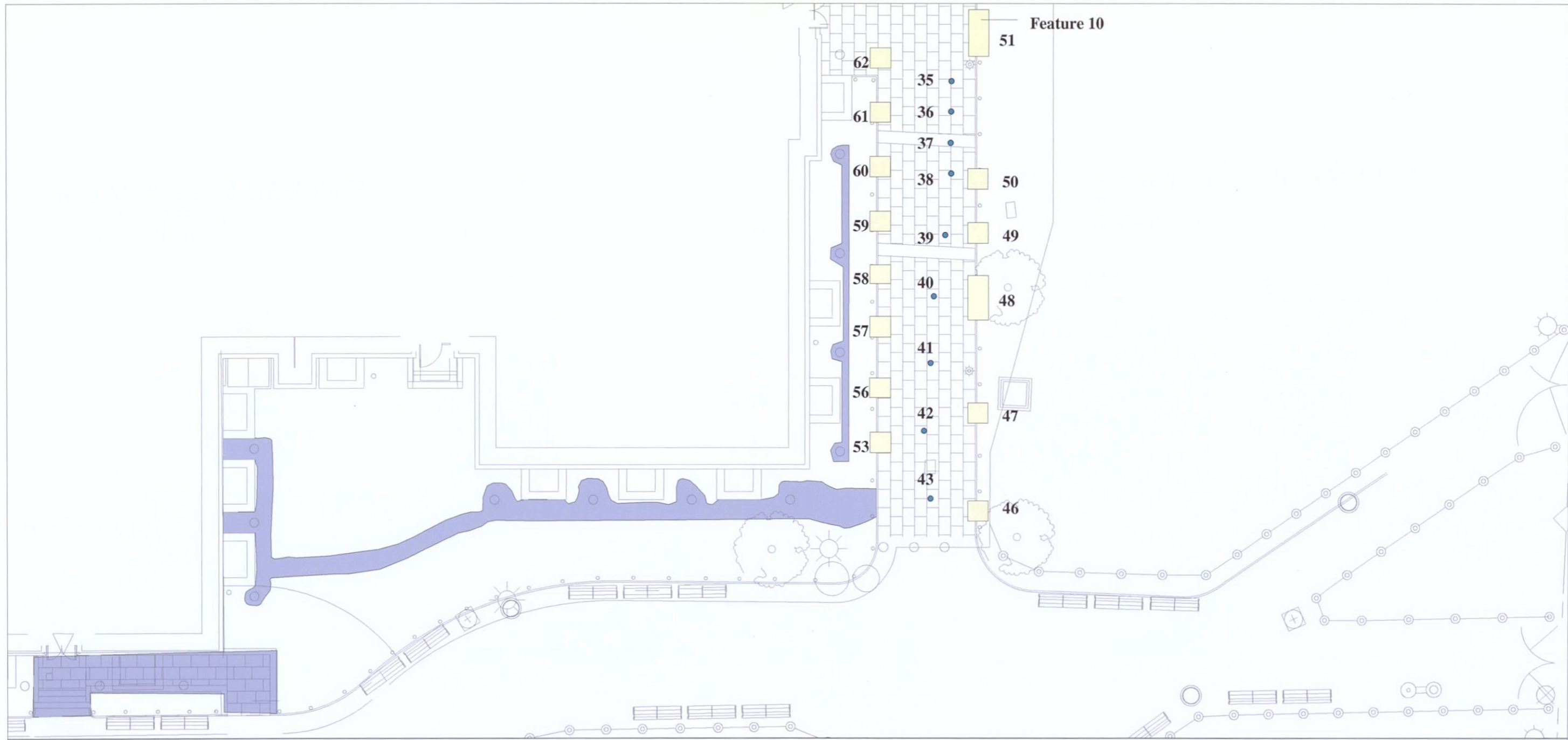


Map 11c. Tweed Courthouse Project Map: Archeological Monitoring, Testing and Data Recovery Investigations-Southwest Corner.

- Shovel Tests
- Burials
- Excavated Units
- Trench Monitoring

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 Base Map Provided by John G. Waite Associates, NYC

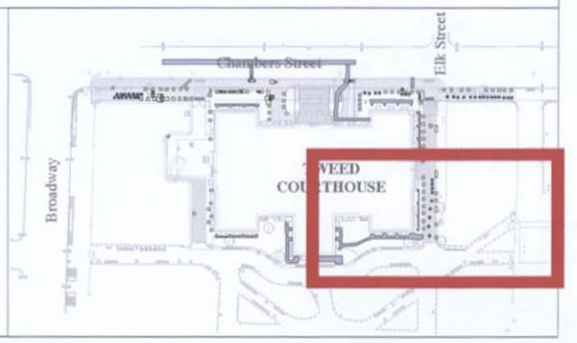


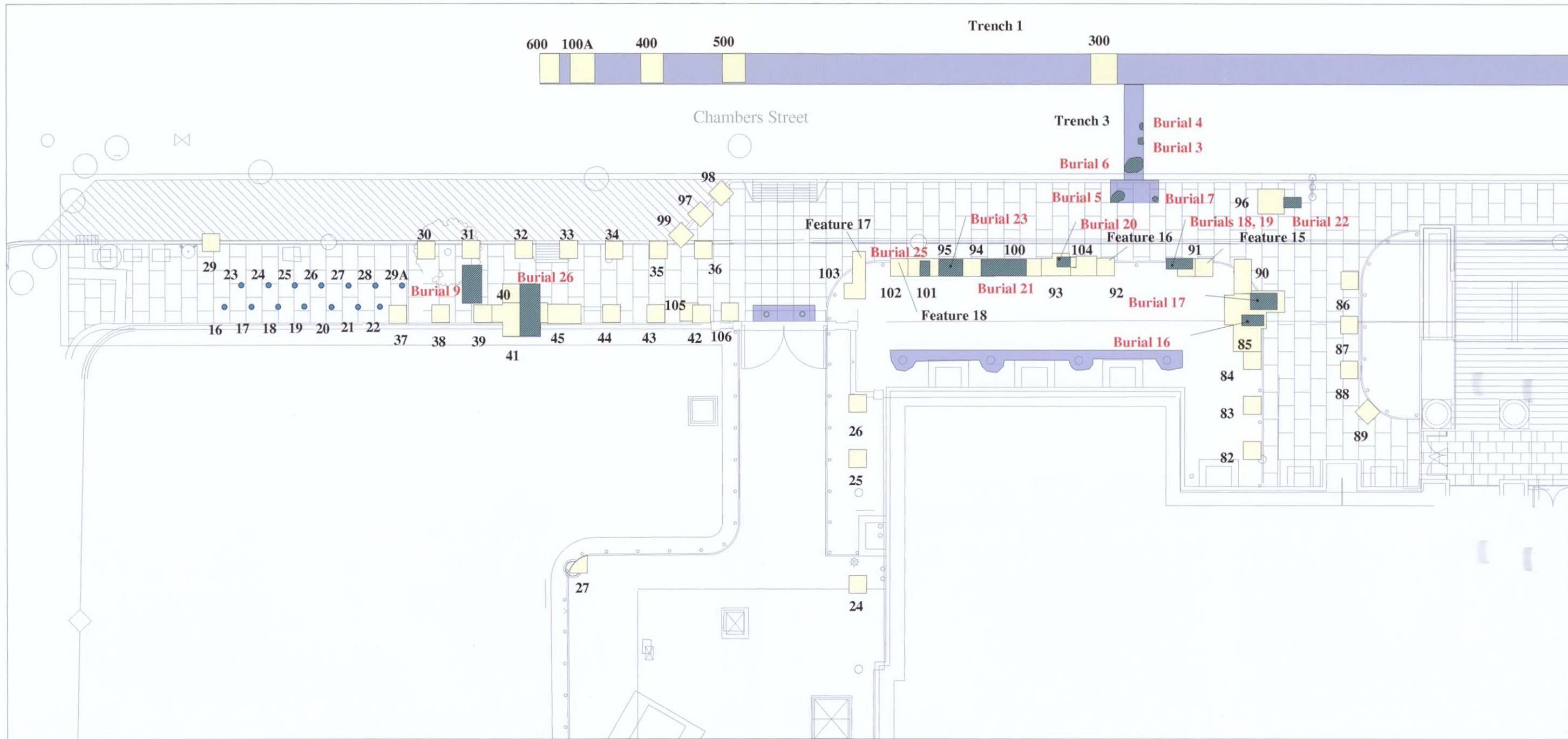


Feature 10

Map 11d. Tweed Courthouse Project Map: Archeological Monitoring, Testing and Data Recovery Investigations-Southeast Corner.

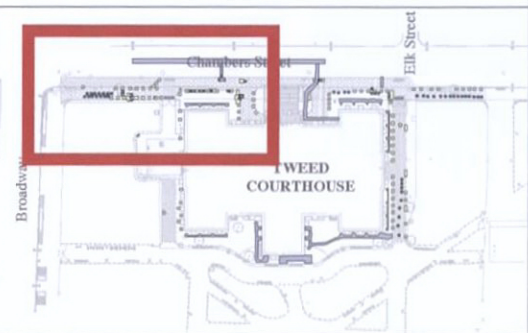
- Shovel Tests
- Burials
- Excavated Units
- Trench Monitoring

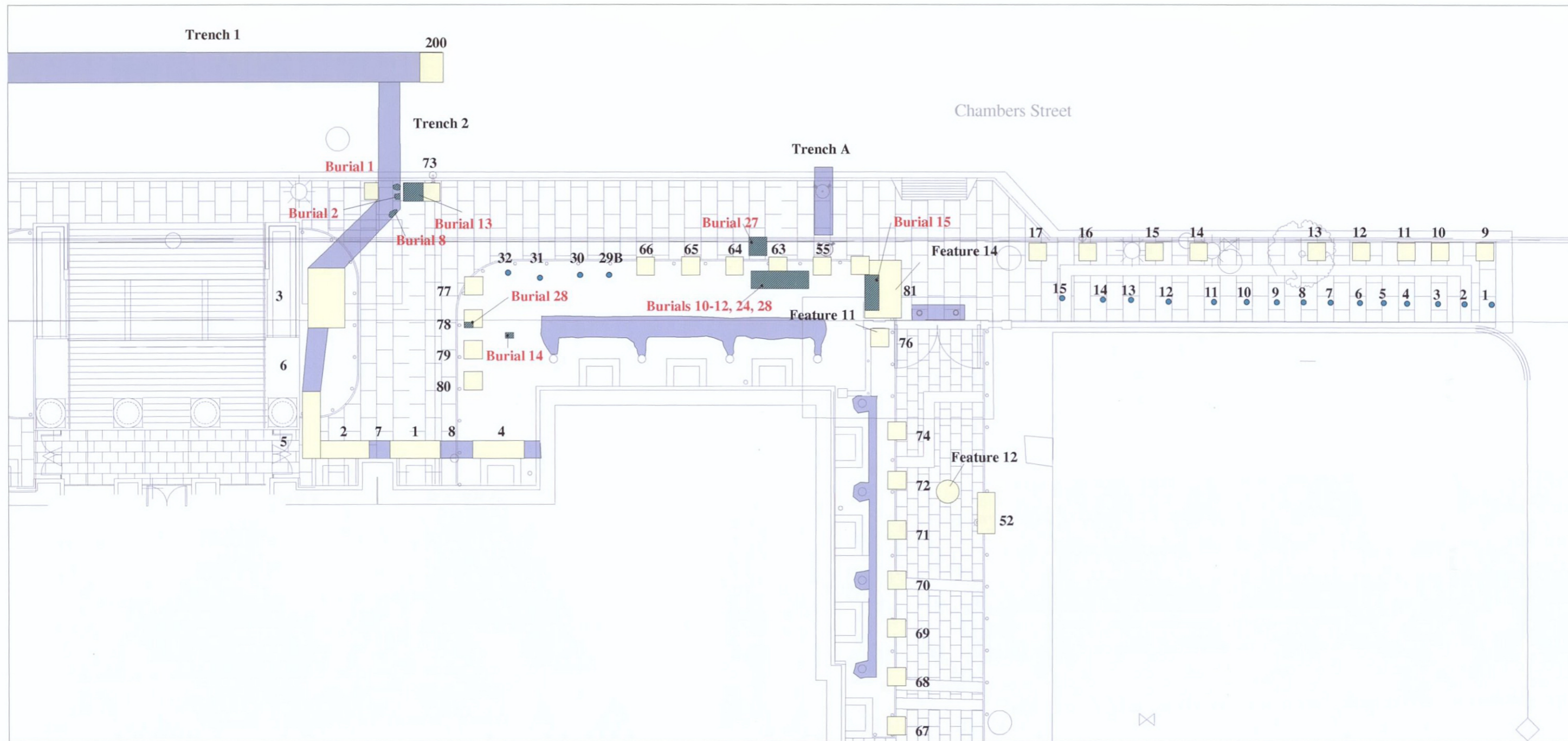




Map 11b. Tweed Courthouse Project Map: Archeological Monitoring, Testing and Data Recovery Investigations-Northwest Corner.

- Shovel Tests
- Burials
- Excavated Units
- Trench Monitoring





Map 11a. Tweed Courthouse Project Map: Archeological Monitoring, Testing and Data Recovery Investigations-Northeast Corner.

- Shovel Tests
- Burials
- Excavated Units
- Trench Monitoring

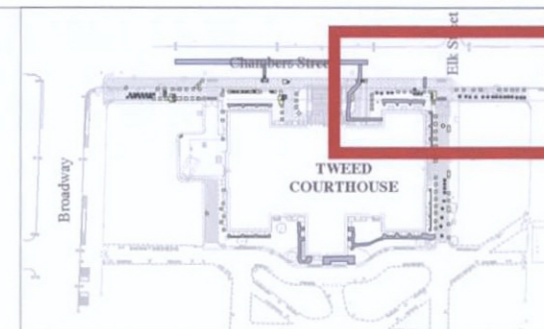




Photo 9. View south of excavations along the east side of the courthouse.



Photo 10. View east of trench monitoring along the south wall of the courthouse (east corner).

Only four human bone fragments were identified during monitoring activities in this section of the project. Three fibula fragments and one partial left pelvis were identified in the electrical trench. The remains were from fill deposits associated with construction of the courthouse. In general, soils on this side of the building were comprised of mottled very dark brown and very dark grayish brown, silty sand fill with gravel and cobbles containing samples of historic ceramics, glass, ferrous metal, brick, shell, and faunal bone overlying a dark brown, coarse sand fill with gravel and samples of historic materials.

East side of courthouse

The east side of the courthouse was characterized by areas of relatively high to moderate archeological sensitivity. Historic burials and features containing human remains were identified during previous archeological studies at the northeast corner of the building by the east gate of Tweed and under a tree in City Hall Park adjacent to a proposed lamppost site along the eastern sidewalk curb. Given the presence of burials in the general vicinity, the proposed paths of the sidewalk and curbing along the east side of the building were considered highly to moderately sensitive for the presence of historic burials. These areas, as well as two additional lampposts, were all archeologically tested. In addition, monitoring was required during grading of the sidewalk area, excavation of the ten proposed uprights, and installation of the pneumatic bollards at the east gate.

Twenty-four test units and nine shovel test pits were excavated in the east sidewalk/curb area. Units 53, 56-62, and 67-76 were excavated along the path of the proposed curb on the western half of the sidewalk by the courthouse. Units 48, 51, and 52 were excavated in the locations of three proposed lampposts on the park side of the walkway, and Units 46, 47, 49 and 50 were excavated along the remainder of this curb line (Maps 11a and 11d).

In order to accommodate the electrical utilities and lamppost foundations, the required excavation depth for the three lamppost units was 3 feet (1.2 m), and the unit size was 1 x 2 meters (3.28 ft x 6.56 ft). For all other units in this area, 1 x 1-meter (3.28x3.28 ft) test units were excavated to a depth of 1.5 feet (46 cm). The four 1 x 1-meter units excavated along the curb line on the park side of the sidewalk were characterized by heavy disturbance resulting from modern utility installations (water and electrical lines). These units were comprised of an upper level of very dark grayish brown to dark yellowish brown modern fill with cobbles, bricks, and fragments of historic materials (Level 1); a middle level of dark yellowish brown, coarse sand fill with gravel (Level 2); and a lower level of very pale brown marble dust and debris likely from the building of the courthouse in the latter half of the 19th century (Level 3). These units contained up to five utility lines running on a north-south alignment in Level 2. Historic artifacts were found only in the Level 1 fill of these units.

The lamppost units (Units 48, 51, 52) all contained historic features at depths below those limits excavated in the other units. Unit 48 was located beneath a large tree in the adjacent City Hall Park, approximately 40 feet (12.19 m) south of the east door of the courthouse. A new lamppost now stands one foot south of this deposit. This unit contained a large ossuary-like deposit of fragmentary human remains at a depth of approximately 3-3.5 feet (.95-1.2 m). In all, 371

fragmentary human remains were recovered from this unit beneath the level containing the marble construction debris. This feature is likely another component of PES Feature 53 excavated during the 1999 City Hall Park study. The feature is described in more detail below in the *Description of burial features* section (p. 68). No intact burials or other cultural features were identified in this unit.

Unit 51 was located 48 feet (14.63 m) north of Unit 48 directly across from the east door of the courthouse. Again, a new lamppost now stands in this location. The stratigraphy of this unit was similar to those described above with the exception of Level 3 which consisted of a dark brown, coarse sand fill containing scattered historic artifacts and a semicircular brick feature (Feature 10) in the east wall (Photo 11). This feature, located at a depth of 2.2-3.7 feet (66-113 cm) below grade, extended into the east wall of the unit and outside of the project area into City Hall Park. The feature appears to be an old storm drain or well.



Photo 11. View north of Feature 10, a probable brick storm drain or well in the east wall of Unit 51. The feature extends outside of the project area into City Hall Park.

Unit 52 was excavated 50 feet (15.24 m) north of Unit 51. This unit's stratigraphy resembled that of other units described already. While no human remains were found in this unit, a deposit of fragmentary human remains (Feature 12) was identified just 15.75 inches (40 cm) west of the unit during grading activities in this area. This feature was a square pit containing secondarily deposited human remains in an odd mix of silty sand with mortar, slag, tar, and other construction debris. This feature is described in detail in the *Description of burial features* section below (p. 68).

The remainder of the units excavated on the east side of the building (Units 53, 56-62, and 67-76) were all 1 x 1 meter (3.28 x 3.28 ft) in size and excavated to a depth of 1.5 feet (46 cm). Fragmentary human remains (N=76) were identified in three test units (Units 74-76) in this section located at the north end of the east walk. In addition, Unit 76 contained a possible foundation feature (Feature 11 described below). Typically, units in this section south of these three units were comprised of a dark grayish brown, sandy fill overlying a mottled brown, light brownish gray, and pale brown, silty sand fill. Both levels frequently contained scattered historic artifacts, and the lower level frequently contained chunks of marble and marble construction debris. Several units had no cultural materials in one or both levels.

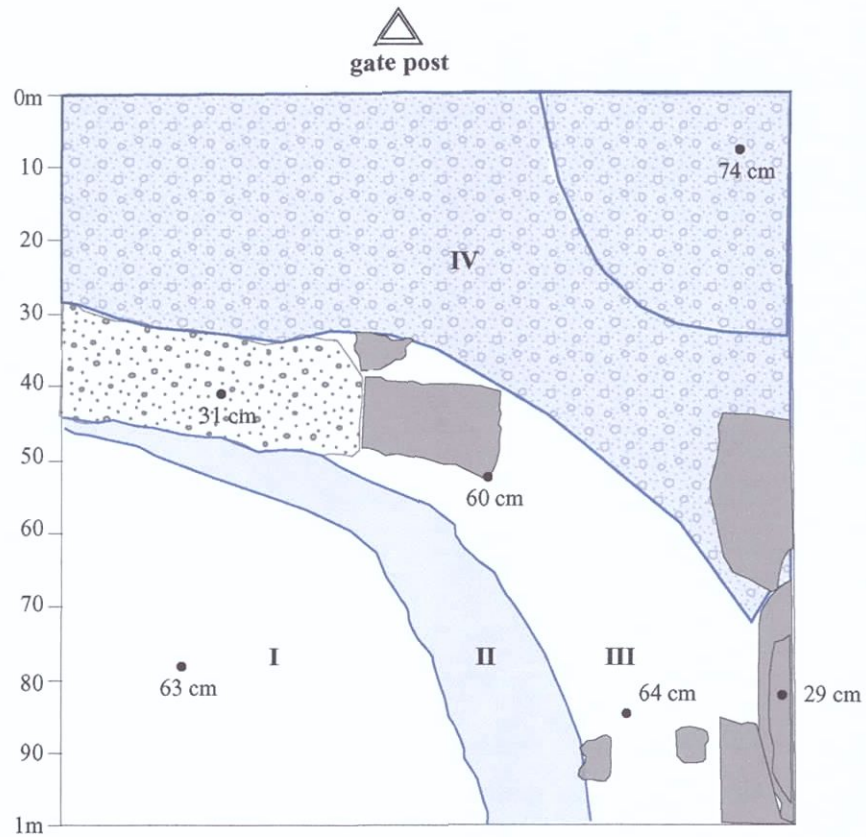
Again, Units 74-76 contained human remains in Level 2 (and also in Level 1 of Unit 76). These units consisted of a very dark grayish brown, silty sand with gravel fill overlying a mottled very dark grayish brown and dark brown, silty sand over a brown fine to coarse sand fill. Unit 74 contained a total of six fragments of human remains in Level 2 and Unit 75 had 40 fragmentary remains in the same level.





Unit 76 was excavated on the south side of the gate to the east drive of the courthouse. According to the LPC, previous archeological work identified a burial in this approximate location. Excavation of Unit 76 revealed a one-inch (2.54 cm) thick plywood board parallel to the foundation of the gatepost. The plywood board comprised the north wall of this unit. The board still had a nail and pink string attached suggesting that this was either the location of a previous archeological unit or was associated with construction of the gatepost and associated foundation. Since it was not known whether the burial was identified to the north or south of the gatepost, excavation proceeded carefully in an attempt to locate a previously excavated or protected burial feature.

Excavation of the unit revealed only historic fill with 25 fragmentary human remains in Levels 1 and 2 and the remains of a possible stone foundation (Fig. 7). The collection of fragmentary remains included two small cranial fragments, one adult maxillary incisor, three lumbar vertebrae fragments, one rib fragment, one pelvis fragment, and two foot bones. No intact human remains were identified in this location, and it appeared that the plywood board was most likely associated with the setting of the gatepost.

Feature 11, a probable foundation wall, was identified in Level 2 of Unit 76 at a depth of 23.6 inches (60 cm). Based on the placement of the stones and the associated builder's trench, it appears that this may be the corner of a former structure (Fig. 7). The only known structures close to this location are the mid-19th century firehouse and the Second Almshouse building.

Figure 7. Feature 11 Plan View (Unit 76).



- I Yellowish red silty sand
- II Dark brown sand
- III Strong brown clay/sand
- IV Brown silty sand
-  Concrete
-  Disturbance
-  Area containing fragmentary human remains
-  Stones



The firehouse is known to have been located within the northeast corner of the park adjacent to Tweed but much further east than this structure. Since the feature consists of what may be the northwest corner of a building, it may not be part of the original almshouse structure. Interestingly, the location of the wall underlies the hypothesized location of the *northeast* corner of the almshouse (see Appendix 1). This makes it likely that this feature was part of an older outbuilding and that the east wall of the almshouse was located several feet further west.

North side of courthouse

Introduction

The north side of the courthouse was considered the most highly sensitive area of the project due to several discoveries of intact and fragmentary remains in Chambers Street and underneath the sidewalk prior to and during earlier phases of this project. Formal excavations on the north side of the building were carried out between August 20 and October 27, 2001. Monitoring activities on the north side occurred at various points during this time and through November 15, 2001.

Excavations on the north side of the courthouse commenced approximately at the northeast corner of the courthouse and proceeded west. In all, 40 units and 6 shovel test pits were excavated on this side of the building. An additional 18 intact or partially intact burial features were identified, several of which contained more than one individual. In total, a minimum of 24 individuals were represented by these 18 burials. In addition to the intact remains, 9,484 fragmentary remains were removed during unit excavations and monitoring. The location of the burials and high concentrations of fragmentary remains are noted in the following discussion of the unit excavations, but the details of each burial are described in the *Description of burial features* section below (p. 68).

Northeast section (Map 11a)

Unit 81 was excavated on the north side of the gatepost opposite Unit 76 (see above). Excavation of this unit revealed the presence of very poorly preserved human remains in very compact soils. The unit began as a 1 x 1-meter (3.28 x 3.28 ft) unit, but was expanded in 1 x 1-meter increments as more intact remains were found. Expansion of the unit to a size of approximately 2 x 2 meters (6.56 x 6.56 ft) revealed a multiple burial (Burial 15) containing at least five partial adult individuals. While the remains were in the approximate path of the proposed curb heading north and then west, the curb was realigned several inches east to accommodate preservation of the burials.

Also identified in the east wall of Unit 81 were the partial remnants of a probable stone foundation wall (Photo 12) on a north-south alignment. This feature (Feature 14) extended into the east wall of the unit outside of the project area beneath the sidewalk. Given its orientation, it is possible that this is a portion of the east wall of the Second Almshouse. This lines up approximately with the hypothesized location of that building (see Appendix 1).



Photo 12. View east of Feature 14 (Unit 81) potentially a part of the east wall of the Second Almshouse.

Units 54, 55, and 63-66 were excavated at 5 foot (1.5 m) intervals along the proposed interior curb line. The units were generally excavated to a required depth of approximately 18 inches (46 cm). As in other areas, when cultural resources were identified, unit depths were extended in order to adequately explore, protect, and/or recover the resources. Units 54 and 55 were excavated adjacent to the existing fire hydrant located 24 feet (7.32 m) north of the courthouse's northeast corner. Unit 54 contained an 8.7-inch (22 cm) upper level of very dark brown, coarse silty sand gravel fill and a lower level of dark brown, coarse sand fill, both containing historic artifacts and faunal bone. Unit 55 contained fragmentary human remains (N=31) in a mottled brown, dark brown, and black coarse sand fill (Level 2) beginning at a depth of 6 inches (15 cm). The remains included small fragments of cranium, ribs, scapula, fibula, and several complete (but not intact) foot bones.

Unit 63 was excavated 5 feet (1.5 m) west of Unit 55. The southern third of this unit was comprised of a 6-7.9-inch (15-20 cm) level of black silty sand with asphalt and gravel void of cultural material. The northern two-thirds of the unit was a recent utility trench in a mottled dark brown and dark yellowish brown, silty sand. Due to the presence of a Con Ed utility duct in the northern section of the unit, excavation continued only in the southern third of the unit.

Beneath the black silty sand was a brown, fine to coarse silty sand historic fill with fragments of human remains and various cultural materials including nails, clam and oyster shell, and fragments of ceramics. Beneath the fill at a depth of 2.75 feet (84 cm) below the existing sidewalk, the lower portion of a partially intact burial (Burial 10) was identified. It was clear that the utility trench cut through the lower portion of the burial at an angle since the lower left leg and foot bones were missing (Photo 13). In order to identify how much more of the burial was intact the unit was extended to the west. This extension (Unit 63W) continued west for another 4.9 feet (1.5 m), revealing the remainder of a full coffin outline overlying the remains at a depth of 1.9 feet (58 cm).

In addition to identifying the coffin remains, the grave shaft outline of a second burial was identified just centimeters south and partially overlying the eastern portion of the Burial 10 feature at a depth of 14 inches (35 cm). This burial (Burial 11) was a complete intact burial of a 7-8 year old child (see further description below). During excavation of Burial 11, a third intact burial was identified beginning at the foot of the child burial and at the same depth. This unit (Unit 63E) was extended 5.9 feet (1.8 m) east of Burial 11 exposing what appeared to be a full grave shaft outline. Because the foot of this burial (Burial 12) exhibited evidence of prior disturbance (as the foot bones were scattered), the grave shaft was excavated in order to identify whether the remainder of the burial was intact. The burial consisted of two adult males buried head to foot in the same grave. The three burials are described in detail in the *Description of burial features* section below (p. 68).



Photo 13. Burial 10 identified in Unit 63. The left lower leg was destroyed by a previous Con Ed utility trench. Electrical duct waste can be seen protruding from the fill on the right.

Burials 10, 11, and 12 were fully documented, protected, and left in situ. Since these burials were within the impact depth of the proposed curb, the curb line was moved north in order to avoid impacting the burials. During the preparation of these burials, a fourth burial (Burial 24) was identified just west of Burial 11, and a potential fifth burial (Burial 27) was identified to the north. Burial 24 consisted of a partial coffin outline that extended into the wall of the excavation area underneath the sidewalk. Because this burial technically was now outside the area of impact, it was documented and protected along with the three other burials rather than excavated.

Burial 27 was first identified by the presence of intact right foot bones and corresponding tibia at a depth of 2.8 feet (85cm) in the north wall of the access trench for Burials 10-12. Unit 63N was excavated in order to investigate whether any associated remains were present and to assess the integrity of the burial. Excavations (described below) revealed three heavily disturbed partially intact adult burials. Due to the degree of disturbance, the shallow depth, and that the new curb line would rest here, these fragmentary remains were removed.

Unit 64 was excavated 2 feet (.6 m) west of Unit 63W to test for the presence of additional burials in this area. While fragmentary human remains were identified from approximately 4-34 inches (10-85 cm) in depth, no intact remains or features were identified. Soils in this unit consisted of a deep layer of modern fill containing candy wrappers, plastic, bottle caps, and the like up to 3 feet (90 cm) in depth. Undisturbed reddish brown, coarse sand void of cultural material was found at approximately 3.28 feet (1 m).

Units 65 and 66 were 5 feet (1.5 m) and 10 feet (3 m) west of Unit 64. Modern disturbance associated with Con Ed utility work (in the form of a cement utility duct) was identified in both units at a depth of 7.9 inches (20 cm). The soils consisted of yellowish brown, clean sand fill with gravel and modern trash.

Units 73 and 73E were excavated in the proposed location of a lamppost on the outer sidewalk curb 18 feet (5.5 m) east of the northeast corner of the Tweed staircase (see Map 11a). Unit 73 identified a partially intact burial (Burial 13) beneath a layer of concrete that apparently was poured directly over fragmentary human remains in a dark brown, silty sand. The intact remains were identified at 2 feet (62 cm) below the top of the new curb, which was already in place. Within the unit, the burial consisted of the upper legs, pelvis, and lower arms. The burial feature extended into the west wall of the unit, and the remainder of the skeleton was cut at the mid-femur by a previous disturbance (see *Description of Burial Features* section, p. 68). Given the shallow depth of the burial and the fact that it extended further west, this unit was abandoned as the lamppost location. However, in order to try to accommodate the lamp in this general area Unit 73 was extended another 3.28 feet (1m) east (Unit 73E). This unit contained human remains in a 1.64 foot (50 cm) layer of dark brown, silty sand fill that was previously disturbed by a utility trench.

The area south of Units 73/73E was considered highly sensitive, as a burial was previously identified in an unknown location between these units and the courthouse (according to information provided by LPC). Units 77 through 80 were excavated at 5 foot (1.5 m) intervals beginning 8 feet (2.4 m) south of Units 73/73E (see Map 11a). In all, 149 fragmentary remains were collected in Units 78-80.

Unit 77 (the northernmost unit) was comprised of modern dark yellowish brown, sand fill containing a concrete utility duct. Units 79 and 80 both contained modern and historic silty sand fill with scattered human remains from Levels 1 through 3 (up to two feet deep). Unit 78 contained gravelly silty sand fill with miscellaneous historic artifacts and fragmentary human remains in two levels to a depth of 1.97 feet (60 cm) below current grade. A partial grave shaft outline was identified in the south wall at the bottom of the unit, and further inspection revealed several articulated adult foot bones on the floor of the unit at a depth of 2.07 feet (63 cm). It appeared from the orientation of the few foot bones visible that the grave was oriented east-west and that the grave shaft extended into the west wall of the unit. Because the burial feature (Burial 28) and remains were observed well below the proposed construction depth, the feature was covered in plastic, marked with pink flagging tape, and the unit was backfilled. The burial is located 25 feet (7.6 m) south of the lamppost placed in Unit 73E and 28 feet (8.5 m) from the Tweed staircase.

During grading of this area prior to the sidewalk construction, a second burial (Burial 14) was identified approximately 10 feet (3.05 m) east and 2 feet (0.6 m) south of Burial 28. This adult burial also was oriented east-west. Again, because this burial was identified just below the impact depth, it was documented and covered with a small box and plastic and backfilled.

One final excavation in this area was monitoring during the relocation of the fire hydrant adjacent to Unit 55 near the northeast corner of the courthouse. Most of the trench (Trench A) was comprised of both historic and modern fill with miscellaneous 19th-century historic artifacts and modern trash. A pocket of fragmentary human remains (N=354) was identified in south end of the trench close to Unit 55.

Northwest section (Map 11b)

On the northwest side, nine burials and four intact cultural features were identified. The excavation of units in this section of the project is described below. The location of the burials and features are outlined here, but more detailed descriptions of these features are provided in the *Description of burial features* and *Summary of other sites identified within the project area* sections below (p. 68 and p. 159, respectively).

Units 86-89 were excavated on the west side of the staircase along the path of a curb line adjacent to the staircase. The stratigraphy of this section included up to three levels of fill containing an upper level of very dark brown silty sand with construction debris (concrete, nails, stones) and historic and modern refuse; a second level of black sandy, gravelly fill with coal, slag, historic refuse, and fragmentary human remains; and a third level of dark brown, silty sand with historic refuse and fragmentary human remains. No intact burials or other cultural features were identified in this area.

Units 82-85 were excavated on the opposing curb line (to the west) on a north-south transect from the courthouse north toward Chambers Street. Prior to unit excavations in this area the topsoil was excavated down to the level of the dark brown to reddish sand, which characterized the provenience of all of the intact burials. The surface of this subsoil appeared relatively disturbed and

mottled and contained historic artifacts and fragmentary human remains. No grave shaft outlines were observed at this level; however, several units were placed at 5 foot (1.5 m) intervals along the curb line to investigate the soils to a deeper level. Units 82 and 83 contained one 1.6-foot (50 cm) level of dark brown silty sand with historic refuse and fragmentary human remains. Unit 84 also contained fragmentary human remains in the upper 8 inches (20 cm) of fill. The subsoil in the area just north of Unit 84 appeared to be similar in composition and color to that in which other intact burials were identified. Therefore, rather than beginning excavation of a unit, the remaining topsoil was removed with shovels and the reddish brown historic sand fill was carefully removed with hoes and trowels in order to search for grave shaft outlines. At a depth of 9.8 inches (25 cm) below the top of the new curb, a coffin outline was observed. Further inspection also revealed the presence of a grave shaft. This feature was excavated as Unit 85, and was found to contain two partially intact adult burials (Burials 16 and 17, described below in the *Description of burial features* section, p. 68).

Unit 90 was excavated north of the two burial features at the point where the curb line takes a turn to the west. The unit was initially excavated as a 1 x 1-meter (3.28 x 3.28 ft) unit, but upon the identification of what appeared to be fragmentary human remains, the unit was extended to the north and south in order to identify whether any intact remains were also found in this area. The overall unit was comprised of fairly disturbed silty sands with construction debris and a large tree root. Fragmentary human remains were identified surrounding the tree root in two separate locations within the unit. The remains were found as deep as 2.5 feet (75 cm) below the top of the new curb. Most of the remains collected from this unit (N=1,009) were from the top half of the body suggesting they could be associated with the two burials south of this unit. Unit 96 was excavated for the installation of a lamppost approximately 10 feet (3.05 m) north of Unit 90. This unit identified a potentially intact burial (Burial 22) in the east wall of the unit.

West of Unit 90 nine additional units (Units 91-95 and 100-103) were excavated along the interior curb line over a length of approximately 65 feet (19.8 m). Within this area, six partially intact burials and four additional cultural features were identified. Overall, this section was characterized by alternating burial features and scattered pockets of intrusive disturbances, which affected the integrity of the burials. Several of the disturbances included cultural features which were intrusive into the burial features.

Unit 91 contained Feature 15 (a linear brick drain) and two partially intact burials. Feature 15 (Photo 14) was identified in the south and east walls of the unit. It was first identified by two rows of bricks lined up north-south in the east wall and east-west in the south wall. The shallowest bricks were at a depth of 15 inches (38 cm) below the top of curb. Overlying the feature was a dark brown, silty sand fill with historic refuse including ceramic fragments, construction debris, and faunal bone.



Photo 14. View south of Feature 15 (Unit 91/91W), a possible c. 1810 brick-lined drain associated with the Second Almshouse.

The original unit was expanded another meter west (Unit 91W) in order to uncover the full width of the feature. Further investigation of the feature revealed a semilunar brick-lined base, the deepest point of which was 2.8 feet (85 cm) below top of curb. The brick lining appeared to be coated with a thin cement containing flecks of mortar. The remnants of the feature were approximately 4.9 feet (1.5 m) in length from east to west. To the north and south, the feature extended outside of the proposed impact area. The feature was documented and left intact and backfilled.

Since the top of the feature appeared to be destroyed by previous construction and the feature's extension to the north outside of the impact area, it is difficult to interpret the purpose of the feature. However, the feature does appear to be some type of drain. Given the shape of the feature as well as its northerly direction, it is possible that this is the Second Almshouse drain dating to 1810 (see Hunter 1994:2-205). While Portland cement was not in full use until 1824 (Portland Cement Association 2002), other types of cement predated this material (Buckley Rumford Company 2002). The presence of an earlier type of cement coating the interior of this feature points to a relatively early date for this feature. Hunter Research's sensitivity study rated this feature as having no archeological potential since the precise location was unknown, and it was assumed to be "at least partially destroyed" by the construction of Tweed Courthouse (Hunter 1994:2-205). However, because of the presence of numerous intact features in this area, it is likely that a portion of that drain may survive as well.

During the excavation of Unit 91W, a potential grave shaft outline was observed in the northwest corner of the unit at a depth of 2.8 feet (84 cm). The unit was expanded further west in order to explore this burial feature, which contained two partially intact burials (Burials 18 and 19). The burials are discussed in the *Description of burial features* section below (p. 68).

Feature 16 was identified in Units 92 and 104, excavated 5 feet (1.5 m) west of Unit 91/91W. This unit was excavated beginning at a depth of 20-24 inches (50-60 cm) below the top of the newly installed curb along the Chambers Street sidewalk. Level 1 was comprised of 8 inches (20 cm) of modern and historic fill, deposited in several episodes. Level 2 was a dark reddish brown sand with some inclusions and disturbance from Level 1. Fragmentary human remains were found in the north wall of the unit — seven fragments in Level 1 and 13 fragments in Level 2.

At the interface of Levels 1 and 2, an L-shaped cut stone feature (Feature 16) was exposed in the center of the unit. In order to investigate the dimensions and integrity of the feature, the unit was expanded west to follow the path of the north wall of the feature. Excavation of this unit (Unit 104) revealed that the north wall of the feature extended approximately 3.3 feet (1.0 m) in length on an east-west alignment (Fig. 8). At the west end of this wall, the feature took a 90-degree turn to the south, revealing that it was either square or rectangular in shape. The feature extended south outside of the project area and beneath several feet of fill, and therefore could only be partially excavated. However, based on the excavation of the east wall of the feature as far as possible, it was determined that it was over 3 feet (90 cm) in width from north to south.

Due to time constraints and the feature's location, only about 40% of the exposed feature was excavated through a series of four strata existing from 3.9 to 9 feet (1.2 to 2.75 m) in depth (Photo 15). Figure 9 illustrates the stratigraphy of this feature, including the stone wall exposed in the feature's south wall. Levels 3 through 6 contained characteristic privy soils with a high concentration of late 18th-to early 19th- century artifacts. This feature is described in more depth in the *Summary of other sites identified within the project area* section below (p. 159).

Unit 93 was excavated adjacent to and on the west side of Unit 104. The upper level of this unit contained disturbed human remains along with various fragments of historic artifacts. The northern one-third of this 1 x 1-meter (3.28 x 3.28 ft) unit contained a grave shaft and coffin outline running on an east-west alignment and into the west wall of the unit. Due to the amount of disturbance identified west of the burial feature, which included disturbed human remains, the unit was extended east and west in order to identify the full outline of the feature and to assess whether intact remains might be present. Unit 100 was excavated between this unit and Unit 94 in order to investigate the area of disturbance west of this burial (Burial 20) and east of Burial 21, identified in Unit 94. Burial 20 was comprised of a partially intact grave. Given that a clear coffin outline and grave shaft were still visible, the feature was not excavated any further.

Figure 8. Feature 16 Plan View (Unit 92 and Unit 104).

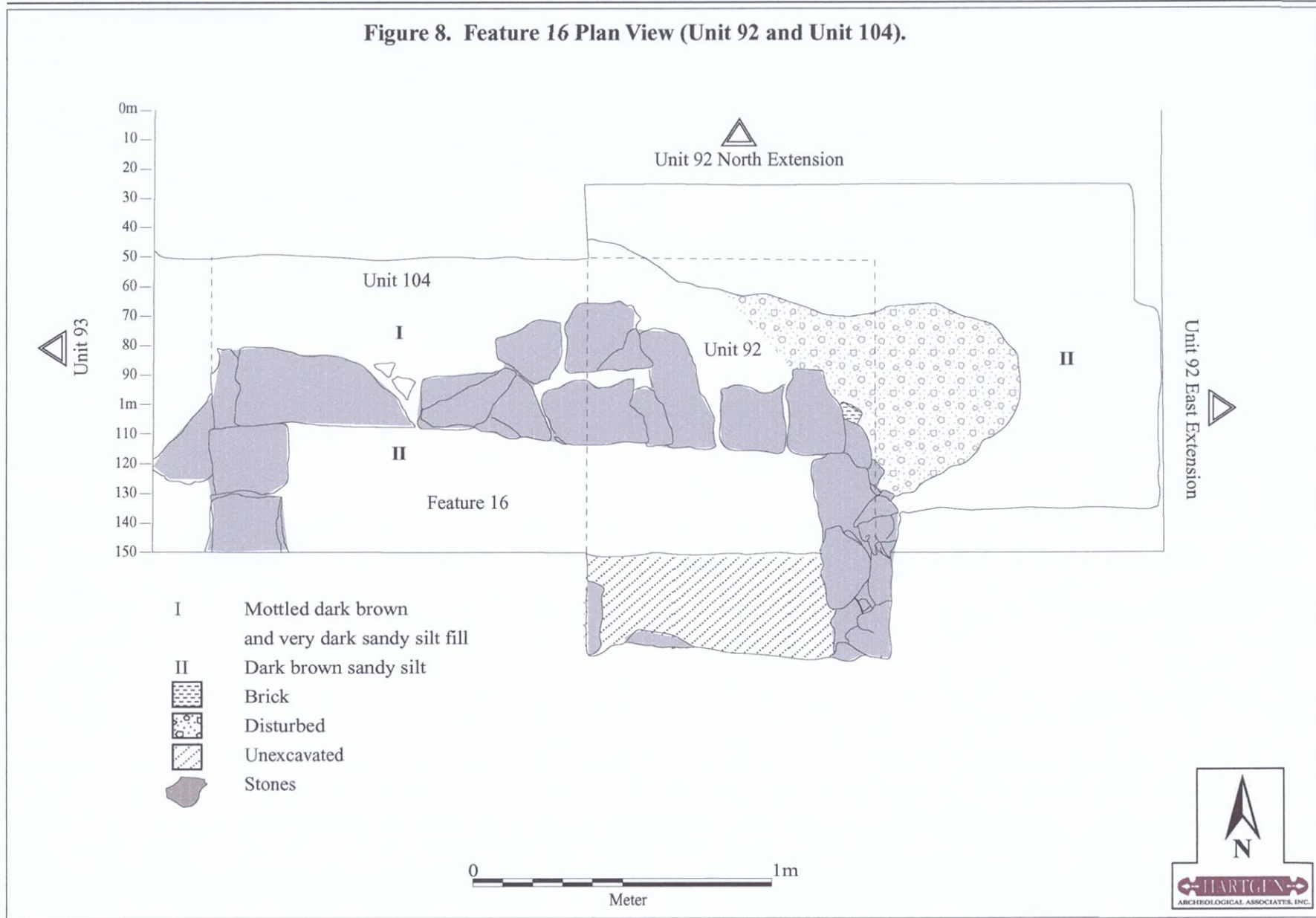
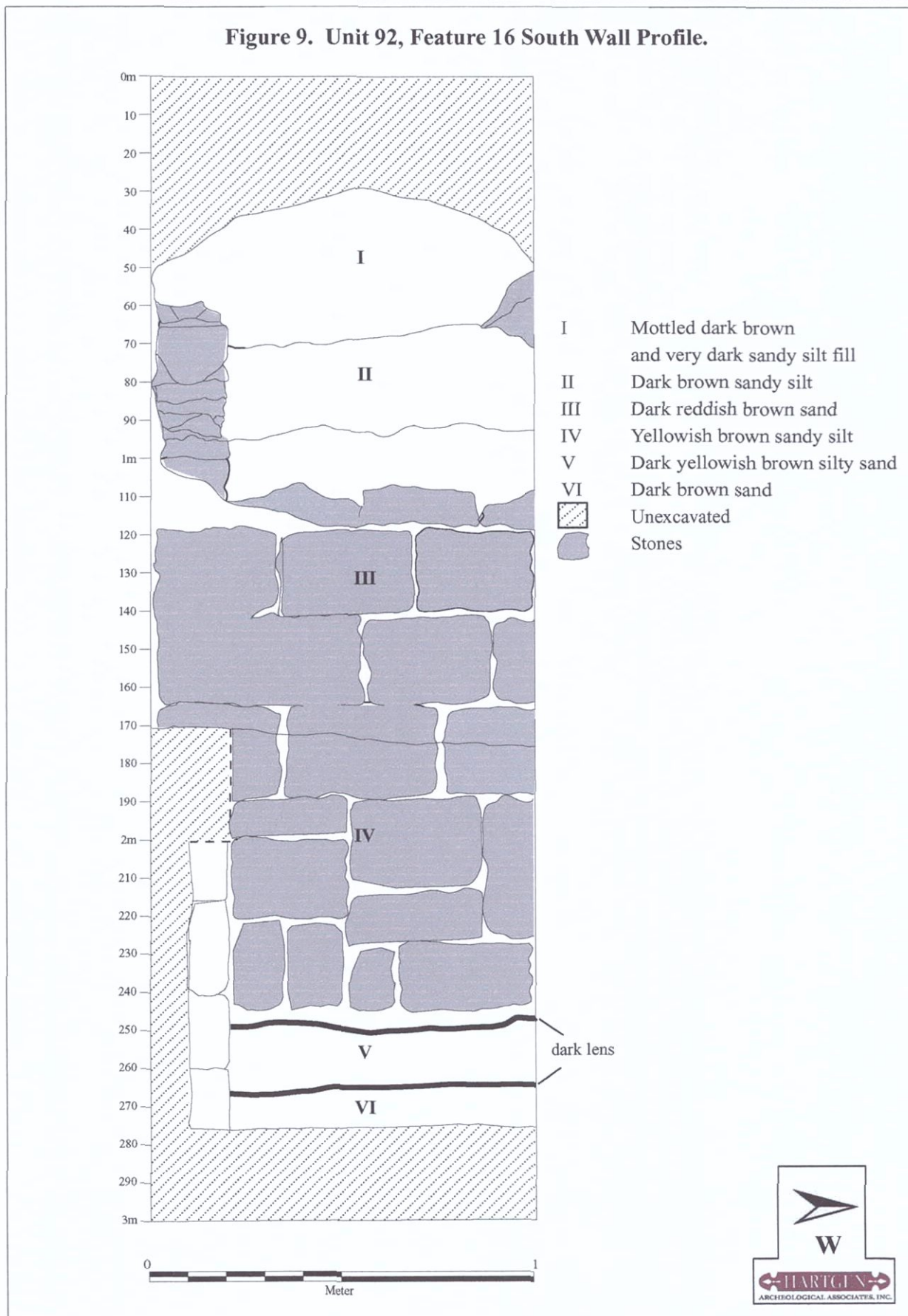




Photo 15. View south of Feature 16 (Units 92/104), a stone-lined privy dating to the late 18th to early 19th century.

Figure 9. Unit 92, Feature 16 South Wall Profile.



Unit 94 was excavated 5 feet (1.5 m) west of Unit 93. This 1 x 1-meter (3.28 x 3.28 ft) unit also identified a grave shaft and coffin outline underlying a level of fill with fragmentary human remains. This feature was identified in the center of the unit and extended into both the east and west walls of the unit. The unit was expanded in both directions in order to investigate the full outline of the feature. Nearly the entire grave shaft and coffin outline were present and therefore the feature (Burial 21) was left intact.

Given the number of features identified from the eastern end of this impact area up to and including Units 94 and 100, the decision was made to investigate the entire length of the curb line to ensure that no features would be missed. Unit 95 was excavated on the west side of Unit 94. A heavily disturbed burial (Burial 23) was identified in this unit. The burial was first identified by the presence of a partial grave shaft, but further investigation of the feature revealed that the burial was destroyed in several areas, and that few remains were left intact. For these reasons, the remains were removed.

Unit 101 (a 1 x 1-meter [3.28 x 3.28 ft] unit) was excavated on the west side of Unit 95. As with other units along the length of this east-west curb line, fragmentary human remains were identified in Level 1. Below this level of fill, a small section of a heavily disturbed burial was identified as well as a cut stone feature which intruded into the burial feature. The burial (Burial 25) contained only fragmentary foot bones outlined by a partial grave shaft feature at the east end of the unit. A partial left femur from the burial still remained in place in the west end of the unit (Photo 16), but other than that no additional remains were found. The remainder of the burial was most likely destroyed by construction of the feature.

Unit 101 was extended west in order to assess the extent and integrity of the stone feature. Further investigation revealed the top of a rectangular-shaped feature constructed of stone and brick. The stone outlined what appeared to be the exterior walls of the feature, while the brick outlined its interior walls. It appeared that the original feature had collapsed inward from the top as bricks were scattered in the center of the structure (Photo 17 and Fig. 10). In order to investigate whether the underlying remnants of the feature were still intact, the disturbed bricks were removed and the remainder of the feature was excavated. This process involved extending the unit just a foot outside of the impact area. Excavation of the feature (Feature 18) from the level of disturbance down revealed a 1.6 foot (.5 m) deep structure with a brick floor (Photo 18).

The feature began at a depth of 17 inches (43 cm) below the top of the new curb. Figure 11 illustrates the feature's full profile. Soils excavated from the feature included a 3.9-7.9 inches (10-20 cm) level of black, sandy silt rich in historic materials (Level 2) overlying a dark yellowish brown, sandy silt also rich in cultural materials (Level 3). The composition and odor of the Level 2 soils were suggestive of privy soils, indicating the possibility that a second privy existed in this area. However, it was considered odd that the privy would be so shallow and have a brick floor.

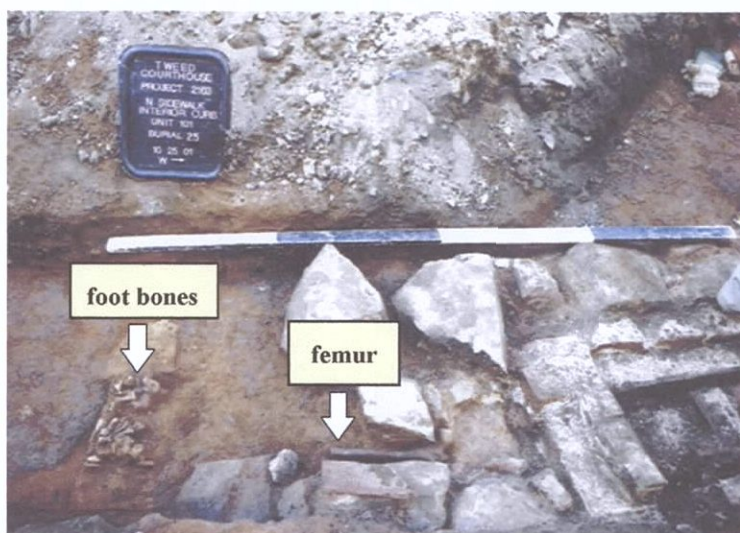


Photo 16. View south of Burial 25 with Feature 18 clearly intrusive into the grave.



Photo 17. View west of Feature 18. Note the collapse of bricks at the top of the feature.

Figure 10. Burial 25 and Feature 18 Plan View (Units 101/102).

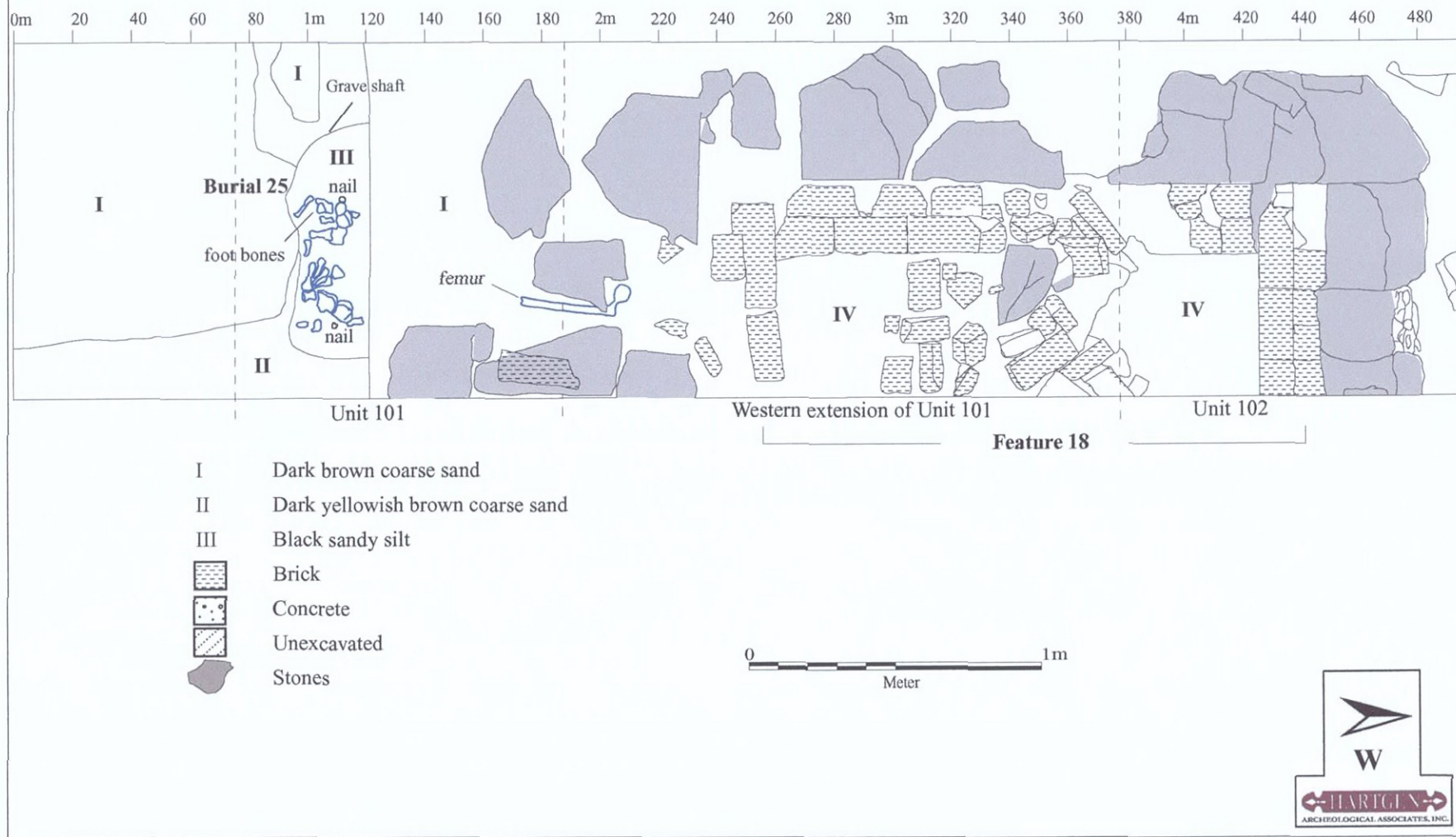


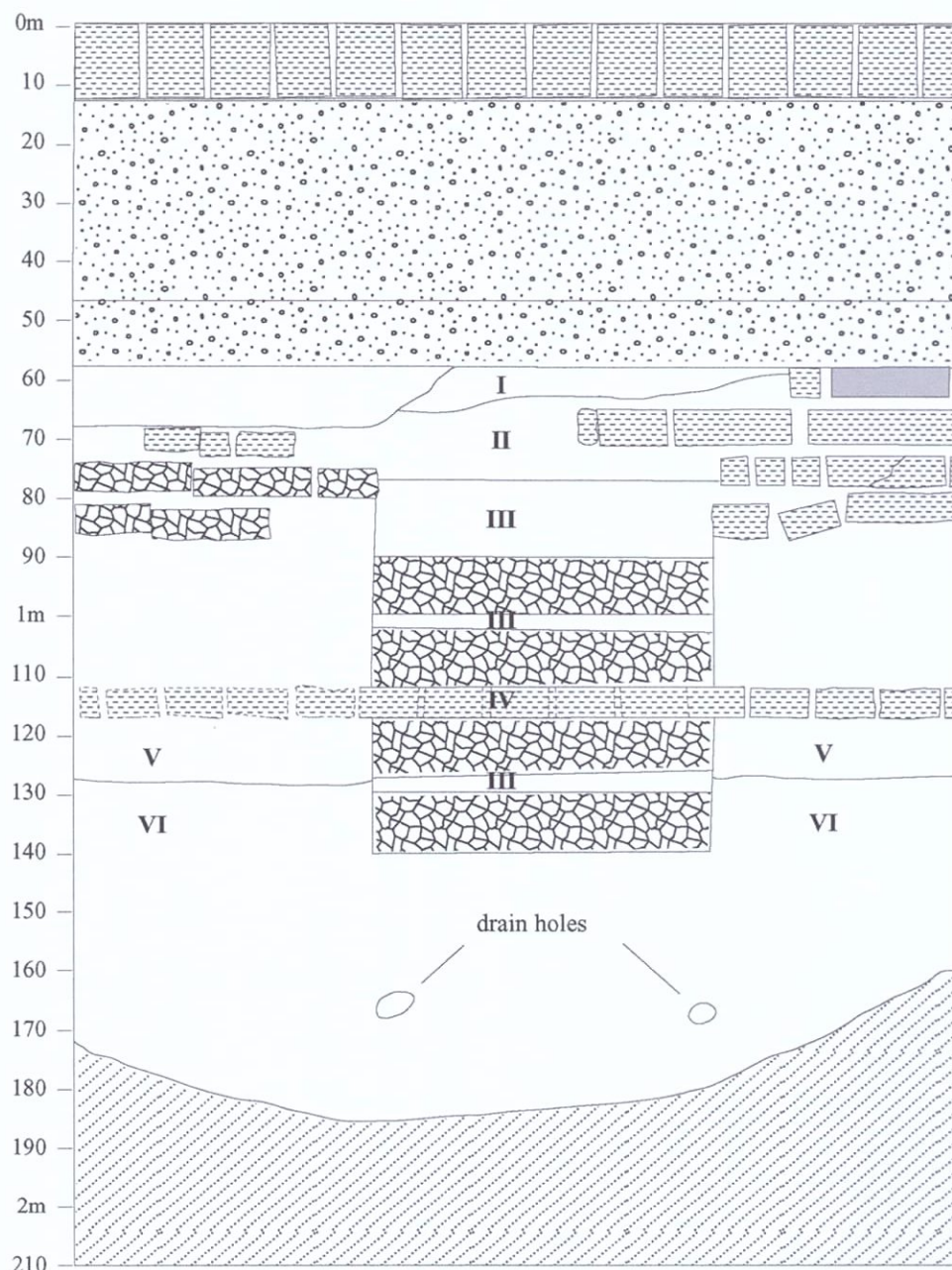


Photo 18. View south of Feature 18 illustrating exterior cut stone walls, interior brick walls, and a brick floor.

The brick-lined interior was comprised of, from the floor up: a row of headers, four rows of stretchers, and a top row of headers. However, given the collapse of the feature the full composition of the feature from bottom to top is indecipherable. Once the interior of the feature was excavated to the level of the brick floor (Level 4), the floor and west wall were removed in order to study the construction of the feature. Investigation of the west wall and removal of the brick interior revealed the plan of the exterior wall of cut stone and mortar extending one course below the brick floor (Photo 19). The mortar was composed of crushed sea shell, indicating a date of construction pre-dating 1820. Directly beneath the bottom course of the brick wall some thin remnants of wood remained were present, possibly the remains of some type of frame used to construct the feature.

Removal of the brick floor revealed two additional strata, including a 6 inch (15 cm) level of brown, silty sand (Level 5) with a comparatively small amount of cultural material but several fragments of human remains. Due to the presence of fragmentary human remains, the entire brick floor was removed and the soils beneath were excavated and screened. Several additional human remains were identified, including a right temporal bone, several vertebrae, several ribs, a hand phalange, and a metatarsal.

Figure 11. Unit 101/102, Feature 18 North Wall Profile.



- I Mottled black and dark brown sandy silt
- II Black sandy silt
- III Dark yellowish brown silty sand
- IV Brick floor
- V Brown silty sand
- VI Mottled dark brown sand with very dark brown organics and brown sand with gravel

- Brick
- Concrete
- Fieldstone
- Unexcavated
- Stones

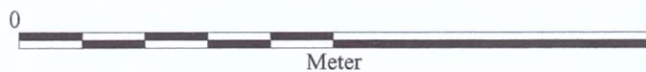




Photo 19. View west of the west wall plan of Feature 18 following removal of brick floor. The feature's exterior walls were comprised of cut stone and were lined with one course of brick.

The bottom stratum of the feature (Level 6) was comprised of mottled dark brown sand with very dark brown organics and brown sand with gravel void of cultural material except for a small sample of ceramic, metal, shell and glass (N=7) and one human rib fragment from what appeared to be two small drain holes. While the structure of the drains (presumably wood) had decomposed, there were two two-inch (5 cm) holes in the soil at a depth of 5.4 feet (1.65 cm) in the north wall of the feature. A few nails and wood fragments were found near the drain as well. The section of the north wall containing the drain features was constructed within a notch built into the wall (see Photo 18). The south wall also contained this notch, but no drain remnants were identified on this side.

Regarding interpretation of this feature's function, while the structure appeared to contain privy-like soils, its intended use was most likely something other than a privy. The shallow depth of the feature, the brick floor, and the double-walled structure suggests another use. In addition, analysis of soils from this feature identified an absence of parasite eggs and other biological and chemical evidence of fecal origin (Appendix 12).

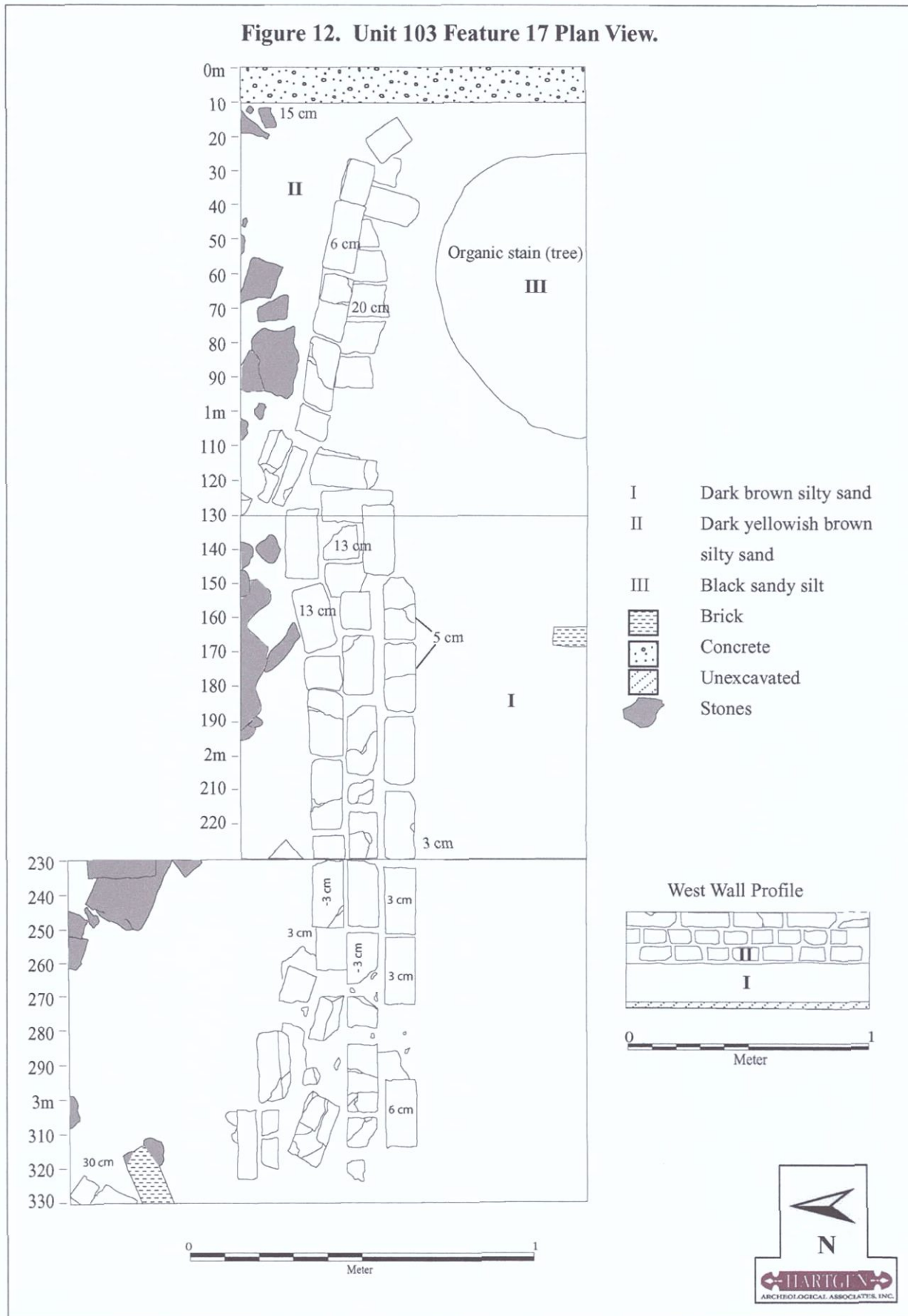
Given the dense walls, the structure may have been a cold storage shed, with the double walls functioning to maintain a low internal temperature. Following its primary use, however, the feature appears to have been used as a refuse pit, which explains the dark organic soils containing a high concentration of artifacts. The historic materials from this feature are described in more detail in the *Summary of other sites identified within the project area* section below (p. 159).

The final unit (Unit 103) excavated on the alignment of the northwest curb contained Feature 17, the remnants of a brick wall running in a north-south direction (Photo 20) in the location where the curb turns south adjacent to the west gate of the courthouse. Due to the amount of disturbance identified immediately west of Feature 18, Unit 103 was excavated at a distance of 5 feet (1.5 m) from the west end of that feature. In order to investigate how much of the wall remained intact, the unit was extended to the north and south, following the path of the wall. The full length of the remaining wall was approximately 10.5 feet (3.2 m) in length, although the north and south ends had collapsed (Fig. 12). While the typical historic fill overlay the wall, no cultural materials were identified in the level of the wall itself.



Photo 20. View southwest of Feature 17, the remnants of a brick wall identified in Unit 103 adjacent to the west gate of Tweed Courthouse.

Figure 12. Unit 103 Feature 17 Plan View.



Despite the amount of disturbance to the wall and the small proportion of the wall remaining in situ, several observations could be made about this feature's structure. The wall was three courses wide and the most intact portion of the wall consisted of a top row of stretchers overlying two rows of headers. This was the bottom of the wall, as the bottom course of brick lay on a dark brown coarse sand base. A dark narrow stain below the bottom course may suggest that the wall was constructed on a plank of wood, similar to Feature 18.

Based on the composition and dimensions of the brick, the wall appears to date to post-1850 (Allan Gilbert, personal communication, 2002). The dimensions of the brick were $7\frac{3}{4}$ inches long, $3\frac{1}{2}$ - $3\frac{3}{4}$ inches wide and $2\frac{1}{2}$ inches thick. The brick was characterized by streaks and strike marks related to sweeping off the top of the mold as the bricks were drying. One of the bricks appears to have a brand that reads "JC," although the marks is not entirely clear. The brick most likely originates from the Hudson Valley (Allan Gilbert, personal communication, 2002).

In terms of the wall's structure, mortar on the western facade of the wall was finished in appearance while on the opposite side the mortar was rough and unfinished (Photo 21). This may suggest that the west side of the wall was the interior side and that the mason either did not have access to the east side of the wall or that it was not important to finish the interior wall.



Photo 21. View west of Feature 17, the remnants of a brick wall. Note the rough and unfinished appearance of the mortar on this side of the wall.

The location of the wall closely matches the west wall of the Second Almshouse building (see Appendix 1), which was a brick structure. However, given the proposed date of the wall it would have been built following use of the building as an almshouse. The almshouse was converted into a arts and cultural institution after the tenants were moved from the building in 1816. Interestingly, the c. 1825 illustration of the building shown in Figure 1 indicates a solid exterior wall in what appears to be the location of Feature 17. While this does not match up with the probable date of the brick, it is possible that the wall in the illustration (which does not appear to be brick) was later replaced by brick. The function of this wall is unknown.

The last units excavated in this section were Units 97 through 99, 105, and 106, located on the west side of the west gate of the courthouse in order. Units 97 and 99 contained modern yellow sand fill associated with an electrical utility, and Units 98, 105, and 106 contained modern fill with little to no cultural material.

Summary of the field work

As outlined above, the extensive fieldwork carried out for the Tweed Courthouse project resulted in the identification of numerous historic burials, several significant features, and a modest collection of artifacts from intact archeological deposits. In general, with the exception of the intact features, soils throughout the entire project area consisted of historic and modern fill from numerous construction episodes on this property. Based on the results of the fieldwork and documentation of potential features in the area (Hunter 1994) it is clear the the property and underlying soils were affected by the following activities, most of which were confirmed through this study despite the extensive prior disturbance to the property:

- 18th- to early 19th-century burial grounds associated with the First Almshouse, Bridewell, military barracks, and potentially the African Burial Ground;
- construction of Chambers Street (c. 1796);
- construction of the Chambers Street sewer (1797-?);
- construction and demolition of the Upper (1757-1790) and Second (c. 1774) Barracks;
- construction and demolition of the Second Almshouse (1797-1857);
- construction of almshouse privies (c. 1797-1810);
- construction of drain from Second Almshouse yard to Chambers Street (1810);
- construction of Tweed Courthouse (1861-1881);
- various utility construction and replacements in Chambers Street; and
- renovation of Tweed Courthouse (2000-2001).

The next several sections describe the burial and structural features identified during the fieldwork, followed by an analysis of the human remains and artifacts.

Description of burial features

Table 2 lists all burial features identified during the 2000-2001 work at Tweed Courthouse. The following section describes each feature or groups of burials individually. As stated previously, all intact burials were identified on the north side of the courthouse. In addition, all but two burials were oriented east-west. The two identified on the northwest sidewalk were buried north-south. All burials were extended and supine (lying on the back).

Burials 1, 2, and 8 (Trench 1)

Burials 1 and 2 were identified in the section of Trench 1 that turns west toward the courthouse (see Map 11a). Both were identified in the east wall and were discernible by the presence of top of the cranial vault and a grave shaft outline. The graves were located approximately 1.9-2.0 feet (60-70 cm) below current grade, and were 7.87 inches (20 cm) apart (Fig. 13). Given the placement of the cranium, it is clear that the two graves lay east-west with heads to the west. Only one artifact was observed within these burials: Burial 2 had one decomposed coffin nail at the base of the grave shaft. From the cranial remains observed in the trench wall, it appears that these were two adult burials.

Burial 8 was discovered south of Burial 2, also in the east wall of the trench (Fig. 14). The remains were identified at a depth of approximately 2.95 feet (90 cm) below current street grade, a little deeper than Burials 1 and 2. It was clear that this burial had been affected by previous disturbances, as only remains from the waist down (pelvis, rib, and vertebrae fragments and a right femoral head) were observable in the wall. Given the placement of the remains, it is clear that this individual was also buried on an east-west alignment with the head to the west. While only a few remains were discernible in the trench wall, it was determined that this individual was most likely under the age of 20, as the humeral head and vertebral rings were unfused. The vertebral rings normally fuse between the age of 17-25 (Bass 1987:78) and the femoral head by about the 20th year (Bass 1987:111).

The three burials (Photo 22) were not excavated since they were not in the path of construction and instead only bordered the construction area. Instead, plywood shoring and plastic sheeting were constructed in order to protect the remains in the wall and keep the burials at a distance of at least one foot (30.48 cm) from the water pipe (Photo 23).

Burials 3 through 7 (Trench 3)

Burials 3 through 7 were all identified in Trench 3 (Map 11b; Fig. 15), the proposed fire hydrant lateral running from the east-west trench in Chambers Street to the sidewalk in front of the courthouse. Burials 3 and 4 were identified in the east wall of the trench approximately 7.87 inches (20 cm) apart; interestingly, these were placed at the same distance as Burials 1 and 2 in Trench 2. Each burial consisted only of fragments and it was clear that similar to Burial 8, previous trench work had destroyed a portion of these burials. In the trench wall, hand phalanges, pelvis fragments, and

Table 2. Description of burials identified during Tweed Courthouse 2000/2001 fieldwork.

Burial #	Unit #	Location	Burial Type		Age		Condition	Portion(s) excavated	Protected in situ	Orientation			Grave Shaft	Coffin Outline
			Single	Multiple (number)	Adult	Child				E/W	N/S	Head		
1	Trench 2	Chambers Street just E. of stairs.	X		X		At least partially intact in grave shaft (cranium observed).	Unexcavated.	X	X		W	X	
2	Trench 2	Chambers Street just E. of stairs.	X		X		At least partially intact in grave shaft (cranium observed).	Unexcavated.	X	X		W	X	
3	Trench 3	Chambers Street just W. of stairs.	X		X		At least partially intact (in trench wall): cut through mid-section.	Portion exposed to I.D. whether intact or not.	X	X		W		
4	Trench 3	Chambers Street just W. of stairs.	X		X		At least partially intact (in trench wall): ribs and vertebrae. Cut through mid-section.	Portion exposed to I.D. whether intact or not.	X	X		W		
5	Trench 3	Chambers Street just W. of stairs.	X		X		At least partially intact (extends into trench wall): lower legs.	Portion exposed to I.D. whether intact or not.	X	X		W	X	X
6	Trench 3	Chambers Street just W. of stairs.	X		X		At least partially intact (extends into trench wall): cranium and humerus.	Portion exposed to I.D. whether intact or not.	X	X		W		

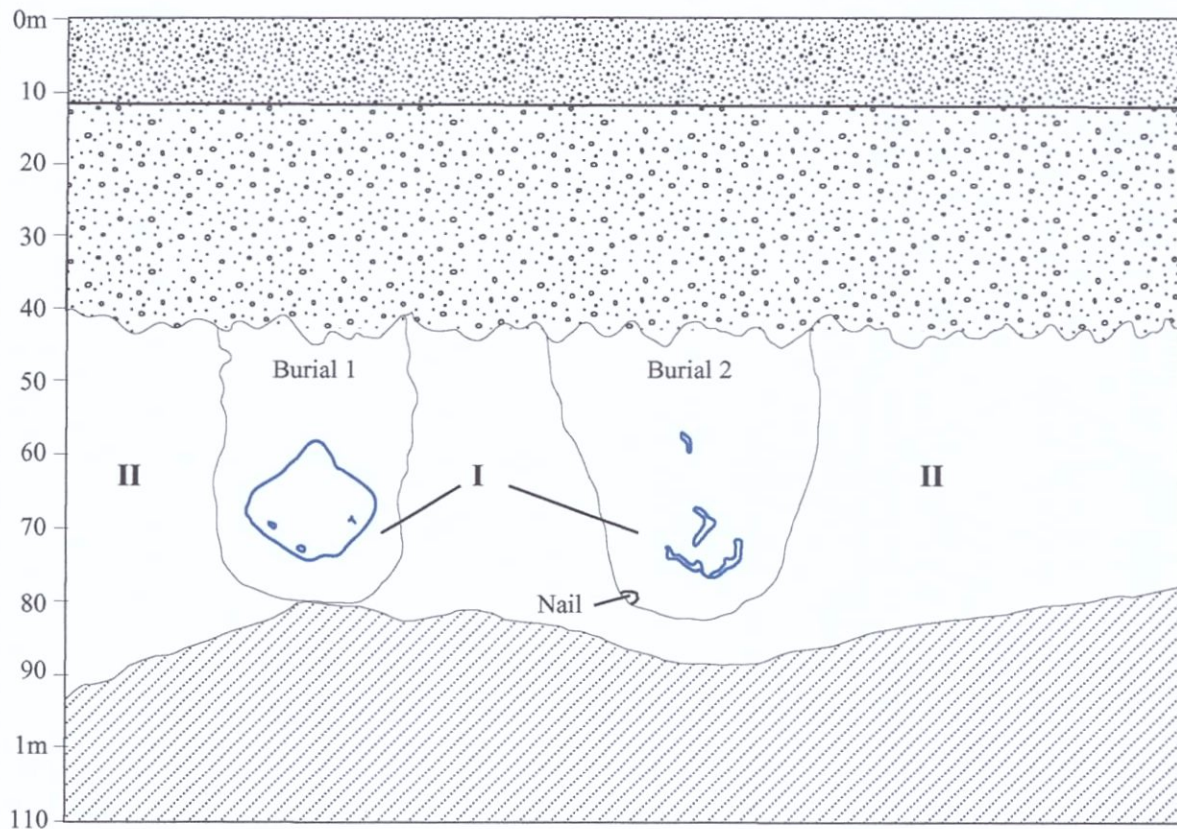
Burial #	Unit #	Location	Burial Type		Age		Condition	Portion(s) excavated	Protected in situ	Orientation			Grave Shaft	Coffin Outline
			Single	Multiple (number)	Adult	Child				E/W	N/S	Head		
7	Trench 3	Chambers Street just W. of stairs.	X		X		At least partially intact (extends into trench wall): cranium and intact vertebrae.	Portion exposed to I.D. whether intact or not.	X	X		W		
8	Trench 2	Chambers Street just E. of stairs.	X			X	Partially intact (in trench wall): disturbed above pelvis.	Unexcavated.	X	X		W		
9		NW sidewalk adj. to Burial 26.	X		X (F)		Partially intact: disturbed below pelvis/hands.	Completely exposed.	X		X	S	X	
10	63/63W	NE corner.	X		X		Nearly intact: L. lower leg and foot missing. Partially below Burial 11.	Unexcavated except for knees and below.	X	X		W	X	X
11	63/63W	NE corner.	X			X	Complete. Partially overlying Burial 10.	Completely exposed (with the exception of hand and foot bones due to fragility).	X	X		W	X	X

Burial #	Unit #	Location	Burial Type		Age		Condition	Portion(s) excavated	Protected in situ	Orientation			Grave Shaft	Coffin Outline
			Single	Multiple (number)	Adult	Child				E/W	N/S	Head		
12	63E	NE corner.		X (2)	X (M)		Double burial; complete (except cranium of Individual A).	Completely exposed.	X	X		1E and 1W	X	X
13	73	N. sidewalk near stairs.	X		X		Partially intact: partial pelvis, upper legs, lower arms.	Completely exposed.	X	X		W		
14		N. sidewalk E. of stairs.	X		X		At least partially intact: lower legs.	Partially exposed.	X	X		E	X	
15	81	NE corner.		X (5)	X		Partially intact: no crania and heavily disturbed.	Completely exposed.	X	X		3 to West; 2 to East		
16	85	N. sidewalk E. of stairs.	X		X		Partially intact in grave shaft below level of hands (approx.).	Unexcavated except for a few phalanges and L. patella.	X	X		W	X	X
17	85	N. sidewalk E. of stairs.	X		X		Partially intact from legs down.	Partially exposed.	X	X		W	X	X

Burial #	Unit #	Location	Burial Type		Age		Condition	Portion(s) excavated	Protected in situ	Orientation			Grave Shaft	Coffin Outline
			Single	Multiple (number)	Adult	Child				E/W	N/S	Head		
18	91W	N. sidewalk E. of stairs.	X		X		Partially intact and heavily disturbed: portions of lower legs & foot. Overlying Burial 19.	Removed.		X		W		X
19	91W	N. sidewalk E. of stairs.	X		X		Partially intact and heavily disturbed: portions of lower legs & foot. Underlying Burial 18.	Removed.		X		W	X	X
20	93	N. sidewalk W. of stairs.	X		X		Partially intact in grave shaft.	Unexcavated except for ulna, radius, pelvis fragments.	X	X		W	X	X
21	94	N. sidewalk W. of stairs.	X		X		Partially intact in grave shaft.	Unexcavated except for portion of cranium.	X	X		W	X	X
22	96	N. sidewalk W. of stairs.	X		X		At least partially intact in grave shaft (cranium observed).	Unexcavated.	X	X		W	X	
23	95	N. sidewalk W. of stairs.	X		X		Partially intact.	Partially exposed.	X	X		W	X	
24	63	N. sidewalk W. of stairs.	X				Partial grave shaft outline only.	Partially exposed.	X			n/a		X

Burial #	Unit #	Location	Burial Type		Age		Condition	Portion(s) excavated	Protected in situ	Orientation			Grave Shaft	Coffin Outline
			Single	Multiple (number)	Adult	Child				E/W	N/S	Head		
25	101	N. sidewalk W. of stairs.	X		X		Partially intact and heavily disturbed (by privy feature): foot bones and partial femur only.	Removed.		X		W	X	
26	40/41	NW Sidewalk, notch in park fence.	X		X (M)		Complete.	Completely exposed.			X	S		
27	63N	N. sidewalk E. of stairs.		X (3)			Heavily disturbed; very fragmentary.	Removed.		X		W/E		X
28	78	N. sidewalk E. of stairs.	X		X		At least partially intact: foot bones.	Partially exposed.	X	X		W	X	

Figure 13. Burial 1 and 2, Trench 2 East Wall Profile.







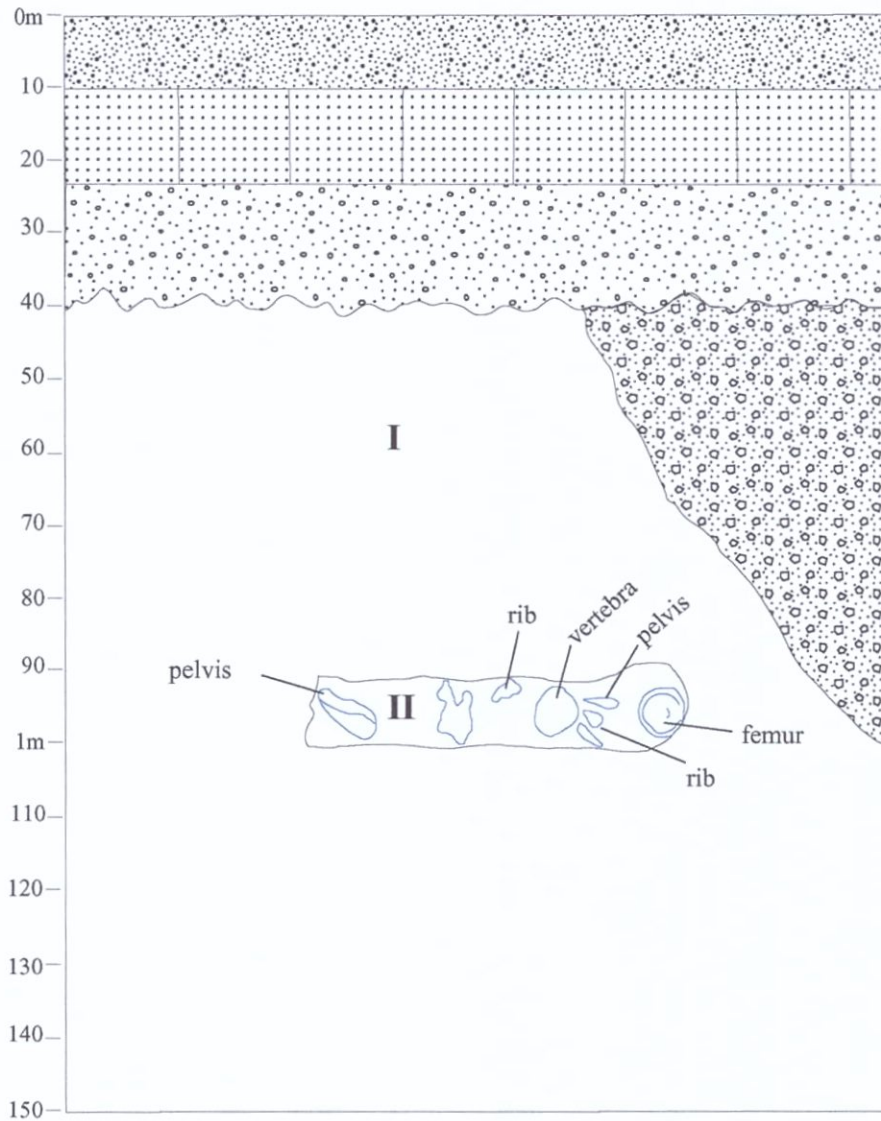





- I Dark reddish brown coarse sand
- II Dark reddish brown fine sand
-  Pavement
-  Concrete
-  Unexcavated
-  Human remains



Figure 14. Burial 8, Trench 2 East Wall Profile.



- I Dark reddish brown coarse sand
- II Dark brown fine sand
-  Pavement
-  Belgian brick
-  Concrete
-  Disturbance
-  Human remains

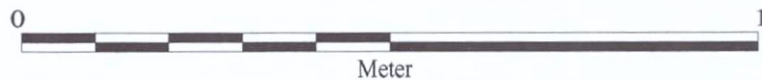


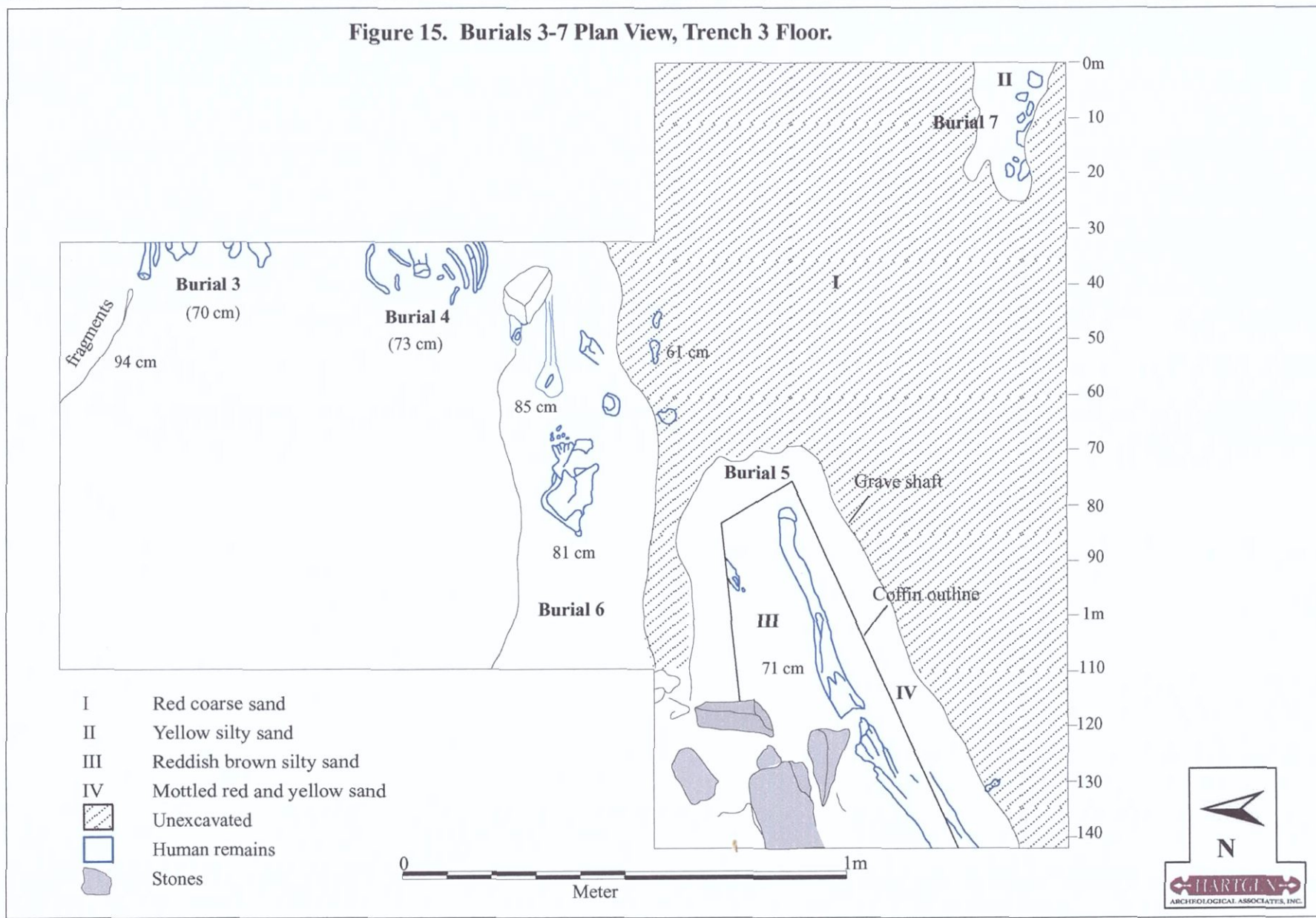


Photo 22. View east of Burials 1, 2, and 8 in the east wall of Trench 1.



Photo 23. View north of shoring protecting Burials 1, 2, and 8.

Figure 15. Burials 3-7 Plan View, Trench 3 Floor.



the proximal femurs were observable for Burial 3, which was approximately 2.4 feet (73cm) below grade. The burial was obviously severed at the level of the hips (Fig. 16). Burial 4 was identified at approximately 2.3 feet (70cm) below grade, and only rib and vertebrae fragments and a humeral shaft were observable in the trench wall (Figs. 15 and 17). This burial appears to have been severed at mid-thorax. From the orientation of the remains, it is clear both these individuals were buried east-west with head to the west. Based on the size of the remains, it appears that these burials were both those of adults.

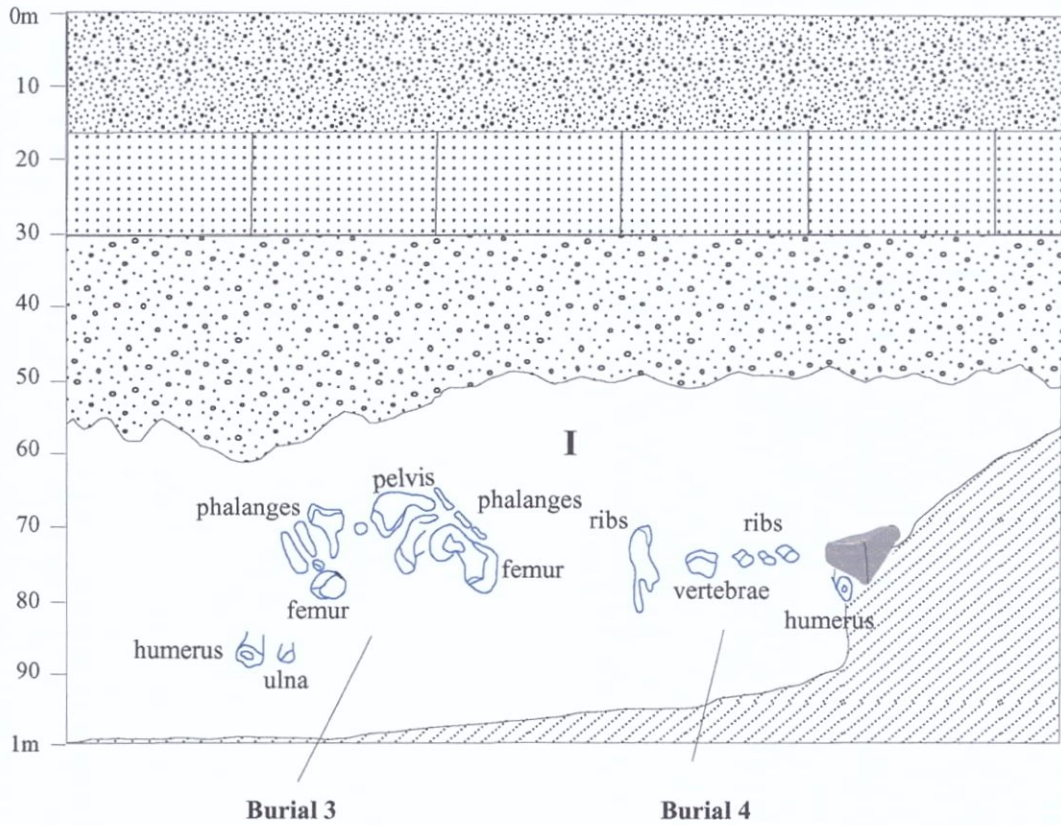
Burial 5 (Photo 24) was identified approximately 2.3 feet (71cm) below grade in the southwestern corner of the trench. This burial contained leg and foot bones (mostly the right leg) of an adult, and a clear grave shaft and coffin outline were present. The remainder of the burial extended into the west wall of the trench and underneath the pavement. While it is likely that the burial contained more remains than could be discerned within the excavated trench, it is also clear that the northern edge of this burial was previously disturbed. Large cut fieldstones overlay this part of the burial, most likely crushing a good portion of the left leg bones. The burial was oriented on an east-west alignment with head to the west. While the general alignment of the burial and depth are the same as others identified in this trench, the burial does not appear to be in the same row as the others (see Fig. 15).

Burial 6 was identified between Burials 4 and 5 at a depth of 2.7 feet (83 cm). This burial included crushed cranial remains, teeth, and partial arm bones (humerus and radius) of an adult. The burial is on the same alignment and in the same orientation as Burials 3 and 4, with the head to the west. It is clear that the burial was previously disturbed as well, as the humerus was broken from the impact of a large stone, the radius fragment was out of place, and the thorax bones, which should have been discernible, were missing. It is possible that more of this individual extends into the east wall of the trench and underneath the street.

Burial 7 was identified in the southeastern corner of the trench at a depth of 1.9 feet (60 cm). The burial consisted only of fragmentary but articulated adult cervical vertebrae (neck bones) and a few small cranial fragments. While no other remains were found in this corner, it was hypothesized that more of the burial extended into the east wall of the trench. If on the same alignment as the others in this trench, much of the cranium is missing and the rest of the burial may still exist under the sidewalk.

Due to the presence of a high concentration of burials at a relatively shallow depth, the trench was abandoned as an option for the installation of a new fire hydrant. All of the burials were covered or shored with plywood with a twelve-inch (30.5 cm) buffer, covered in plastic, and the trench was backfilled.

Figure 16. Burials 3 and 4, Trench 3 East Wall Profile.



- I Red coarse sand
- [Dotted pattern] Pavement
- [Grid pattern] Belgian brick
- [Cross-hatch pattern] Concrete
- [Diagonal lines] Unexcavated
- [Blue outline] Human remains

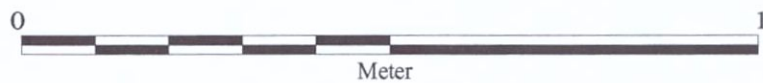
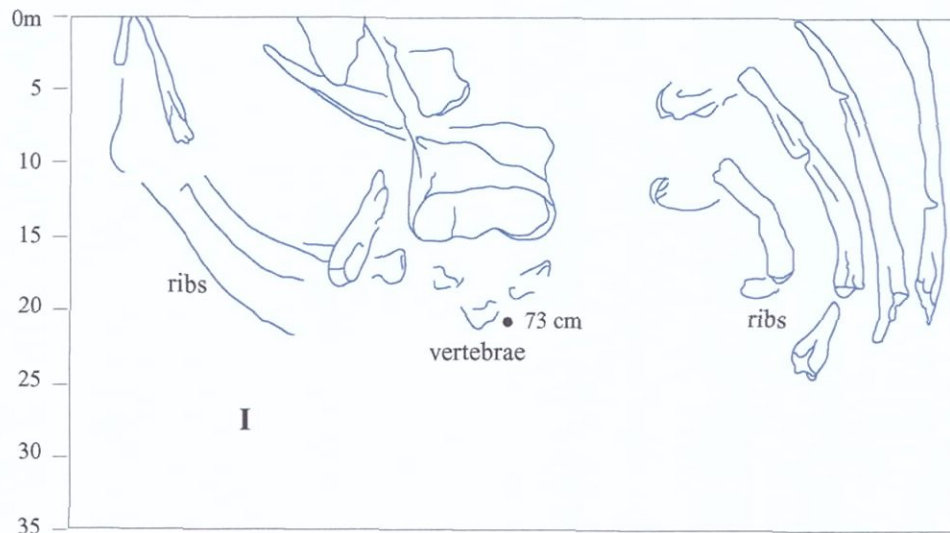


Figure 17. Burial 4 Plan View, Trench 3 Floor.



I Red coarse sand

□ Human remains





Photo 24. View west of Burial 5 located in the south end of Trench 3.

Burial 26 (Units 40/41)

Burial 26 (PES Feature 45) was identified on the northwest sidewalk abutting the City Hall Park fence line. This burial was initially identified by Parsons Engineering Science (PES) during the City Hall Park archeological project (London and Jones 2000). At the time, only the upper portion of the burial was exposed, and the full burial was not documented since the project avoided impacting it. However, because the burial lay in the path of sidewalk reconstruction for the Tweed Courthouse project, it was reexposed and fully documented during HAA, Inc.'s study.

1999 excavation

In 1999, the upper portion of an adult burial was identified directly in the path of the granite-based fence line separating City Hall Park from the sidewalk on the northwest side of the courthouse (London and Jones 2000). According to the report, a partially intact cranium and mandible were identified within a unit where fragmentary remains were recovered from the upper strata. Further investigation of the remains revealed a partially intact burial including the cranium, upper torso, and upper arm bones. In order to avoid impacting the burial, an adjustment was made in the alignment of the fence to accommodate the burial without further disturbance and without excavating the remainder of the burial. Based on observations made in the field, this individual was identified as a female in her 30s (London and Jones 2000). The burial was described in the following way:

The remains consist of the cranium and mandible, ribs, sternum, clavicles, humeri, scapulae, and cervical vertebrae. The individual is supine, with the head oriented to the south and tilted to the right. The upper arms lie along the sides of the rib cage. The lower torso and inferior parts of the skeleton are under the sidewalk to the north, and were not exposed. The midface is fragmentary with the left maxilla missing (possibly in the soil inside the cranium). The teeth are in good condition except for the left lower first molar which appears to have lost its crown. Small rocks were found in the space between the teeth, but it is unclear whether these were secondary to the burial or part of the original interment (London and Jones 2000:7).

Concerning diagnostic characteristics of the remains, the following was also noted:

There is hypoplasia on the lower canines...suggesting a period of illness or nutritional stress during the development of the tooth (before age 5). There are some morphological traits which are suggestive about the sex and ancestry. The superior margin of the right orbit is sharp, there is no supraorbital torus, and the anterior mandible is narrow; these suggest a female. Although the midfacial bones are damaged, it can be seen that the inferior rim of the nasal aperture exhibits no "guttering"... There is no evidence of shoveling in the incisors present. These features are consistent with an individual of European ancestry, although other measurements and observations would be necessary to establish this (London and Jones 2000:7-8).

2001 excavation

As described previously the burial was left in place and covered with sand, a plywood box, and plastic. During HAA, Inc.'s investigation of this area in July 2001, an attempt was made to avoid reexcavating the burial with the agreement that proper alterations would be made in the construction plan in this area. In order to more accurately estimate the area within which the burial rested without impacting it, as well as to ensure that another row of burials was not located in this area, a 1 x 2-meter (3.28 ft x 6.56 ft) unit (Unit 40) was excavated north of the feature. An estimate of the potential length of the burial was made in order to place the unit far enough north to avoid it.

Excavation of Unit 40 revealed a 7-inch (18 cm) layer of modern fill overlying a 7.8-inch (20 cm) layer of historic fill with historic artifacts and faunal bone. The third level was comprised of relatively clean silty sand and articulated foot bones at a depth of 9.4 inches (24 cm) below the existing sidewalk. It was determined that the remains were likely associated with the intact remains previously identified by PES. Since the remains were identified, it was determined by LPC that the entire burial should be exposed, documented, and fully protected prior to sidewalk construction.

Full excavation of the burial revealed an absence of a grave shaft, coffin outline, or in situ coffin nails, although several potential coffin nails were identified in the fill overlying the burial. It was clear that previous disturbances occurred to the level of the burial destroying any evidence of a feature yet leaving the human remains unaffected. Again, the soil within which the burial itself was identified was a sterile dark brown, silty sand. It was clear that the skeleton was complete and that the human remains identified in the fill above the burial originated from other nearby burials that were impacted during previous disturbances in the area.

As described previously in this report, the upper portion of the burial previously exposed by PES was reexcavated (Photo 25). Again, this excavation (Unit 41) revealed that the protection measures employed did in fact preserve the remains, although the techniques used also created a layer of silty mud on the remains which required careful cleaning during the HAA, Inc. excavation. Interestingly, portions of the crushed cranium lay next to (west of) the cranium as though they were intentionally placed there during the previous excavation. HAA, Inc. replaced these fragments with the remainder of the cranium before reburial. Also west of the cranium was a deposit of large stones and concrete chunks (Photo 26), the origin of which is unknown, although it is hypothesized these were placed there during the PES excavation.

HAA, Inc.'s study of Burial 26 identified a full adult skeleton that was approximately two meters (6.56 ft) in length in situ (Fig. 18). The burial lay at a depth of approximately 14 inches (36 cm) below the concrete foundation of the granite fence curbing. The individual lay north-south with the head to the south and tilted to the right. The arms were extended along the sides of the body. Preservation of the remains was very good, although the exposed portion of the cranium was crushed and several other bones were fractured in situ from the weight of the overlying soils.

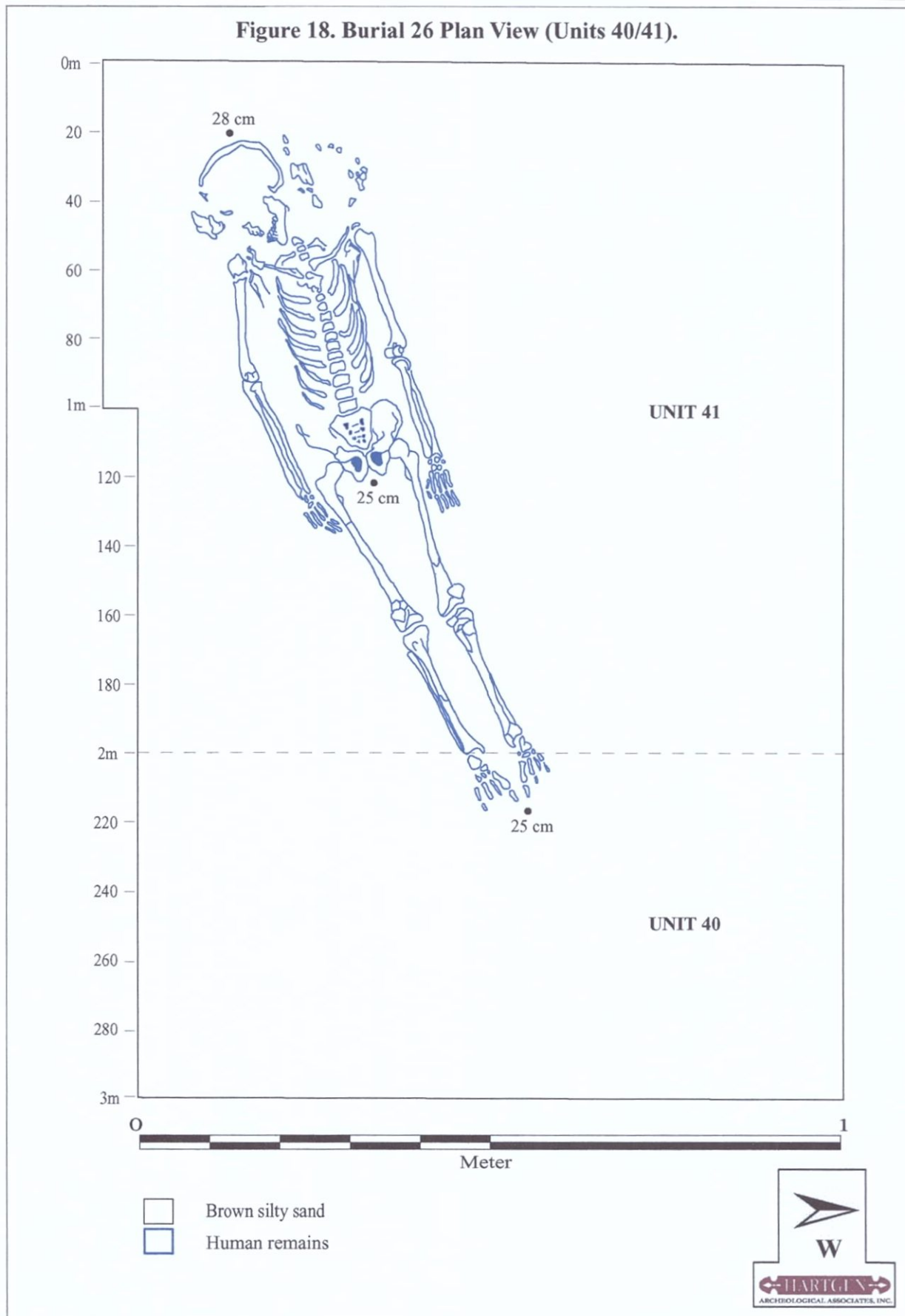


Photo 25. View south of PES Feature 45. The protected human remains are underneath the plastic sheeting.



Photo 26. View east of Burial 26, an adult male burial located on the northwest sidewalk adjacent to Tweed Courthouse.

Figure 18. Burial 26 Plan View (Units 40/41).



Observations of age, sex, and overall health

Following full exposure of the skeleton, various observations and measurements were made to reassess the age and sex of this individual. In contrast to London and Jones' (2000) estimation of a female adult (based on the upper skeleton only), HAA, Inc.'s observations suggested this was the burial of a relatively young adult male. While the cranial vault and facial skeleton were crushed, various other features of the cranium confirmed that this was a male. Overall, the mandible was large and robust with a tall body, a marked masseteric tuberosity, and relatively large dentition (Photo 27). While the gonial angle appeared somewhat oblique, there was marked gonial eversion, both features of which are likely related to the robust musculature. While the supraorbital region was fractured, the portion that was observable appeared more robust than not. The only other cranial feature observable was the right zygomatic bone, which appeared relatively large and robust.

Infracranial observations pointing to a male skeleton included large humeral and femoral heads, large radii, ulnae, and clavicles, and robust musculature overall. Regarding pelvic features, the ilium blade was relatively short, the sciatic notch was on the narrower side, and the obturator foramen, pubic and ischium bones, and sacrum were large.

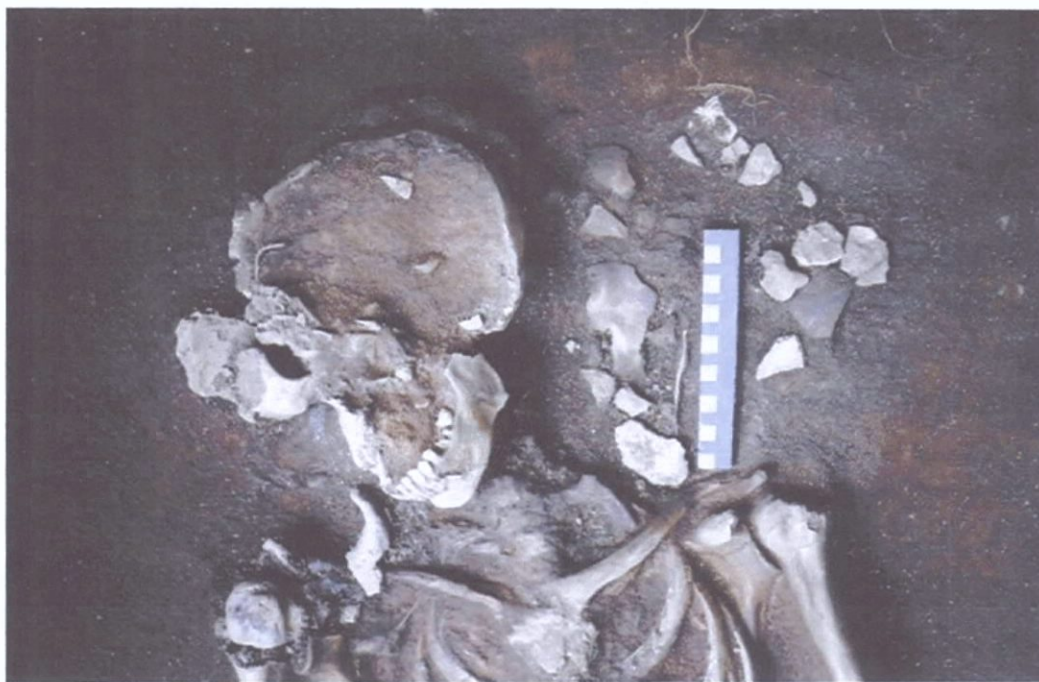


Photo 27. Cranial remains of Burial 26, an adult male.

Regarding age, several features indicated this person was a young adult. All visible remains were fully developed bones with complete epiphyseal fusion. Overall the bones were still very dense and robust and there was no to very little arthritis of the joints (with the exception of minimal lipping of the bones forming the elbow joint). Since the remains were observed in situ, specific observations of the occlusal surfaces of the teeth were difficult but there appeared to be minimal to moderate attrition of the teeth. The left first and second molars were decayed with only the roots remaining and the third molar exhibited little occlusal wear with no dentine exposure.

Observations of the mandibular canines confirmed London and Jones' (2000:7) observation of nutritional stress during early childhood. No other obvious pathologies or premortem fractures were observed; however, only so much of the skeleton was observable, and the remains were not removed for further inspection. Therefore, observations of full joint surfaces, the spine, and other features could not be made.

Burial Protection

Prior to construction of the sidewalk, this burial was fully documented, mapped, and photographed. A one-inch (2.54 cm) thick pine box filled with 8 inches (20.32 cm) of clean sand fill and plastic sheeting were used to cover the burial. Prior to pouring of the concrete base for the sidewalk this burial and Burial 9 (described below) were boxed out and covered with a separate concrete application (see Photos 2-5 on pages 27 and 29).

Burial 9 (identified during grading)

Burial 9 was identified just north of Burial 26 during monitoring of grading activities preceding the concrete sidewalk pour. This burial was discovered underlying a level of fill which contained scattered, disturbed remains including a tibia, fibula, ribs, and cranial fragments. The burial feature was identified 22 inches (55.9 cm) below finished grade. Initially, intact cranial fragments and a crushed mandible were noticed during grading. Even though disturbed remains were found in the fill above these remains, the cranial fragments were excavated carefully in order to discern whether a portion of an intact burial remained below the disturbed remains. Excavation revealed additional intact (but crushed) cranial remains, as well as the remains of a good portion of the upper body. Prior disturbances appear to have removed the lower vertebral column and ribs, as well as parts of the arm and hand bones and pelvis. It is possible that some of the remains found in the fill overlying the burial originated from this grave, but it was not possible to make that assertion with any certainty. The full size of this feature was 4.9 feet (1.4 m) north-south x 2.6 feet (80 cm) east-west.

The burial was characterized by poor to moderate preservation. The cranium was crushed and most of the remains present were crushed and cracked. Numerous pieces of the cranium and other portions of the left side of the body had been dragged to the west. Other bones were obviously disturbed and moved slightly from their original context. Only the upper skeleton to the pelvis was present, with the exception of a left patella and left distal femur fragment, which remained intact. A

trench cross-cutting the burial at the level of the pelvis confirmed prior disturbance to the burial feature. Soils north of the intact remains consisted of mottled historic fill.

Similar to Burial 26, this burial was oriented north-south with the head to the south (Fig. 19). The arms were extended along the sides of the body. Evidence of the grave shaft was discernible (Photo 28), and one decomposed nail was noted at the south end (head) of the grave shaft. In addition, several decomposed nails were identified in the historic fill overlying the burial. Based on the overall size of the human remains, this was most likely a female adult. All visible remains were fully developed bones with complete epiphyseal fusion. Compared to male skeletons observed throughout the project area, overall these remains were smaller and less robust. The supraorbital margin was sharp and the supraorbital region was relatively gracile. While no other portions of the cranium were intact, several of the teeth were observable. The teeth were comparatively small and there were signs of moderate attrition. While few joint surfaces were observable, there were no obvious signs of arthritis in the left elbow or portions of the spine that were observable.

One unique observation about this burial was the presence of a necklace. A greenish copper/brass stain was noted on several cervical vertebrae, and a small bead was noted between two of the vertebrae (Photo 29). This was the solitary personal item identified in context in a burial throughout the duration of the project.

Since this burial was partially intact and within the impact area for the scheduled sidewalk reconstruction, it was covered with 8 inches (20.32 cm) of clean sand fill and covered with a one-inch (2.54 cm) thick pine box and plastic sheeting. As noted above, Burials 9 and 26 were boxed out and distinguished as unique features below the poured concrete (see Photos 4 and 5 on p. 29).

Burial 10 (Unit 63)

Burial 10 was discovered in Level 2 of a 1 x 1-meter (3.28 x 3.28 ft) unit (Unit 63) excavated along proposed sidewalk curbing adjacent to the northeast corner of the courthouse. Level 2, a dark brown silty sand, underlies a 3.9-inch (10 cm) thick level of historic fill containing miscellaneous historic artifacts. Intact human remains were identified in the southwestern corner of the unit at a depth of 29.5 inches (75 cm) below the existing sidewalk grade (with a 9-inch [22.9 cm] thick sidewalk). The remains consisted of the distal ends of the femurs, both patellae, a right tibia, and right foot (Fig. 20). The proximal femurs extended into the west wall of the unit. The left tibia and foot were missing from the burial, the result of the utility trench excavated by Con Ed in 1993. The disturbance that caused this was obvious in the coloration of the soil and the presence of Con Ed concrete ducts haphazardly tossed back into the trench (see Photo 13 on page 50). In addition to the remains, the outlines of a grave shaft and decayed coffin remains were observable in the unit's west wall. These features were not discernible during excavation of the relatively small unit.

It is clear from the placement of the remains that the burial was oriented east-west with the head to the west. Since many of the burials identified to this point were only partially intact, this unit was extended to the west and south in order to identify how much of the burial remained intact.

Figure 19. Burial 9 Plan View.

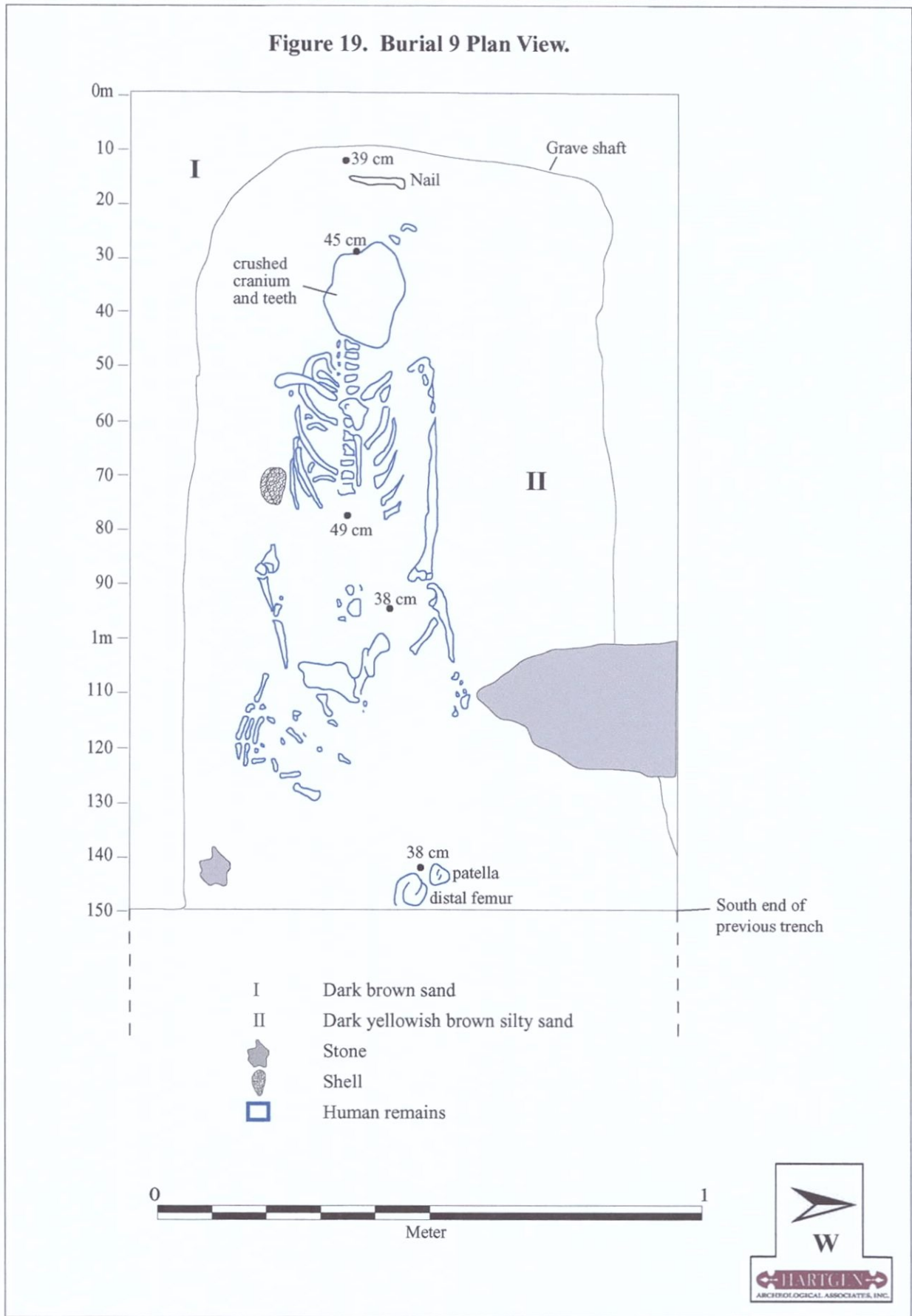


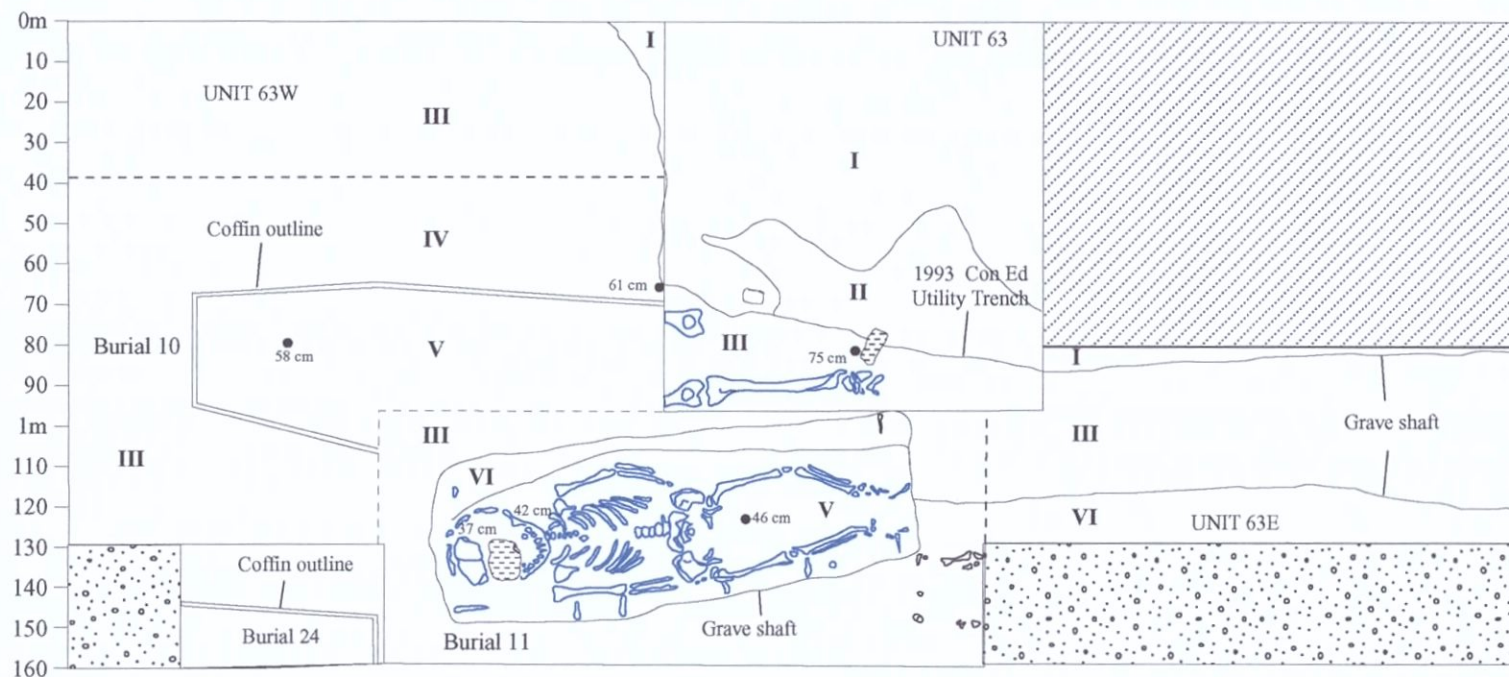


Photo 28. View south of Burial 9, a partially intact female burial just northwest of Burial 26 on the northwest sidewalk.







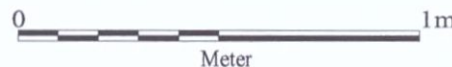
Photo 29. View of crushed cranial remains (top) and neck vertebrae of Burial 9 where brass or copper beads were noted between two of the vertebrae.

Figure 20. Burials 10 and 11 Plan View (Units 63/63 East/63 West).



- I Mottled yellowish brown and very dark grayish brown silty sand
- II Very dark grayish brown silty sand
- III Dark brown silty sand
- IV Very dark brown coarse sand
- V Dark brown silty sand
- VI Mottled brown and dark yellowish brown silty sand

-  Brick
-  Existing Concrete Sidewalk
-  Unexcavated
-  Human remains



Since a grave shaft and decayed coffin remains were discernible above the level of the remains, excavation was slow and methodical in order to identify these features in the adjacent soils. Extending the unit west revealed a full hexagonal coffin outline for an additional 47.24 inches (120 cm) west of the original unit (Photo 30). The coffin outline is approximately 1.4 feet (.43 m) at its widest point and would have been about 6 feet (1.83 m) in length. The burial feature lies approximately 24 inches (60 cm) below the current sidewalk grade. Several decomposed coffin nails were identified in the Level 1 fill immediately overlying the grave. During excavation of the unit to the south, Burial 11 was identified somewhat overlying Burial 10. Burial 11 is described below.

Due to LPC's policy that intact burials remain in place, a decision was made not to fully excavate this burial. Since the placement and dimensions of the burial could be identified by the coffin outline, excavating the full burial was not necessary in order to properly preserve it in place. This burial was covered with 8 inches (20.32 cm) of clean sand and a one-inch (2.54 cm) thick pine box. Due to the shallow depth of this burial, the curb in this section of the sidewalk was moved north to avoid impacting the burials. Rather than being buried under the sidewalk, the burials identified in this section were buried underneath new sod.



Photo 30. Burial 11 (left) and Burial 10 (right). Burial 11 is a child burial and Burial 10 is an adult burial, most of which was left unexposed beneath the grave shaft and coffin outline.

Burial 11 (Units 63/63 West)

As noted above, Burial 11 was identified during the extension of Unit 63 to the south (Fig. 20). Prior to the excavation of Burial 10, the existing sidewalk was removed only in the exact area of scheduled impact. However, once Burial 11 was identified, an additional segment of the sidewalk south of Burial 10 was removed in order to fully explore the burial.

Burial 11 was identified only 6.3 inches (16 cm) below the bottom edge of the concrete sidewalk (see Photo 30), and the bottom of this grave lay only 4 inches (10 cm) above and partially overlying the approximate top of the Burial 10 feature. This burial consisted of a child burial placed in an east-west orientation with the head to the west. The arms were slightly flexed with the hands placed over the pelvis. The burial was first identified through fragmentary cranial remains with a large brick fragment overlying the cranium. The presence and placement of the brick suggested at least some prior disturbance to this burial. Due to this factor, more of the burial was uncovered in order to assess the extent of prior disturbance, as well as to determine the length and dimensions of the burial.

Continued excavation revealed a full burial in good to fair condition. The skeleton was nearly complete, although a few vertebrae were missing from the center of the thorax confirming disturbance to the level of the human remains. The burial was uncovered only enough to identify the length of the grave and to make observations of the child's age at death. Based on dental eruption, the child was estimated to be between 7 and 8 years of age. The 6-year molar was present and fully erupted and the 12-year molar, while a crown and partial root was visible, was not erupted. In addition, the mandibular central incisors were almost completely erupted. The deciduous molars were still intact and at least one deciduous lateral incisor was still present. Based on Ubelaker's (1989) dental eruption sequence, this places the child between approximately 7 and 8 years.

Excavation of the burial revealed a faint coffin outline and grave shaft on the north side of the grave that was only identifiable by excavation of the burial. The full feature was 4.1 feet (1.25 m) east-west x 1.6 feet (50 cm) north-south. The soils overlying the grave consisted of disturbed historic fill, which erased all signs of a burial below, and there was no discernible grave shaft outline on the south side of the grave. Several decomposed coffin nails were noted in the fill above the burial, as well as along the edge of the grave.

One additional observation about this burial was the presence of a greenish copper/brass stain on the cranium toward the top of the cranial vault above the forehead. This is a common feature noted in burials in this area and suggests that the child was buried in a shroud affixed with a pin at the head. No evidence of the pin was recovered. The pin may have been inadvertently disinterred during a previous disturbance, may have disintegrated, or may have fallen into the cranium when it was crushed.

Because two burials were identified in this area, the excavation areas containing Burials 10 and 11 were extended north, east, and west to identify whether additional burials surrounded these

two. Three additional burials — Burial 12 to the east, Burial 24 to the west, and Burial 27 to the north — were identified in this area. Burials 10, 11, and 12 were protected in situ beneath one large box. Protection measures for these burials are described in the next section.

Burial 12 (Unit 63 East)

Burial 12 was identified east of Burial 11 in the eastern extension of Unit 63. Initially, only fragments of several foot bones were identified just centimeters outside the foot of Burial 11 at the same level. However, careful excavation revealed a second grave shaft outline and several intact coffin nails suggesting possible superimposition of two burials. Further investigation of the feature revealed several intact foot and distal lower leg bones. In order to identify the outline of the grave and to assess whether more of the burial was intact, another section of the concrete sidewalk east of the intact remains was removed, and the underlying soils were excavated. An apparently full grave shaft outline was evident on the north side of the burial. During excavation, scattered remains were identified in the overlying soils confirming previous disturbance in this area. In addition, some remains within the grave were out of anatomical order suggesting previous intrusion to the grave feature itself. Due to this factor, the full burial was excavated in order to determine to what extent the integrity of the burial had been compromised.

Excavation of the feature revealed two nearly complete individuals (12A on the top and 12B on the bottom) buried one on top of the other and head to foot in a single grave (Fig. 21; Photo 31). Remnants of coffin wood, several nails, and a partial grave shaft outline were identified as well. Again, similar to other burials, the grave shaft outline was visible only immediately above the human remains as previous construction (in part the sidewalk construction) disturbed soils down to that level. The southern edge of the grave extended a few more inches into the wall of the unit beneath the concrete sidewalk.

Three areas of the grave were disturbed by previous construction episodes, all impacting 12A: the foot of the grave (west end) adjacent to Burial 11, portions of the thorax, and the head (east end) of the burial. Portions of the feet were disturbed, most likely during the historic excavation of the grave shaft for Burial 11. This detail confirms that the child burial post-dates the double adult burial. In addition to the foot bones, numerous vertebrae, ribs, and the sternum were out of anatomical order, shifted and overturned, and several vertebrae were missing (Photo 32). Of special note is that a fragment of the humeral head had been sliced off during a prior disturbance, yet the fragment remained in place in the burial feature. This suggests possible intrusion by a shovel during a previous digging episode. Finally, a former construction trench cut through the top of the grave, removing or destroying the cranium. While the mandible was still present, no cranial fragments were observed.

Burial 12 was identified at the same approximate level as Burial 11 (Photo 33) with the most shallow remains of 12A at 20 inches (51 cm) below the existing sidewalk grade (and just 11 inches or 27 cm below the base of the sidewalk concrete). The remains of the two adults were in direct contact with one another (Photo 34) suggesting they were buried at the same time and in the same coffin. Following full decomposition, the remains of 12A settled directly on top of the 12B remains.

Figure 21. Burial 12 Plan View (Unit 63E).

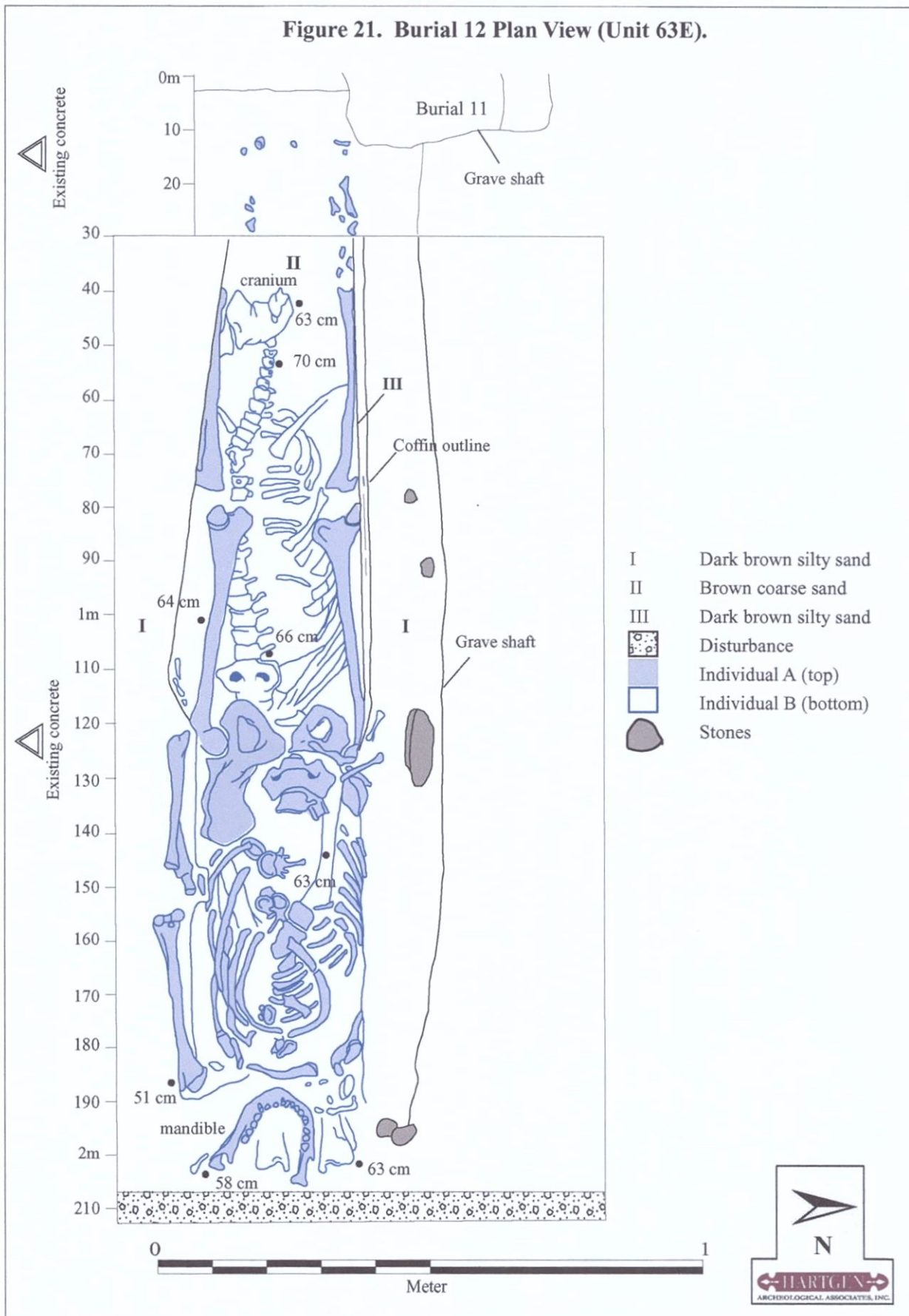




Photo 31. Burial 12, a double burial of two male adults.



Photo 32. Close-up view of the thorax region of Burial 12A showing prior disturbance of the lower half of the vertebral column.



Photo 33. View east of Burial 12 illustrating the close proximity of the remains of the two individuals.



Photo 34. View east of Burial 10 (foreground) and Burials 11 and 12 (background) with the latter two burials located at the same level.

The full feature was approximately 6.4 feet (1.95 m) east-west by at least 1.64 feet (50 cm) north-south. Overall, the remains of both individuals were in relatively good condition. Individual 12A was buried with the arms to the side. While only a portion of 12B was visible beneath, it appears by the placement of the lower left arm that the arms were partially flexed with the hands over the pelvis. The orientation of the cervical vertebrae and the cranium indicate that the head was turned to the right (south).

Based on the size and robusticity of the remains and observations of the typical diagnostic characteristics of the cranium and pelvis that were observable in situ, it was determined that this burial was comprised of two adult males. Specifically, similar to Burial 26, the both mandibles were robust with marked gonial eversion. The pelvis of 12A was comparatively large and robust and the angle of the subpubic angle was relatively narrow. The left mastoid of 12B was relatively large and robust.

All visible remains were fully developed bones with complete epiphyseal fusion. Both individuals exhibited signs of spinal problems. Individual 12A exhibited Schmorl's nodes on at least two lumbar vertebrae (indicative of ruptured discs), while 12B had slight arthritic lipping around the thoracic and lumbar vertebral bodies.

Only 12A had visible dental remains, which were indicative of a young to early middle-aged adult. The molars exhibited moderate attrition as all cusps were nearly worn flat. Only the first molars and the right central incisor had pinpoint dentin exposure. On visible teeth, the left canine and premolars had moderate calculus (tartar) along the alveolar junction.

No personal items, such as buttons, shroud pins, or other materials were observed during excavation of the burial; however, if present, these items could have been removed by prior disturbances or they could have disintegrated or shifted and fallen in between various bones.

Given their close proximity, Burials 10, 11, and 12 were protected by one large one-inch (2.54 cm) thick pine box. Burials 11 and 12 at a shallower depth were covered with 8 inches (20.32 cm) of clean sand, and Burial 10 was covered with enough sand to equal the level of the other two burials. As with other burials, the box was covered in plastic sheeting. Given the shallow depth of the graves and the LPC policy of leaving intact burials in place, the path of the sidewalk curb was adjusted slightly to the north to avoid impacting the burials. This section was backfilled with one foot of soil and was later landscaped with new sod.

Burial 24 (Unit 63E)

During the preparation of Burial 11 for protection, the corner of another coffin outline was identified just 6 inches (15 cm) west of the Burial 11 grave shaft at the same level (see Fig. 20). The coffin outline extended east-west for 50 cm before heading into the wall of Unit 63 East underneath the existing concrete sidewalk. Because of the orientation of other burials in this area, this partial feature was most likely the northeastern corner and foot of the grave. The coffin is approximately but not exactly on the same east-west row as Burials 11 and 12, as its placement is slightly south of

those. The grave also does not exactly line up with Burial 10 as a row running north-south. Since the plan was to protect and avoid the three other burials in this area, this feature was not explored any further. It was protected underneath the same box as the other burials.

Burial 27 (Unit 63N)

Burial 27 was identified in a 3.9- x 7.9-foot (1.2 x 2.4 m) unit excavated just north of Burial 10. Initially, during the excavation of Unit 63W, several intact foot bones and a partially visible right tibia were identified in the north wall of the excavation access trench north of Burial 10. Since the sidewalk curbline was shifted north to the approximate location of these remains, this area was also excavated in order to identify whether there were additional intact remains.

Initially, excavation of Unit 63N revealed heavily disturbed adult lower leg and foot bones including those observed in the trench wall. The grave was cut at the level of the knees by a previous disturbance (Fig. 22). The full feature was approximately 2.3 feet (70 cm) east-west x 1.3 feet (40cm) north-south. From the placement of the remains present, it is clear that this individual (Individual 27A) was buried east-west with the head to the west. A partial coffin outline was identified, but no grave shaft was evident. The leg bones were crushed and in fair to poor condition. The foot bones had been disturbed and displaced, some of them dragged laterally out of place, and most of the left foot was missing. This latter disturbance was most likely caused by the planting and growth of a tree, which was removed at the base prior to HAA, Inc.'s excavation of this unit.

Excavation in the north half of the unit revealed a second partially intact but very heavily disturbed burial also located within the proposed impact area. This burial (Individual 27B) lay just 4 inches (10 cm) north of the coffin outline of 27A and is obviously in the same row with the same orientation (east-west with head to the west). The upper portion (west half) of the grave was disturbed and destroyed on an angle at the level of the waist and left elbow by the same trench destroying the majority of 27A. In addition, the lower half of the grave was impacted by the former tree (Photo 35). The remains included fragmentary adult lower arm bones, a few hand bones, crushed and fractured upper leg bones, and fragments of lower leg bones. Based on the position of the fragmentary arm bones, the arms were slightly flexed with the hands placed over the pelvis. A faint coffin outline and two nails were noted along the south edge of the burial. No grave shaft was discernible.

A third heavily disturbed burial (Individual 27C) was identified partially underlying 27B. This individual also lay east-west but with the head to the east. This suggests another possible double burial resembling Burial 12. The major difference between this and Burial 12 is that the remains of 27C were not directly beneath those of 27B, as the portion of the body that is present (the upper body) lies partially north of 27A. The remains included adult mandible fragments, fragments of various thorax bones (vertebrae, ribs, scapula, clavicle), a left humerus fragment, partial right upper and lower arm bones, and a few right finger bones. The full feature containing both 27B and 27C was approximately 3.6 feet (110 cm) east-west x 2.0 feet (60 cm) north-south.

Figure 22. Burial 27 Plan View (Unit 63N).

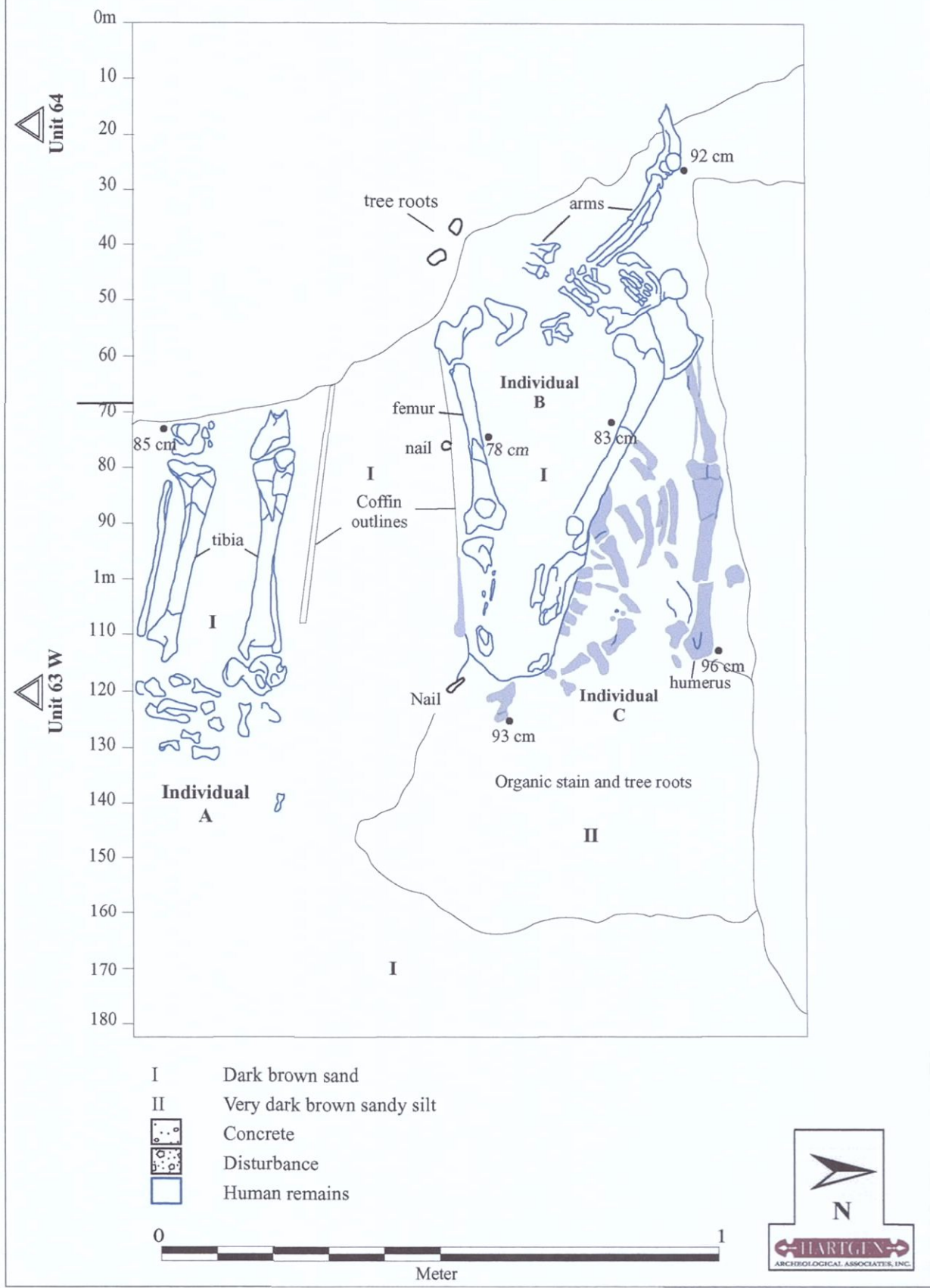




Photo 35. View west of Burial 27. Note the heavy disturbance on all sides of the burial feature. The plastic sheeting to the left covers Burials 10-12 and 24.

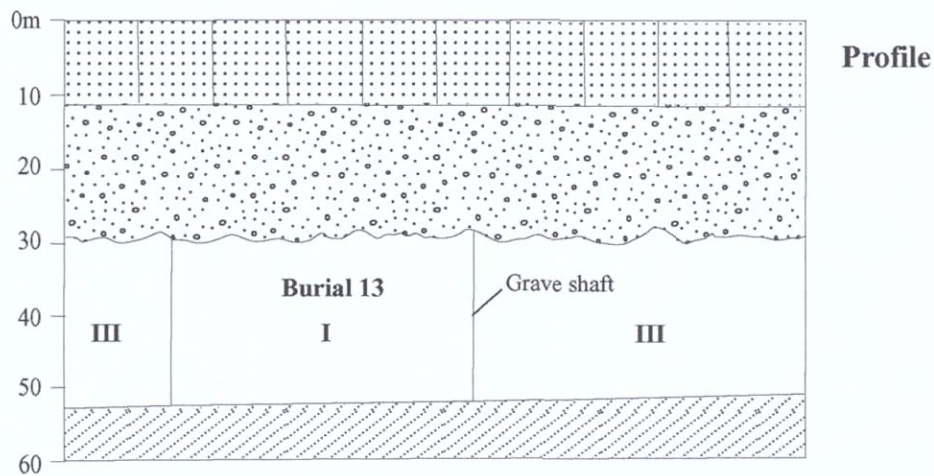
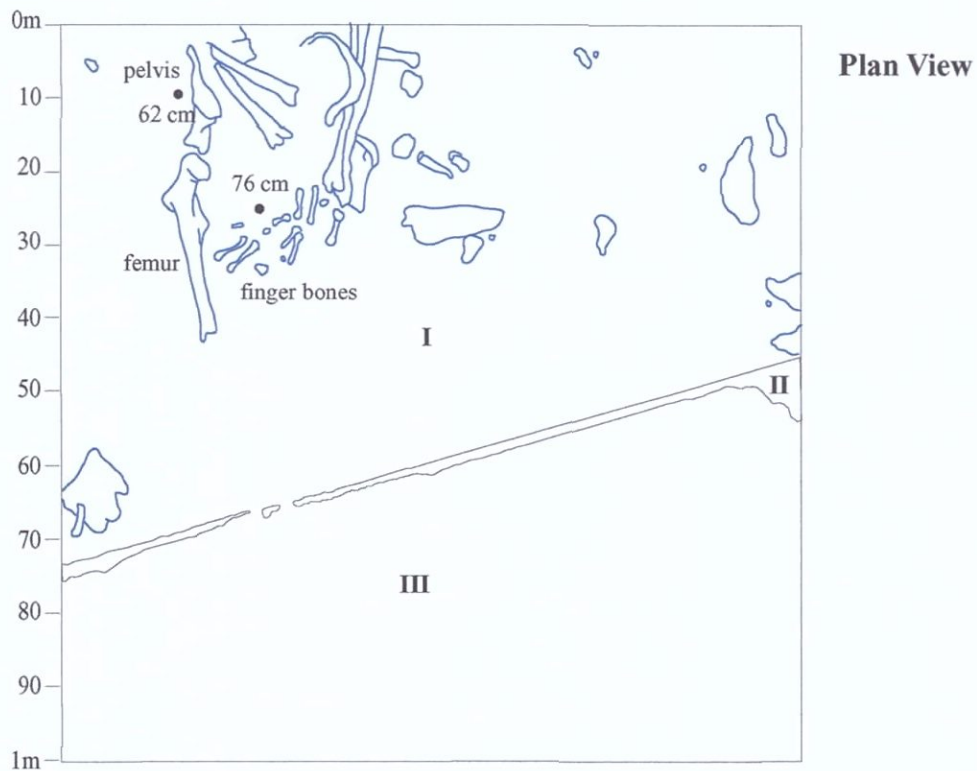
The remains of this burial were located approximately 3.35 feet (1.02 m) below the top of the new sidewalk curb. Due to the extensive prior disturbance, shallow depth, and that this was the only alignment remaining to place the curb, the remains were removed.

Burial 13 (Unit 73)

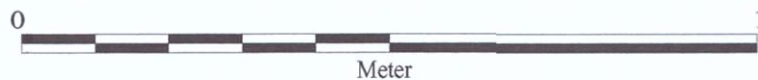
Burial 13 was identified in Unit 73, which was excavated for the installation of a lamppost on the exterior curb of the sidewalk just east of the Tweed staircase. During excavation of this 1 x 1-meter (3.28 x 3.28 ft) unit, intact adult remains were identified at a depth of 2 feet (62 cm) below the top of the new curb, which was already in place. As noted previously, the intact remains were identified beneath a layer of concrete poured directly over fragmentary human remains in a dark brown, silty sand.

The remains were identified in a dark brown, silty sand. Within the unit, the burial consisted of the upper legs, pelvis, and lower arms (Fig. 23). Four nails were noted surrounding the remains, and a grave shaft was discernible in the west wall profile. The burial feature (and presumably the upper skeleton) extended into the west wall of the unit and the lower skeleton was cut at mid-femur by a previous disturbance. Based on the remains present, it was determined that the individual lay east-west with head to the west and the arms slightly flexed across the pelvis. The remains were too fragmentary to judge the age and sex of this adult.

Figure 23. Burial 13 Plan View and Profile (Unit 73).



- I Dark brown silty sand
- II Black silty sand
- III Mottled dark brown and black silty sand
- Belgian brick
- Concrete
- Unexcavated
- Human remains



This partial burial was located immediately east of Trench 2, excavated during the field work in 2000. Given its location it was hypothesized that the remains corresponded to either Burial 1 or Burial 2 identified in that trench. Both of those burials were identified based on the presence of a grave shaft and cranial remains in the east wall of the unit. Due to the uncertainty about whether this burial did in fact match up with one of the earlier burials, this feature was assigned its own burial number. Mapping of the burials following the fieldwork indicated that the location of this burial matched up with that of Burial 2 (see Map 11a).

Because of the shallow depth of the burial and that it most likely extended further west, this unit was abandoned as the location of the new lamppost. In order to attempt to accommodate the lamppost in this general vicinity, however, the unit was extended another 3.28 feet (1m) east. This unit (Unit 73E) contained fragmentary human remains in a 1.64 foot (50 cm) layer of dark brown, silty sand fill that was previously disturbed by a utility trench. The combined portions of the burial (the remains identified as Burial 2 and Burial 13) are therefore protected on the east by this box overlying the burial, and on the west by plywood shoring located one foot west of the feature.

Burial 14 (identified during monitoring)

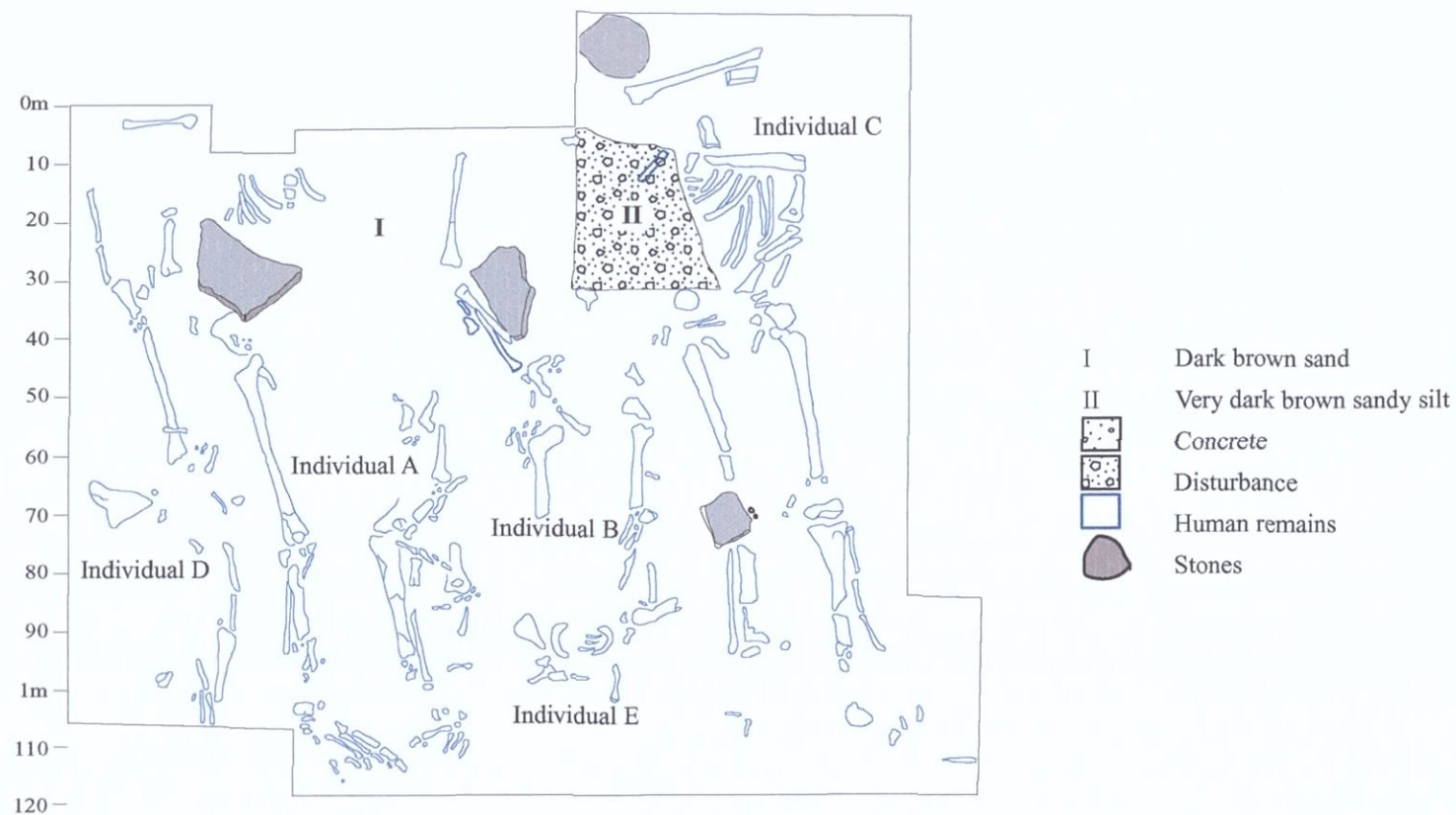
During grading of the sidewalk another partial burial (Burial 14) was identified approximately 22 feet (6.7 m) south and 20 feet (6.1 m) east of Burial 13. The remains consisted of the lower legs and feet with the individual oriented east-west with the head to the west. The remains were identified adjacent to the proposed sidewalk curb and just below the impact zone for the sidewalk construction but not technically within the impact area itself. For this reason, the partial burial was documented, covered with a small plywood box and plastic, and backfilled prior to any further construction activities.

Burial 15 (Unit 81)

Burial 15 was identified in Unit 81 approximately 120 feet (36.5 m) east of Burial 12 on the south side of the gatepost opposite Unit 76. Excavation of the 1 x 1-meter (3.28 x 3.28 ft) unit revealed a thin layer of black silty gravel with chunks of asphalt and fragmentary human remains. Beneath this was a very compact dark brown fine to coarse sand with fragmentary remains at a depth of approximately 2.25 inches (5.8 cm) below the existing concrete overlying the remains. (This is equivalent to 18 inches (45.7 cm) below the top of the granite footing of the gatepost.) In addition, beginning at a depth of approximately 6.7 inches (17 cm), very poorly preserved but partially intact human remains were identified across the floor of the unit.

Because of the presence of partially intact remains and that these remains extended into the north and west walls of the unit (still within the proposed impact area), the unit was expanded horizontally in 1 x 1-meter increments in order to identify the extent of the burials. The full burial containing at least five partial adults (Fig. 24), was uncovered within a 2 x 2-meter (6.56 x 6.56 ft) area. The remains were extremely fragmentary, crushed, and had suffered from various disturbances

Figure 24. Burial 15 Plan View (Unit 81).



- I Dark brown sand
- II Very dark brown sandy silt
- Concrete
- Disturbance
- Human remains
- Stones



impacting the original grave. No clear grave shaft was discernible, most likely because there was extensive disturbance immediately above and surrounding the burials. The presence of modern asphalt overlying the burials attests to the degree of extensive disturbance immediately overlying the intact remains.

Numerous coffin nails were identified both above and at the level of the burial, but there was no clear patterning to their position. In addition, no other coffin remains, such as other hardware or wood remnants, were available to confirm whether these individuals were burial in a single large coffin or several coffins placed immediately adjacent to one another. Given the close proximity of the five individuals, however, it appeared that they were buried within a single grave (Photo 36). Also, the remains of at least two individuals overlapped (Individuals B and E in Fig. 24). Despite the poor condition of the remains, enough were present and intact to discern that three of the five individuals (Individuals A, B, and C) were buried with heads to the west, while the other two (D and E) were buried with heads to the east. No personal items were identified.



Photo 36. View southwest of Burial 15 containing five partially intact individuals. The gatepost of the Tweed Courthouse east drive is shown in the top left corner. The plywood directly beneath the post constructed during the 1999 City Hall Park study divided Individual D in half.

Several areas of the original grave were destroyed by previous construction. No cranial remains were identified, as both the east and west ends of the grave were destroyed. In addition, portions of Individuals B and C were destroyed by some type of hole dug into the grave. Large stones were scattered across the grave, again confirming disturbance of the grave to the level of the human remains. Individual D, the farthest south in the grave and one of the two burials buried with the head to the east, was essentially severed in half with only intact portions of the right side of the body present. The left side of the body apparently had been destroyed when the gatepost was installed, as a vertical sheet of plywood used in constructing its foundation ran through what would be the centerline of the body. This hypothesis was confirmed by the LPC (personal communication, 2002), as the City Hall Park work in 1999 did in fact identify a burial in the wall of the trench for the gate footing, but the remains were apparently washed out of the trench during a rain storm. However, as described, HAA, Inc.'s investigation did reveal that the right half of the burial was still present.

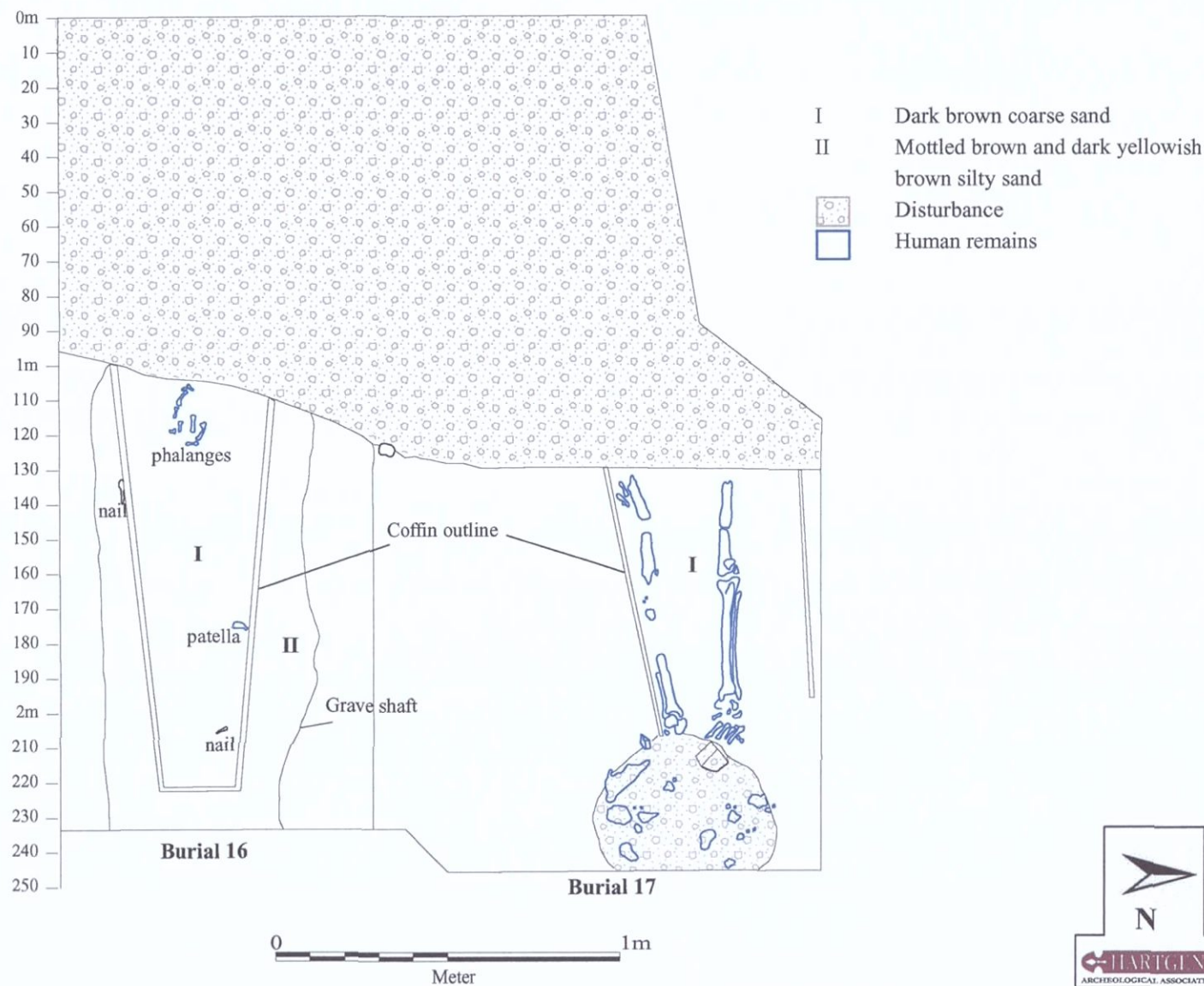
Due to the extensive disturbance and very poor condition of the remains, it was not possible to decipher whether the fragmentary remains overlying the intact remains derived from this burial or from other adjacent burials. As per LPC policy, all remains that were not intact were collected. In total, 2,353 fragmentary remains were collected from above and surrounding the intact remains. While the intact remains were in the approximate path of the proposed curb heading north and turning west, the curb was realigned several inches east and the impact zone narrowed several inches to accommodate preservation of the burials. The group of burials was covered with 8 inches (20.32 cm) of clean sand and covered in a large plywood box. The box is located on the west side of the curb as it turns to the west along the Chambers Street sidewalk.

Burials 16 and 17

These two adult burials were identified during unit excavations along the path of the interior sidewalk curb heading north from the courthouse on the west side of the staircase (Fig. 25). Both burials were identified in Unit 85 originally excavated as a 1 x 1-meter (3.28 x 3.28 ft) unit. Prior to unit excavations in this area, the topsoil was excavated down to the level of the dark brown to reddish sand, which characterized the provenience of all the intact burials. The surface of this subsoil appeared relatively disturbed and mottled and contained historic artifacts and fragmentary human remains. No grave shaft outlines were observed at this level; however, several units were placed at 5 foot (1.5 m) intervals along the curb line to investigate the soils to a deeper level.

Burial 16 was identified by the presence of a coffin outline and grave shaft approximately 9.8 inches (25 cm) into the subsoil. Two intact coffin nails were also noted. In order to assess whether a complete burial was present and to establish its boundaries, the unit was expanded east and west to reveal the entire feature. Because the area was disturbed and the west end of the grave shaft was severed, the surface of the grave was investigated to confirm whether intact remains were present. Portions of an intact hand and a patella were identified. It was evident that the burial was cut through at the level of the pelvis and lower arm region, with only the lower half of the burial still present.

Figure 25. Burials 16 and 17 Plan View (Units 85).



Once the presence of human remains was confirmed, excavation of the grave was discontinued. The grave was oriented east-west, with the head to the west. Based on the presence of intact hand bones in the center of the feature, it appears that this individual was buried with the hands placed over the pelvis. The identified feature was approximately 4.27 feet (130 cm) in length and 1.8 feet (55 cm) in width.

In order to confirm whether additional burials existed along the curb line in this section, the unit was expanded to the north and south. Soils to the south were disturbed and contained only fragmentary human remains. However, beneath a layer of scattered human remains a second grave (Burial 17) was identified just 2.6 feet (80 cm) north of and at the same depth as Burial 16. The burial was first identified based on the presence of a faint coffin outline. Due to the amount of prior disturbance and mottled soils, however, it was difficult to determine whether an intact burial was present. Further excavation revealed a left patella within the coffin outline, and a partial femur at the border of the grave shaft and disturbance to the west. The femur shaft was exposed and followed east to identify whether it was still intact. Further exploration of the grave revealed that similar to Burial 16, portions of an intact lower body were still present. The grave was cut at the mid-shaft of the femur and a disturbance at the foot (east end) of the grave removed the majority of the right foot. Included within this disturbance were fragmentary human remains including fragments of upper and lower body remains as well as three right foot bones, which may or may not have originated from this burial.

Similar to Burial 16, this individual was buried east-west with the head to the west. Based on the presence of several intact finger bones on the lateral side of the right femur, it appears that this individual was buried with arms to the side. The identified feature was approximately 2.95 feet (90 cm) in length and 1.18 feet (36 cm) in width. The exposed remains were well preserved, though fractured in situ.

Soils above the burials included historic materials and fragmentary human remains including ribs, vertebrae, hand and foot bones, arm bone fragments and teeth. In total, 431 fragmentary remains were identified in disturbed soils above the burials. The disturbed area west of these burials contained a total of 76 fragmentary remains primarily deriving from the upper body. While it cannot be confirmed, it is possible that remains from these graves were either upturned and redeposited or dragged west of their original position. In addition, 307 remains were identified in disturbed soils immediately surrounding and between the burials to the north, south, and east. While it is unknown whether these remains originate from these two burials, it is apparent that at least one individual from a grave in this general area was an older adult. Several teeth with heavy attrition were identified, as were several bones with noticeable arthritis including a scapula and vertebra.

Burials 18 and 19

Burials 18 and 19 were identified in Unit 91W just west of Feature 15 and approximately 14 feet (4.3 m) west and 7 feet (2.1 m) north of Burial 17. These two partial adult burials lay one on top of the other, each in a separate grave and both oriented east-west with head to the west. While Burial

18 overlay Burial 19, the latter burial was identified first based on the presence of a clear grave shaft in the northwest corner of Unit 91. The grave shaft was identified at a depth of 2.6 feet (78 cm) below the top of the newly placed curb. In order to follow the direction of the grave shaft, Unit 91W was excavated for another meter west of the original unit. During this excavation, based on a clear but partial coffin outline, Burial 18 was identified overlying the Burial 19 grave shaft at a depth of 2.3 feet (69 cm). Both burials consisted of the foot of the grave only and each feature was only 2 feet (60 cm) in length (Fig. 26).

Since it was obvious that prior disturbances destroyed most of Burial 18, the grave shaft was excavated in order to determine whether any intact remains were still present. This investigation revealed intact right and left foot bones and lower legs (tibiae and fibulae). At first, only the feet and left leg bones were observable in the feature. The right fibula and a tibia shaft fragment were only identified following excavation of another 4 inches (10 cm) of soil, as the bones had sunk to a level deeper than the rest of the remains. Seven coffin nails were noted at the east end of the feature.

Because of the amount of disturbance to this burial, its shallow depth in comparison to the required impact depth for curb construction, and the need to investigate the integrity of the burial below, the Burial 18 remains were removed. Following excavation of the remains, a small deposit of decayed coffin wood was identified at the base of the grave overlying Burial 19 with those remains located immediately beneath. This confirms that these were two separate graves. In addition to the presence of a grave shaft, excavation of the Burial 19 feature also revealed a decayed coffin outline, as well as major disturbance to most of the burial. This burial consisted of exactly the same remains as the burial above. Both burials were destroyed by the same disturbance in the same general location.

As a side note, just north of these two burials, a discrete deposit of previously disturbed human remains was identified (Photo 37). The pocket of remains included a cranium and two humeri placed in a "skull and cross bones" position (Photo 38).

Burial 20

Burial 20 was identified in Unit 93 excavated approximately 14 feet (4.3 m) west of Burials 18 and 19. One side of a grave shaft and coffin outline were identified extending east-west in the northern third of the unit. Two nails were noted at the foot of the coffin outline at the east end of the feature suggesting the foot of the grave was still intact. The placement of the nails and the lack of additional remains to the south suggested that the coffin outline was the south side of the grave. In order to investigate the full length of the feature and whether adjacent burials existed in this area, the unit was extended another meter west and another 1 foot (0.3 m) east. The unit was also extended one meter (3.28 ft) north in order to identify whether adjacent graves were present.

Investigation of the burial feature to the west revealed a partially intact burial with a partial right pelvis visible within the coffin outline. At this point and west, it was clear that the burial was disturbed from prior construction activities, as the north edge of the coffin outline disappeared and an adult left ulna and radius were found askew in the east end dislodged from their original position

Figure 26. Burials 18 and 19 Plan View (Unit 91W).

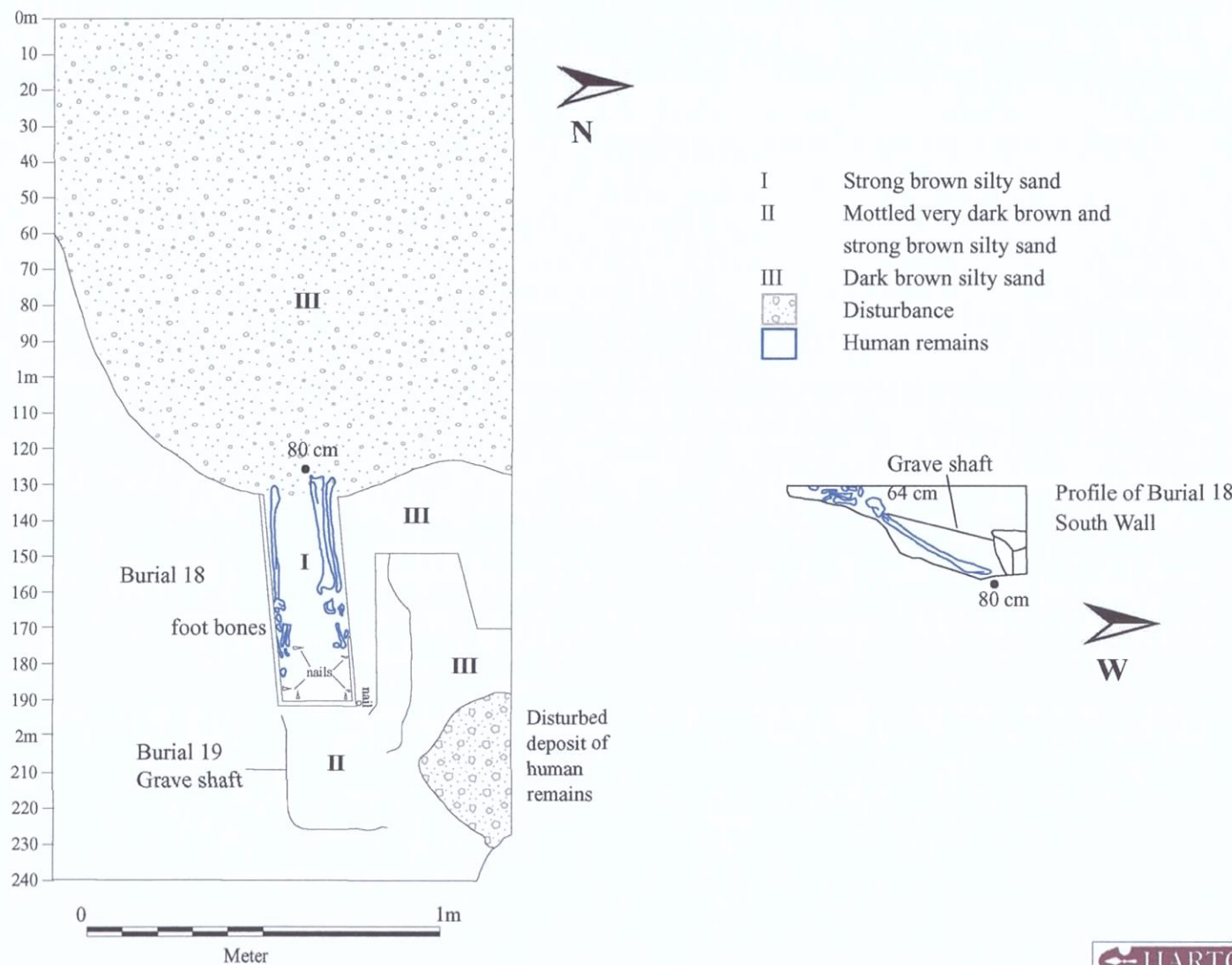




Photo 37. View west of Burial 18 (top), the Burial 19 grave shaft below, and a deposit of fragmentary remains to the north.



Photo 38. The “skull and cross bones” found in the middle of the above deposit of remains north of Burials 18 and 19.



Photo 39. View east of Burial 20 illustrating an intact grave shaft and coffin outline. The section of the feature in the foreground was excavated several additional inches to assess the amount of disturbance to the grave where two arm bones were found dislodged from their original position (left). A partially intact grave shaft was found below the disturbance.

in the grave (Fig. 27; Photo 39). In order to assess the amount of disturbance to the grave, the disturbed (west) end of the feature was excavated. While the two bones were dislodged, a partially intact grave shaft was present below the disturbance. However, the head of the grave was removed by a previous trench. Since a substantial portion of the grave remained intact, the feature was left *in situ* and covered with sand, a plywood box, and covered with plastic sheeting.

Burial 21 (Units 94/100)

First identified in Unit 94, a 1 x 1-meter unit (3.28 x 3.28 ft), Burial 21 was a full adult grave identified approximately 5 feet (1.5 m) west of Burial 20. Similar to other burials, scattered fragmentary human remains were recovered from soils just overlying the grave. The burial was first identified by the presence of a potential grave shaft and then a discernible coffin outline. Several nails were also identified in association with the coffin outline, and at the west wall of the unit, a partial cranium was exposed (Photo 40). The unit was extended east and west in order to identify the integrity and extent of the burial feature.

An entire grave shaft was identified with the exception of a small section of the feature at the eastern end (the foot of the grave), which was affected by previous disturbances (Fig. 28). This grave was located approximately 2 feet (.62 m) below the top of the new curb. The feature was approximately 6.2 feet (1.9 m) long to the disturbance at the foot of the grave. The maximum width was 1.7 feet (.53 m). The grave was oriented in the same fashion as Burial 20, east-west with head to the west.

Since the entire burial was discernible without excavation, the feature was left in place and protected according to LPC protocol with a plywood box, plastic, and 8 in (20.32 cm) of clean sand fill.

Burial 22 (Unit 96)

Burial 22 was identified in Unit 96 excavated in the location of the lamppost on the exterior sidewalk curb on the west side of the staircase. The burial was identified in the east wall of the unit with the top of the feature located approximately 3.5 feet (1.07 m) below the top of the curb. A grave shaft outline was observable, as well as a fragment of human cranial bone (Fig. 29). The dark brown, silty sands excavated from the unit itself contained historic fill with fragmentary human remains unlikely associated with this burial. The size of the grave's cross-section (approximately 20 inches or 50 cm) suggests this was an adult grave. Given the identification of cranial remains in the wall, it is clear that the burial was oriented east-west with the head to the west. Since the burial was identified in the wall of the unit and that the lamppost could be placed a foot away from the burial, the wall was shored with plywood, and sand was filled in between the shoring and the burial. The box was then covered in plastic.



Photo 40. The Burial 21 feature with a grave shaft (outer lines), coffin outline (inner lines), and intact cranium (center of photo). The soils above the grave shaft consist of historic fill.

Burial 23 (Unit 95)

Burial 23, a heavily disturbed adult burial, was identified in Unit 95 just a few feet west of Burial 21. The burial feature was identified below a dark brown, silty sand fill with fragmentary human remains and a sample of historic artifacts. A grave shaft outline was noted in the first level of the unit at a depth of 20 inches (52 cm) below the top of the new curb. A few nails were also identified, but no coffin outline was discernible. A portion of the upper skeleton was identified in the unit, and a proximal right femur was noted in the east wall of the unit. The unit was expanded east in order to identify its extent and integrity and to identify whether the fragmentary femur was part of the burial feature. An intact right lower leg and foot and an intact left lower leg were identified within the feature. However, the burial had been disturbed in several areas: no cranium was present, and only fragmentary ribs, vertebrae, a right humerus, and a few finger bones were identified. The remainder of the upper body and thorax were missing (Fig. 30). Because the burial was close to the surface, most of the remains were crushed.

The grave was oriented east-west with the head to the west, just like all other burials identified in this section. Given the shallow depth of the burial compared to others in this area, the heavy prior disturbance, and the location of the burial midway along the curb line, the remains were removed.

Figure 27. Burial 20 Plan View (Unit 93).

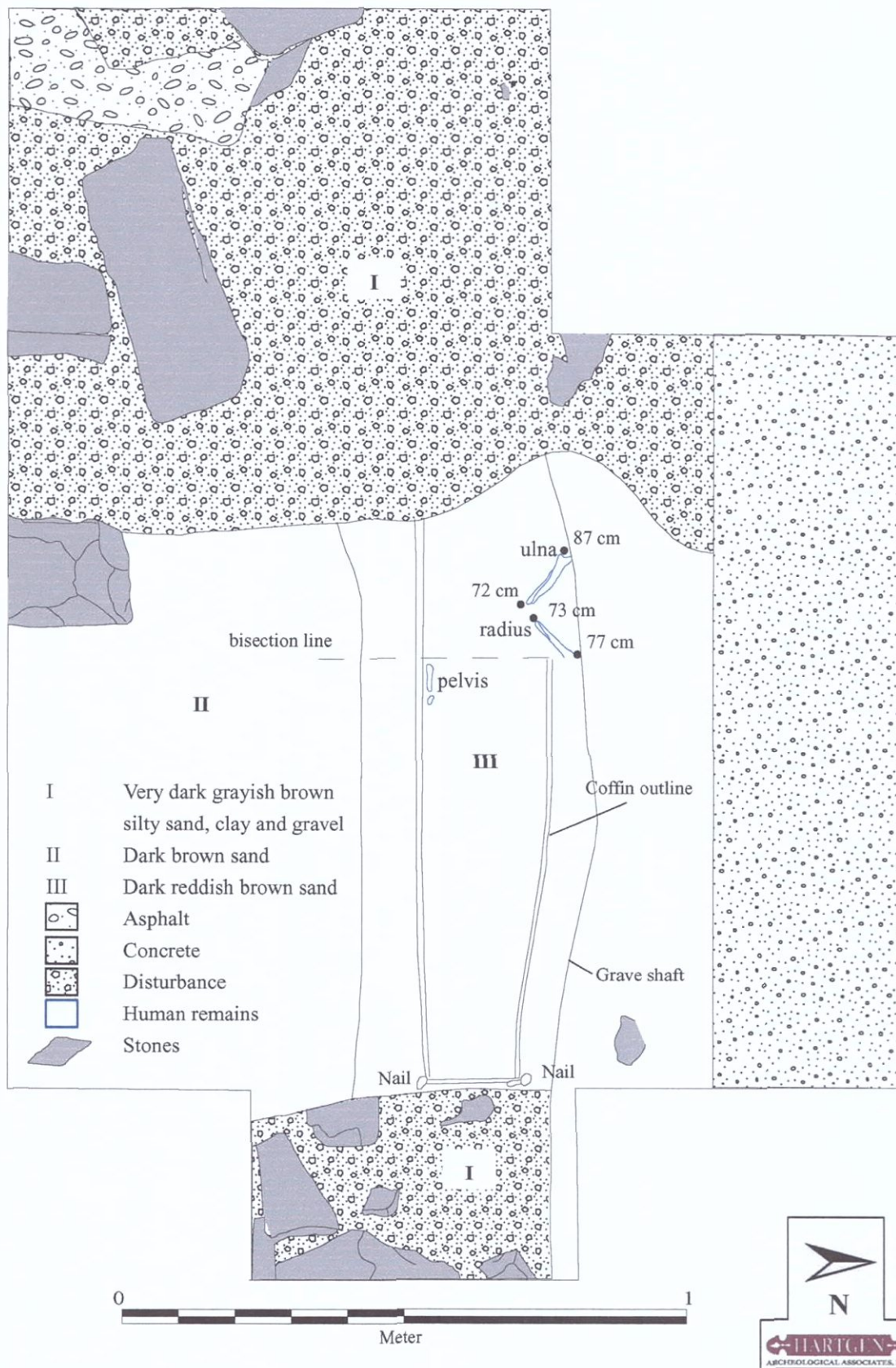


Figure 28. Burial 21 Plan View (Unit 94/100).

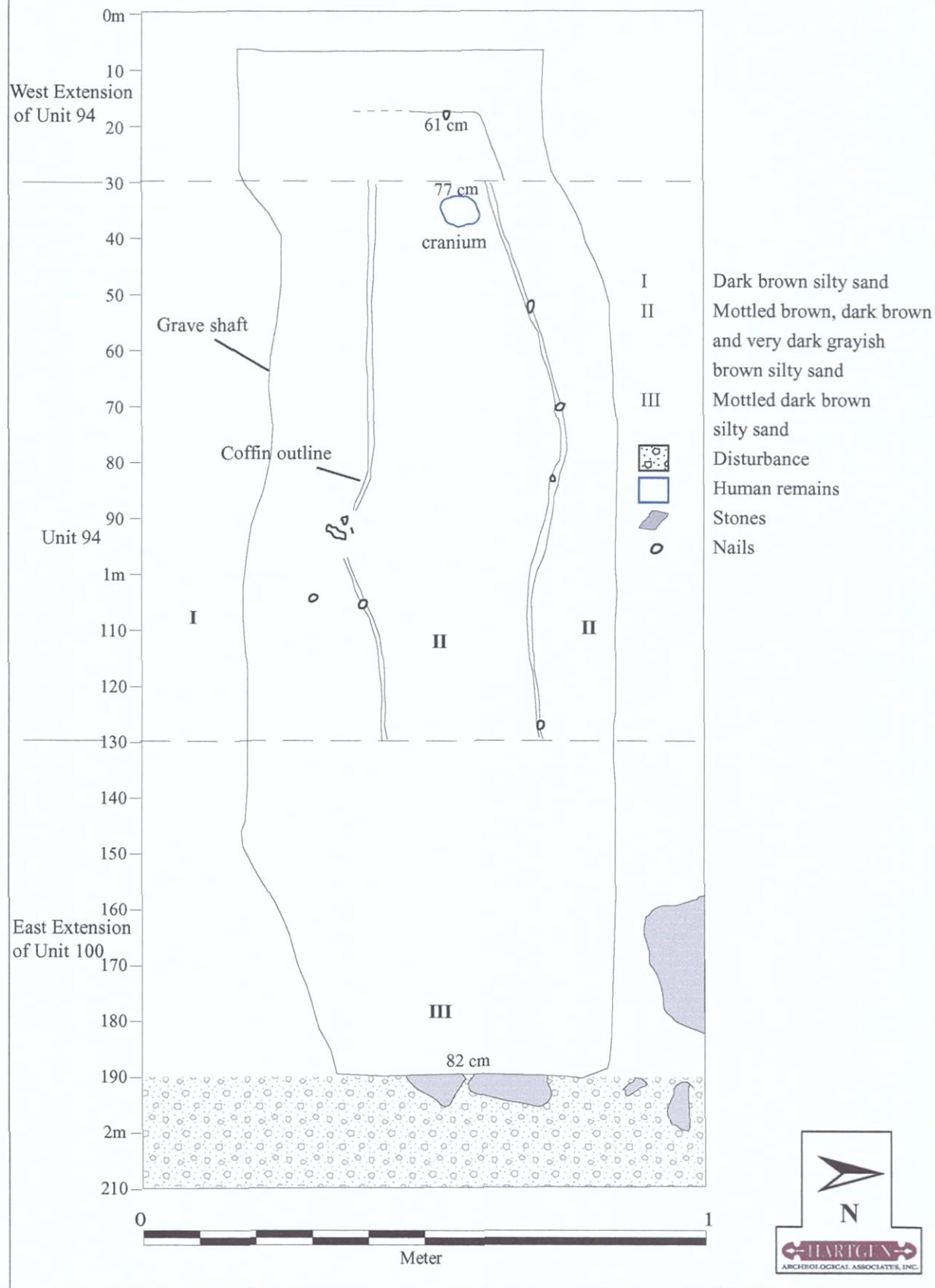
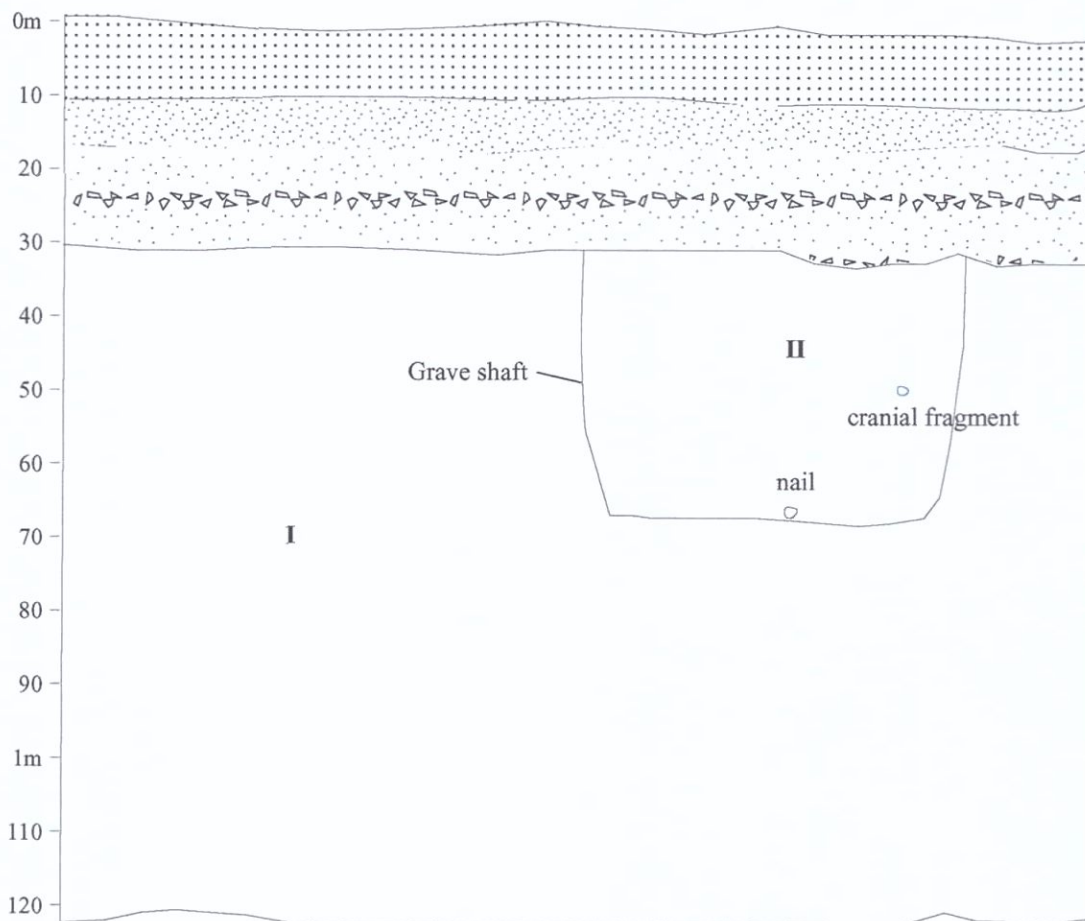






Figure 29. Burial 22, Unit 96 West Wall Profile.



- I Dark brown silty sand
- II Dark yellowish brown silty sand
-  Cobbles
-  Sand
-  Cement
-  Human remains

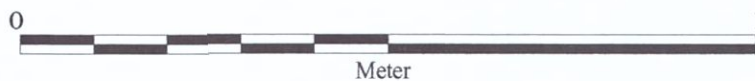
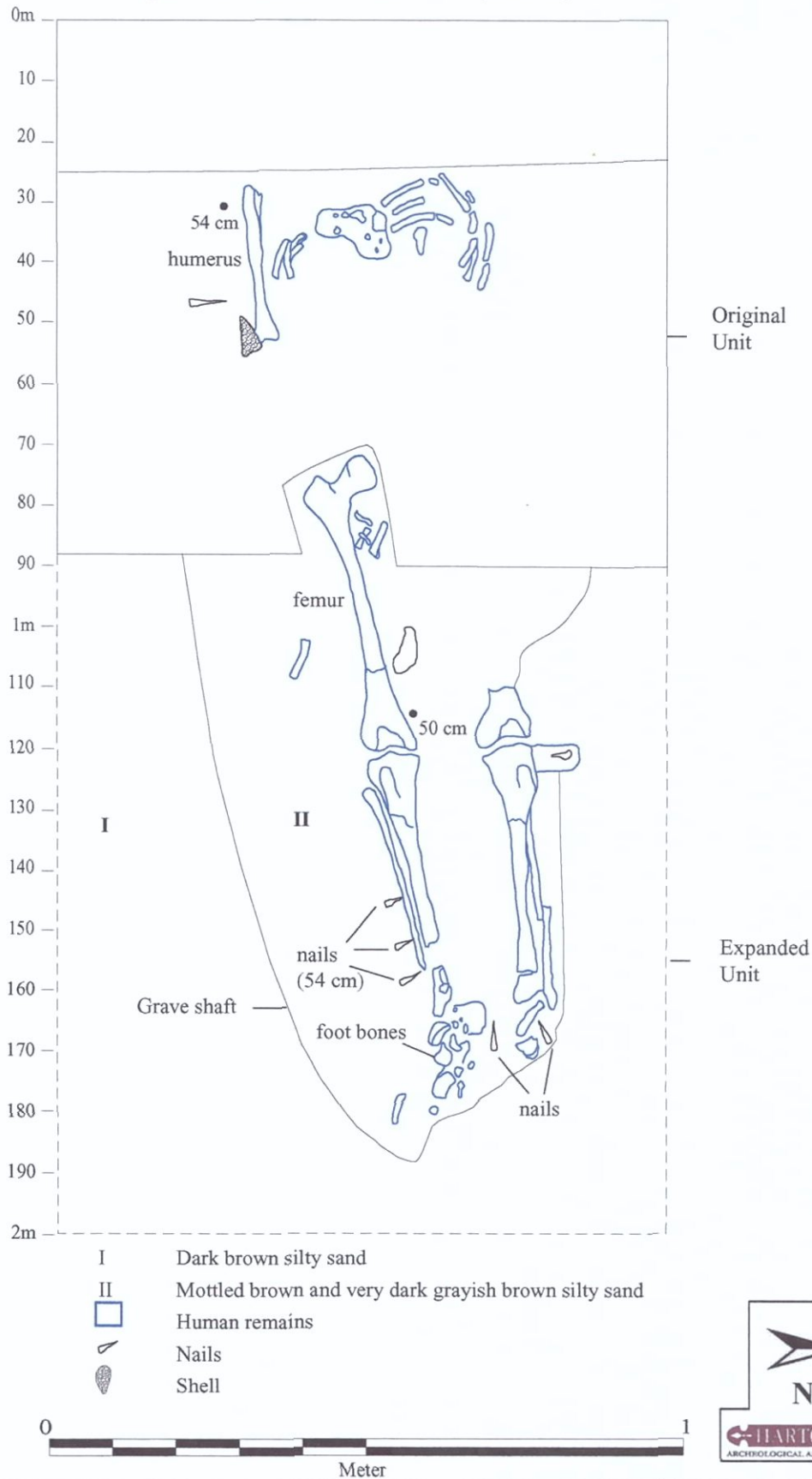


Figure 30. Burial 23 Plan View (Unit 95).



Burial 25 (Unit 101)

Burial 25 was identified during the excavation of Unit 101 at a depth of 22 inches (56 cm). Initially, only a partial grave shaft and adult left and right foot bones were identified within the unit. Given the orientation of the foot bones, this individual would have been buried in an east-west orientation with head to the west. In order to identify whether additional intact remains were present, the area west of the remains was excavated. It was clear by the amount of disturbance to the west that the remainder of the burial was destroyed. However, it later became evident that a historic feature (Feature 18) overlay the burial, destroying most of it (Photos 15 and 16 and Fig. 10 above). A partial left femur and partial right femur were still present amidst the disturbance, the right femur beneath a large cut stone. Since only fragments of this burial existed, it was not considered intact, and the remains were removed.

Burial 28 (Unit 78)

Unit 78 excavated on the east side of the staircase contained a partial grave shaft outline in the south wall at the bottom of the unit, as well as several articulated adult foot bones on the floor of the unit at a depth of 2.07 feet (63 cm). It appeared from the orientation of the few foot bones visible that the grave was oriented east-west and that the grave shaft extended into the west wall of the unit. Because the burial feature and remains were observed well below the proposed construction depth, the feature was covered in plastic, marked with pink flagging tape, and the unit was backfilled. The burial is located 25 feet (7.6 m) south of the lamppost placed in Unit 73E and 28 feet (8.5 m) from the Tweed staircase.

Unit 48 (East side of courthouse)

Unit 48 was excavated as a 1 x 2-meter (3.28 ft x 6.56 ft) unit in the location of a proposed lamppost beneath a large tree in the adjacent City Hall Park approximately 40 feet (12.19 m) south of the east door of the courthouse along the exterior curb of the east drive. This unit was excavated near a previously known ossuary-like deposit of human remains identified by Parsons Engineering Science (PES) during the City Hall Park excavations in 1999. A lamppost now stands just one foot south of this feature.

Unit 48 was comprised of five strata, one of which contained a high concentration of fragmentary human remains (Photo 41). The top level consisted of a 12-inch (30 cm) layer of dark grayish brown, silty sand, modern fill with gravel, blacktop, mortar, and a few historic artifacts mixed in. Level 2 was comprised of an 8-inch (20 cm) dark yellowish brown, coarse modern sand fill with gravel and no cultural materials. Level 3 was an 8-12-inch (20-30 cm) very dark grayish brown, silty sand historic fill with gravel and a sample of historic artifacts including ceramic, pipe stems, nails, glass, and food refuse in the form of faunal bone. Level 4 was a foot-deep (30.48 cm) layer of marble construction debris associated with construction of the courthouse. No cultural materials were identified in this level.



Photo 41. View east of Unit 48 east wall. The layer of white material is a deposit of marble dust and debris associated with construction of the courthouse. Disarticulated human remains were found beneath this level.

Level 6 of this unit contained a large ossuary-like deposit of fragmentary human remains at a depth of approximately 3-3.5 feet (.95-1.2 m). In all, 371 fragmentary human remains were recovered from this unit beneath the level containing the marble construction debris. Disarticulated remains were scattered across the entire floor of the unit beginning at a depth of 3 feet (.95 m). The remains were removed, and several additional centimeters of soil were removed revealing additional human remains at the north and south ends of the unit. The concentration of remains in the southern half of the unit dissipated at additional depth but several layers of remains were identified in the northern half (Fig. 31), as well as in the east, west, and north walls in this end of the unit. The remains were uncovered as much as possible without undermining the walls of the unit. The deposit was comprised of both small fragments of bone and complete bones of several individuals. None of the remains were articulated, but there appeared to be a few instances of intentional “matching” of the remains when they were placed in this secondary grave. For example, a right and left tibia were found lying side by side, and there was also a “bundle” of two humeri and an ulna (Photo 42).

A sample of over 30 remains could not be removed from this unit since the remains protruded too far into the north and east walls of the unit. The deposit of remains in the east wall extended under the fence line and into City Hall Park. Figure 32 illustrates the deposit of remains in the north

Figure 31. Unit 48, Level 5 Plan View I.

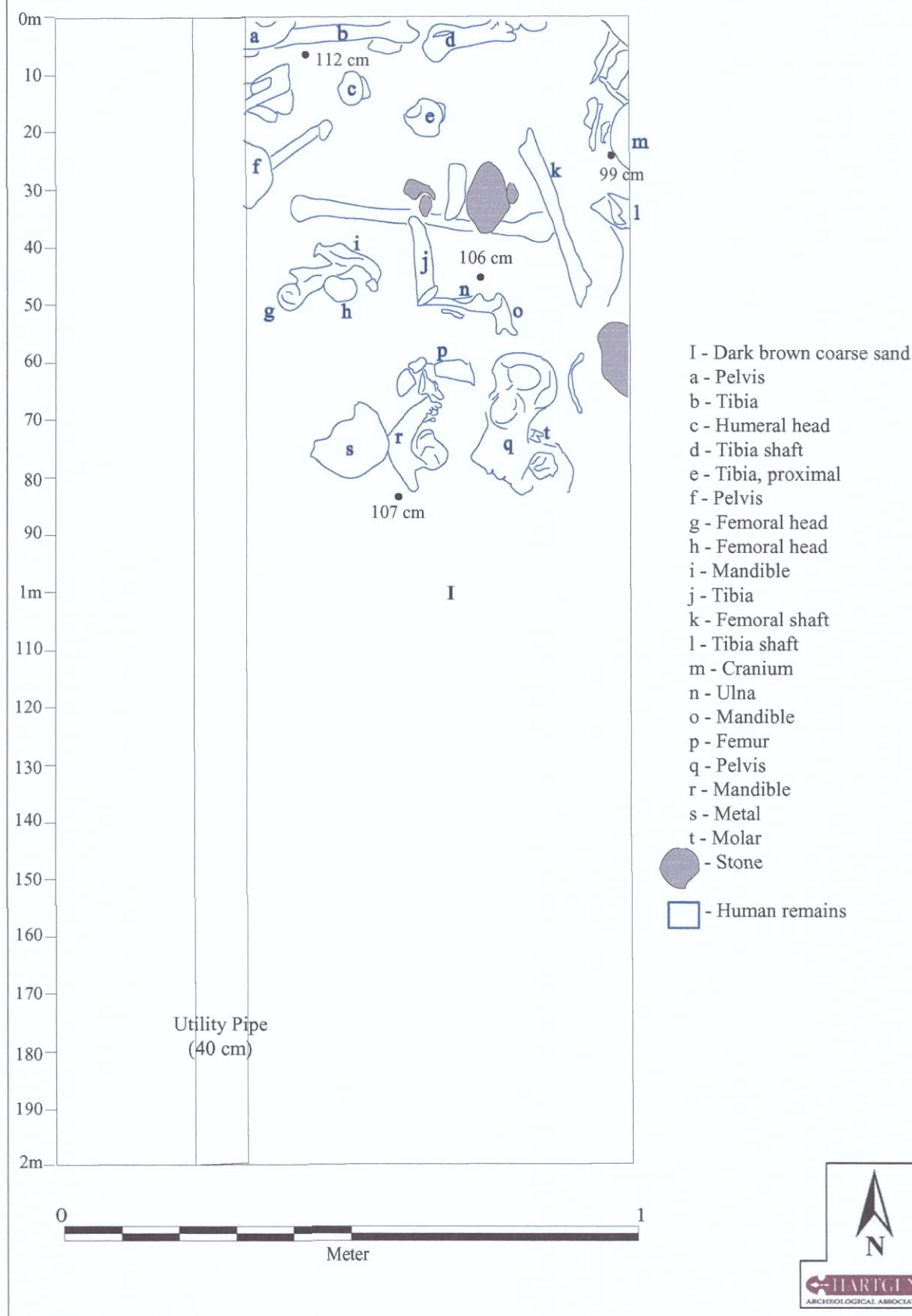




Photo 42. An intentionally placed “bundle” of long bones (two humeri and an ulna) in Unit 48.

wall that were preserved in place. The remains left in situ were shored with plywood, filled with a foot of clean sand, and covered in plastic.

HAA, Inc.’s Unit 48 is related to the deposit identified by PES as Feature 53 (see London and Jones 2000). Of the remains removed plus those left in situ, the minimum number of individuals (MNI) represented by the remains in this deposit was four individuals. However, based on the remains collected by PES, which was significantly more than HAA, Inc.’s collection, London and Jones estimated an MNI of 18 individuals (2000:13).

Feature 12 (East side of courthouse)

Feature 12, a concentrated deposit of fragmentary human remains mixed with a small sample of faunal bone, was identified 15.75 inches (40 cm) west of Unit 52 during grading of the east drive of the courthouse. The feature was a roughly square pit containing secondarily deposited human remains in an odd mix of silty sand with mortar, slag, tar, and other construction debris (Photo 43). The dimensions of the feature was approximately 2.9 x 3.3 feet (.90 x 1 m). The feature appeared to be comprised of two levels: a top layer of human remains approximately 6 inches (15 cm) in depth overlying a thin lens of tar and a second level of human remains to a depth of approximately 12 inches (30 cm). In all, 2,237 fragmentary human remains were removed from this deposit representing a minimum of four individuals based on the presence of at least four separate crania.

Figure 32. Unit 48, Level 5 Plan View II.
Remains Left Intact in East Wall.

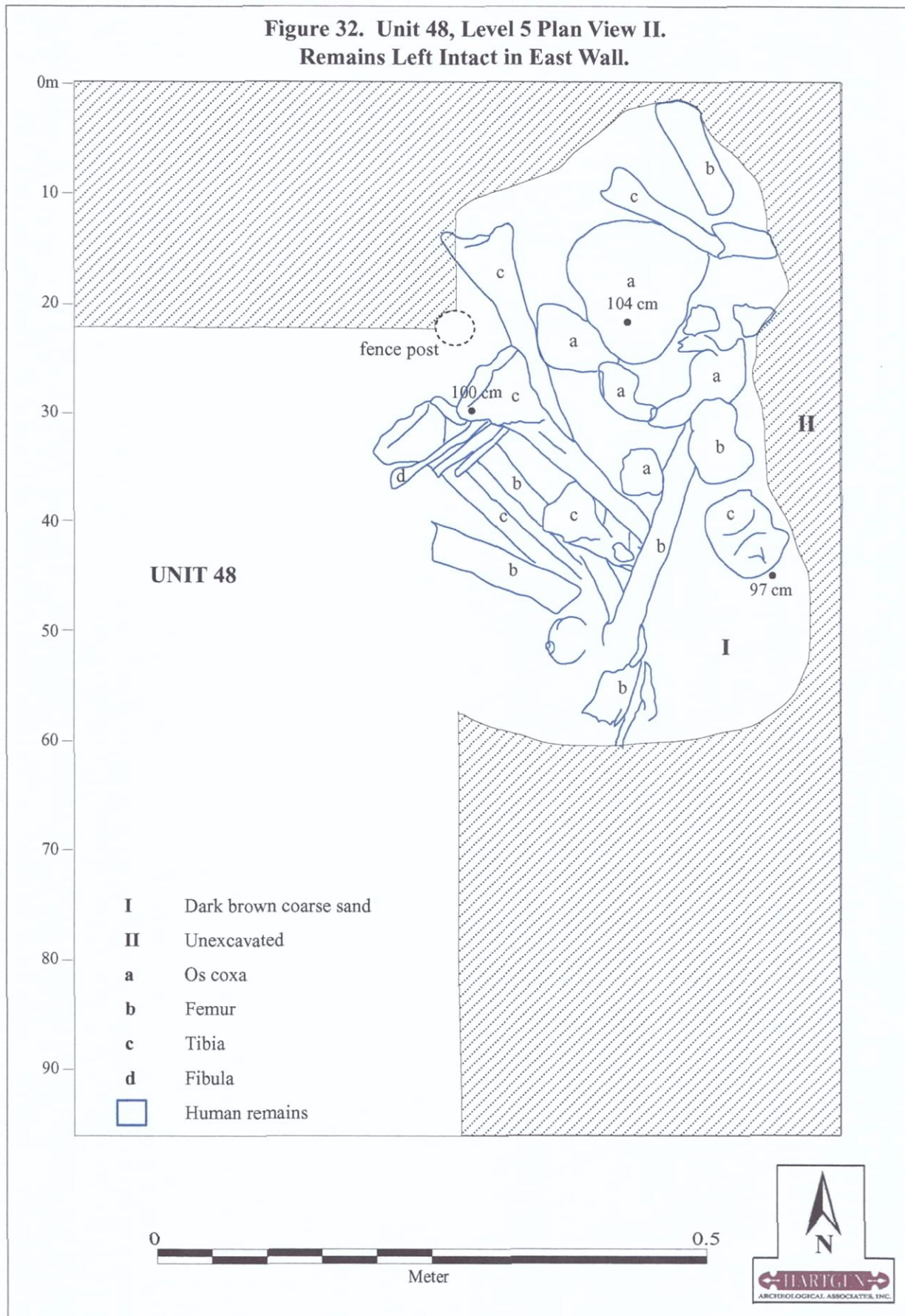




Photo 43. View west of Feature 12, a large deposit of disarticulated human remains mixed with faunal bone and construction debris.

Since the remains were located within the impact area, the feature was excavated in order to remove the deposit of remains. The soils containing the remains were extremely compact, and most of the remains were essentially glued together by the tar mixture. Ultimately, the feature was excavated to approximately 4 inches (10 cm) below construction grade, but the remains at this level were too difficult to remove without destroying them. Therefore, the remainder of the feature was left intact and covered with clean sand fill and plywood. Given its relatively shallow depth in comparison to construction depth, a layer of gravel was placed over the box in order to support the concrete base of the sidewalk.

Given the composition of the feature (tar, mortar, marble), the presence of late 18th- to mid-19th-century ceramics, and the location of the feature on the east drive of the courthouse, the remains contained in this feature were most likely buried in this location during construction of the courthouse. It is evident that numerous burials were found during the courthouse construction and that they were destroyed and reburied in this location.

LAB METHODS

Archeological materials recovered from the project were processed according to the professional curation standards outlined in the NYAC guidelines (1994). All artifacts and human remains were cleaned and stored in archival quality (acid-free) plastic bags, tissue paper, and boxes in order to prevent any decomposition of the remains.

Due to several factors, only a sample of the artifact collection was subject to a thorough analysis. A majority of the artifact collection originated from fill deposits which contained only artifacts removed from their original provenience. In addition, using these artifacts to date the fill deposits is impossible given numerous episodes of excavation and filling. With these factors in mind and time and budgetary constraints, only the artifacts from the two intact features containing uncompromised stratigraphy were included in the full artifact analysis.

Artifact Processing

The historic artifact collection was processed by the laboratory and conservation staff in the HAA, Inc. laboratories located in North Greenbush, New York and Brooklyn, New York. The artifact collection included samples of ceramics and glassware; building materials such as nails, brick, and window glass; personal items such as smoking pipes, toys, buttons and coins; and food refuse. Artifacts were analyzed and catalogued by David Klinge, M.A. (the 2001 collection) and Peter Green (the 2000 collection). Conservation of artifacts was completed by Adam Tokes, M.A. and Darrell Pinckney. Conservation procedures are included in Appendix 13. Photography of artifacts was completed by Michael C. Diaz and Carol A. Raemsch, Ph.D. Conservation photos were taken by Shannon McLaughlin. Mending of artifacts was completed by Kelly Domoney. All provenience data and artifact information were entered into a customized MicroSoft *Excel* artifact database. Objects were assessed for material type and stability and were washed or dry-brushed accordingly. Items requiring conservation were assessed on a case-by-case basis. Analysis of the historic artifacts included counts, weights, and descriptors, such as material, function, manufacturing technique, decorative technique, and element. Faunal bone was analyzed by Marie-Lorraine Pipes, M.A.

Human remains (with contributions by Cassandra Ayott, M.A.)

The analysis of human remains was completed in the osteology laboratory at the University at Albany, Albany, New York (the 2000 collection), and at the HAA, Inc. osteology laboratory in Brooklyn, New York (the 2001 collection). The cataloging and analysis of human remains was completed by Carol A. Raemsch, Ph.D., Cassandra Ayott, M.A., Stephen Sherwood, and Erin Ross Klinge. Dawnie W. Steadman, Ph.D. examined and provided identification on pathological remains. Cleaning and conservation of human remains was completed by Carol Raemsch, Stephen Sherwood, Cassandra Ayott, Erin Ross Klinge, Stephen Houk, and Joseph Samalin. Photography of human remains was completed by Carol Raemsch, Cassandra Ayott, and Patrick Sabol.

All bone material in the collection was inspected to ensure that all human skeletal elements were separated from the remainder of the collection so that there was no mixing of faunal elements. The skeletal remains were processed and analyzed using standard laboratory procedures. All human bones and bone fragments were cleaned (dry-brushed), sorted, and identified by skeletal element. When possible, fragmentary and broken remains were reassociated. In cases in which the soil adhering to the remains was somewhat damp, the remains were left to slowly dry before processing. The foil containers were left partially opened for several days to allow air to circulate and slowly dry the remains. Due to the lag between the end of fieldwork and approval to begin the lab work, a small sample of the remains that were in damp soil grew mold, mostly in the medullary cavities of the long bones. The mold was carefully removed using a solution of ethanol that was brushed lightly on the site of growth. These elements were then set aside for several days before final curation to ensure that the treatment was successful before further analysis continued.

After cleaning, the remains were organized by bag number and provenience. Basic skeletal analyses were performed to determine the elements present, the side of the bone, and when possible the age and sex of the individual, pathology, cause of death, and ancestry. In addition, taphonomic data were recorded (see below). Due to the fragmentary nature of the remains, not all of these features were discernible for each bone and bone fragment.

All human remains data were entered into HAA, Inc.'s customized MicroSoft *Excel* human remains database. The following describes the data sheets, which are included in Appendix 14. The *Inventory of Commingled Remains* sheet was the initial site of data entry. When applicable, the following information was recorded for all human remains on the inventory sheet whether complete or fragmentary:

- Field context, such as feature, burial, or unit number and the stratum from which the element derived (*Provenience* and *Level*);
- Field bag number (*Bag*);
- Class (*Class*);
- Element (*Elmt*);
- Subelement (*Subelm*);
- Number of fragments present per element (*Count*);
- Size in centimeters (*Size*);
- Side of the element (*R,L*);
- Specific part of the element (*Medial, Lateral, Proximal, or Distal*);
- An indication of whether the bone was fragmentary (*Frag*) or intact (*Intact*); and
- General comments or noted features (*Comments*).

The *Class*, *Element*, and *Subelement* information was retrieved from a bone coding system developed by HAA, Inc. for cataloging commingled human remains (included in Appendix 14). The coding system classifies each human bone and element by a series of numbers. Human remains were divided into 21 primary classes, such as cranium, dentition, vertebrae, ribs, os coxae, foot bones, etc.

One obscure category is ossified tissue, a few examples of which were observed in the collection. In addition, a class was added for remains which were unidentifiable.

The subcategory *Element* divides the classes into specific bones, such as the frontal, parietal, occipital; cervical, thoracic, and lumbar vertebrae; and the separate diagnostic features of other bones, such as the sternal end, shaft, and acromial ends of the clavicle. A sample of the 22 classes is also divided into a *Subelement* category when applicable, such as the mastoid, petrous, auditory meatus, etc. for the temporal bone; the specific carpal or tarsal bone; specific tooth, etc. If a bone fragment was identifiable as a specific class but the specific element of the bone was unidentifiable it was entered as "0." Together, the code numbers used in the *Bag*, *Class*, *Element*, and *Subelement* categories comprised the HAA, Inc. catalog number.

Any bone or bone fragment with observable taphonomic information was recorded on a separate sheet within the database (Appendix 14). Taphonomic data generally refers to post-depositional influences affecting the remains. Taphonomic data was divided into two primary categories: *External Modification* and *Fracturing*. *External modification* describes four potential taphonomic features that could be observed on the remains: discoloration, exfoliation, rodent gnawing, and the growth of fungus. *Discoloration* refers to staining on the surface of the bone, such as green copper/brass staining from artifacts or soil staining. For example, at the Tweed site there was a characteristic black spotting on many of the elements resulting from some type of chemical substance in the soil. *Exfoliation* describes the flaking nature of the outer layers of the bone as part of the decomposition process. *Rodent gnawing* describes the distinctive tooth marks left on bone surfaces by various scavengers. The presence of *Fungus* was noted as previously described. *Fracturing* was segregated into 19th- vs. 20th- century disturbance. This category notes whether the fracture occurred as a result of 19th- vs. 20th- century construction disturbances. Comments regarding detailed observations made for these categories were added in an additional column at the end of the spreadsheet.

The commingled remains *Basic Analysis* sheet contains demographic information on any remains where age, sex, ancestry, and minimum number of individuals (MNI) could be determined. This database is organized by field bag number and lists the total number of bones present; MNI; sex and age; presence/absence of pathology; and a description of how this information was obtained (i.e., criteria used, references, etc.). Several standard references were used in gathering these data, including Bass 1987; Buikstra and Ubelaker 1994; Reichs 1986; Ubelaker 1989.

Metric and nonmetric data were collected for all complete elements and for partial elements on which the data were recordable. The data were recorded by catalog number and element. Detailed information on dental remains was entered in the *Dental characteristics* spreadsheet (Appendix 14). The following measurements were collected (in millimeters) for each complete tooth: mesial-distal, buccal-labial, and cementum enamel junction-occlusal surface (*M-D*, *B-L*, *CEJ-O*). Observations of dental attrition (occlusal tooth wear) were entered as *none*, *mild*, *moderate*, or *significant*. When present, the following dental features were also recorded: *linear enamel hypoplasias (LEH)*, *abscesses*, *calculus*, *caries*, *wear*, *pipe stem wear*, *staining*, and *other*. A separate column describes the specific details of each feature.

Mandibular metrics (recorded in a separate spreadsheet) were taken on those elements that were complete or fairly complete. The following observations were recorded when available: *chin height, height of the body, breadth of the body, bigonial width, bicondylar breadth, minimum ramus breadth, maximum ramus breadth, maximum ramus height, and mandibular length*. These measurements were entered into *FORDISC 2.0* (Ousley and Jantz 1996) in order to find the probabilities for sex and race determination based on discriminant function analysis. The sex and race information generated by this program as well as the probability assigned to that determination were described on the spreadsheet.

Several mandibular nonmetric traits were examined in this collection. Each nonmetric characteristic has a sex and/or a racial affinity which is listed with the trait. Observations for these data included: *number of mental foramina; presence/absence of the mandibular torus, mylohyoid bridge, gonial flare, and ramus inversion; shape of the dental arcade, chin, and lower border of the mandible; the profile of the chin; gonial angle characteristics; and the ascending ramus form and ascending ramus profile*.

Pathologies were noted on a separate spreadsheet and are described in detail for the site of occurrence, degree of intensity, and possible etiology.

MNI was determined by frequency of particular elements in the collection as a whole and by site provenience. The elements that most commonly occurred in the collection were tallied. The MNI spreadsheet lists MNI by specific elements examined for frequency of occurrence.

Following analysis, the humans remains were carefully wrapped in archival tissue paper and placed in archival plastic bags. A label including the HAA, Inc. collection number, the bag number, and the element(s) included was placed into each bag. All of the remains were organized into boxes, separated by bag number and temporarily stored in the HAA, Inc. Brooklyn laboratory.

ANALYSIS OF BURIAL FEATURES AND HUMAN REMAINS

As described above, 28 historic burials were identified within the boundaries of the project. The condition of the burials ranged from fully intact to partially intact to heavily disturbed. In addition to the 28 burials, 16,626 disarticulated or fragmentary human remains were identified and removed. This section summarizes the overall characteristics and patterning of the burials as well as a discussion of the analysis of the fragmentary human remains. The archeological study of the burials and the identification of numerous deposits of fragmentary, disarticulated human remains has provided unique information concerning the initial placement of these historic graves and the later disturbance and reburial of human remains deriving from numerous other graves.

Based on the information obtained during the excavations, it is clear that the burials included within the cemetery or cemeteries falling within the Tweed Courthouse project impact area are notable for their diversity in burial form, burial orientation, and completeness. The burials do exhibit some similarities in their general organization and distribution across the project area.

Organization and characteristics of burial features across the project area

This section summarizes the general organization and characteristics of burial features and their numbers, provenience, and organization across the project area. In addition, a summary discussion of the effects of previous disturbances on the burials is included.

Burial feature provenience

As discussed in the previous section, all 28 burials identified throughout the Tweed Courthouse project area were located on the north side of the courthouse beneath Chambers Street and the corresponding sidewalk. Two additional features containing large deposits of disarticulated human remains were identified on the east side of the courthouse.

All intact or partially intact burials were identified within a 7.5YR dark brown, coarse sand. Typically they were located directly below a compact mottled silty sand containing historic refuse, such as ceramic, glass, nails, and shell. Burials ranged from 9.4 inches (23.9 cm) to 2.7 feet (.82 m) below the existing grade, and generally were deeper beneath Chambers Street than the sidewalk (the shallowest burial in the street was 1.3 feet or 39.62 cm).

Burial feature MNI

In all, the burials represent 35 individuals buried in 28 separate graves. Since most of the graves were partial burials and not completely excavated, it was difficult to assess age, sex, and ancestry for each individual burial. Of the graves with visible human remains, at least three (Burials 12 and 26) were males and one (Burial 9) was female. Only one of 35 individuals was a child of determinable age (7-8 years). Burial 8 was also placed in the "child" category, but only partial remains of this individual were observable in the wall of Trench 2. While the remains were of adult size, the lack of bone fusion indicated that Burial 8 was a teen to young adult aged 20 years or less.

Grave orientation

Regarding grave orientation, all but two (93%) were oriented on an east-west alignment. These 26 burials were identified between the east and west gates of the courthouse, while the two graves buried north-south were identified on the northwest sidewalk approximately 50 feet (15.24 m) from the west gate.

Of the 28 graves, 25 (89%) were classified as single burials (Table 2, p. 69). Of these, it is known for certain that 15 were burials of one individual. However, because ten of the graves were not completely excavated, it can only be assumed that these burials were single, but they may have contained multiple individuals buried in a “stacked” arrangement. Three graves—Burials 12, 15, and 27—contained more than one individual. Burial 12 was the double burial containing two adult males; Burial 15 included five partial adult individuals; and Burial 27 included three partial adults.

Of the graves aligned east-west, all of the single burials were buried with heads to the west, which is typical for both European and Christian tradition. All of the multiple burials contained a combination of orientation to the east and west: Burial 12 included one individual with head to the east and one to the west; Burial 15 had three with heads to the west and two to the east; and Burial 27 had two with heads to the west, and one to the east.

Evidence of grave shafts and coffin remains

As described above, several burials were identified based on the presence of grave shafts and coffin remains. Grave shafts were discernible based on the presence of soil stains resulting from the excavation and backfilling of the grave. Coffin remains consisted solely of decayed wood stains and nails. Coffin nails were occasionally found in situ along the outline of the feature. The presence/absence of grave shaft and coffin features related primarily to the amount of disturbance affecting the burial feature. Numerous burials were impacted by disturbances that swept both horizontally and vertically through the features destroying any evidence of grave shafts or coffins.

Of the 28 graves, 71.4% (N=20) had evidence of one or both of these features. Of these, 40% (N=8) exhibited evidence of a grave shaft only; 15% (N=3) had coffin remains only; and 45% (N=9) had evidence of both. Three grave shafts were observed in trench walls while the remainder of shafts and coffin remains were observed as horizontal features.

Grave alignment

In several areas, the existence of rows of graves was discernible based on the number and/or proximity of burials. Burials 9 and 26 identified in the northwest sidewalk west of the courthouse’s west gate represent a special case as these are the only two burials oriented on a north-south alignment. The two burials are obviously part of the same cemetery or cemetery area, and they were buried only 6 feet (1.8 m) apart. Given their orientation and relationship (Map 11b), the two graves may each represent one row extending north-south, as well as one extending east-west.

The remainder of the graves, all oriented east-west, potentially represent twelve separate rows of burials. This would be the case only if the rows were continuous from the northwest to northeast sidewalks over a distance of approximately 225 feet (83.8 m), the distance from the eastern- and western-most burials (Burials 15 and 25, respectively). Since burials on both sides of the courthouse staircase align with one another and were similar in burial form it is speculated that the burials are related in their affiliation with the late 18th- to 19th-century burial practices associated with the historic commons area.

Prior disturbance to the graves

As described above, nearly all of the graves identified during the fieldwork were only partially intact; even those which were nearly complete were impacted in some fashion. Of the 28 graves, four (14.3%) were nearly complete and 18 (64.3%) were partially intact. The completeness of six (21.4%) could not be identified as they were only observed in profile form.

Most if not all disturbances to the graves resulted from various construction episodes from the early 19th century through the end of the 20th century. Historic documentation supports that the area was repeatedly graded and filled during the construction and renovations of Chambers Street beginning in 1796. In general, the entire area surrounding the courthouse and overlying the burials on the north side of the building has been subject to extensive grading and cut and fill construction. All of the burials were covered by Chambers Street, the sidewalk, and various utilities. In some cases, construction trenches were the obvious cause of the disturbances, while in other cases it was difficult to distinguish specific construction trenches. As discussed, most of the burials are very shallow in reference to current road grade. Since the graves were likely excavated to a depth of 4-6 feet (1.2-1.8 m) deep, their shallow depth attests to the amount of disturbance and reconstruction that has occurred throughout the area.

As described above, thousands of fragmentary human remains were identified throughout the project area in three main contexts: in discrete deposits or pit-like features; in the historic fill overlying the intact graves; and in fill deposits spread around the courthouse and in the street. Unfortunately, it will never be known whether these remains originated from the 28 burials documented during this fieldwork or from other disturbed graves for which no evidence remains. Most likely the remains represent a combination of both; however, it should not be assumed that fragmentary remains found overlying or adjacent to partially intact graves are necessarily associated with those graves, especially considering that several dozen construction events over a period of two hundred years have disturbed the burials. For several of the graves it is very likely that separate construction episodes destroyed different parts of the graves (i.e., the lower vs. upper halves).

While most of the fragmentary remains were found in fill deposits spread across the site, there was evidence that several discrete deposits of remains were intentionally reburied in a certain fashion. These deposits include the remains from Unit 48, Feature 12, and the remains from Unit 91W. Unit 48 on the east side contained a large ossuary-like deposit of remains that was deposited as a single event apparently during the construction of the courthouse itself. Again, this deposit corresponds to the large deposit of remains collected by PES during the City Hall Park study. While a large portion

of this feature basically consisted of a randomly placed "pile" of bones, the placement of some scattered remains indicated more intentional burial. This includes the example of two upper arm bones and one lower arm bone being placed together in a tight bundle.

Since the remains in Unit 48 were identified by HAA, Inc. below a layer of marble rubble, it is likely that the burials were dug out during the courthouse site preparation work around 1860 approximately 75 years after the area was known to have been used as a burial ground. The east side of the courthouse including City Hall Park corresponds to what would have been the east side and rear yard of the Second Almshouse (the northernmost section of the east driveway), and the front and rear yards of the Upper and Second Barracks (Appendix 1). Historical records indicate that at least the rear yard (north side) of the Upper Barracks was used as a burying ground beginning in 1785 approximately five years preceding demolition of the building. In order to build the courthouse's basement and foundation, excavations would have occurred to a level containing the burials.

Feature 12, also on the east side of the courthouse, was a round pit feature containing fragmentary human remains. Since construction debris was included as part of the feature, it is clear that these remains were disturbed around the same time as those in Unit 48. The presence of late 18th- to mid- 19th-century ceramics with nothing later in the deposit supports this hypothesis.

The deposit of fragmentary human remains identified in Unit 91W may have been disturbed from as early as the time the almshouse and associated features were built to as late at the 20th century. Several burials in this area on the north side of the building were impacted by historic features such as the drain, privy, and cold storage shed while others were destroyed by utility trenches, cut and fill activity, and grading.

Overall, the presence of fragmentary human remains scattered throughout the entire project area attests to the high level of disturbance of the historic burial ground(s) located in this area. In addition, regardless of their depth, all of the graves identified had incurred some type of disturbance.

Results of fragmentary human remains analysis

The focus of the human remains analysis was to gather information pertaining to the general biological characteristics of individuals buried in the area of the historic commons area. Osteological (skeletal) data provide useful information regarding personal identification and are used to distinguish many of the life circumstances experienced by an individual prior to and at the time of death. Skeletal data from a community of individuals can be used as a tool for illuminating otherwise unknown aspects of a group's cultural and physical environment. The biological characteristics of pre-20th century populations normally are not known in detail, but the biological and cultural diversity of communities from different historic periods and different segments of the population can be probed in some detail through the study of human skeletal remains.

The quantity and types of demographic and pathological information extractable from human remains is limited, and thus skeletal analysis reveals only a sample of information regarding the population characteristics of a study sample. However, coupled with historical information and

comparative data, skeletal data contributes to the formation of a comprehensive view of a past population's physical and cultural environment.

Normally, the study of human burials includes an analysis of distinct individuals exhumed from distinct burial locations. However, as reiterated throughout this report, the sample of human remains collected from the Tweed Courthouse project is comprised primarily of fragmentary, disarticulated remains that were removed from their original graves and redeposited across the site area. Since the majority of the remains could not be reassociated to form individuals, it was only possible to perform basic analyses of the general patterns and trends represented by these individuals' remains. However, because no comprehensive studies of human remains from this site have been conducted, these data contribute new information to the literature on the history of early residents of New York City. The following sections describe the data obtained from the analysis of this large collection of commingled human remains.

Summary of fragmentary human remains

In all, 16,626 fragments of human remains were collected from the Tweed Courthouse site during the 2000 and 2001 fieldwork. Each fragment of bone in the collection was counted as a single piece unless several fragments were mended to form one bone. Table 3 summarizes the complete sample of human remains classified by element. All pieces of human bone were included in the count regardless of whether they were very small fragments or nearly complete bones.

Of the 16,626 remains, 43% (N=7,171) were classified as "unidentifiable" because they were too small to identify as originating from a particular bone. Very small fragments or splinters of miscellaneous bones and small long bone fragments, which could not be associated with a specific long bone comprise most of this category.

Of the identifiable remains (N=9,455), the greatest number of fragments originated from the rib (N=1,896), cranium (N=1,861), and vertebra (N=1,149) categories, together representing 51.9% of the collection. These remains likely occur in higher numbers than other remains since they are some of the easiest fragments to identify, given the diagnostic characteristics specific to each. For example, it is easier to identify a small rib or vertebra fragment than it is to identify which long bone a small bone shaft fragment is from.

Table 3. Summary of fragmentary human remains by class and element.

Class	Total Count	Element	Count
CRANIUM	1,861	Frontal	69
		Parietal	166
		Temporal (including inner ear bones)	123
		Occipital	195
		Maxilla	56
		Palatine	3
		Zygomatic	20
		Nasal	8
		Lacrima	0
		Sphenoid	41
		Ethmoid	1
		Mandible	126
		Unidentifiable cranial fragments	1,062
DENTITION	279	Maxillary	107
		Mandibular	168
		Unidentifiable teeth	4
HYOID	7		
VERTEBRA	1,149	C1	26
		C2	25
		C3	3
		C4	5
		C5	3
		C6	4
		C7	3
		Unidentifiable cervical	59

Class	Total Count	Element	Count
VERTEBRA (con't)		T1	8
		T2	2
		T3	1
		T4	1
		T5	4
		T6	4
		T7	7
		T8	8
		T9	8
		T10	6
		T11	6
		T12	5
		Unidentifiable thoracic	137
		L1	6
		L2	4
		L3	4
		L4	8
		L5	4
		Unidentifiable lumbar	132
		Unidentifiable vertebral fragments	631
CLAVICLE	65		
SCAPULA	318		
STERNUM	47		
RIBS	1,896	1st	53
		2nd	29
		3rd	2
		4th	1

Class	Total Count	Element	Count
RIBS (con't)		5th	2
		6th	1
		7th	0
		8th	0
		9th	0
		10th	1
		11th	0
		12th	2
		Unidentifiable rib fragments	1,805
HUMERUS	256		
RADIUS	89		
ULNA	108		
HAND	327	Carpals	34
		Metacarpals	107
		Proximal phalanges	89
		Intermediate phalanges	46
		Distal phalanges	17
		Unidentifiable hand bone fragments	34
OS COXA	755		
SACRUM	98		
COCCYX	2		
FEMUR	658		
PATELLA	13		
TIBIA	728		
FIBULA	195		

Class	Total Count	Element	Count
FOOT	602	Tarsals	185
		Metatarsals	162
		Proximal phalanges	95
		Intermediate phalanges	16
		Distal phalanges	23
		Unidentifiable foot bone fragments	113
OSSIFIED TISSUE	4		
UNIDENTIFIABLE FRAGMENTS	7,171		
TOTAL			16,626

Other than remains that are not typically found or identified in commingled contexts, i.e., the hyoid bone, the lacrimal bone, ossified tissue, etc., the least frequent remains ($N < 100$) in the collection were the sacrum, radius, clavicle, sternum, and patella. Together these represent only 3.3% of the identifiable remains.

Of the 1,861 cranial bones over half (57%) were assigned to the unidentifiable category. These were all very small fragments of bone that could not be identified by subelement. Most of the identifiable remains are from the cranial vault (frontal, parietals, and occipital), and the maxilla and mandible. Surprisingly, even though they are among the most fragile of the bones, 53 fragments of nasal, palatine, sphenoid, and ethmoid bones were recovered. Dental remains included 279 teeth consisting of 107 maxillary teeth, 168 mandibular teeth, and only four fragments that were classified as unidentifiable. The most commonly recovered teeth were the mandibular first and second molars ($N=51$), the mandibular premolars ($N=48$), the maxillary canine ($N=22$), and the maxillary incisor ($N=18$). Ninety-seven of the teeth were isolated teeth and the remainder were found intact in fragments of mandibles and maxillae.

Minimum Number of Individuals (MNI) estimate

The total MNI for the project was a tally of the most frequent element occurring in both the commingled remains and intact burials combined. Based on this analysis, the bone occurring at the highest frequency was the right femoral head. In the collection of commingled remains, 24 right femoral heads were identified. Regarding intact burials, while 35 individuals were identified on the site, due to extensive disturbance, not all of these individuals retained the right femoral head. Of the 35 individuals, 15 are known to have the right femoral head making the total MNI for the project 39

individuals (Table 4). However, because of the amount of fragmentary remains across the site as a whole, while the exact number of individuals represented cannot be determined, it is probable that more than 39 individuals were buried in this area.

Table 4. Determination of Minimum Number of Individuals (MNI) for project based on right femoral head count.

Provenience	No. of right femoral heads	Provenience	No. of right femoral heads
Commingled remains (removed)		Intact burials (in situ)	
N. curb monitoring	1	Burial 3	1
Trench 1	9	Burial 5	1
Feature 12	5	Burial 8	1
Burial 27	2	Burial 10	1
Unit 48	1	Burial 11	1
Unit 64	1	Burial 12	2
Unit 73	2	Burial 13	1
Unit 95	1	Burial 15	3
Unit 101	1	Burial 16	1
Unit 400	1	Burial 21	1
		Burial 23	1
		Burial 26	1
TOTAL	24	TOTAL	15
Total MNI for project			39

Taphonomic analysis

As defined by Haglund and Sorg (1997:13), taphonomy is “the study of postmortem processes which affect (1) the preservation, observation, or recovery of dead organisms, (2) the reconstruction of their biology or ecology, or (3) the reconstruction of the circumstances of their death.” As used in the context of this research, taphonomy is the study of the the various processes affecting the condition and preservation of human remains between the time of death and the time of their discovery in the field.

Table 5 summarizes the frequency of the six main taphonomic processes affecting the Tweed Courthouse remains: fracturing, discoloration, exfoliation, fungus, erosion, and rodent gnawing. Of these, fracturing due to disturbance of the burials following their original interment had the greatest impact on the remains. Twenty-one percent of the remains exhibited evidence of postdepositional fracturing. Fractures classified as originating from earlier disturbances were those in which the point of fracture had the same coloration as the surrounding bone suggesting long-term burial (Photo 44). Fractures resulting from more recent disturbances including damage to the remains upon excavation, as well as damage incurred during removal of the remains, are characterized by a whiter appearance at the point of fracture. Most of the recent fracturing resulted from excavation of the trenches in Chambers Street by construction workers.

The second most frequent postdepositional influence on the remains (7.72%) was discoloration, primarily a dark staining resulting from the surrounding soil matrix. A small sample of the remains (1.2%) exhibited black spotting (Photo 45) from some type of foreign substance in the soil, possibly oil or tar. A small percentage (<.01%) also had a brownish-orange staining most likely from oxidation of ferrous metals, such as coffin nails, in the surrounding soils.

Nineteen bones or bone fragments (<.01%), including two from intact burials exhibited the greenish staining characteristic of decomposing copper or brass materials once in contact with the remains (Photos 46-47). The presence of this attribute suggests that several individuals were buried with copper or brass jewelry, buttons, cuff links, or shroud pins. Table 6 lists the remains with copper/brass staining by element and provenience. Of the remains listed, seven had staining in the vicinity of the head and neck region, nearly half of which were in the frontal region of the cranium. One individual had staining on the parietal and occipital bones, which also may relate to shrouding. London and Jones (2000) noted this feature among many of the City Hall Park burials as well and suggested staining in the cranial region is associated with the placement of shroud pins.

Burial 9, the partial burial of a female, had stained cervical vertebrae with a small copper or brass bead between two of them, suggesting presence of a necklace. Seven of the nineteen remains (36.8%) had staining in the wrist area, including the distal ends of the radius and ulna—most commonly the radius—and one hand bone. Among the seven cases, both the right and left wrists were represented. Staining in this area suggests the presence of bracelets or cuff links. Other areas of the body with staining included the thoracic region (one thoracic vertebra and two ribs) and two medial femur shafts.



Photo 44. Postdepositional fracture of a humerus. These three fragments were identified in separate loci in Trench 1.



Photo 45. Finger phalange with the characteristic black spotting observed on many of the human remains.



Photos 46 and 47. Cranium and radius (wrist) exhibiting green staining characteristic of contact with brass or copper.

Table 5. Frequency of various taphonomic agents affecting the fragmentary remains.

Taphonomic observations		Frequency
Fracture	historic	9.1%
	recent	12.8%
	Total	21.9%
Discoloration	dark stains	6.5%
	black spots	1.2%
	copper/brass stains	<0.01%
	oxidation	<0.01%
	Total	7.72%
Exfoliation		1.8%
Fungal growth		0.18%
Erosion		<0.01%
Rodent gnaw marks		<0.01%

Table 6. Fragmentary remains and burials with copper/brass staining.

Element	Location	Provenience	Provenience description
Cranium	Frontal	Unit 48, Level 5	Discrete deposit of commingled remains.
	Frontal	Feature 12	Pit feature containing commingled remains.
	Frontal	Burial 11	Intact child burial.
	Parietal (right) and occipital	Unit 48, Level 5	Discrete deposit of commingled remains.
	Mandible	Unit 48, Level 5	Discrete deposit of commingled remains.
	Unknown fragment	Unit 48, Level 5	Discrete deposit of commingled remains.
Vertebra	Fifth thoracic (T5)	Unit 78, Level 2	Historic fill.
	Cervical	Burial 9	Partially intact adult burial.
Rib	Head/vertebral end	Unit 78, Level 1	Historic fill.
	Head/vertebral end	Unit 90, Level 2	Historic fill.
Hand	Left metacarpal #2	Burial 27	Heavily disturbed burial.
Radius	Distal end (right)	Feature 12	Pit feature containing commingled remains.
	Distal end (right)	Burial 27	Heavily disturbed burial.
	Distal end (left)	Burial 27	Heavily disturbed burial.
	Distal end (left)	Burial 27	Heavily disturbed burial.
	Unidentifiable fragment	Unit 81, Level 2	Above Burial 15.
Ulna	Distal end (left)	Feature 12	Pit feature containing commingled remains.
Femur	Medial shaft (right)	Unit 48, Level 5	Discrete deposit of commingled remains.
	Medial shaft (left)	Feature 12	Pit feature containing commingled remains.

Analysis of age, sex, ancestry, and stature

While age and sex were assigned to fragmentary remains where these determinations were possible, constructing a demographic profile of the Tweed Courthouse human remains is not possible because of the inability to reconstruct individuals. The extensive commingling and fracturing of the remains limits demographic reconstruction of the collection, as single bones and bone fragments cannot be re-matched to form individual skeletons. It is necessary to have a larger percentage of the skeleton in order to accurately assign age, sex, and ancestry. Despite the limitations, a number of remains in the collection, including partial os coxae and crania, were complete enough to make determinations of age and/or sex. In addition, there were several remains of children, which could be assigned to general age categories. This information is summarized in Appendix 15. In general, ages within the sample range from infant through 40-50 years. Of the total remains collected, only 16 bones or bone fragments were those of children. Remains of both males and females were identified in the collection. Again, given the amount of commingling and fragmentation of the remains, estimating the numbers of males and females and numbers of individuals from each age category is not possible.

Similar to the analysis of age and sex of the Tweed Courthouse remains, determinations of ancestry are also difficult to make based on fragmentary remains and incompletely excavated burials. In order to make accurate judgements of ancestry, it is necessary to have bones that are complete and to have more than a single bone of an individual. Given the extensive commingling and the fragmentary nature of the remains, attempting to assign the remains in this collection to specific ancestral categories would be highly speculative. Unfortunately, the complete individuals identified at the site were not available for full osteological analysis since they were not completely excavated and only portions of the bones required for assessing ancestry were visible. In general, it can be said that the diagnostic traits evident in a few fragmentary cranial bones and from what was observable in the few situ burials with cranial remains are typical of individuals of European origin. The traits observable in the few cranial remains available included narrow nasal aperture, prominent nasal sill, and lack of alveolar prognathism. Due to the inability to reconstruct thin, fragmentary facial bones or clearly photograph those identified in situ illustrations of these characteristics are not included here. In addition, it remains possible that the collection includes the fragmentary remains of individuals of other ancestral backgrounds.

Regarding stature, while measurements were taken on all complete leg bones and fragmentary bones, which when mended were complete (N=9), not enough data were present to make judgments of average height among the individuals represented by these remains, especially since not all of the remains could be assigned as male or female.

Paleopathological analysis

Paleopathological analysis refers to the study of diseases which affect the human skeleton and preserved soft tissue. Human bones record many of the life events experienced by an individual, particularly disease and traumatic injury. Not all skeletal pathologies are traceable to a specific

disease and not all diseases leave their mark in skeletal remains; however, based on the data stored in the remains, much can be said of the general health and disease conditions experienced on both the individual and population levels.

Similar to the above analysis, observations of bone pathology could be made only on individual elements and these data are merely a reflection of some of the general health and disease characteristics of the sample of individuals buried in this area. While some of the remains in the sample may match up to a single individual or several individuals, there is no adequate method for identifying actual frequencies of pathology within the larger cemetery population. Therefore, the analysis of pathology in the sample includes only counts of remains exhibiting the various conditions, and interpretations of these general patterns.

All of the remains with pathologies are adult bones; none of the few fragmentary remains of children exhibited signs of pathology. Table 7 lists all identified pathologies by element and frequency with the exception of joint disorders which are summarized in Table 9 (below), and dental pathologies which are described below. The pathologies were divided into seven main categories following the classification system used in Aufderheide and Rodriguez-Martin (1998). These categories are as follows:

- infectious disease;
- hematological disorders;
- metabolic disorders;
- joint disorders;
- fractures;
- dental diseases; and
- miscellaneous disorders.

The first three categories, fractures, and miscellaneous disorders are included in Table 7. Joint disorders are summarized in Table 9, and dental pathologies are described below.

Infectious disease

In the Tweed Courthouse sample, infectious diseases included evidence of only nonspecific infections and sinusitis. Infection of bone is referred to by several different terms including osteomyelitis, periostitis, and osteitis. The term osteomyelitis refers to the process by which “the solid compact wall of a bone, together with the relatively loose and bloody marrow or medullary cavity in its interior are affected” by an infection (Roberts and Manchester 1995:126). Each layer of the bone—the periosteum (outer layer), compact bone (underlying layers), and medullary cavity—may be affected. The term periostitis is often used to refer to infection of the outer layer of bone, while osteitis traditionally refers to infection of the interior bone. Periostitis is often scored by the presence of either woven or sclerotic bone (e.g., Buikstra and Ubelaker 1994), woven bone reflecting an active infection and sclerotic bone indicating healed or healing infection.

Following Roberts and Manchester (1995:126), osteomyelitis is used as a category to cover all infective lesions of the bone including both periostitis and osteitis. Table 7 divides infectious diseases into three categories observed in the Tweed Courthouse collection: osteomyelitis, sinusitis, and "other infection" observed as isolated patches of sclerotic bone. Elements classified within the osteomyelitis category included those remains for which most or all of the bone was affected by the disease. Remains classified as "other infection" exhibited sclerotic bone affecting only a small, isolated portion of the bone. Sinusitis refers specifically to infection of the sinus cavities. In all, 24 remains showed signs of infection. The highest frequency of remains affected were the leg bones, a typical pattern among archeological samples.

While infectious disease data are limited for this sample, the presence of infection indicates that this category of disease was present among those buried in the cemetery. Signs of infectious disease should be expected in this sample as numerous diseases were prevalent particularly within *confined institutional settings and areas of dense population*. The 18th and 19th centuries were times of general ill health, pestilence, and high mortality, primarily due to lack of knowledge regarding the correlations between disease contraction and spread and such factors as water contamination and a poor quality diet. These factors are often reflected in the biological remains of individuals living during this period. Unfortunately, further speculations regarding the incidence and prevalence of disease among this sample of historic individuals is not possible based on such fragmentary remains.

Hematological disorders

Hematological diseases are disorders of the blood, such as anemia. Two conditions reflecting anemia in human skeletal remains that are common in archeological samples are porotic hyperostosis and cribra orbitalia. Both conditions cause porosity in the bones of the cranium with the former affecting the cranial vault (frontal, parietal, and occipital bones) and the latter affecting only the orbits. Anemia is defined as a "reduction in concentration of haemoglobin and/or red blood cells below normal" (Roberts and Manchester 1995:166). Since red blood cells are formed in bone marrow, a long-term deficiency in the production of these cells ultimately affects bone structure. The cranial remains of six individuals in the Tweed Courthouse sample showed signs of anemia. While these were all adult remains, it is likely that these conditions resulted from childhood iron deficiency, as the cranial bone changes associated with anemia seem to develop only during the childhood years (Stuart-Macadam 1985; Aufderheide and Rodriguez-Martin 1998:350).

Anemia may be caused by an iron-deficient diet, excessive blood loss resulting from an injury, chronic disease such as cancer, and parasitic infection of the gut (Roberts and Manchester 1995:166). Most studies of past human populations have focused on the role of iron deficiency and parasitic infections in the anemic responses observed in human skeletal remains. Both poor nutrition and chronic infection leading to poor diet both may lead to iron deficiency, especially during the childhood years. Parasitological studies of historic archeological sites (i.e., Reinhard 2000a,b) as well as the record of historic diseases indicate that the parasite load was typically very high in historic urban populations. This could be expected considering the unsanitary living conditions described in the historic literature for this time period.

Table 7. Summary of fragmentary remains exhibiting pathology.

Disease category	Pathology	Element	Count	Total	
Infectious Disease	Osteomyelitis	Rib	2	13	
		Clavicle	1		
		Humerus	1		
		Femur	2		
		Tibia	3		
		Fibula	4		
	Sinusitis	Frontal	1	1	
	Other infection (sclerotic bone)	Os coxa	Parietal - interior	2	10
			Clavicle - sternal facet	1	
			Rib shaft - inferior	1	
			Vertebra	3	
			auricular surface	1	
acetabulum			1		
Femur - condyle	1	1			
Hematological Disorders	Porotic hyperostosis	Parietal	3	4	
		Occipital	1		
	Cribriform orbitalia	Frontal	2	2	
Metabolic Conditions	Osteoporosis	Vertebrae	9	17	
		Sacrum	1		
		Os coxa	1		
		Femur	2		
		Fibula	1		
		Foot bones	3		

Disease category	Pathology	Element	Count	Total
	Osteopenia	Vértebrae	2	20
		Clavicle	1	
		Scapula	1	
		Sternum	1	
		Rib	2	
		Os coxa	2	
		Humerus	2	
		Ulna	2	
		Femur	1	
		Tibia	2	
		Fibula	2	
		Foot	2	
Joint Disorders (see Table 9)				72
Fractures	Depression fracture	Parietal	1	1
	Miscellaneous fractures	Clavicle - shaft	2	9
		Ribs - shaft	4	
		Humerus - shaft	1	
		Femur - shaft	1	
		Foot - phalanges	1	
Miscellaneous Disorders	Hyperostosis Frontalis Interna (HFI)	Frontal	3	3
	Entheseopathy	Humerus	1	3
		Metacarpal	1	
		Femur	1	
	Abnormal shape (bowing)	Tibia	1	2
		Femur	1	
TOTAL				157

The presence of anemic conditions in the remains of several individuals buried in this area is reflective of the overall historical environment characterized by high disease rates, unsanitary living conditions, and dietary constraints. Since these conditions likely developed during childhood, their presence also suggests that while children were exposed to a rather harsh environment at times, they were able to survive these stresses. Unfortunately, it is not known whether the individuals exhibiting the disease were born and raised in early New York or whether they were immigrants to the area; therefore, it is unknown whether the environmental stresses they faced during childhood were experienced in this area or elsewhere.

Metabolic disorders

Metabolic diseases cover a range of conditions including rickets, osteomalacia, scurvy, osteoporosis, and intoxication diseases, such as lead and mercury poisoning (Aufderheide and Rodriguez-Martin 1998). Of these, only signs of osteoporosis and osteopenia (a related condition) were observed in the Tweed Courthouse sample. Remains with obvious porosity were classified as osteoporotic, while remains with noticeably low bone density (i.e., thin cancellous bone) and an absence of pitting were classified as osteopenic. The latter remains were noticeably light and low in overall bone density.

Osteoporosis, the most common of the skeletal metabolic diseases (Roberts and Manchester 1995:176), is caused by a lack of calcium in the diet and occurs more frequently at older ages. The disease causes "a reduction in total bone volume caused by thinning of the cortical walls of the long bones...thinning and loss of trabeculae, and increased porosity, principally of cancellous bone" (Burr and Martin 1989:197-198). Due to thinning of the trabecular bone, the bone becomes brittle and is susceptible to fracturing. While osteoporosis can be systemic and affect any bone, the most common sites of fracture caused by the disease are the vertebrae (compression fractures) and the long bones, particularly the femur and radius (Aufderheide and Rodriguez-Martin 1998:315).

In the Tweed Courthouse sample, a total of 17 remains showed evidence of osteoporosis, while 20 were classified with osteopenia. Interestingly, 75.7% (N=28) of these remains originated from discrete deposits of disarticulated remains including Feature 12, Unit 48, and Unit 90 (Table 8). While it is impossible to know for certain, there is a good chance that the osteoporotic/osteopenic remains from each feature represent the remains of one individual with a systemic osteoporotic condition. Since the remains in each feature exhibiting this condition are from consecutive parts of the body, there is an even higher likelihood that the remains belong to a single individual. For example, the remains in Unit 90 exhibiting evidence of osteoporosis include the scapula, arms bones, ribs, vertebrae, and os coxa, all bones of the shoulder/arm/thorax region. In Unit 48, the affected elements include the clavicle, vertebrae, ribs, os coxa, and leg and foot bones.

Joint disorders

Of the range of degenerative diseases affecting human populations, degeneration of bone and joints are the only clues of advanced age recognizable in human skeletal remains (Roberts and Manchester 1995:99). As summarized by Roberts and Manchester (1995:101-103):

Skeletal involvement in the joint diseases potentially consists of two processes: formation and destruction of bone. Formation of bone is in the form of bony outgrowths from joint surfaces called osteophytes; these represent the body's attempt to spread the load at the joint and compensate for the stress to which the joint is being subject...Once cartilage is destroyed and the individual continues to use the joint, the underlying bone can become very hard (sclerosis) and polished (eburnation)...If osteophyte formation is extensive a joint may become fused.

The most common joint disease is osteoarthritis, a noninflammatory disease affecting the synovial joints (Roberts and Manchester 1995:105). Osteoarthritis is a chronic, progressive condition that is both activity- and age-related. Osteoarthritis is primarily mechanical in origin but is also part of the normal aging process. The disease tends to have the greatest effect on load-bearing joints such as the spine, hip, and knees. Osteoarthritis is observable in human remains by the typical signs of bone degeneration: osteophyte development, eburnation, and Schmorl's nodes—depressions in the vertebral bodies caused by degeneration of the intervertebral discs. Arthritis can take on several forms, including the following:

- osteoarthritis (definition above);
- septic arthritis (inflammatory arthritis caused by nonspecific infection);
- rheumatoid arthritis (chronic inflammatory disease of connective tissue);
- psoriatic arthritis (associated with the skin disease psoriasis);
- ankylosing spondylitis (progressive autoimmune inflammatory joint disease);
- diffuse idiopathic skeletal hyperostosis (DISH) which causes gradual and complete fusion of the spine; and,
- gouty arthritis (gout) causing inflammation of and erosion of cartilage and bone (Roberts and Manchester 1995:113-123).

Of the above disorders, the Tweed Courthouse sample included over 72 individual examples of osteoarthritis (an additional three examples consisted of more than one bone of distinct individuals). No examples of the other disorders listed above were noted in the collection, although one example of osteoarthritis in three foot phalanges may be secondary to gout. Table 9 summarizes the remains with joint disorders. Most of the cases (N=41 or 54.2%) were observed in the bones of the spine and lower back including the vertebrae, sacrum, and os coxae. Of these remains, 73.2% of the sample exhibited lipping or osteophytosis of the vertebral body, interior and/or superior articular facets, and the vertebral ends of ribs; 24.4% had Schmorl's nodes (Photo 48 and 49); and 17.0% had

Table 8. Provenience of fragmentary remains with osteoporosis/osteopenia.

Site provenience	Project segment	Description	Remains affected	Count
Unit 48	East side	Ossuary-like deposit of human remains (N=371).	Clavicle	1
			Vertebra	2
			Ribs	1
			Os coxa	1
			Femur	1
			Fibula	1
			Tibia	3
			Foot	1
			Total	11
Feature 12	East side	Pit feature with human and faunal remains (N=2,237 fragments of human remains).	Vertebra	6
			Sacrum	1
			Os coxa	1
			Femur	1
			Foot	2
			Total	11
Unit 90	Northwest section	Discrete deposit of fragmentary human remains (N=1,009).	Scapula	1
			Vertebra	1
			Rib	1
			Humerus	1
			Ulna	2
			Total	6
			Grand Total	28

compression fractures. One individual from a small isolated deposit of remains in Unit 91W was represented by at least seven fused thoracic vertebrae (Photo 50), and another, from the heavily disturbed Burial 27, by 8 thoracic and lumbar vertebrae. These two cases are not included in the total count of 41 remains with spinal osteoarthritis.

Degenerative disease of the spine is among the most common diseases found in human skeletal remains (Aufderheide and Rodriguez-Martin 1998:97). The condition is uncommon under the age of 30 years and is age-progressive thereafter (Aufderheide and Rodriguez-Martin 1998:96). Since all adult age groups up to at least 50 years are represented in this sample, it is typical for a sample of the remains to exhibit evidence of degenerative disease. Even though the sample of remains in this category originates from disarticulated and commingled remains, since most of the remains were found in different contexts across the site, the frequencies observed in these disarticulated remains may be somewhat accurate.

Other areas of the body affected by osteoarthritis in this sample are summarized in Table 9, and only a few examples characterized by somewhat higher frequencies are mentioned here. Of the remains of the upper body, the highest frequency of osteoarthritis occurred in the areas of the shoulder and elbow. Six examples of arthritis were noted in the glenoid fossa of the scapula and four cases were noted in the proximal articular surface of the ulna. Osteoarthritis in both the shoulder and elbow regions is usually associated with trauma, which is secondary to occupational stress (Aufderheide and Rodriguez-Martin 1998:95). A large proportion of osteoarthritic conditions are occupation-related, where joints exposed to repeated use and stress (i.e., from heavy manual labor and other repetitive activities) become affected. The incidence of joint disease in the sample is consistent with a population of individuals who most likely lived a strenuous life and who with age suffered from the typical skeletal maladies of middle to older adulthood.

Bone fractures

Several bone fractures were observed in the Tweed Courthouse sample. As summarized in Table 7, one cranial fracture, two fractures of the clavicle, four rib fractures, and one fracture each of the humerus, femur, and foot were identified. All of the fractures exhibited signs of healing including evidence of bone remodeling and callus formation.

The cranial fracture identified on a right parietal bone consisted of a well-healed ovoid depression fracture visible only on the exterior of the skull. Depression fractures occur when the surface of the skull is depressed inward often causing brain damage. Since no signs of the fracture were evident on the interior skull, this individual most likely did not suffer from any subsequent brain damage. Since the fracture was fully healed, it is obvious this person survived whatever insult caused the fracture. For obvious reasons, cranial injuries in precontact and historic populations, particularly those located on the top or toward the back of the head, are usually interpreted as intentional blows to the head. Given the location of this particular fracture—on the parietal bone along the sagittal suture (top of the head)—it is likely that the injury was a result of an intentional blow to the head.



Photos 48 and 49. Superior and inferior views of a thoracic vertebra with Schmorl's nodes, depressions in the vertebral bodies caused by degeneration of the intervertebral discs.



Photo 50. Lateral view of four of seven thoracic vertebrae fused at the articular facets and vertebral bodies.

Table 9. Summary of fragmentary remains exhibiting joint disorders.

Pathology	Element	Subelement	Type	Count	
Spinal Osteoarthritis	Vertebrae	Cervical	Lipping/osteophytes	4	
			Compression fracture	2	
			Schmorl's nodes	0	
		Thoracic	Lipping/osteophytes	12	
			Compression fracture	3	
			Schmorl's nodes	6	
			Fused vertebrae	1 individual	
		Thoracic/Lumbar	Osteophytosis, compression	1 individual	
		Lumbar	Lipping/osteophytes	7	
			Compression fracture	2	
	Schmorl's nodes		4		
	Ribs	—	head/vertebral end	2	
	Sacrum	S-1	Arthritic lipping	2	
	Os coxa	—	Osteophytosis, lipping	2	
Total			41		
Osteoarthritis of the Upper Body	Clavicle	—	conoid tubercle	1	
	Scapula	—	glenoid fossa	6	
	Humerus	—	distal articular surface	1	
	Radius	—	distal articular surface	1	
	Ulna	—	proximal articular surface	4	
			distal articular surface	1	
	Hand	Metacarpal	—	—	1
		Phalange	intermediate	1	
			distal	1	
			Total	17	

Pathology	Element	Subelement	Type	Count	
Osteoarthritis of the Lower Body	Patella	—	articular facet	1	
	Tibia	—	distal articular surface	1	
	Foot	Talus		inferior articular surface	1
		Other metatarsal		—	1
	Phalange			proximal	4
				distal	3
				proximal, intermediate, distal (1 individual)	3
			Total	14	
Grand Total				72	

The two clavicular fractures included a well-healed fracture of the shaft at the sternal end and a peri-mortem fracture at the center of the shaft. The four rib fractures all occurred along the shaft of the bones and were all well-healed fractures with callus development (Photos 51 and 52). The fractured humerus was also fully healed and appeared to be a spiral fracture of the shaft (Photo 53). The femur was broken near the distal end of the shaft and had an irregular callus along the posterior aspect of the fracture. The fractured foot phalanges may be secondary to a gout condition. Usually only one joint is involved in gout — most commonly the first metatarsal-phalangeal joint or interphalangeal joints (Aufderheide and Rodriguez-Martin 1998:110), as in this case.

Fractures result from a wide variety of injuries and accidents. While speculations regarding the range of possible causes of the fractures described above are not included in this analysis of fragmentary remains, what can be said is that all of the individuals suffering from bone fractures appeared to undergo a normal healing process whereby the fractures were fully healed. This suggests that these individuals were either taken care of or at least were afforded the opportunity to fully heal without doing further damage to the initial injury.

Miscellaneous disorders

Three additional pathologies were included within a “miscellaneous” category: hyperostosis frontalis interna (HFI); enthesopathy; and abnormal bone shape (bowing). HFI is a condition found in the frontal bone of the cranium. The disease causes thickening of the inner table of bone along with the deposition of a thin internal irregular and nodular coat of cortical bone (Aufderheide and Rodriguez-Martin 1998:419). HFI has been classified as a nonspecific pathology that appears at higher frequencies in women of postmenopausal ages; however, recent research has found an association of the condition with insanity (Phillips 1997). Frequencies of HFI in skeletal samples are

often relatively low; therefore, it is informative that a minimum of three individuals from this sample exhibited signs of HFI. However, since the examples of HFI were found in fragmentary, isolated remains from individuals of unknown origin, no particular interpretations of this data can be offered at this point.

The condition known as enthesopathy refers to the formation of new bone at tendon and ligament insertions, usually resulting from an increase in size of the associated muscles (Roberts and Manchester 1995:110). Also included in this category is one example of an ossified tendon attached to a left metacarpal (Photo 54). Entheseophytes were identified on two bones in the sample: a left humerus and a right femur. The defect of the humerus occurred just below the site of the deltoid insertion. On the femur, the defect was identified at the site of the patellar ligament. Development of these enthesophytes is likely related to occupational stress.

The metacarpal with the ossified tendon is one of the partially intact burials removed due to heavy disturbance. The defect seems to be an anomaly as no other finger bones appeared to be affected. The specific cause of the condition is unknown.

Two bones—one femur and one tibia—exhibited evidence of bowing. Bowing of leg bones is most commonly associated with the disease Ricketts caused by a Vitamin D deficiency, although other causes are possible. The vitamin is critical for proper absorption of calcium and phosphorus and mineralization of the bone and cartilage (Roberts and Manchester 1995:173). The deficiency causes a softening of the bones allowing the bones to bend. This condition develops during the growth and development period, thus signaling a childhood deficiency of the vitamin.

Dental diseases

Along with joint diseases, dental diseases are the most commonly observed pathologies in human skeletal remains. Dental remains “provide evidence of diet, physiological adequacy of diet, method of procuring diet, and oral hygiene” (Roberts and Manchester 1995:44). The main diseases recorded in dental remains include: caries (cavities), abscesses, attrition (occlusal wear), calculus (plaque), periodontal disease, and linear enamel hypoplasias.

The most common dental diseases observed among the 279 Tweed Courthouse teeth were caries, calculus, linear enamel hypoplasia, and attrition. A total of 13.1% (N=36) of the teeth had one or more caries. Development of cavities is considered an infectious disease caused by “fermentation of food sugars, especially sucrose, in the diet by bacteria that occur on the teeth” (Roberts and Manchester 1995:46). Caries were especially prevalent in molars, with 77% of all molars exhibiting one or more carious lesions. Given the morphology of the molar with its deep crevices, higher frequencies of cavities are common within this tooth category. The highest frequency of carious molars were the first molars (34.3%) which is typical since of all of the molars, the first is retained in the dentition for the longest period of time erupting at the age of six years.



Photos 51 and 52. Front and reverse views of a rib fragment with a well-healed fracture.



Photo 53. Right humerus with a well-healed spiral fracture of the shaft.



Photo 54. Metacarpal (hand bone) with fused tendon (added bone on the right side).

Dental calculus is essentially mineralized dental plaque (Aufderheide and Rodriguez-Martin 1998:401). Calculus develops most frequently on teeth nearest the salivary glands — the tongue side of the lower incisors and cheek side of the upper molars (Roberts and Manchester 1995:55). In all, 28.5% (N=79) of the teeth exhibited dental calculus. This condition was especially common in the second mandibular premolar (13.2%), the central mandibular incisor (10.5%), and the second maxillary premolar (9.2%).

Eighteen teeth (6.5%) exhibited linear enamel hypoplasias. This defect involves the structure of the tooth enamel, where horizontal lines on the teeth represent episodes of stress induced by metabolic insults (Aufderheide and Rodriguez-Martin 1998:405). The defect only develops during the growth and development period, and appears as lines, pits, or grooves in the tooth enamel. The condition is usually associated with nutritional deficiency or childhood illness (Roberts and Manchester 1995:58). Because enamel hypoplasia most frequently forms during the first year after birth (less than 2% form between the ages of 3-7 years), the teeth most affected are the maxillary central incisors and mandibular canines (Aufderheide and Rodriguez-Martin 1998:406). In the Tweed Courthouse collection of dental remains, the highest frequencies of enamel hypoplasia were noted in the maxillary central incisor, and the maxillary and mandibular canines, all at frequencies of 22.2%. Other teeth affected included the maxillary lateral incisor, the mandibular incisors, and the mandibular first premolar.

Also frequent among the teeth in general was dental attrition or tooth wear. By definition, attrition “is a physiological process, the wearing away of tooth hard tissue as a result of tooth-to-tooth contact during mastication and swallowing” (Aufderheide and Rodriguez-Martin 1998:398). Tooth wear occurs primarily on the occlusal (top) surfaces of the tooth, but also on the incisal and proximal surfaces.

Dental attrition is difficult to evaluate in fragmentary remains, as scoring based on seriation is the best method for quantifying and understanding patterns of tooth wear. However, in order to gather at least some data on this condition, attrition of the Tweed Courthouse dental remains was scored as either nonexistent, mild, moderate, or severe. Of the teeth that were scorable for attrition (N=253), only 25 teeth exhibited no macroscopic signs of attrition. Of the 228 teeth with signs of attrition, 61.4% (N=140) exhibited mild cases; 22.5% (N=57) exhibited moderate attrition; and 12.3% (N=31) were considered severe cases. Most of dental attrition (61%) was observed on mandibular teeth.

The information extracted from the fragmentary dental remains of the Tweed Courthouse sample suggests that the dental health of the individuals represented by these remains was an artifact of lifestyle, one lacking in oral hygiene and dental care. Dental wear, calculus buildup, and cavity prevalence all increase with age, but are also related to dietary habits and hygiene. Gritty diets, such as those including coarsely processed grains tend to increase wear, and cavity formation and dental plaque is intensified by a diet high in carbohydrates. All of these symptoms are precursors to developing periodontal disease, a disease of the soft tissues of the mouth, which may ultimately affect the bone as well. These factors all predispose an individual to abscessing and tooth loss. While

assessing the occurrence of periodontal disease itself is not possible without intact dental remains, based on the condition of teeth in this sample, it is likely that a number of individuals suffered from the disease.

Conclusions regarding disease patterns exhibited in the sample

Despite the limitations imposed on this study by the gathering of only fragmentary, commingled human remains from the Tweed Courthouse site, the paleopathological information collected does offer some information about those buried in the commons cemetery area. While specific causes of death cannot be determined with certainty based on the human remains, the information collected during the study provides insight into the general health and lifestyle of the individuals buried in the historic commons area. The overall health of a number of individuals interred in this cemetery was poor, as a sample of the skeletal remains included pathologies that reflect chronic health problems, such as arthritis, dental disease, anemia, and osteoporosis. In addition, several individuals suffered from nonspecific infections that may have been acute or chronic conditions.

While certain diseases such as yellow fever, small pox, measles, and the like, do not leave evidence in the human skeleton, there were a number of outbreaks of these diseases throughout the time period spanning the use of the commons area and cemetery. Several years of fevers beginning in 1743 even aroused concern about unsanitary condition of the city (Koeppel 2000:23). The observation was made that “the part of the town chiefly afflicted with the epidemical distemper these two last summers, is built upon a swamp, or most slimy ground” (Koeppel 2000:24). The high moisture content of the ground was observed in cellars, which were rarely drained (Koeppel 2000:24). Much of the infectious and intestinal disease likely originated in the city’s water supply, which during the mid-18th century was from a “Tea Water” pump dug near the Fresh Water Pond just north of the commons area. Tea water was claimed to be an improvement on that obtained from public wells (Koeppel 2000:28). By 1774, every household in the city (about 3,000 total) was taking water from that source, and there was no concern at that time that the pump was just downstream from the pond’s associated industries including the tanyards and slaughterhouses (Koeppel 2000:35-36). The city was notorious for its bad water and was described as having “one great inconvenience which is the want of fresh water” (Koeppel 2000:27). The water was described by travelers from other cities as hard and brackish (Koeppel 2000:27).

Considering this context, the poor health exhibited by a sample of the Tweed Courthouse remains is most likely reflective of the unfortunate environmental conditions of the time: unsanitary living conditions, a diet lacking in variety—which was exacerbated during the Revolutionary War—high risk of infectious disease, and deficient medical care. These conditions directly influenced rates of disease and mortality throughout 18th- and 19th-century New York. As noted by Higgs during the 19th century, communities allocated too few resources for maintaining their health (1977:194), and this was intensified by increasing pestilence throughout the period. Maintaining good health would have been especially difficult for those in crowded, contaminated, institutionalized settings where resources were minimal.

Summary of the burial ground and associated human remains

The study of historic burials and fragmentary human remains identified during this project was limited by certain factors including extensive soil disturbance, commingling of the remains, and the LPC policy to leave intact burials in the ground. However, much can be said about the organization of the burial ground, historic and modern attitudes toward burials and human remains, the origin of soil disturbances across the site, and the potential for locating additional cultural resources in this area.

Site stratigraphy as related to intact burials and fragmentary human remains

The archeological investigation of the Tweed Courthouse project area including the courthouse grounds, public sidewalks, and Chambers Street confirmed that the area is scattered with intact and partially intact historic burials, as well as secondarily deposited fragmentary human remains. Due to extensive disturbance from numerous construction episodes, the site was characterized by an absence of natural soil profiles. All areas within the project were comprised of historic and/or modern fill in the first two strata—up to 2-3 feet (0.6-0.9 m) in depth on the grounds and sidewalk areas and up to 6 feet (1.8 m) deep in Chambers Street. Only small pockets of undisturbed soils remained intact below the fill between areas of utility work and construction and reconstruction of Chambers Street, sidewalks, historic features such as the privy and cold storage shed, and historic structures including the mid-19th century courthouse itself. The remainder of the soils consisted of silty sand and sand containing modern and historic refuse.

The most recent disturbances (from about the last 15-20 years) were comprised of a clean yellow sand fill and usually did not contain cultural materials. Older disturbances contained historic and/or modern fill with cultural materials. Fragmentary human remains were also contained within these deposits at a frequency of about 45% (i.e. of 113 units, a total of 49 contained fragmentary human remains). There was no particular pattern to the depth of these remains, as they were identified anywhere between the surface and 6 feet (1.8 m) in depth. The remains were identified on the surface of soils along the courthouse foundation, above and below utilities, above and below historic features, and overlying intact and partially intact burials.

Considering the extensive disturbance of the area, the fact that any intact burials remain in this area is astonishing. The location of burials that remain fully or partially intact is completely random, and there really is no method for predicting where they may be located until the soils are disturbed. The only accurate prediction concerns identifying where there definitely are not burials, i.e. within recent construction trenches including those excavated during this project and other utility trenches which contain clean sand fill. Once the ground is disturbed, however, predicting whether intact remains may be present is somewhat easier but the method is not completely reliable.

Intact burials are typically found in 7.5YR dark brown coarse sand often containing a very light scatter of cultural materials, especially oyster and clam shell, historic ceramics, and glass. Often there is a compact almost clayey/silty mottled sand with these cultural materials immediately overlying

the feature. In cases where disturbance and fill deposits have not reached the human remains, there is evidence of a grave shaft and/or a coffin outline of decomposed wood often including coffin nails. In some areas, however, if fill deposits reach a depth just above the human remains, it is impossible to predict their presence even if coffin hardware or disturbed human remains are found in the fill, as all evidence of the graveshaft and coffin have been erased.

Organization of the Tweed Courthouse and related burials

The investigation of burials within the confines of the Tweed Courthouse impact area revealed new and substantive information about the organization of the historic cemetery that once covered a much larger space within the historic commons area. As summarized above, enough data were collected to confirm the presence of up to 12 rows of burials, mostly on an east-west alignment with only two graves at the far west end of the project area (Burials 9 and 26) oriented north-south. All intact graves were identified on the north side of the courthouse.

This research identified some variation in number of individuals per grave. While most of the burials (89%) were single interments, three were multiple interments containing two, three, and at least five individuals (Burials 12, 27, and 15, respectively). In all three cases, individuals within the same grave were interred simultaneously and were superimposed in various ways, with heads both to the east and west. The graves were located in close proximity to one another in the northeastern section of the project, although none were buried in what would be considered the same row (see Map 11a).

In addition to the multiple graves identified during this study, several superimposed graves were found in this general area during the 1999 City Hall Park study by Parsons Engineering Science, Inc. (PES). As described by London and Jones (2000:5), "in some cases of *in situ* burials, exposure of one burial resulted in the exposure of one or more additional burials beneath the skeleton nearest the surface. These earlier burials were sometimes in the same orientation as the later ones, and sometimes in completely different orientations." These burials were identified in the northeast quadrant of the City Hall Park project, south of the Tweed multiple burials.

The City Hall Park study also identified three graves oriented north-south with heads to the south. One of the three is reported in this study as Burial 26 (PES Feature 45). The other two were found in the same area, thus totaling four burials oriented north-south at the west end of the Tweed Courthouse project. Together, it appears that the four burials would have made up two separate rows of burials with one (HAA, Inc. Burial 9) in a northern row and the remaining three in a southern row. This would assume that additional burials were once aligned in a row to the east and/or west of Burial 9.

Another recent study by HAA, Inc in this section of Chambers Street during monitoring for Consolidated Edison utility replacements in 2002 (report in progress) identified six additional burials in close proximity to those the burials interred on a north-south alignment. Four were adult graves, one was a child, and one was an infant. Five of the six burials were located within an approximately

6-12 ft (1.8-3.6 m) radius north of HAA, Inc. Burial 9, the northernmost burial of the four on the north-south alignment. All were oriented east-west with heads to the west and were identified at approximately the same depth as Burial 9. Based on their placement, it appears that the two opposing clusters of burials (those oriented east-west and those oriented north-south) nearly intersected with one another.

Burial variation within historic cemeteries

In order to decipher the underlying organization and the origin of the Tweed Courthouse burials, the site is placed within a larger historical framework. This framework necessarily includes a review of both patterns and variations in the internal organization of cemetery sites throughout the historic period, as well as a review of historic documentation associated with the site area itself. This review serves to identify whether the burial grounds identified during this study exhibit patterns that are similar to other historic cemetery sites.

The archeological literature on historic cemeteries illustrates a trend throughout the historic period that acknowledged diversity in burial methods under certain conditions and in certain types of cemeteries. While diversity in burial form can potentially occur within any cemetery, it is most commonly reported in nonsectarian burial grounds associated with county and municipal institutions and those associated with groups considered historically as the lower class of society. Nontraditional burial methods are also reported during periods of unusually high mortality such as during epidemics and in times of warfare when time and available burial space are factors.

The organization of the cemetery at the Tweed Courthouse site, comprised primarily of single burials arranged east-west in rows, is typical of most historic European traditions. As summarized by Pearson (1999:6), however, some traditions varied from this pattern:

In the medieval and early modern periods, Jewish burials were arranged either north-south with heads to the south, or west-east. Alternatively, the head might be placed towards the exit from the cemetery. Christian burials are laid west-east with their heads to the west so that they may arise on the Day of Judgement to face God in the East. Within the pagan religions of post-Roman England and Viking Scandanavia, burials are orientated broadly east-west or north-south.

Mortuary practices originating in the Old World were commonly carried over in New World traditions, particularly early on, so that features of interment observed in historic cemeteries often reflect traditional forms. However, inconsistencies in the methods and patterning of historic interments have been noted in the archeological record. Differential orientation and including more than one individual per grave is somewhat unconventional yet not completely unique in historic cemeteries. In addition to the burials identified at Tweed Courthouse, several other historic cemetery excavations have identified diversity in burial form and orientation. For example, excavations at the African Burial Ground, a few blocks north of Tweed Courthouse, identified that while the majority

of burials were oriented east-west with heads to the west, one individual was buried with head to the east and three graves were oriented north-south (LPC 1993:41).

In the 1609-1610 "potter's field" cemetery at historic Jamestown most graves were oriented east-west but some were buried in contorted positions or face down (Brown 2001). In a late 18th to early 19th century slave cemetery in Frederick County, Maryland, two of 35 burials were oriented with heads to the east rather than to the west (Burnston 1997:94-95). Excavation of a cemetery associated with the 19th century county poorhouse, poor farm, and insane asylum in Chicago identified several superimposed graves, where the lower burials were oriented east-west and the overlying burials north-south (Trubitt, et al. 1999).

Multiple graves have been identified in several historic cemeteries including the early colonial cemetery in Jamestown mentioned above (Brown 2001); a mid-18th century prisoner burial ground in Quebec (Piédalue and Cybulski 1997:123); the War of 1812 cemetery at Snake Hill, Ontario (Litt, et al. 1993); the early to mid-19th century First African Baptist Church cemetery in Philadelphia (see Parrington 1984:6); and the mid-19th century Hudson Poor Farm Cemetery in Hudson, Massachusetts (Bell 1993:43). Superimposed or "stacked" burials have been identified at the late 17th-18th century Dutch Reformed Church Burial Ground (Collamer & Associates, Inc. 1988) and the 19th century Albany County Almshouse cemetery site (Andrea Lain, personal communication), both in Albany, New York.

Other unique findings associated with historic cemeteries include the identification of burials outside mapped cemetery boundaries (HAA, Inc. 2002c), and burials found in isolated locations within a cemetery (Bell 1993:44; Piédalue and Cybulski 1997:123). In addition, in contrast to evenly spaced and highly organized rows of interments, groups or clusters (Burnston 1997:94-95) of burials have been identified, as well as "very densely packed" (Parrington 1984:6) and "closely spaced" burials (Piédalue and Cybulski 1997:123).

Regarding the overall composition of historic cemeteries, it is also not uncommon that municipal cemeteries in urban areas functioned as burial grounds for a number of institutions including poorhouses, hospitals, orphanages, and jails. Paupers, prisoners, soldiers, hospital patients, orphans, slaves, and "unknowns" were sometimes buried in a single public cemetery and often in spatially distinct areas within the cemetery. For example, the Albany County Almshouse cemetery was known to have been used for burial of a mixed group of Albany residents, including almshouse residents, children from the adjacent orphanage, hospital patients/autopsy cases, African Americans, and soldiers (LoRusso 1990; HAA, Inc. 1999; Lisa Anderson, personal communication, 2002; Matthew Lesniak, personal communication, 2002). Excavations at the site of the former Milwaukee County Poor Farm in Wauwatosa, Wisconsin (Richards 1997; Richards and Trubitt 1999) identified that distinct areas of the cemetery were used at different times, and that infant burials were placed in a designated section of the cemetery (Richards 1997).

In other cases, cemeteries initially designated for a specific purpose were sometimes converted for other uses. For example, the 19th century New State Street Burial Ground in Washington Park,

Albany, New York was initially a potter's field used for burial of "strangers" and persons not belonging to a particular religious group, but was later divided into distinct areas and used by various religious denominations (Raemsch and Wheeler, n.d.). Pearson (1999:15) also notes examples of large, urban cemeteries divided according to ethnic or religious affiliations.

Together, these examples illustrate that historic cemeteries occasionally contain a sample of graves characterized by differential burial treatment or placement and that it is not unusual to encounter wide variation in burial form and organization. Diversity in cemetery plans may be due to sociocultural factors such as religious or ethnic tradition or for various practical reasons including limited burial space or high mortality during a short period of time. Diversity in the use of public cemeteries is related to both the desires and the particular demands of communities during certain periods of time and under certain conditions.

Origin and context of the Tweed Courthouse burials

As discussed throughout the report, the data concerning the location and boundaries of cemeteries in the historic commons area are limited. There are few original sources describing the organization and boundaries of the burial ground; however, there is enough information to piece together some hypotheses about the origin and context of the Tweed Courthouse burials. Much of the information about the historic development of early New York City derives from the *Minutes of the Common Council* (New York City 1917). A chronology of the council's actions as well as information from other original sources including newspaper reports, diaries, and maps was developed by I.N. Phelps Stokes (1915). In addition to the information reported in Stokes' six volumes, a few historic maps indicate the location of burial grounds and other significant features of the commons area.

Despite the lack of concrete historical data on the actual dates and demographics of the burials as well as on burial ground boundaries in this area, the strongest case for the origin of the burials identified during the Tweed Courthouse project is the almshouse and bridewell burial ground. According to the records of the Common Council, a burial ground was established by the city in 1785 on the vacant ground behind the barracks for burial of the almshouse and bridewell dead (Stokes 5:1203). "Behind the barracks" is believed to be its north side (LPC 1993:33), which is equivalent to the north side of Tweed Courthouse. The time span of the cemetery's use remains unknown.

In 1785, the Common Council reported that "63 men, 133 women, 50 boys, 49 girls, 2 black men, and 4 black women" were residing at the almshouse (Stokes 5:1206). The presence of children's burials, confirmed both by this and the City Hall Park study, suggests the burial ground identified during this study was the area used for burial of the almshouse dead. The archeological observation of interments in rows with burials oriented east-west in what would be in the back yard of the barracks makes the strongest case for the hypothesis that the burials originate from the two 18th century institutions.

The origin and context of the four graves that vary in orientation from the rest of the graves remains unknown. While the boundaries of the almshouse/bridewell burial grounds are undocumented, this area west of Tweed Courthouse was most likely considered part of the vacant ground behind the barracks as well. However, if these burials originate from the almshouse or bridewell it is unusual that their orientation differs from the majority of the graves comprising the cemetery, especially those identified immediately adjacent to these burials. As described above, the two clusters of burials are close enough to appear as though they would intersect or at least meet within only a few feet of one another.

Given archeological documentation of historic intracemetery variation, there are several possibilities for differential orientation of graves, including that the two sections of the burial ground were laid out on a different grid, and/or that certain individuals were buried differently due ethnic, religious, or other reasons. The timing of the burials may also be a factor, as different burial methods may have been used during different times. The north-south graves may have originated from an earlier or later time period than the remainder of the graves. While cemeteries typically do not grow randomly and there is usually a set of organizing principles in mind (Pearson 1999:12), there is no documentation concerning whether this burial ground originated at one end of the yard and continually expanded in one direction, or whether burials were added at both ends once the cemetery grew in size and space became a factor. Unfortunately, due to the amount of disturbance within the site area, the lack of artifacts associated with the graves, and lack of concrete data on these unmarked burial grounds, it is not possible to determine the origin or time period of the graves with any certainty.

Based on archeological documentation of the wide variation in public cemetery organization historically, there is also a possibility that these burials did not originate from these institutions, but from a different source that was not documented in the historic record. Because there is a lack of documentation concerning the burial grounds, this possibility cannot be ruled out. As described above, there are numerous cases of unmarked burial grounds remaining unknown until they are discovered archeologically, and many methods of burial are undocumented prior to archeological discovery as well.

While it is argued here that at least the majority of the cemetery identified during this study is associated with the almshouse and bridewell, the historic record allows for two other possible origins of the burials. There is some documentation suggesting that burials in this area may have originated from prisoner of war executions or from the African Burial Ground. In terms of the potential for military or prisoner burials, a British Headquarters map, while poor in quality (as described by Stokes 1:363), indicates a burial ground immediately north of the Upper Barracks, equivalent to the area immediately north of the courthouse today. In addition to this map, Stokes (5:1016) noted an account by William Cunningham, a British prison marshal, describing that 2,000 prisoners of war (POWs) were held in the Gaol and Bridewell during the Revolutionary War. According to Cunningham's account, the secret execution and burial of about 275 prisoners was ordered, and the POWs were said to have been hung and buried without ceremony north of the

barracks. In a diary, one eyewitness recalled visiting “ye Burying Ground & see[ing] four of ye Prisoners Buryed in one Grave” (Stokes 5:1038).

Given this information and the close proximity of the multiple burials to each other, it is possible that these and other individual graves in this area derive from the burial ground associated with the above events. However, there are other possible explanations for these burials. These burials may also have originated from the almshouse or bridewell, and several individuals who happened to die within a given time were buried in the same grave simply out of convenience and/or to save on time, money, and space. Given that the graves appear to be located at one end of the cemetery, it is also possible that by the time these individuals were buried, there was little space left for additional interments. Unfortunately, the condition of the burials (two of the three were partial and fragmentary burials) limited the identification of the age and sex of those interred in this fashion. It could only be determined that the two individuals in Burial 12 were both males. If women were present in any of the burials, this would suggest almshouse/bridewell rather than military burials.

While the burial of a child (Burial 11), presumably from the almshouse population, was identified immediately adjacent to and at the same level as the double male burial (Burial 12), it was found to be intrusive into Burial 12 indicating interment at a later time. The intrusion of the child grave would support the hypothesis that Burial 12 could consist of military/prisoner burials, as the almshouse postdates military use of the property. However, it is not possible to determine the amount of time that lapsed between the interments of Burials 11 and 12. Days, weeks, months, or years may have separated the two graves, indicating that Burial 12 may also originate from the almshouse or bridewell. Given the account of hundreds of prisoners being executed it seems that if they were buried in this area more of the burials surrounding the three multiple burials would also have been multiple or mass graves. Therefore, it is most likely that the three burials originate from the almshouse or bridewell population.

The question of whether any burials in this area originate from the African Burial Ground remains, due in large part to limited data on cemetery boundaries in the commons area as well as the limited data available from fragmentary and unexcavated graves. The southern boundary of the burial ground, while it has never been clearly defined, is thought to be located somewhere in the vicinity of Chambers Street. Therefore, it remains possible that graves associated with the African Burial Ground site (two blocks north) were located this far south, primarily because the construction of Chambers Street is recorded as overtaking a portion of the burial ground (New York City 1917; City of New York 1833, Document 76:391). However, the 1755 Maerschalk map (Map 4) depicts the burial ground north of the palisades which traversed west-east close to the general alignment of Chambers Street. Unfortunately, the records are not explicit in stating what section of the burial ground was impacted by street construction. Based on the alignment of the palisades in the area in question (Map 4), if accurate, it seems most likely that the portion of the burial grounds impacted by construction was from Broadway and west where the palisades appear to be closer to the future Chambers Street. Also in support of this hypothesis is the 1865 Viele map depicting the ravine where the burial ground was located as falling along Chambers Street in the area west of Broadway (see Stokes 3:pl. 155b).

Other evidence supporting the hypothesis that burials in this location do not originate from the African Burial Ground is based on consideration of the likely property boundaries associated with the military barracks. Given that the burials identified on the courthouse property are in close proximity to the 1757-1790 barracks, and given that the African Burial Ground was also used through the 1790s (potentially overtaking the area of the former palisades), it is unlikely that the latter did not extend into the rear yard of the barracks. There would likely have been a clear dividing line between the African Burial Ground and use of the area for military activity.

While the origin of graves within the Tweed Courthouse and City Hall Park area cannot be determined with complete certainty, the combined information from the archeological and historic records, while limited in certain respects, have provided a foundation from which the organization and likely context of the burials identified during this research can begin to be understood.

Historic and modern attitudes toward burials and human remains

As described in the LPC designation report (1993:27), Stokes (1833) wrote of the attitudes toward cemeteries, burials, and human remains in the early 19th century. By 1833 several graveyards in the city had been abandoned, and several were subject to removal of burials for construction of new buildings. In 1805 and 1806, a burial ground at the corner of Broadway and Rector Street was cleared for the construction of Grace Church. The "bones in open box carts [were carted off] promiscuously, and fragments of bones and coffins were dumped into the North River" (LPC 1993:27). Similar techniques for clearing land were used historically at the site of several other cemeteries (i.e., Raemsch and Wheeler, n.d).

The data on burial disturbance from the archeological investigations at Tweed Courthouse, as well as that from other recovery efforts in Chambers Street and City Hall Park are reflective of a similar attitude toward unmarked graves and old bones from the late 18th century through the mid-20th century, at least in regard to issues of clearing land for construction. From the construction of Chambers Street in 1796 to the installation of the water main in the first third of the 19th century to the construction and replacement of sidewalks and various utilities on several occasions, historic burials have been disturbed and redeposited numerous times, and often in a careless manner.

While the disturbance of burials during construction work is common in this area, there are some differences in the methods for reinterment of the identified remains. It is clear from this and other studies (i.e. KSK 2000; London and Jones 2000) that in some cases an attempt was made to collect and reinter excavated human remains with some order or organization in mind, although this order did not consist of keeping the remains of each individual separate and reintering each set of remains in individual graves. Several discrete deposits of remains have been found in the area, indicating that at least some care was taken in placing the remains in a specific or isolated area following their removal. However, the large deposit of remains mixed with construction debris, slag, and tar also suggests that in some cases little concern was directed toward respectful reburial of the remains.

Other evidence of careless treatment of the remains is the presence of fragmentary remains throughout the fill overlying almost the entire grounds of the courthouse and in the historic fill beneath Chambers Street. Unfortunately, little can be said about whether the different treatments of the remains were project-specific or whether they varied on an individual level. The numerous episodes of burial disturbance and removal and the reinterment of disarticulated human remains makes it impossible to determine the original provenience of fragmentary remains found in the subsequent fill deposits. It can only be assumed that the remains originated from a somewhat confined radius within the commons historic district.

Currently, there is standardization in how human remains identified in this area are treated. This standardization in treatment developed in the 1990s following discovery of the African Burial Ground and other discoveries of fragmentary human remains during construction in the area. Discovery of both intact and fragmentary human remains is expected during construction in certain areas within the African Burial Ground and the Commons Historic District and there are formal standards for treatment of the remains (see LPC 2002). As described previously, the current policy is to collect fragmentary remains and to leave intact burials in place, allowing construction to proceed in areas already disturbed but forcing modification of construction plans when intact burials are identified. While this policy allows burials to remain undisturbed in their original graves, they are often left surrounded by modern utilities and covered by the city streets and sidewalks. However, the policy does emphasize that there are alternatives to disturbance of intact cultural resources.

SUMMARY OF OTHER SITES IDENTIFIED WITHIN THE PROJECT AREA

In addition to the burial features, seven other intact cultural features with significant research value were identified within the project area. This section begins with a brief review of the features and is followed by an analysis of the artifact assemblage resulting from two intact features: Feature 16, the late 18th- to early 19th-century privy and Feature 18, the 18th- to early 19th-century cold storage shed. The artifact analysis included a comprehensive study of the faunal remains from these two features, which is presented following this section.

The following seven intact cultural features identified on the east and north sides of the courthouse were considered significant features with good research value:

- Feature 10, a probable brick storm drain or well;
- Features 11 and 14, remnants of two stone foundations;
- Feature 15, a c. 1810 brick-lined drain associated with the Second Almshouse;
- Feature 16, a late 18th- to early 19th-century privy;
- Feature 17, a brick wall; and
- Feature 18, a late 18th- to early 19th-century cold storage shed.

Summary of Features 10, 11, 14, 15, and 17

Description and interpretation of Features 10, 11, 14, 15, and 17 are included in the *Field Results* section above. In summary, Feature 10 was a brick well or storm drain located on the east side of the courthouse. Features 11 and 15 consisted of fragmentary remnants of two stone foundations. Based on the placement of the stones and the associated builder's trench, it appears that Feature 11 may have been the corner of a former structure, possibly part of the Second Almshouse or more likely an outbuilding. Feature 14 is more definitely a foundation wall of the almshouse, as its location and orientation matches the hypothesized location of the east wall of the structure. Feature 15 was a possible c. 1810 brick drain that may have been associated with the Second Almshouse. Feature 17 was a post-1850 brick wall located southwest of Feature 18. While its function is unknown, it appears to be related to use of the original almshouse building as a cultural institution.

Features 16 and 18

Artifact Analysis by David Klinge, M.A. and Carol A. Raemsch, Ph.D.

The Tweed Courthouse historic artifact collection is derived from two features: a stone-lined privy (Feature 16) and a stone- and brick-lined cold storage house (Feature 18). The two features were identified on the north side of the courthouse west of the stairs. Based on variations in the *material culture* collection contained within the features, they are most likely associated with two separate uses of the property. These artifacts offer a glimpse of the daily lives of early New Yorkers residing in the commons area from the revolutionary period through the second decade of the 19th century.

Overview of the artifact assemblage

In all, 1,571 artifacts were recovered from the two features, 610 from Feature 16 (the privy) and 961 from Feature 18 (the cold storage house). Following Stanley South's (1977:83-84) methodology, the artifacts were divided by class (Table 10). Based on this system, the assemblage consisted primarily of kitchen and food items, followed by architectural items, personal/clothing items, and activity items. Two percent of the collection could not be identified. A brief review of the artifacts by class and by feature is presented below.

Table 10. Tweed Courthouse artifacts by class and feature.

Class	Feature 16	Feature 18	Total
Architectural	162	52	214
Activity	19	3	22
Food	189	445	634
Personal/clothing	22	37	59
Kitchen	207	405	612
Unidentifiable	11	19	30
Total	610	961	1,571

Architectural

Architectural items are those that relate directly to the built environment. They are the remnants, in essence, of the fabric of buildings themselves, rather than the tools by which they are built. Bricks, timbers, nails, and window glass are typical of this category of artifacts. Nearly 14% (13.62%) of the artifact assemblage consisted of architectural items.

Feature 16 contained 162 architectural items including brick, window glass, nails, mortar/cement, and wood, most of which derived from Levels 4 and 6. Level 4 contained 96 items including 26 window glass fragments, 67 nails, and 3 mortar/cement fragments. Level 6 contained 28 nails, 12 pieces of charred wood, and 16 miscellaneous items including window glass, mortar, and brick. Level 2 consisting of mixed 19th- and 20th-century fill had four architectural items, Level 3 had none, and Level 5 had six. Feature 18 included fewer (N=52) architectural materials, mostly distributed in Levels 2 through 5. Most of the materials were nails (N=35) and window glass (N=9) with several fragments of mortar, brick, and plaster.

Brick

Two types of brick deposits were collected from the two features: brick fragments contained within the feature soils and whole bricks collected from the Feature 18 structure. While numerous brick fragments were noted and recorded in the field, only four were cataloged from these two features. The brick constitutes just two percent (1.87%) of the total architectural collection. That they make up such a small percentage of the architectural assemblage is most likely due to both the permanence of brick architecture and that most brick from demolished buildings was salvaged for reuse elsewhere.

Samples of whole brick and mortar were collected from the Feature 18 floor and walls as the feature was bisected. Bricks from this feature came in two sizes. The walls of the feature were constructed with bricks of the following dimensions: 8¼-8½ inches in length, 4 inches wide, and 1¾-2 inches thick. Bricks from the floor were smaller, with the following dimensions: 7½-7¾ inches in length, 3½ inches wide, and 2 inches thick. Based on their dimensions and their glazing, the bricks are most likely prerevolutionary in age (Allan Gilbert, personal communication 2002). The mortar associated with the bricks was relatively sandy with relatively large chunks of lime suggesting a later colonial time frame. Based on these data, it is possible that the bricks in this feature were recycled, i.e., they may be earlier bricks reused at a later time. The composition of the mortar itself was characteristic of the wealthy during the colonial period suggesting that the structure may have been a government issued building (Allan Gilbert, personal communication, 2002).

Window Glass

Forty-two sherds of window glass were recovered from the two features constituting nearly 20% (19.63%) of the architectural assemblage. The glass was light green in color and generally between one and three millimeters thick. The sherds were too small to reveal any diagnostic attributes, but they are likely the remnants of crown glass windows. Crown glass was a type of glass used for making windows from the end of the 18th century to the second quarter of the 19th century (Tunis 1965:136). Crown glass was being manufactured on site while the almshouse was in operation, which is discussed in more detail under the “activity” heading.

Iron Nails

Nails make up the largest part of the almshouse architectural assemblage, as they often do on historic sites. The 141 nails and nail fragments account for nearly two thirds (65.89%) of the entire category. In some instances, the nails were too corroded to determine their method of manufacture, but most were machine cut. It was impossible to determine if the nail heads were handmade or machine made.

Prior to the 1780s, all nails used in American construction were hand-forged. A section of wrought iron bar stock was hammered to a tapering point and cut to length by a blacksmith who generally finished the head by hand as well. The process was refined in the 1770s, when a technique to cut uniform nails from a sheet of wrought iron was developed. By the 1780s, several small producers were engaged in the business in and around Boston. These early enterprises also relied on a blacksmith, or the nail-cutter, to finish the head of the nail by hand. This deficiency was corrected by 1800, however, as first two-stage, then single-stage machines were invented that both cut and headed the nails (Phillips 1994:5). By the first decades of the 19th century, machine-cut nails were virtually ubiquitous in the building trades, especially in busy metropolitan areas like New York.

Mortar/Cement

Fifteen pieces of mortar were recovered from the two features constituting 7% of the architectural assemblage. The mortar is a dense, whitish grey, lime-based mortar with few inclusions. The total weight of the mortar was 229.90 grams.

Wood

Twelve fragments of wood were identified in Feature 16 accounting for almost 6% (5.6%) of the architectural assemblage.

Activity

The artifacts that make up the activity class are those materials that are the by-products of productive industries that have occurred on site. A few examples of activity artifacts found on historical archeological sites are lead casting sprue, wampum production debris, and ceramic wasters. In this instance, there are four artifacts that fall into this category: bone button blanks, crown glass waste material, a possible scale weight, and some metal slag/production debris.

Bone Button Blanks

Two bone button blanks were recovered from each of the two features. The button blanks represent 18% (18.18%) of the activity assemblage. The blanks are flat portions of faunal bones—typically rib and shoulder bones of cattle (Cantwell and Wall 2001: 275)—discarded after buttons were cut from them with a round handsaw. Drilling a large number of buttons from a single flat bone weakens the structure and the bone tends to split along its longest axis causing the distinctive repetitive crescent cuts seen in these blanks (Photo 55).

Although they account for just under 20% of this category the button blanks are particularly interesting items. Documentation from other sites suggests that bone buttons were probably made by both the military during the Revolutionary and Civil wars as well as by almshouse tenants. The the First Almshouse kitchen site (located just south of Tweed Courthouse) included high numbers of bone button backs and button blanks (Baugher et al. 1990; Baugher and Lenik 1997) suggesting that button making was likely a task required by residents of the almshouse. As noted in Baugher and Lenik (1997:18), the almshouse was equipped with tools and typical of most if not all almshouses, residents were required to work in return for their keep (Ross 1988:15).

Regarding potential military associations of button manufacture, similar materials including bone buttons and button blanks were found at the Barracks Site at West Point (Calver and Bolton 1950:53). Button blanks have been identified in other deposits in the historic commons area as well, including much of the historic fill deposits coating the Tweed Courthouse grounds.



Photo 55. Bone button blanks from the Second Almshouse privy (Feature 16).

The manufacturing of buttons is an important part of the history of the commons area, and connects the almshouse to a larger reform movement at the turn of the 19th century. Beginning in the first years of the 19th century, forces in American society were stirring for change in the social fabric of the nation. Although this general notion of reformation would evolve into several distinct movements in the later part of that century including the temperance movement and the women's rights movement, one of its first permutations was a movement for the decent treatment of convicts and the destitute. A central tenet of this first wave was that employment would create men and women of sound character, and break the cycles of recitivist crime and destitution (Feldmeth 2002). Whether successful or not, the almshouse button industry must be seen as a part of this broader social movement.

Coincidentally, at the same time the reformers were beginning to provoke a revolution in American society, a revolution in fashion and dress was underway, specifically in the button industry. While buttons were not new to fashion, during the centuries preceding 1800 they tended to be more decorative and less functional than we now assume (Colorado State Button Society 2002). However, the dawn of the 19th century witnessed the first mass-produced buttons, which was in large part responsible for a shift in function (Wagner 2002). As prices dropped with the increased availability, buttons became the fastener we know them as today. The residents of the almshouse therefore were participants in two revolutions in American society.

Crown Glass Waste Material

Several items of particular interest in this collection are five fragments of crown glass production debris found in Level 5 of Feature 16. These pieces are unusable rim fragments produced when flat panes were cut and were used almost exclusively in the production of window panes in the 18th and 19th centuries. The glass makes up 23% (22.7%) of the activity group, and dictates that window glass was manufactured on site at some point during the occupation of the almshouse.

The term crown glass refers to a method of producing flat, relatively clear sheets of glass. In production a gather of glass is collected on the end of a blowpipe and slightly inflated to form a globular parison. The round parison is then pierced at one end and spun on the blow pipe or a pontil rod until it flattens into large circular sheet, much like a pizza maker spins and forms the dough of a pizza. The glass disc is spun until it cools to a solid state, at which point it is broken from the blowpipe/pontil and annealed in an oven (Tangram Technology 2002).

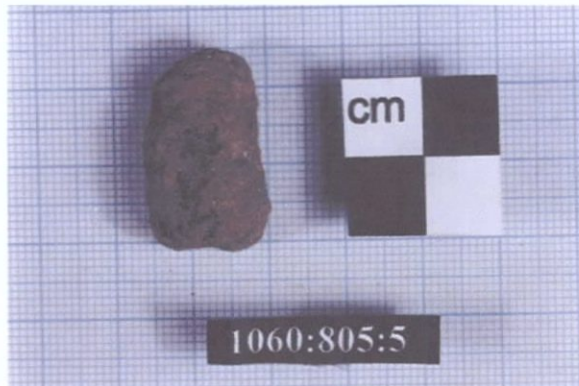
The method of producing crown glass was invented by French artisans in Rouen in 1330. Glass remained an expensive, luxury item for many years. It was not until the relative affluence generated by the growth of international market economies in the 17th century that glass windows became common in European buildings (The London Glass Company 2002). The English crown glass industry blossomed at the end of the 17th century, but English settlers in America attempted to start a crown glass industry as early as 1608 at Jamestown (Klinge 2001:84).

Crown glass was the natural choice for window glass as it remained clearer than other types since it did not come in contact with potentially contaminated surfaces until it had hardened and was broken from the blowpipe/pontil. As a result it remained the predominant type of window glass until the middle of the 19th century (The London Glass Company 2002). Not all of the glass was usable, however. The distorted central portion that attached the flat parison to the blowpipe/pontil was left with an ugly scar called a bullseye and the rim of the round sheet was distorted during the spinning and was much thicker than the rest of the sheet. While bullseyes are still used to decorate small windows in the front doors of many American homes, the unusable rim sherds were simply discarded. It is this refuse that was found in Feature 16, the privy.

Whether the manufacture of crown glass was undertaken during construction of the almshouse or later by residents of the almshouse is unclear, but the fact remains that crown glass was manufactured on the site.

Scale Weight

One artifact of particular interest is a scale weight (Photos 56 and 57). Found in Feature 18, this artifact is a brass-coated lead object that weighs precisely 12 grams or .42 ounces. Perhaps the buttons manufactured at the barracks or almshouse were sold by weight, making accurate scales a necessary part of the business.



Photos 56 and 57. Pre- and post-conservation photographs of the scale weight found in Feature 18.

Slag/Production Debris

The remaining 55% (54.54%) of the activity category is made up of metal slag. Slag is a generic term for the unusable by-product of production. These particular items, all from Feature 16, appear to be iron slag but that identification is tentative.

Food

Food remnants, predominantly faunal bones, constitute a large portion of the artifact assemblage from these two features. Accounting for just over 40% (40.37%) of the collection, this is the second largest category of cultural remains from the site. The results of the faunal analysis are presented below.

Personal/clothing

The artifacts comprising this class are those items that might be considered the personal possessions of their owner. Where dishes, food remains, and other items might be said to belong to a household, these items belong specifically to an individual. Clothes, jewelry, and small tokens or trinkets are just a few of the potential objects within this class.

1781 Carolus III Coin

A Spanish silver coin was recovered from Level 6 (the bottom) of Feature 16, the privy. The coin is a Spanish real minted in Mexico City and bears the likeness of Carolus III the king of Spain from 1759 to 1788 (Photos 58-60). The inscription around the front of the coin reads *Carolus III - Dei Gratia - 1781*, translated as "Carolus III - Grace of God - 1781." The obverse of the coin bears

the royal seal and the words *Hispan - Et Ind - Rex* and *M - IR - F.F.* The first part is translated as "King of Spain and the Indies," while the second indicates the coin's place of origin (Mexico City), its value (one real), and the initials F. F. are the initials of the assayer who validated the coin at the mint (elcazador.com 2002).

It is hard to imagine that a silver coin would be lost in an almshouse, but when one considers its ultimate repository, it is easy to see how such an object could fall from a pocket and why it would lie there unretrieved. The real also provides a *terminus post quem* for the privy of 1781. Its presence dictates that the privy could not have been built before 1781.

Patent Medicine Bottle

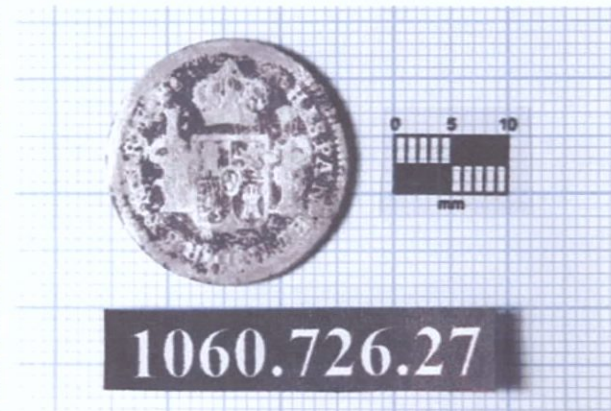
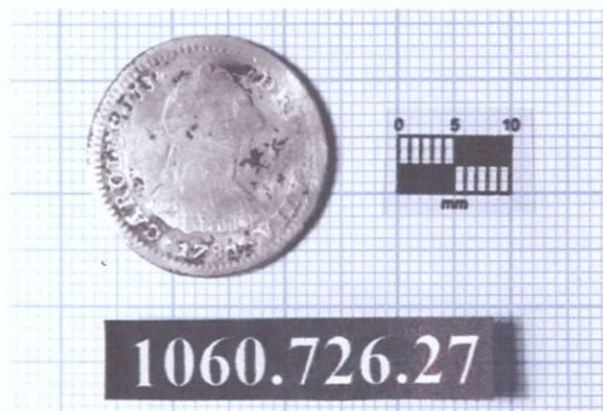
Appreciating the squalor of the late 18th- to early 19th-century urban landscape is difficult from a distance of 200 years; however, it will suffice to say that crowded American cities were rife with waste, filth, and as a result disease. Previous archeological studies in Albany, New York, have shown that diseases associated with the early 19th century urban environment affected the poor and the wealthy alike (HAA, Inc. 2002a:11.12-11.13). It is not unreasonable to assume then, that the residents of the almshouse would be similarly afflicted, which makes it surprising that only one pharmaceutical bottle was discovered in either of the two features. A single patent medicine bottle was found in Level 2 of the privy, Feature 16 (Photo 61). The lack of medicine bottles in the feature probably reflects the inability of almshouse residents to obtain medicine.

Although the patent medicine craze occurred in the second half of the 19th century, early versions of these famous "snake oil" bottles were produced at the time the almshouse was in use (Lorrain 1968:43). It was not possible to identify the medicine maker, but the bottle bears the last few letters of two embossed words: "...ER" and "...Y'S." The bottle was blown in a mold, and the lettering was embossed with slug plates. A bare iron pontil scar adorns its base and the neck may have been finished with a lipping tool, although it appears to have been hand finished or hand tooled. This bottle can be attributed to the second quarter of the 19th century. This item would post-date use of the building as an almshouse suggesting that the upper levels of fill inside the feature also date to post-1816 when the building was intended for other uses.

As in the latter half of the 19th century, patent medicines were not particularly effective as medical treatments for many maladies. They were, however, very effective at producing euphoric feelings and the temporary appearance of benefits in their users. This has been attributed to the high levels of alcohol and in some cases other narcotics found in these elixirs. It has been proposed that the high alcohol content was in some part responsible for their popularity and that the medicines became a surreptitious method of intoxication towards the end of the 19th century.



Photo 58. Pre-conservation photo of 1781 Carolus III Coin found in the Second Almshouse privy.



Photos 59 and 60. Post-conservation photos of 1781 Carolus III Coin found in the Second Almshouse privy.



Photo 61. Remnants of a patent medicine bottle (cat. no. 1060.710.9) found in the Second Almshouse privy.

Chamber Pots

As might be expected, several fragments of chamber pots (N=8) were discovered in Feature 16, the privy (Photo 62). In addition, two chamber pot fragments were found in Feature 18, the cold storage house, including a single fragment of a pearlware chamber pot. The ten chamber pot fragments account for 17% (16.94%) of the personal/clothing category. Two of the fragments are creamware, one is pearlware, six are whiteware, and a single fragment is from a salt-glazed stoneware chamber pot. Although some chamber pots were rather elaborately decorated, all of these fragments are from undecorated or minimally decorated specimens.

The presence of the chamber pots is unremarkable in itself, but the fact that they were all undecorated is perhaps a little telling. Although undecorated creamware chamber pots became ubiquitous in the middle of the 19th century, during the time of the barracks and almshouse most chamber pots, particularly those made of whiteware and pearlware, were decorated in some fashion. That these are not hints at the socioeconomic status of their users. Undecorated white earthenwares, regardless of ware type, were the least expensive suitable ceramic type when the almshouse was in operation (Miller 1980:1-40). Therefore, it is clear there was no investment beyond that which was necessary.

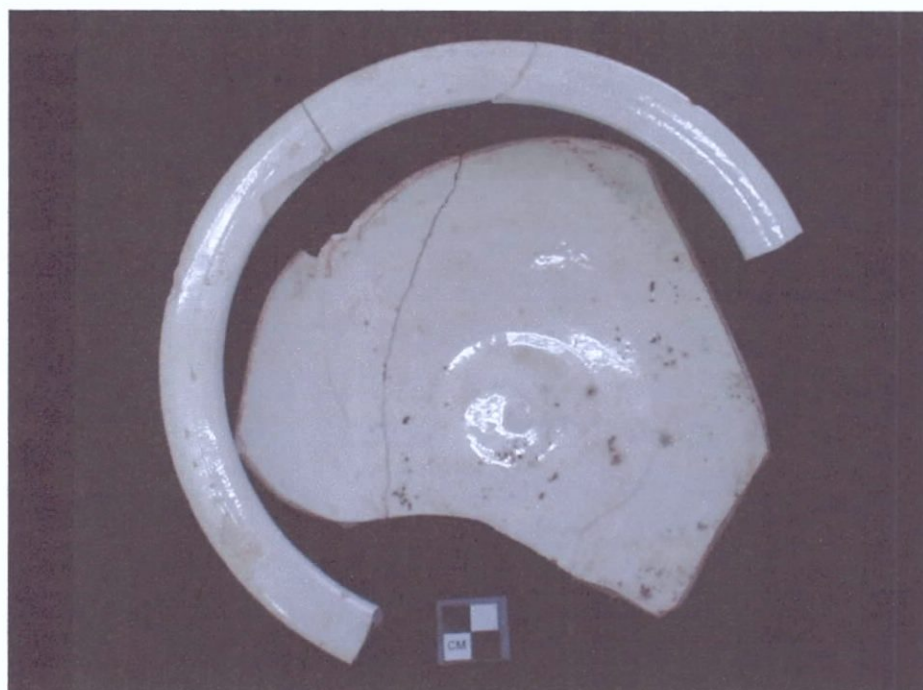


Photo 62. Rim and base of a whiteware chamber pot found in the Second Almshouse privy (cat. nos. 1060.716.8, 1060.720.5, 1060.721.12).

Tobacco Pipes

Interestingly only 29 fragments of clay tobacco pipes were found in the two features. Feature 16 contained 5 pieces, while Feature 18 had 23 pieces. Unfortunately, the pipe fragments are unremarkable and none are diagnostic (Diane Dallal, personal communication 2002), which is to say that they do not bear any markings, and the sample is too small to produce a viable date from the average bore diameter of the stem fragments.

While pipe fragments constitute nearly 50% (49.1%) of the personal/clothing group, the relatively small number of tobacco pipes is surprising compared with contemporary sites. For example, the First Almshouse kitchen feature alone contained 71 18th-century Dutch and English pipe fragments. The small number of tobacco pipe fragments in these two features is unexpected as the easily broken pipes were the equivalent of today's cigarette butts. That is to say they are found in great quantities on most archeological sites that date prior to the late 19th century. Although cigars were growing in popularity at the time these features were in use, that does not explain the lack of pipe fragments. It is possible that the relatively small portion of the privy feature excavated affected artifact frequencies. Alternatively, broken pipes may have ended up in other privies or middens. This

is highly possible at this site considering the amount of disturbance to the historic soils. Numerous other pipe fragments were identified in fill deposits across the site, but unfortunately these items were not in their original contexts.

Buttons

No clothing buttons were identified in the privy, but eleven buttons were recovered from Feature 18 constituting 19% (18.64%) of the total category. Five of the buttons were bone, while the remaining six were made of brass. The buttons were all identified within Levels 2 and 3 of the feature. The bone buttons are commonly referred to as "button backs" (Baugher and Lenik 1997:18), and each have one hole drilled into the center of the disc.

While they are not identical, the bone buttons most resemble Type 19 buttons as identified by Stanley South and cited in Noël Hume's *A Guide to Artifacts of Colonial America*. Those buttons date from approximately 1800 to 1860 (Noël Hume 1970: 90-91). Of interest, however, is that the button diameters and thicknesses resemble those identified in the First Almshouse kitchen deposit dating to the 18th century. From that site, diameters ranged from 11-29 mm and button thickness was between 1-4 mm (Baugher and Lenik 1997:18). The buttons from Feature 18 range from 11-18 mm in diameter and a few millimeters in thickness (Photo 63). Given this comparative data from a site within very close proximity, these buttons could be placed within an earlier date range, i.e., beginning in the 18th century.

The brass buttons from this feature (Photo 64) resemble Type 7 and Type 18 buttons, which tend to date to the second quarter of the 19th century (Noël Hume 1970: 90-91). However, more comparative data on brass buttons is needed before firmly dating the artifacts from this feature. Again, given their context within the site and within deposits containing the potentially early bone buttons, they could very well date to an earlier period. It is interesting to note that all of the buttons were found in Feature 18. It is also of interest that the First Almshouse site had only one brass military button, while this feature had six.

Straight Pins

Three brass straight pins, constituting 5% (5.08%) of the personal/clothing category, were found in Feature 16, the privy. Each pin has a wound head (Photo 65), meaning that the head was applied by wrapping a thin string of heated brass around the end of the pin several times. This indicates that the pins were most likely made before the 1830s. In 1824, a process by which pins and pin heads were formed from a single piece of material was developed ending the production of wound-head pins by the early 1830s (Noël Hume 1970:254).



Photo 63. Post-conservation photo of bone buttons from Feature 18, the cold storage house.



Photo 64. Brass buttons from Feature 18, the cold storage house.

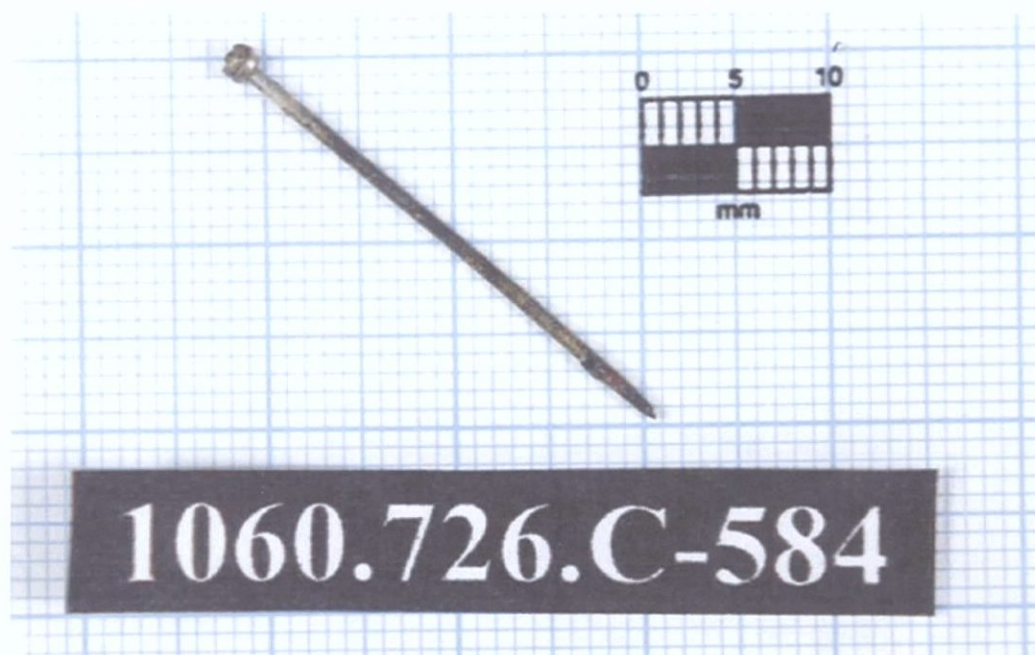


Photo 65. Brass straight pin from Feature 16, the Second Almshouse privy.

Pocket Knife

A single folding pocket knife, a “jackknife” in today’s parlance, was also found in the privy feature (Feature 16). The knife has a 3½-inch (9 cm) blade and a two piece handle made of antler (Photo 66).

Pencil Lead

A single fragment of a graphite pencil lead was recovered from the cold storage house (Feature 18). Graphite was first used for pencils in the 16th century.



Photo 66. A folding pocket knife with a two-piece antler handle (cat. no. 1060.714.8).

Kitchen

The kitchen class is made up of those artifacts that relate directly to the preparation, service and storage of food, and as such, it is a very broad category. It includes all types of ceramic dishes, wooden trenchers, cast iron cookware, cutlery, table glass, all manner of glass bottles, and a host of other items. The kitchen class does not include actual food artifacts (faunal and floral remains) as they are generally assigned to their own analytical category. The 612 artifacts of the kitchen class make it the second largest class and 39% (38.96%) of the entire artifact assemblage. Of the total kitchen assemblage, 207 artifacts (33.8%) were collected from Feature 16, while 405 artifacts (66.2%) were collected from Feature 18. The difference in total counts between the features may relate to the difference in size of the excavated deposits.

Bottle Glass

There are several types of bottles represented by the 108 sherds of bottle glass found in the two features (Table 11). Twenty-nine wine bottle fragments, 14 fragments of a decanter, and one fragment of a flask were discovered as were a variety of types present in the 47 undiagnostic sherds. Of the wine bottle fragments, 18 were identified in Feature 16 while 11 were found in Feature 18. One decanter represented by 14 fragments was found in Level 5 of Feature 16, and the flask fragment was identified in Level 2 of Feature 18. The decanter is most interesting, as it appears to belong to a type from the first half of the 18th century (Noël Hume 1970:197). The object was made of eggshell thin, light green glass and was free blown. No diagnostic features, only its basic shape, were preserved. The bottle was globular with a long, slender neck that gently flared at its mouth, and stood between 8 and 12 inches (20 and 30 cm) tall (Photo 67).

Table 11. Glass collection by type and feature.

Glass Type		Feature 16 Sample	%	Feature 18 Sample	%	Total Collection	%
Bottle glass	Decanter	14	17.7	0		14	13.0
	Flask	0	0.0	1		1	0.9
	Wine	18	22.8	11		29	26.9
	Other	34	43.0	13		47	43.5
Table glass	--	13	16.5	4		17	15.7
Total		79	-	29	-	108	100



Photo 67. Glass decanter found in Feature 16, the privy. The object was made of eggshell thin, light green glass and was free blown (cat. no. 1060 721.1).

The wine bottle fragments that survived tended to be the heavy, thick portions of the bottles particularly the base and kick-ups, shoulders, necks and rims. All of the bottles were blown in a mold and most appear to have been blown in a simple dip mold with the neck and shoulders finished by hand suggests that the bottles were made between 1790 and the 1820s (Lorrain 1968:38). There was no indication that the bottles were blown in a three-part mold, which was invented around 1810, and the laid-on string rims were finish by hand, dictating that the bottles were manufactured prior to the 1840s. The color varies from green to a very dark green and brown.

It is important to note here that wine bottles were not solely used to hold wine. Certainly that was one of the primary uses and the basic wine bottle form of today was fashioned 200 years ago, but these bottles would have been used to hold most distilled spirits.

Table Glass

In all, 17 fragments of drinking glasses were recovered during the excavations, 13 fragments from Feature 16 and the remainder from Feature 18 (Table 11). The 17 fragments make up 3% (2.77%) of the kitchen class. With the exception of one pattern molded "jelly glass," all of the glasses are sturdy tumblers (Photo 68). All were blown in a mold, with two decorated with a patterned mold. A single example was press-molded and all were hand-finished after being pontiled with a bare iron or rough pontil. The color of the glass ranges from a light straw color to clear. Most of the glasses, with the jelly glass being one exception, are products of the second quarter of the 19th century.

Ceramics

The remainder of the kitchen class is comprised of ceramic dishes that run the gamut from coarse earthenwares to imported chinese porcelain. The ceramic assemblage is 5.1% coarse earthenware, which were generally used for utilitarian items like storage jars and dairy pans; 1.4% delftware, which was fading from popularity and being phased out of production by 1800; 76.4% refined earthenwares, which includes the white earthenwares, creamware, pearlware, and whiteware; 14.3% stoneware, often used to hold and serve liquids; and 2.8% porcelain, the most expensive ceramic type. Feature 16 had 118 ceramic sherds, while Feature 18 had 377 (Table 12). While there was much similarity in the ceramic materials in the two features, there are a few notable differences as well.



Photo 68. Glass tumbler from the Second Almshouse privy (Feature 16).

Table 12. Ceramics by type and feature.

Ceramic Type	Feature 16 Sample	%	Feature 18 Sample	%	Total Collection	%
Coarse earthenware	0	0.0	25	6.6	25	5.1
Delftware	0	0.0	7	1.9	7	1.4
Refined earthenware	112	94.9	266	70.5	378	76.4
Stoneware	1	0.9	70	18.6	71	14.3
Porcelain	5	4.2	9	2.4	14	2.8
TOTAL	118	-	377	-	495	100.0

Coarse Earthenwares

Coarse earthenware vessels tend to be utilitarian items like dairy pans, storage jars, and occasionally cooking dishes, although most cookware was made of metal by the time the almshouse was in operation. Generally the body paste is very thick and with large, readily visible tempering agents like crushed stone. When slipped and glazed they were used to hold liquids and in some cases were used as serving dishes. This collection has three types of coarse earthenware: buff-bodied lead-glazed earthenware, unglazed redware, and buff-bodied slip-trail decorated earthenware with a lead glaze.

Coarse earthenware was found only in Feature 18, the cold storage house. Of the sample, eight fragments consisted of slip-trail decorated dishes (Photo 69). These dishes were yellow with brown slip decoration and were in fact tablewares, often used to serve liquids. While similar vessels were produced from the late 17th century through the 18th century, they had all but faded from popularity by 1795. That no pieces were found in the privy could indicate that the cold storage house predates the privy.



Photo 69. Slip-trail decorated coarse earthenware found in Feature 18, the cold storage house (cat. nos. 1060.719.11, 1060.719.13, 1060.800.31, 1060.806.4).

Delftware

Delftware occupies a sort of limbo between coarse and refined earthenwares. Although most closely related to the coarse earthenwares in body paste, delftware is more closely related to the refined earthenwares in decoration and function. Again, delftware was found only in Feature 18. All but one of the seven fragments were undecorated, with the single exception bearing a hand-painted underglaze blue motif (Photo 70).

Delftware was an enormously successful ceramic type that was developed by northern European potters, initially Dutch who were then copied by the English, in the 17th century to compete with white ceramic dishes from northern Africa and the mid-east as well as white porcelain dishes imported from China (Noël Hume 1970:105-106). Although widely distributed and very popular for nearly two centuries, by 1800 production had virtually halted as the white refined earthenwares supplanted delftware. The presence of this ceramic type in the cold storage house reinforces the hypothesis that the cold storage house may predate the privy by several years.

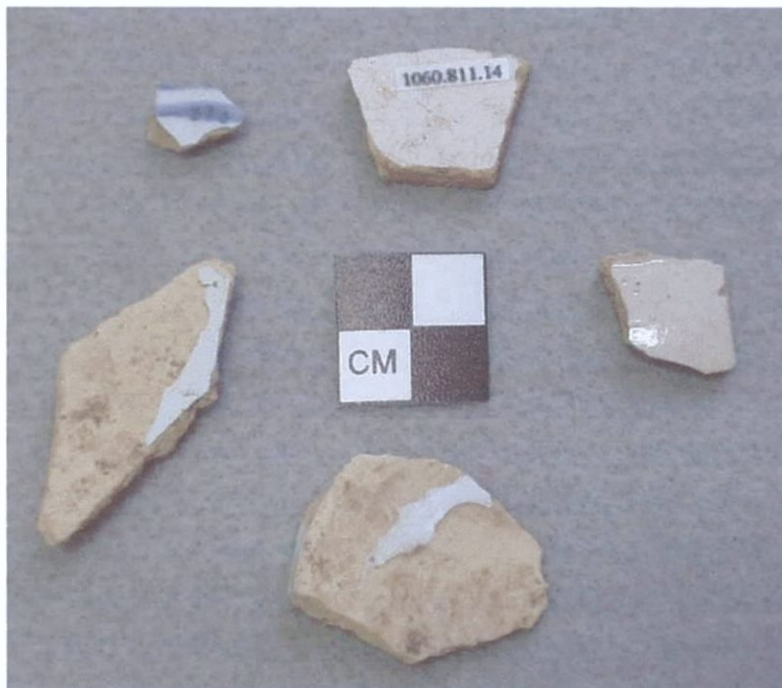


Photo 70. Samples of delftware found in Feature 18, the cold storage house.

Refined Earthenwares and Porcelain

Between the two features 378 sherds of refined earthenware and 14 sherds of porcelain were identified. Feature 18 contained 70.3% of the refined earthenwares, and had much more variety of materials than Feature 16. Feature 16 included samples of whiteware, pearlware, creamware, redware, while Feature 18 included these plus small samples of lusterware (1790-1840), agateware (1740-1775), and 98 sherds of the Jackfield-type variety (1740-1780).

Refined earthenwares are the descendants of their coarse forbears. They generally have a much thinner body, a more homogenous paste and much smaller particles of temper if at all. Earthenwares, however, are porous and the refined earthenwares still need to be glazed to be watertight. During the second half of the 18th and into the 19th century, a revolution was occurring in the types of refined earthenwares that were available for public consumption and the method of manufacturing those types. Three new ceramic type—creamware, pearlware, and whiteware—were invented between 1762 and 1805 and those types coupled with advances in mass production and decoration to make them the most prevalent ceramic type on the majority of archeological sites that date from the late 18th through the 19th centuries.

Creamware, pearlware, and whiteware were the products of European, particularly English, potters' attempts to create a durable, relatively inexpensive white ceramic that could compete with imported porcelain in domestic and colonial markets. Although there is a temporal progression from creamware to whiteware, all three types were produced simultaneously and all three were in production during the useful life of the two features from the almshouse. As such, it is not surprising that although 75% of the kitchen artifacts from the privy and the cold storage house consist of refined earthenwares, 35% (34.5%) of the kitchen artifacts consists of these three ware types alone.

During the life of the almshouse, retail and wholesale merchants referred to these white earthenwares by their decorative element not their ware. Based on price lists and bills of lading, George Miller (1980) developed the Common Creamware Index (CCI) as a method to analyze these dishes on that basis. Miller broke the white earthenwares into four cost levels based on their retail and wholesale value. The most expensive dishes were transfer-printed wares, followed by hand-painted wares, minimally decorated, and finally, undecorated (Miller 1980:1-40). Miller later added porcelain as the fifth and highest cost level.

The focus of Miller's work was to devise a method to determine the socioeconomic status of a household or other unit by its ceramic assemblage. The underlying assumption is that affluent people would have purchased more expensive dishes than less fortunate persons. When the white earthenwares and porcelain are divided into the five CCI cost levels with this notion in mind it is clear that the overwhelming majority of potsherds from the two features is from the lower half of the cost spectrum. Of the Tweed Courthouse ceramics, 81.6% are from the lowest three cost levels with the single largest group being the cheapest, undecorated wares. This most likely relates to the two samples deriving from institutional settings. Comparing the two features, 76.2% of the Feature 16

ceramics are from the lowest three, while 83.8% of the Feature 18 ceramics derive from these categories (Table 13).

Table 13. White earthenwares and porcelain by CCI cost level.

Ceramic Type	Feature 16 Sample	%	Feature 18 Sample	%	Total Collection	%
Transfer-printed	14	11.9	9	2.4	23	4.7
Hand-painted	14	11.9	54	14.3	68	13.7
Minimally decorated	11	9.3	19	5.0	30	6.1
Undecorated	74	62.7	286	75.9	360	72.7
Porcelain	5	4.2	9	2.4	14	2.8
TOTAL	118	-	377	-	495	100.0

Compared with contemporary sites from Albany, New York, it becomes clear that the ceramic collection from this site is overall indicative of the lower status citizens residing in the commons area. The Johan Van Ness privy dates to the 1790s and is typical of a middle class ceramic assemblage with all five cost levels represented, and the three most expensive cost levels constituting the majority of the collection. The Henry Abel privy dates to the 1810s and represents another middle class assemblage. Although Abel possessed a high proportion of undecorated wares, he compensated with ceramics solely from the two most expensive cost levels, porcelain and transfer-printed wares (HAA, Inc. 2002b:9.1-9.50). The Tweed Courthouse deposits show a greater total proportion of cheaper dishes and fewer expensive dishes than either of those middle class assemblages. While these dishes were most likely owned by the almshouse and/or barracks, there is a clear trend of ceramic consumption, as one might expect. Perhaps the finer ceramics were donated by wealthy benefactors or another charitable institution, although this remains a supposition.

Stoneware

Stoneware is a much more durable type of ceramic than earthenware. It is fired at a much higher temperature making it much less porous and watertight even without a glaze. For this reason stoneware, although it was often glazed, has long been preferred as a liquid container than earthenwares. Perhaps the most recognizable stoneware vessels in America are the stoneware beer bottles of the 19th and early 20th centuries. Many of the grey-bodied and buff-bodied stoneware fragments found during the excavation appear to be from similar bottles.

In all, 71 stoneware fragments were identified in the collection, all but one fragment from Feature 18, the cold storage house. This sample accounts for 12% (11.9%) of the kitchen assemblage. The stoneware is almost entirely undecorated with the exception of nine fragments decorated with simple band rouletting or hand-painted underglaze blue. Interestingly, a large proportion of stoneware in the collection appears to have been made locally, as the Manhattan stonewares tend to be buff or yellow in color. Other stonewares from the area (i.e., Long Island and New Jersey) are blue-gray in color (Baugher and Lenik 1997:17).

Again, all of the stoneware was collected from Feature 18 except for one fragment of white salt-glazed stoneware dating to 1720-1805 (Noël Hume 1970:115-117), found in Level 6 (the bottom) of Feature 16. While types of stoneware found on the site date anywhere between 1705-1930, given the dates of other materials in the cold storage house deposit, it is most likely that those found in this feature date to the last quarter of the 18th century into the early 19th century at the latest. That all but one of the sherds originated from this feature again reinforces the likelihood that the two features related to two different uses of this site area.

Summary of the material culture collection

The analysis of artifacts from the two intact features reflect two uses of this area of the site. Feature 16 most likely postdates Feature 18, which is discussed further below following the faunal analysis section of the report. While some of the material culture from the features is similar there were some notable differences between the two. The privy (Feature 16) contained significantly more architectural debris than the cold storage shed (Feature 18) including a sample of crown glass waste material which may have been manufactured on site at the almshouse. This may reflect more construction in the area during use of this feature compared to Feature 18, as well as the potential involvement of almshouse residents in manufacture and construction.

Feature 18 contained several classes of materials not represented in Feature 16 including bone and brass buttons, slip-decorated ware, delftware, and stoneware. This feature also contained significantly more tobacco pipe fragments than Feature 16. The absence of bone buttons in Feature 16 may reflect that while the buttons may have been made on site (based on the presence of the button blanks), they may not have been used by the almshouse residents. The absence of other buttons suggests they may not have had access to (or could not afford) these materials. The lack of slipware and delftware indicates that these goods also were not available to tenants of the almshouse.

Faunal analysis by Marie-Lorraine Pipes, M.A.

The faunal assemblage from the Tweed Courthouse site was subjected to intensive analysis and the data used to examine dietary issues. Prior excavations in the project area yielded faunal remains that can serve as comparative data. These excavations include the 1989 excavation of the *First Almshouse* by the New York City Landmarks Preservation Commission (Baugher, et al. 1990) and the City Hall Park excavation by Parsons Engineering Science in the mid-1990s. Quantified data are available for the former project (Amorosi 1990), though limited data are available for the latter project at this time. What is known about that excavation is that enormous faunal deposits consisting primarily of large domesticated mammal remains, especially of beef, were found throughout City Hall Park. These deposits were attributed to the British occupation of the city during the Revolutionary War (Peter Glumac, personal communication 1999). In comparison, the earlier excavation around the *First Almshouse* yielded a very small faunal assemblage (Amorosi 1990).

The analysis of the 18th-century faunal deposits (1780-1790s) from the *First Almshouse* excavation revealed a predominance of shellfish consisting of hard shell clam, oyster, and small amounts of mussel. Fish was the most abundant class of vertebrates, followed by bird. Cod was the only identified fish species, while chicken was the only identified bird species. There was a limited range of domesticated species present that included cattle, caprines (sheep/goat), pig and chicken. The range of meat cuts represented for large domesticated mammal species was classified as low value cuts of the kind intended to "stretch the household budget" (Amorosi 1990:155). Although there is no actual description of meat cuts provided in the report, three graphs show high frequencies of beef and caprine hindquarters and lower frequencies of forequarters, as well as a consistent presence of cranial bone. There were no cattle ribs or vertebrae, though there was a low frequency for caprine. Pig was represented by a very high frequency of feet, equal frequencies of fore- and hindquarter cuts, and a low frequency of cranial bone. These food remains were considered to reflect the diet of the occupants of the almshouse.

Assuming that one or both deposits from the Tweed Courthouse project were generated by the occupants of the *Second Almshouse*, it is expected that the bone assemblage would yield a high frequency of fish and bird remains, that beef and sheep/goat would be more prevalent than pig, and that the range of meat cuts from large domesticated mammals would be predominantly composed of low value meat cuts. Due to the lack of information from the City Hall Park project, only general predictions can be made. It is known that the faunal deposits associated with the British occupation in the area yielded large bone concentrations with a high frequency of beef, which may serve as something of a clue.

The faunal material recovered from the Tweed Courthouse project may have been generated is either by the military or by the residents of the *Second Almshouse*. Historical records can serve to enlighten what is known about the dietary procurement strategies of both groups. It is documented that the British army was supplied with food including meat through government contracts (DeVoe 2002). Typically, the army was sent preserved meat that was

packed into barrels. For example, in 1779, Irish beef and 'fresh' London beef arrived in the city for the soldiers (DeVoe 2002:167). DeVoe also mentions cases where soldiers stole livestock from local farmers. It is difficult to imagine that the military did not take advantage of the market resources to provide themselves with fresh meat. Nonetheless, it appears that beef was the meat staple of the army. Therefore, a heavy concentration of beef bones may be an indication of a military presence. It is also documented that the occupants of the early almshouses were dependent on those in charge to provide for them and did not purchase their own food. In the late 18th century the city contracted for First Almshouse provisioning with butchers and other provisioners from the Fly Market (DeVoe 2002:155). The city also sent foods that were seized from vendors who violated market regulations to the First Almshouse (DeVoe 2002:120, 164). Based on this information, it is expected that there might be a variety of foods represented and that meat cuts would represent primarily low value cuts, such as those observed by Amorosi. It is also evident from historical accounts that the bone cannot be the result of on-site butchering, as in New York City it was against the law to slaughter livestock except in specially designated slaughterhouses. Slaughterhouses were public facilities until 1789 when private slaughterhouses came into fashion, though neutral parties inspected them (DeVoe 2002: 368). Consequently almost all of the bone associated with the almshouse would represent dietary refuse.

One final item worth mentioning is whether or not caprine food remains are those of sheep or goat. Thomas DeVoe was a butcher who published a seminal work in 1862 on the markets of New York City ranging from the Dutch period to the mid-19th century. Throughout this work, DeVoe lists food prices extracted from advertisements of the different periods for food items, such as grains, fruits, vegetables, fish, fowl and meat. The meats for which prices are always given include beef, veal, pork, lamb and mutton (DeVoe 2002: 142-145, 149-150, 155, 164). Goat is never mentioned. Therefore it seems apparent that butchered 'caprine' remains are those of sheep.

Methodology

Each bone specimen was identified by species when possible, and by class and size range category when not possible. The faunal remains catalog is included in Appendix 9. For the purposes of this report, large mammal is equivalent in size to cattle, while medium mammal is equivalent in size to pig and sheep. The faunal assemblage is summarized by feature, level, and by class, species, and size-range category, as presented in Tables 14 and 15 below. These tables present two counts, the Total Number of bone Fragments (TNF) and the Minimum Number of bone Units (MNU). In brief, the TNF count serves as a curational tool indicating the absolute number of bone fragments for a given row of data. The MNU count is an adjusted bone count based on the number of actual skeletal elements represented for a given species for a given row of data. Not all rows of data received an adjusted bone count (MNU) as its application was used only when one or more skeletal elements were identified. For example, a crushed sheep femur consisting of 12 bone fragments would be tallied as 12 TNF, and receive an adjusted count of 1 MNU. Most of the descriptions in the report were based on the MNU or adjusted bone count. However, the TNF count was used when discussing frequencies of bone modifications.

When possible, each bone specimen was further identified by skeletal element, portion, and age at death. All apparent bone modifications were recorded. The term "bone modification" means the physical alteration of the original appearance of a skeletal element either by human, animal or natural agents. Bone modifications at this site included butcher marks, gnaw marks, heat exposure and weathering. Identifications were made with the aid of a comparative skeletal type collection and the use of references including but not limited to: Brown and Gustafson (1979), Cannon (1987), Cornwall (1956), Daniels (1996), Gilbert (1973), Gilbert et al. (1996), Lyman (1977), Olsen (1964, 1968, 1979), Pipes (1995), and Schmid (1972).

Throughout the report, the terms "dietary refuse," "processing waste," and "trimming waste" are used each with a specified meaning. "Dietary refuse" is used to describe food refuse or table scraps: for example, the bones from a roast, a ham steak or chicken wings. "Processing waste" is used to describe the bone waste generated during the preparation of a meat dish: for example, skull bones left over from preparing headcheese or beef tongue. "Trimming waste" consists of bones that were attached to meat bearing parts that need to be removed prior to cooking but were not removed by the butcher: for example, it has been observed that the hind leg, or haunch, of a sheep was often brought into the kitchen with the foot attached. The foot was discarded or trimmed off prior to cooking. Figures 33-35 illustrate how cattle, pig, and sheep were typically butchered.

Data Description

Tables 14 and 15 summarize the faunal data by feature and level. In the analysis that follows, the faunal data from each feature and feature level are described. However, in the interpretation, the data from each feature are combined and treated as a single unit of consideration.

Feature 16

Feature 16, was a late 18th- to early 19th-century privy that contained a fair size faunal deposit consisting of 162 TNF adjusted to 96 MNU, which was distributed through four levels (Table 14). Levels 2 and 5 yielded very little bone, the densest concentrations being found in Levels 3 and 4. Level 2 contained 8 MNU, consisting primarily of weathered chicken bone. Chicken elements represented the back, upper and lower leg, and foot of a single individual. The two other elements were a pork loin chop and a beef stew cut from the chuck. The beef cut exhibited chop marks.

Table 14. Feature 16 Faunal Summary by Level and Class/Species/Size-range Category.

Class/Species/Size Range Category	Level 2		Level 3		Level 4		Level 5		Total		Relative % of MNU
	TNE	MNU	TNE	MNU	TNE	MNU	TNE	MNU	TNE	MNU	
Mammal											
Brown Rat	-	-	6	5	2	2	-	-	8	8	8.25%
Cattle	1	1	17	6	3	2	-	-	21	9	10%
Pig	1	1	15	5	-	-	-	-	16	6	6%
Sheep	-	-	-	-	9	7	-	-	9	7	7.25%
Medium Mammal	-	-	14	5	6	2	-	-	18	7	7.25%
Large Mammal	-	-	4	-	6	2	-	-	10	2	2%
Unidentified Rodent	-	-	-	-	2	2	-	-	2	2	2%
<i>Subtotal:</i>	<i>2</i>	<i>2</i>	<i>56</i>	<i>22</i>	<i>26</i>	<i>17</i>	<i>-</i>	<i>-</i>	<i>84</i>	<i>41</i>	<i>42.75%</i>
Bird											
Chicken	6	6	1	1	9	2	-	-	16	9	10%
Duck	-	-	-	-	6	4	1	1	7	5	5%
Goose	-	-	-	-	3	3	-	-	3	3	3%
Passenger Pigeon	-	-	-	-	2	2	-	-	2	2	2%
Turkey	-	-	6	3	-	-	-	-	6	3	3%
Unidentified Bird	-	-	1	1	3	-	-	-	4	1	1%
<i>Subtotal:</i>	<i>6</i>	<i>6</i>	<i>8</i>	<i>5</i>	<i>23</i>	<i>11</i>	<i>1</i>	<i>1</i>	<i>38</i>	<i>23</i>	<i>24%</i>
Fish											
Mackerel	-	-	-	-	2	2	-	-	2	2	2%
Sheepshead	-	-	5	5	1	1	-	-	6	6	6%
Unidentified Fish	-	-	6	2	9	8	-	-	21	16	17%
<i>Subtotal:</i>	<i>-</i>	<i>-</i>	<i>11</i>	<i>7</i>	<i>12</i>	<i>11</i>	<i>-</i>	<i>-</i>	<i>29</i>	<i>24</i>	<i>25%</i>
Unidentified											
Unidentified Bone	-	-	1	-	2	-	-	-	3	-	-
<i>Subtotal:</i>	<i>-</i>	<i>-</i>	<i>1</i>	<i>-</i>	<i>2</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>3</i>	<i>-</i>	<i>-</i>
Mollusk*											
Hard-shell Clam	-	-	P	P	-	-	-	-	-	-	-
Oyster	-	-	7	7	1	1	-	-	8	8	8.25%
<i>Subtotal:</i>	<i>-</i>	<i>-</i>	<i>7</i>	<i>7</i>	<i>1</i>	<i>1</i>	<i>-</i>	<i>-</i>	<i>8</i>	<i>8</i>	<i>8.25%</i>
Total TNE/MNU	8	8	83	41	64	40	1	1	162	96	100%

* Does not reflect cases where valves were not present. In those cases only weights were recorded.

P - Present

Table 15. Feature 18 Faunal Summary by Level and Class/Species/Size-range Category.

Class/Species/Size Range Category	Level 1		Level 2		Level 3		Level 5		Level 6		Total		Relative % of MNU
	TNF	MNU	TNF	MNU	TNF	MNU	TNF	MNU	TNF	MNU	TNF	MNU	
Mammal													
Cat	-	-	1	1	-	-	-	-	-	-	1	1	.014%
Cattle	33	14	141	75	21	16	3	3	-	-	198	108	.54%
Pig	1	1	13	11	1	1	-	-	-	-	15	13	.06%
Sheep	3	1	11	11	8	6	2	2	-	-	24	20	.10%
Medium Mammal	3	3	32	17	14	7	4	2	-	-	53	29	.14%
Large Mammal	11	2	114	2	25	1	5	1	-	-	155	6	.03%
<i>Subtotal:</i>	<i>51</i>	<i>21</i>	<i>312</i>	<i>117</i>	<i>69</i>	<i>31</i>	<i>14</i>	<i>8</i>	<i>-</i>	<i>-</i>	<i>446</i>	<i>177</i>	<i>.87%</i>
Bird													
Chicken	-	-	4	4	-	-	-	-	-	-	4	4	.02%
Goose	-	-	2	2	1	1	-	-	-	-	3	3	.01%
Unidentified Bird	-	-	9	1	1	-	-	-	-	-	10	1	.014%
<i>Subtotal:</i>	<i>-</i>	<i>-</i>	<i>15</i>	<i>7</i>	<i>2</i>	<i>1</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>17</i>	<i>8</i>	<i>.04%</i>
Fish													
Sheepshead	-	-	6	6	-	-	-	-	-	-	6	6	.03%
Unidentified Fish	-	-	8	5	-	-	-	-	-	-	8	5	.03%
<i>Subtotal:</i>	<i>-</i>	<i>-</i>	<i>14</i>	<i>11</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>14</i>	<i>11</i>	<i>.06%</i>
Mollusk *													
Hard-shell Clam	P	P	P	P	1	1	P	P	P	P	1	1	.014%
Mussel	P	P	1	1	-	-	-	-	-	-	1	1	.014%
Oyster	-	-	P	P	1	1	-	-	P	P	1	1	.014%
Unidentified Clam	-	-	2	2	-	-	-	-	-	-	2	2	.01%
<i>Subtotal:</i>	<i>-</i>	<i>-</i>	<i>3</i>	<i>3</i>	<i>2</i>	<i>2</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>5</i>	<i>5</i>	<i>3%</i>
Total TNF/MNU	51	21	346	140	73	34	14	8	1	1	483	201	100%

* Does not reflect cases where valves were not present. In those cases only weights were recorded.

P - Present

Feature 18

Feature 18 yielded a much larger faunal deposit than Feature 16, 483 TNF adjusted to 202 MNU recovered from five levels (Table 15). Levels 1, 5, and 6 contained very little bone. The largest concentration was found in Level 2 followed by a smaller concentration in Level 3. Level 1 was composed almost entirely of mammal remains with the exception of hard-shell clam and mussel. Identified species included cattle, pig, and sheep. Cattle was the most abundant species. It consisted of veal and beef remains. Veal included a partial maxilla and two toe elements. Beef included stew cuts from the neck, arm, and hind shank, steaks from the prime rib and loin, and roasts from the sirloin. Pig and sheep were represented by a Boston butt ham and a lamb's head respectively. Medium and large mammal remains were also present. These included a small number of vertebrae, toe, and long bone fragments. Meat cuts were cleaved. One bone fragment exhibited canine gnaw marks. This level is composed of dietary refuse and processing waste in the form of cranial and foot bones, and mollusk shell.

Level 2 yielded the largest concentration of bone in the feature, 346 TNF adjusted to 140 MNU (Table 15). It was also characterized by a greater diversity of classes and species than the other levels. It included mammal, bird, fish, and mollusk. Identified mammal species included cat, cattle, pig, and sheep. Cat consisted of a single element, a maxillary fragment. Cattle was the most abundant species in this level represented by veal and beef. Veal included cranial bone, a stew cut from the chuck, and foot elements. Beef cuts included stew meats from the neck, short rib, fore and hind shank, and brisket; steaks from the loin, prime rib, chuck and sirloin; and roasts from the sirloin, round and rump. Pig was composed of cranial bone, a loin-end rib chop, a Boston butt ham, at least one trotter, two shank hams and a ham hock. Sheep included stew meats from the neck and chuck, chops from the rack and loin, roasts from the butt-end leg and shank-end leg. Medium and large mammal remains consisted of a small number of skull, vertebrae and long bone fragments, and a large number of rib fragments. Meat cuts were cleaved, chopped and sawed. Identified bird species included chicken and goose. Chicken was represented by two wings from a minimum of one individual, and goose by an upper forearm and breast from a single individual. There were also a small number of unidentified bird long bone fragments. Sheepshead was the only identified fish species. It was represented by fish scales.

Unidentified fish included a small number of skull fragments and one scale. It should be noted that this was the only level in the feature from which fish was recovered. Mollusks included hard-shell clam, mussel, and oyster. In addition to butcher marks, a small number of bones were burned and gnawed. This deposit was composed primarily of dietary refuse. Small amounts of processing waste were also present in the form of cranial bone, fish scales, and mollusk shell.

Level 3 contained the second largest concentration of bone in the feature, 73 TNF adjusted to 34 MNU. Mammal, bird, and mollusk were represented. Identified mammal species included cattle, pig, and sheep. Cattle was the most abundant species in the deposit. Veal was not present in this level. Processing waste was indicated by two molars from an adult individual. Beef cuts consisted of stew meats from the neck, fore and hind shanks and short rib, steaks from

the loin and prime rib, a rump roast. Pig consisted of a picnic ham. Sheep was more frequent than pig. It was represented by processing waste and dietary refuse. Processing waste included a mandible and skull from a mature individual. Mutton cuts included stew meat from the chuck and a shank-end leg roast. Medium and large mammal remains were also present. They consisted of skull, vertebra, rib, and long bone fragments. Bird was present in low frequency. Goose was the only identified bird species consisting of a leg bone. Identified mollusk species included oyster and hard-shell clam. This deposit was composed mainly of dietary refuse and a small amount of processing waste. In addition to butcher marks, a small number of specimens were canine gnawed and burned.

Level 5 yielded a small deposit composed of mammal and mollusk. Identified mammal species included cattle and sheep. Cattle was represented by a prime rib steak and stew meat from the hind shank. Sheep consisted of a mandible fragment. Medium and large mammal included skull, vertebra, and rib fragments. Hard-shell clam was the only mollusk species present. The deposit is a mix of dietary refuse and processing waste. Aside from chop marks no other bone modifications were present.

Level 6 contained hard-shell clam and oyster fragments.

Feature 18 contained a very large amount of dietary refuse composed of mammal, bird, fish, and mollusk remains. Beef, veal, pork, and mutton were represented by a wide range of meat cuts and in some cases by processing waste from the skull or foot. Tables 16-18 summarize the various meat cuts for these three species. As with Feature 16, all of the foods represented in this feature were available from the local markets. Though pig and sheep were present throughout most of the levels, they appear in low frequencies in comparison to cattle. The same is true of all the other species present. In addition to extensive butcher marks, bone modifications included a small number of specimens exhibiting gnaw marks and heat exposure. There were eight fragments that were either rodent- or canine-gnawed and 18 fragments that were burned. In addition, there were 10 fragments that were stained.

Table 16. Beef Meat Cuts by Feature and Secondary Butcher Cut (SBC), Primary Meat Cut (PMC), Assigned Rank (AR), and Minimum Number of bone Units (MNU).

S.B.C.*	P.M.C.**	A.R.	Feature 16 MNU	Feature 18 MNU
Chuck	Neck: stew/grinding meat (91)	8	-	18
	Chuck/Blade: stew (110)	5	1	-
	steak	5	-	1
	Arm: stew	6	-	1
	Fore shank: stew (126, 180)	9	1	8
Prime Rib	Rib: steak (277, 283, 285, 294)	2	-	10
	Short Rib: stew	6	1	11
Brisket	Brisket: stew	7	-	1
Loin	Loin: steaks (235)	1	-	9
Round	Sirloin: roasts (248, 253)	2	3	5
	steak (325, 245, 311, 350)	2	1	4
	Rump: roast	4	-	2
	Round: roast	3	-	2
	Hind shank: stew (388)	9	-	5
Other Body Parts	Head: processing cut	9	-	2
Total MNU			7	79

*See Fig. 33 illustrating how cattle are butchered.

**Illustrated Meat Cuts where available appear in parentheses and correspond to Fig. 34.

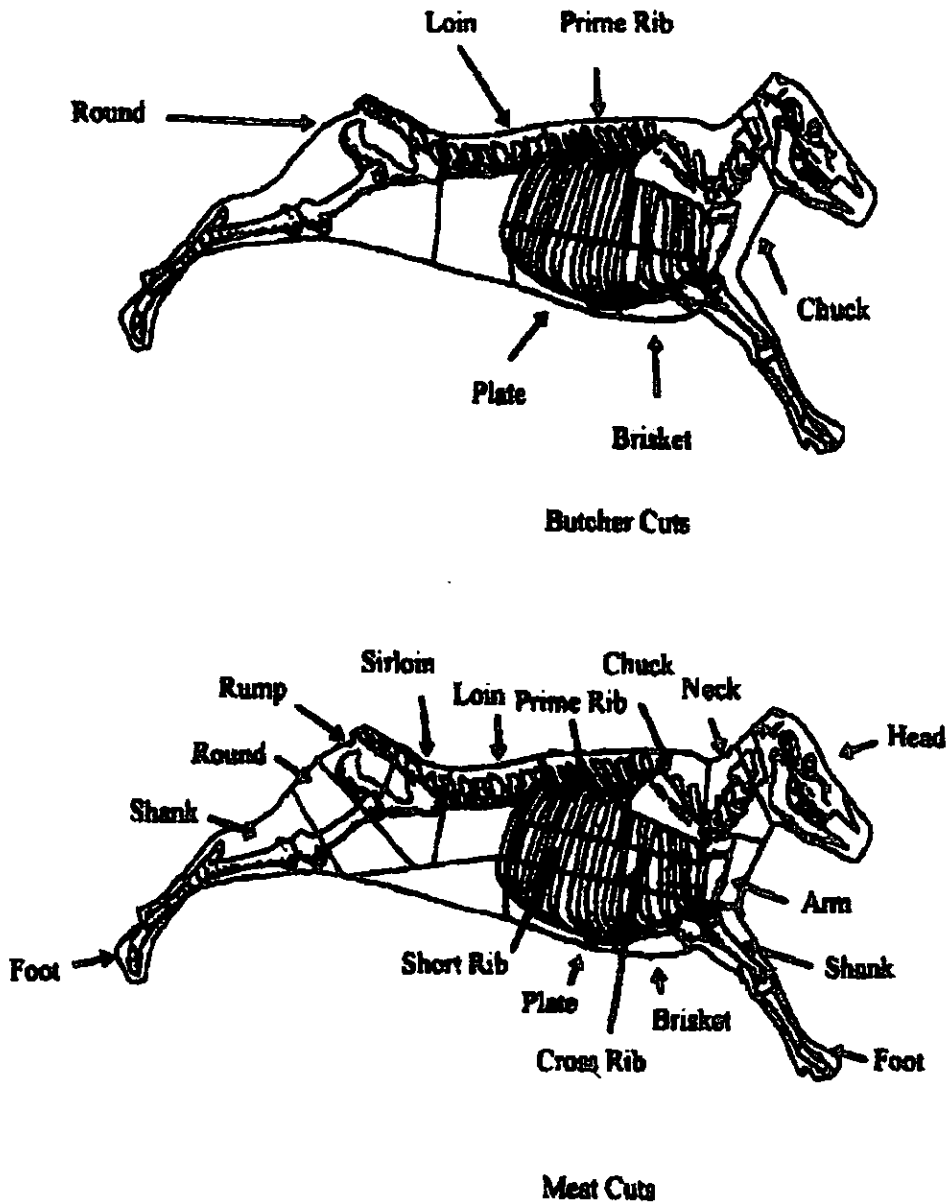


Figure 33. Cattle/Beef Secondary Butcher Units and Primary Meat Cuts.

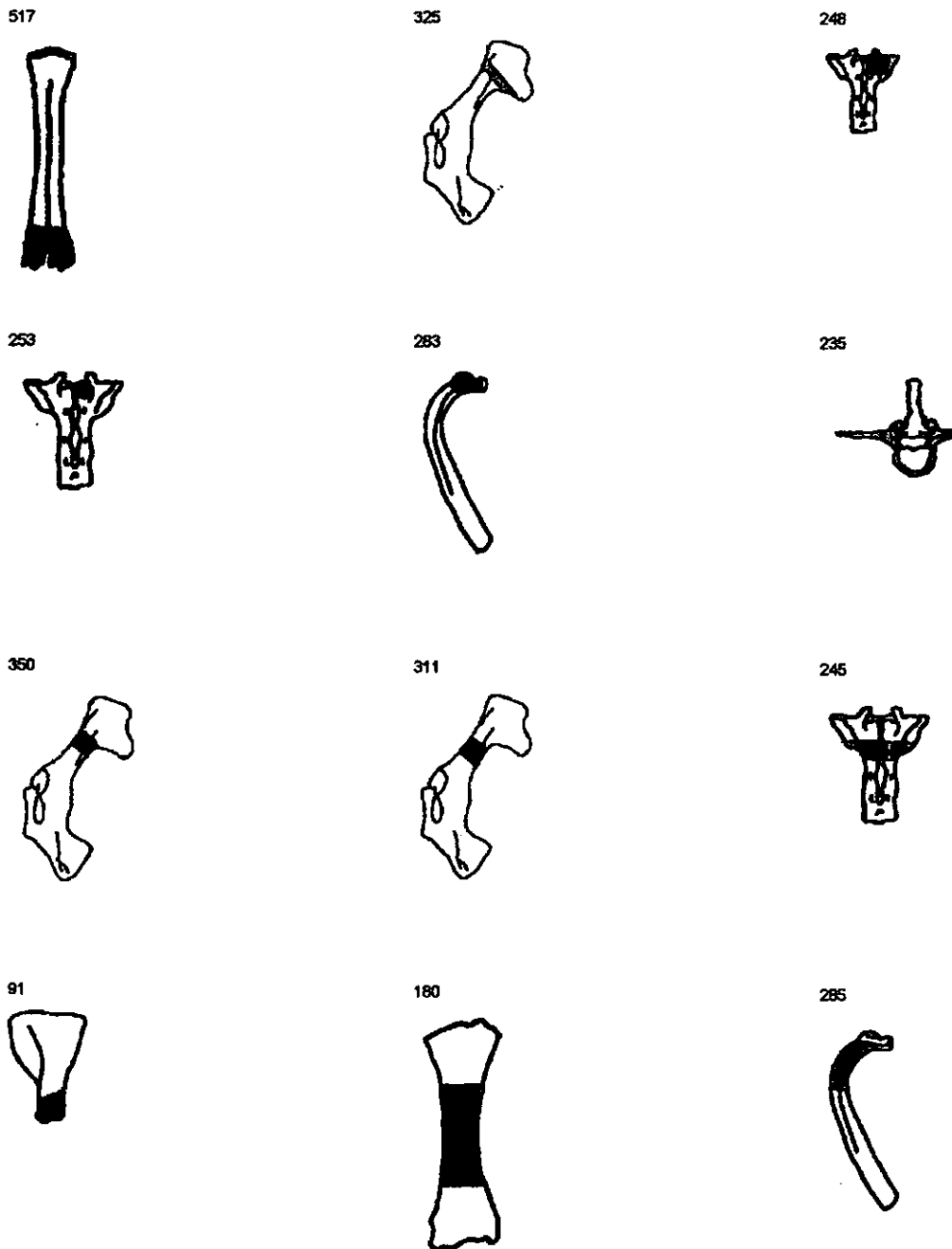


Figure 34. Beef Illustrated Meat Cuts.

Table 17. Pork Meat Cuts by Feature, Secondary Butcher Cut (SBC), Primary Meat Cut (PMC), Assigned Rank (AR), and Minimum Number of bone Units (MNU).

S.B.C.*	P.M.C.**	A.R.	Feature 16 MNU	Feature 18 MNU
Loin	Loin End Loin: chop	2	1	1
Shoulder	Boston butt: ham/stew/grinding meat	3	-	2
	Picnic Ham: ham	4	-	1
Ham	Butt ham: ham	1	-	-
	Shank ham: ham	4	-	2
Other Body Parts	Head: processing cut	6	-	1
	Hock: stew	6	-	1
	Trotter: stew	6	1	1
Total MNU			2	9

*See Fig. 35 that illustrates how pig is butchered.

**Illustrated Meat Cuts where available appear in parentheses and correspond to Fig. 36.

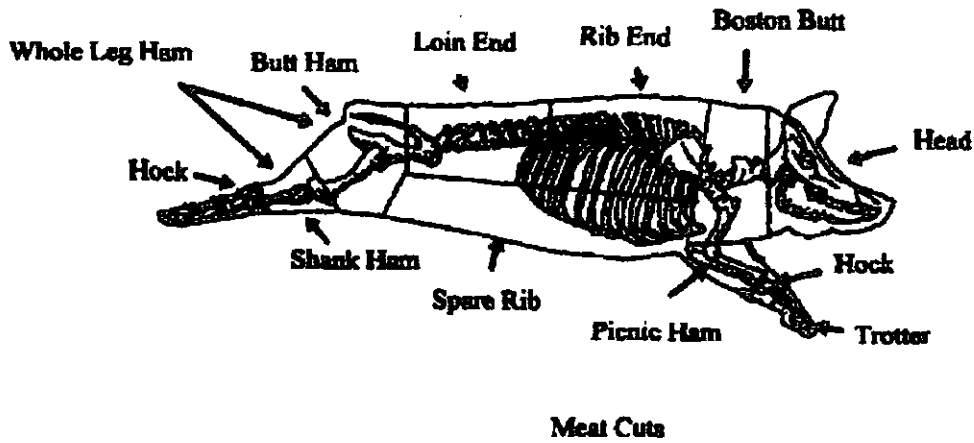
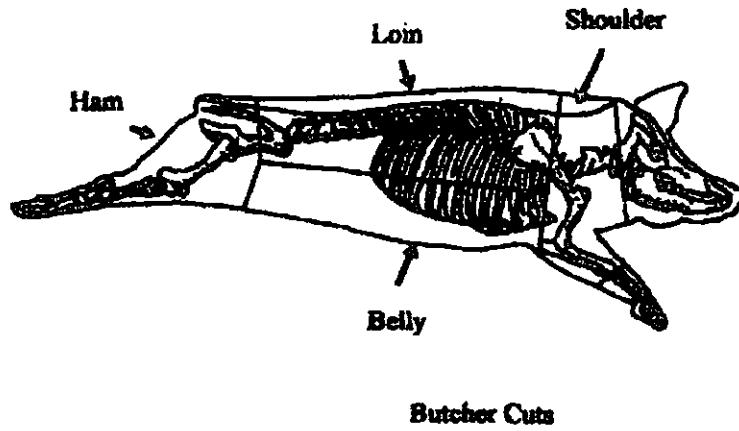


Figure 35. Pig/Pork Secondary Butcher Cuts and Primary Meat Cuts.

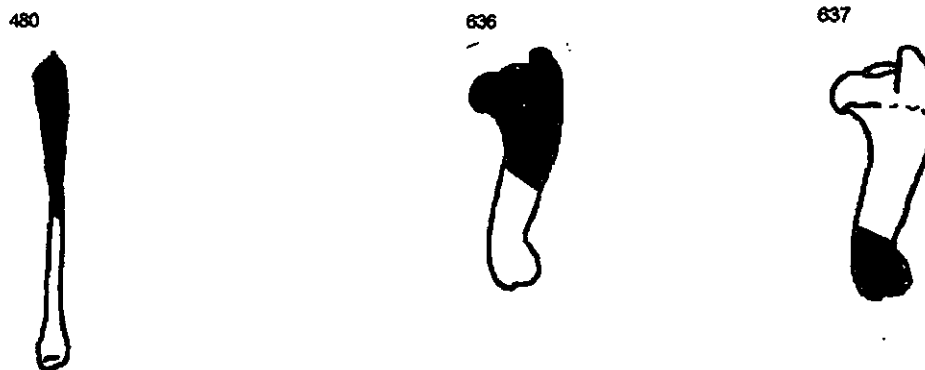


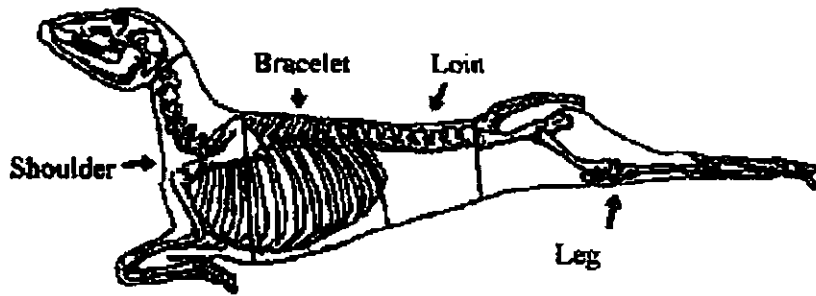
Figure 36. Pork Illustrated Meat Cuts.

Table 18. Mutton Meat Cuts by Feature, Secondary Butcher Cut (SBC), Primary Meat Cut (PMC), Assigned Rank (AR), and Minimum Number of bone Units (MNU).

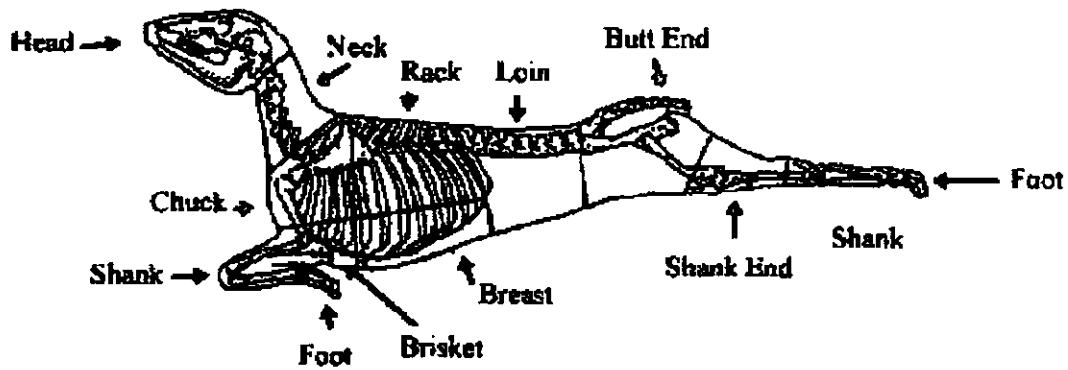
S.B.C.*	P.M.C.**	A.R.	Feature 16 MNU	Feature 18 MNU
Loin	Loin: chop	1	1	2
Shoulder	Neck: stew/grinding meat	6	-	1
	Chuck: stew (107)	4	-	2
Bracelet	Rack	2	-	2
Leg	Butt end leg: roast	1	3	1
	Shank end leg: roast (404)	4	-	5
	Shank: stew	7	1	-
Other Body Parts	Head: processing cut	6	-	2
Total MNU			5	15

*See Fig. 37 that illustrates how sheep is butchered.

**Illustrated Meat Cuts where available appear in parentheses and correspond to Fig. 38.



Butcher Cuts



Meat Cuts

Figure 37. Sheep/Mutton Secondary Butcher Cuts and Primary Meat Cuts.

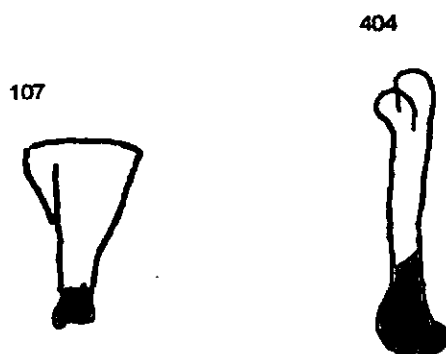


Figure 38. Mutton Illustrated Meat Cuts.

Summary and Interpretation

The range of species recovered from the deposits are consistent with those identified at other sites in New York City that yielded deposits dating from the mid-18th to early 19th century, including the Stadt Huys Site, 7 Hanover Square Site, 175 Water Street, and excavations at the First Almshouse site (Baugher, et al. 1990, Giesmar 1983, Rothschild and Pickman 1990, Rothschild et al 1987). All of the dietary-related species identified during the course of this project, including cattle, pig, sheep, chicken, duck, goose, passenger pigeon, mackerel, sheepshead, hard-shell clam, oyster and mussel, were available in the local markets. The small number of rat elements, coupled with the low frequency of rodent gnaw marks, indicate that vermin were not a major problem in the area. No dog elements were found in either feature. However, their presence is suggested by a number of bone fragments that exhibited canine gnaw marks. One cat element was recovered in Feature 18. As with dog, their presence is indicated by a number of bird elements that exhibited gnaw marks typical of cats.

The two features were similar in having many of the same species represented. However, they differed in a number of ways. Feature 16 had a greater range of bird and fish species than Feature 18 even though it yielded a smaller assemblage. Also in Feature 16, the differences in the relative abundance of large domesticated species was less pronounced between cattle, sheep and pig than in Feature 18 where cattle was extremely abundant compared to all other species. Looking at Tables 16-18 it is also evident that there was a difference in the range and quality meat cuts for beef, pork and mutton. In Feature 16 most of the beef cuts were large pieces, with only one steak being present. In Feature 18, there was a great range in meat cuts both in terms of the quality and type of cuts. Both large cuts of meat and steaks were represented. In Feature 16 pork was barely represented. It consisted of a trotter and a pork chop. In Feature 18 pork cuts

were more varied and consisted of a mix of large cuts of meat, processing cuts and stew meats. In Feature 16 mutton cuts consisted primarily of large cuts of meat. In Feature 18 there was a mix of large cuts of meat, processing cuts and chops.

The faunal data from the two features suggest different origins. The contents of Feature 18 suggest they may come from the Upper Barracks where there was a need to feed a large number of men. The predominance of beef, the presence of large cuts of meat, as well as single servings in the form of steaks, suggest that the contents may represent the meals of enlisted men and officers. The contents of Feature 16 are more problematical due to the small size of the sample. However, the greater diversity of species and the predominance of large cuts of meat are more in keeping with the data from the First Almshouse excavation.

Archeoparasitology of the features

An archeoparasitological analysis of soils from Features 16 and 18 was conducted to assist in determining the functions of the two features. Appendix 12 includes the full report prepared by Karl J. Reinhart, Ph.D. The following summarizes the main findings of the report. There were two main goals of the study: to document the presence of parasite eggs in Feature 16, the privy, and to determine the ultimate use of Feature 18, originally thought by HAA, Inc. staff to be a cold storage house reused as a privy.

The study identified that Feature 16 was positive for the presence of parasite eggs, which were most prevalent in Level 5 and least prevalent in Level 6 (the bottom of the feature). In general, however, parasite levels were low in this feature relative to other urban sites (Reinhard 1990). According to the report, this may be due to several factors: those utilizing the privy suffered less parasitic disease than other sites; the privy may have been cleaned; the postdepositional conditions of the soils were not conducive to parasite egg preservation; and/or the sediments were mixed with other materials, such as trash. Reinhart suggests that the privy was probably not cleaned and the sediments were probably not mixed with other nonfecal material (Appendix 12, p. 4). The low sample most likely relates to poor organic microfossil preservation in the feature.

Identified parasite (worm) species within the feature included *Ascaris lumbricoides* and *Trichuris trichiura*. The former is the most common intestinal parasite and causes anorexia and malabsorption. The latter is also very common causing diarrhea and inducing iron deficiency anemia in children with heavy infections. Given the poor preservation of the materials, the concentrations noted in the report are only a minimum estimate of infection. At the least, however, this analysis confirms that the residents of the almshouse did suffer from common parasitic infections, as discussed above.

No parasite eggs were identified in Feature 18, indicating that the feature was not used as a privy. The lack of parasite eggs and lime deposits within the soils are inconsistent with use as a historic privy.

Conclusions regarding the intact features

Based on the data presented above, it can be argued that the two intact features identified at the Tweed Courthouse site derive from separate uses of the site. The privy (Feature 16) appears to relate to the Second Almshouse (1797-1857), while the cold storage house (Feature 18) appears to be associated with the Upper Barracks (1757-1790). This interpretation is based both on the material culture, food remains, and parasite samples collected from the two features. The privy and the cold storage house consist of sealed deposits that captured the material culture of those occupying this property from the second half of the 18th century into the second decade of the 19th century.

The interpretation of Feature 16 as a privy was based on several features including its size, depth, and shape, and the presence of privy-like soils, later confirmed to contain parasite eggs with a fecal origin. The date of the feature and its association with the Second Almshouse was based on the composition of the material culture collection which firmly places the structure between 1781 (based on the coin found in the lowest level of the feature) and the second quarter of the 19th century. The almshouse itself was built in 1797 and used through 1816, and this feature was located within the bounds of the almshouse front yard. Finally, the diversity of faunal species and the predominance of large cuts of meat found in the feature are consistent with data from excavations conducted at the First Almshouse site.

The interpretation of Feature 18 as a cold storage shed was based on its structural attributes, including its thick walls composed of cut stone and brick, and the presence of drains within the feature. The structure would have been used to keep food cold and dry. The hypothesis that the feature was reused as a privy was invalidated based on the lack of parasite eggs and lime within the feature's sediments. Reinterpretation of the feature's use as a midden or trash pit following its use as a cold storage house is based on the material cultural composition of the fill excavated from within the feature. The date of the feature was based on the material culture assemblage, specifically the ceramics present in the feature, as well as the bricks used to construct the feature. Early ceramics contained within this deposit include slipware (1670-1795) and delftware (1640-1800).

The feature's association with the military barracks (Upper Barracks, 1757-1790) is based on its earlier date which would have placed it on the property before the almshouse, and on the faunal composition of the fill deposit. Based on the size of the bricks used to construct the cold storage house, the date of the feature is probably late 18th century although some of its contents are derived from the turn of the century after the feature's useful life was over. The faunal remains sample differed from that present within the privy: the predominance of beef, the presence of large cuts of meat, as well as single servings in the form of steaks, suggests that the contents may represent the meals of enlisted men and officers.

Construction of Feature 18 also caused the disturbance of burials in this area. As the unit containing this feature was excavated, fragmentary human remains were identified within the

overlying fill and the heavily disturbed Burial 25 was identified within disturbed remnants of the feature in Level 2. Several fragments of human remains were also identified beneath the brick floor of the feature. These data confirm that the feature postdated the burials in this area of the property. Based on historic documentation, the First Almshouse burial ground was located in this vicinity beginning in 1785, which makes it curious that the feature would have been constructed during use of the military barracks prior to its closure in 1790. However, there are two other explanations: either the feature was not associated with the barracks or construction of the feature disturbed older burials located in this area.

If the feature was not associated with the barracks, it may have been part of the almshouse property. Several outbuildings are known to have been scattered across the almshouse property, although a cold storage house was not one of those mentioned. It seems unlikely that the structure would have been built during early use of the almshouse, since its construction would have disturbed very recent interments. Even if the structure was built prior to closing of the almshouse in 1816, the burials still would have been only 30 years or less in age. While it could be argued that the feature was associated with later uses of the almshouse building, the dates and composition of the artifact sample suggest an earlier date. Based on the data and function of the feature as a cold storage house, it also seems more logical that it would have been associated with one of the earlier uses of the property. Based on this hypothesis, it is possible that the burials in this section may have been associated with burial grounds to the north or another cemetery plot that was never recorded or at the least has not been identified in the record books.

CONCLUSIONS

Despite the constraints placed on the archeological investigations conducting during the Tweed Courthouse restoration project, the project was successful in collecting and compiling a new set of data regarding the historic commons area of downtown Manhattan. The fieldwork confirmed the presence of significant cultural resources on the Tweed Courthouse grounds and Chambers Street, including intact historic burials, fragmentary human remains, and several structural features associated with historic buildings on this site.

Several constraints limited the types of data that could be collected during this project. These constraints include the LPC policy stipulating that intact burials be left in situ; the fragmentary nature of the burials; the lack of artifacts included within the burials; and the lack of historic documentation clearly outlining burial grounds. However, the project did identify that, despite the amount of disturbance to the area, numerous burials still remain intact. The locations of 28 partially or completely intact burials were identified and mapped throughout the course of the project. Conclusions regarding the origin of the burials remain speculative, although based on the archaeological data available and historic records they most likely derive from the burial ground designated by the Common Council in 1785 for use by the First Almshouse and Bridewell.

The fieldwork also documented several structural features associated with former uses of the property, including remnants of a stone foundation wall from an unknown structure; a

potential stone foundation wall of the Second Almshouse (1797-1857); a privy associated with the Second Almshouse; a brick wall of unknown function; and a cold storage shed potentially associated with the Upper Barracks (1757-1790). The data collected from these features have added previously unknown information to the study of the historic commons area.

RECOMMENDATIONS

While the Tweed Courthouse renovation project has been completed, there remains a high potential for uncovering additional intact cultural resources in this area. This project has confirmed that, despite the amount of ground disturbance in the area, isolated pockets of intact cultural and human remains still exist. There is a particularly high potential for the presence of fragmentary human remains and intact burials including those already identified and protected during this project and others that may lie just outside the various boundaries of impact for the project. Several potentially intact burials were already observed in the walls of several construction trenches and test units excavated during this fieldwork. This investigation has confirmed that the potential for discovering other intact cultural features remains high as well. Based on these factors, it is recommended that if any further ground disturbance is proposed for the courthouse grounds, Chambers Street, or associated sidewalks, further archeological monitoring and testing should be required.

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Pearlware teabowl from Feature 18, Tweed Courthouse.