TRACKER
Archaeology Services

REPORTS OF INVESTIGATIONS

Phase IB Archaeological Monitoring Investigation
Streetscapes Improvement Project
Stone Street Historic District
Borough of Manhattan, New York City, New York

2000

Prepared for:

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ABSTRACT

Between November 16, 1999, and March 7, 2000, TRACKER-Archaeology Services conducted a Phase IB monitoring investigation for the Stone Street Historic District streetscape improvements project.

During the course of the investigation, construction excavations for a water main trench and five catch basins were archaeologically monitored. Depths of the trenches averaged 5.5 feet below grade. Depth of the catch basins ranged from 7 to 10.5 feet below grade.

Evidence has been recorded which shows heavy and adverse impacts to virtually the entire project area from downtown development over the last century. The only potentially intact historical deposit was a stone wall located in catch basin 2. An excavation unit was conducted adjacent to this wall. However, no intact artifact deposits were encountered in association with this wall. No intact historic artifact deposits, historic surfaces, or other features, other than those related to utilities were encountered on this project.

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Plate 20 Looking east down Stone Street towards William Street at trench.

INTRODUCTION

In 1996, the New York State Department of Transportation Intermodal Surface Transportation Efficiency Act (NYSDOT ISTEA), Transportation Enhancement Program awarded the New York City Landmarks Preservation Commission (NYC LPC) an $800,000.00 grant to fund street scape improvements for the Stone Street Historic District (LP-1938) in Lower Manhattan, New York (Figures 1 & 2). The planned street scape improvements included replacement of the existing asphalt roadway with granite blocks and the existing concrete sidewalks with blue stone flags, with granite curbs and granite crosswalks. The projected depth of disturbance was to be no more than 22 inches below present grade (LPC 1998: 1).

In accordance with the fact that the project grant was awarded by ISTEA to fund work to be done within a New York City designated historic district, the results of this work must be prepared in compliance with Section 106 requirements, and reviewed by the New York State Office of Parks, Recreation and Historic Preservation (NYSHPO), the Advisory Council, and the Landmarks Preservation Commission (LPC 1997: 2). In 1997, to comply with federal, state and city rules and regulations, the Landmarks Preservation Commission as lead agency conducted a two-stage assessment study for potential archaeological resources which might be adversely affected and/or impacted by such streetscape activities.

The first part of the assessment consisted of a Phase IA documentary study to identify and evaluate any potential archaeological resources in the Stone Street Historic District that might be impacted by the proposed work. The study also aimed at the identification of any prior disturbances to the streets and sidewalks within the district which might have previously impacted any archaeological resources. This Phase IA study was completed in September 1997 by Amanda Sutphin of the LPC. The study concluded that "...there is archaeological potential for the recovery of 17th Century-19th Century archaeological remains." (LPC 1997: 1). The study also states that "Further research consisting of archaeological testing and monitoring is recommended in areas where disturbance could not be documented below depths of two feet" (LPC 1997: 1).

The second part of the assessment study was the Phase IB monitoring of pre-excavation test trenches which were dug by Empire City Subways (ECS) and Con Edison. The monitoring was supervised by archaeologists from the Landmarks Preservation Commission. A total of 41 test trenches were dug to depths of approximately 5 feet below grade in Stone Street, Coenties Alley, Pearl Street, South William Street, William Street and Hanover Square. This Phase IB study, completed in February 1998, concluded that the project area was heavily disturbed throughout, both in the streets and under the sidewalks. Only one small area (30"x30") under the sidewalk in

front of 78 Pearl Street yielded an intact historic deposit. No architectural remains such as 17th Century - 19th Century foundation walls or features were encountered during the IB trenching. The conclusion reached by the Phase IB study was, therefore, that the activities involved in the Stone Street repaving project "...would have no effect of significance" (LPC 1998: 12). The NYSHPO concurred with this conclusion in a letter dated May 12, 1998.

Since the completion of the Phase IA and IB studies, additional work was proposed by other New York City agencies to be performed within the Stone Street Historic District. This additional work included the replacement-in-kind of the live 12 inch water main within Coenties Alley from Pearl Street to Stone Street and the section of main within Stone Street from Coenties Alley to William Street at Hanover Square, the cutting and removal of a non-active 12 inch main running adjacent to the main to be replaced, the installation of four new catch basins, and the modification of seven extant catch basins (See Figure 3). The New York City Department of Environmental Protection (DEP) and the New York City Department of Design and Construction (DDC) were the NYC agencies involved.

Since the LPC had met Section 106 compliance for the streetscape improvements by conducting a Phase IA Documentary study and a Phase IB Monitoring study during 1997, the responsibility for Section 106 compliance for this additional subsurface work was to be borne by the DEP (LPC Protocol 1998). The scope of work protocol and description of required archaeological work was drawn up by the LPC in November 1998 to insure that Section 106 compliance would be met for the water main and catch basin work in the Stone Street Historic District.

The LPC Phase IB monitoring study was limited to a depth of approximately 5 feet below grade in 40 of the 41 trenches monitored. One deeper trench (T105) was excavated but did not recover any significant archaeological deposits or architectural features (LPC 1998: 2). The soil boring data, however, suggested that intact historic strata may well be present at depths up to 11 feet below grade (LPC 1997: 11-12), or up to 6 feet below the maximum depth of monitored trenches during the 1997 IB study. According to the projected scope of work, the top of the 12 inch water mains to be replaced and/or removed lie at approximately 56 inches below street grade. The catch basin installations would require excavation between 10 feet and 10 feet 8 inches below street grade, measuring between 5 feet 4 inches and 5 fee 8 inches on a side. The extant catch basin modifications would require a disturbance area of approximately 6 feet by 6 feet by 3 feet below grade (LPC Protocol 1998). According to the LPC description of required archaeological work in the Scope of Work Protocol, the potential for survival of archaeological resources varies within the project area. The proposed two new catch basin locations at the

intersection of Stone Street and Coenties Alley, as well as the new catch basin location in Coenties Alley near the intersection with Pearl Street have a higher potential for the presence of significant archaeological resources than that of the new catch basin location at the corner of William and Stone Streets. The latter location lies adjacent to the IRT subway line, which employed a cut-and-cover construction technique at the beginning of the 20th Century, which created a massive amount of disturbance in the William Street area (LPC 1998: 6).

The LPC therefore recommended archaeological testing for the catch basins located at the junction of Stone Street and Coenties Alley and the location at Coenties Alley and Pearl Street. This testing was to be employed at the discretion of the supervising archaeologist, if after the pavement and underbedding were removed by the construction machinery and crew, it appeared that significant archaeological deposits, intact historic surfaces or historic architectural features were being uncover. In addition, at any point during the excavation, if such resources were encountered, the archaeologists at their discretion, were authorized to stop excavation by heavy machinery and continue the excavation by hand employing standard archaeological testing procedures and techniques, as per professional standards.

The LPC further recommended that the remainder of the proposed subsurface excavation be archaeologically monitored. This included the excavation for the new catch basin at the corner of William and Stone Streets, the replacement-in-kind of the water main within Coenties Alley and Stone Street, and the seven catch basins to be modified. The supervising archaeologist was to have the authority to halt construction work if significant archaeological resources were encountered, with relocation of the construction work or archaeological excavation as per professional standards as mitigation options.

The archaeological monitoring for the watermain and catch basin work in the Stone Street Historic District was performed by TRACKER-Archaeology Services. The Project Manager was Alfred G. Cammisa, RPA. The primary Principal Investigator was Nancy A. Stehling, RPA. The backup/weekend schedule Principal Investigator was either Alfred G. Cammisa or Thomas Amorosi, RPA. The Principal Investigator was assisted by one archaeological field technician on all days, either Crista Mannino, B.A., Michelle Cotty, B.A., or Leslie Arce, B.A. Felicia Cammisa, B.A. assisted with laboratory processing, word processing, and editing. Nancy Stehling conducted the laboratory analyses and report preparation. Alfred Cammisa assisted with report preparation. Text on Word Perfect 5.1. Inventory on Visual dBase 5.5.

Also present daily during monitoring was an archaeologist employed by URS Greiner Woodward Clyde, the supervising engineers, either

Edward M. Morin, RPA, Richard M. Afflect, RPA, Meta F. Janowitz, RPA, or Christopher Ricciardi, RPA.

The work was performed for Rosewood Contracting Corp./A.F.C. Enterprises, Inc. of Glendale, New York.

WORK SCHEDULE AND MONITORING TIME FRAME

The archaeological monitoring for the water main replacement and catch basin installations began on November 16, 1999, and was completed on March 7, 2000. The initial time frame for this work was projected at 3-4 weeks. However, due to unpredictable and/or unforeseen subsurface conditions encountered such as undocumented public services and utility line, misrepresented locations on 20th Century maps of utility lines, non-compliant with current code placement locations of public services, etcetera, the projected time frame estimate was overrun. This was further exacerbated by the decision to install a fifth catch basin near the intersection of Coenties Alley and Pearl Street, following an agreement reached between the city agencies involved and Goldman Sachs, the property owner of the adjacent 85 Broad Street building.

Work was for the most part five days per week, Monday through Friday, weather notwithstanding, from 7 am to 3:30 pm, often continuing until 4 or 4:30 pm dependent upon the task involved. The Principal Investigator (or supervising archaeologist) was present from 7 am until the day's excavation work was back filled and/or steel plated for the night. The weekday work schedule was maintained from November 16 through December 3, 1999 when a weekend (Saturday and Sunday) schedule was added to finalize the water main work within Pearl Street and the connection to the replacement main in Coenties Alley. In addition to the weekday work schedule, monitoring was performed on December 4th, 5th, 11th and 12th, 1999. The week day only schedule was maintained from December 13 through December 23, 1999. No archaeological monitoring was conducted from December 24, 1999 through January 28, 2000, as the Rosewood Construction crew had suspended excavation work for the water main replacement and catch basin installations. The Rosewood crew was instead installing a replacement-in-kind gas line and house connections for Con Edison, in both Pearl and Stone Streets. This gas line replacement, which was to follow the route of the extant line, was outside the scope of work required for archaeological monitoring by the LPC Protocol of November 1998, as the gas line was located approximately 2 feet below grade for most of its length within Stone Street. The water main replacement within Stone Street was to run directly below the new gas line, at a depth of 4 to 5 feet below grade, which did require archaeological monitoring.

The archaeological monitoring for the Stone Street water main excavation was resumed on January 29, 2000. The water main excavation work was then on a 2 to 3 day per week schedule, including Saturdays, as arrangements had to be made to shut off the extant Stone Street water main as connecting sections of the new main progressed from Coenties Alley to William Street at Hanover Square. The final water main section connection from Stone Street to the William Street tie-in was completed on February 19, 2000.

The final day of archaeological monitoring on the project was March 7, 2000, with the completion of the excavation work for the fifth (and final) new catch basin in Coenties Alley near Pearl Street and the chute connection to the sewer line in Pearl Street.

EXCAVATION AND MONITORING METHODS

All catch basin, test pit and water main excavations were archaeologically monitored. Pavement, either brick or asphalt was removed by first cutting through with pneumatic chisels, saws or jack hammers, and then removed by a backhoe equipped with either an 18 inch or 30 inch bucket. The same method was applied to concrete sidewalk and granite curbing when necessary. Once the paving medium or sidewalk was removed, the reinforced concrete underbedding was broken up by jackhammer and removed by the backhoe. For the most part along the watermain trench sections, once the pavement and underbedding had been removed, the underlying soils were exposed. The backhoe was then used to excavate through the disturbed trench fill down to the top of the extant water mains. In some locations, such as the Pearl Street curbline at the junction with Coenties Alley and the William Street curbline at the junction with Stone Street, steel plates were encountered under the pavement lying directly atop utility lines or the extant water mains. Once the plates were removed by the backhoe, the utility lines in clean sand fill, or the water mains in disturbed fill, were exposed. At these locations, further excavation was accomplished by hand, with the Rosewood construction crew shoveling to fully expose the extant water mains. In other, numerous locations along the water main replacement route, the density of subsurface utility lines and public services required digging by hand, as banks of concrete encased phone cables, electric ducts, gas lines and house services paralleled as well as transected the water main trench throughout Stone Street, Coenties Alley, Pearl Street and William Street.

All stratigraphy was examined and recorded during excavation. All soils removed from the water main trench sections were examined for historic materials. Temporally diagnostic artifacts were noted, sometimes sampled from the excavation. All trench sections were carefully monitored to determine if any extant architectural features or remnants of features were exposed, or if any intact historic surfaces or deposits were present. For the most part, however, the water main trench sections were following the route of 2 extant 12 inch mains, and the excavations were within the already disturbed, early 20th Century (ca. 1906, 1913) fill associated with their installation. The average depth of the water main replacement trench was between 5-6 feet below street grade.

The catch basin excavations and chute connections to the sewer proceeded in the same manner as the water main excavation. First the sidewalk and/or street pavement was either pneumatically chiseled, saw cut or jackhammered through and removed by the backhoe. Second, the reinforced concrete underbedding was jackhammered and removed by the backhoe. Third, once the underlying soils were exposed, excavation to the required depth for the catch basin installation proceeded by either backhoe removal or hand

digging, or a combination of both, dependent upon subsurface conditions encountered. The depth of excavation for the catch basins ranged from approximately 8 feet to 10.5 feet below street grade. In two locations (catch basins #3 and #4), modifications to the installation plan were necessary as it was not possible to reach the required depth below grade (10.5 feet) for the planned catch basin type to be installed.

All watermain trench and catch basin excavation stratigraphy encountered was recorded using engineer's scale in tenths of feet by measuring down into the excavation from street or side walk grade. This was the usual procedure unless the trench section or catch basin excavation had been shored by the Rosewood construction crew which made it possible to safely examine the excavation from within and take soil and/or artifact samples. All soils were recorded using Munsell Color Chart.

One archaeological test unit was stratigraphically excavated during the course of the monitoring project. The test unit was deemed necessary by the supervising archaeologist when during the course of excavation for catch basin #2, at the NE corner of Coenties Alley and Stone Street, as section of dressed stone wall was encountered. The wall seemed to be in association with what appeared to be a potentially intact historic surface. The excavation of a 3'x3' unit proceeded by stratigraphic levels, and all soils were screened through 1/4 inch mesh. Artifacts were bagged by stratum and level. Field notes and observations were recorded on pre-printed, standardized provenience forms. Plans and profiles were drawn by hand using engineer's scale in tenths of feet. Photographs were taken throughout the course of the excavation using a 35mm Nikon camera, and a detailed log was generated. All artifacts recovered during the excavation were transported to the TRACKER Laboratory in North Babylon, New York for cleaning. The artifacts were analyzed by this author and an inventory by stratum and level was generated. This inventory was then computerized at the TRACKER Laboratory, and appears as Appendix 3.

RESULTS

CATCH BASIN #1

Catch basin #1 is located on the northwest corner of the intersection of Stone and William Streets. The footprint was approximately 8 feet N-S along William Street, by 6 feet E-W across William Street by approximately 7 feet below grade. The E-W dimensions lay partially under the William Street (New York City Landmark LP-1943). Saws were used to cut through the concrete sidewalk and granite curbing; pneumatic chisels and jackhammers were used to cut through the asphalt street paving and concrete underbedding.

On the west, or sidewalk side of the excavation, .25' of sidewalk was removed, below was a concrete bedding approximately 1.25 feet thick. Once this overburden was removed, a clean yellow brown sand (10YR 5/6) was encountered. This layer, approximately 2 feet thick contained Con Edison electric lines, which were encased in concrete ducts measuring 6 inches x 6 inches square. These ducts, 2 sets wide and 2 sets deep were running more or less parallel to William Street, at an uphill angle to the north from the intersection of Stone and William Streets. Below the Con Edison clean yellow brown sand fill, at approximately 3.5 feet below grade, a reddish brown silty sand (2.5YR 3.2) was encountered. This matrix continued to approximately 7 feet below street grade, the limit of the catch basin excavation.

The east side of the catch basin excavation displayed a different stratigraphic sequence of construction/fill episodes. The asphalt layer was .33 feet thick, with a concrete bedding below approximately 2 feet thick. Once this overburden was removed, the soil encountered was the reddish brown silty sand fill (2.5YR 3/2), also seen below the yellow brown sand fill on the west side. At approximately 3.8 feet below street grade, the edge of a massive concrete vault was exposed. This vault, associated with the west side IRT subway line, forms the eastern boundary of the catch basin excavation. Iron pipes were encountered adjacent to the west at approx. 4.0 feet below street grade adjacent to the vault on the east and the Con Edison ducts on the west. The reddish brown silty sand fill continued throughout the excavation and was still going down when the depth of excavation was reached. (Figure 4, Plate 1)).

No significant cultural material, intact historic surfaces, or architectural features were noted or encountered during the excavation for catch basin #1. The concrete catch basin was put in place on the afternoon of November 16, 1999.

The excavation for the duct line iron pipe chute connection from catch basin #1 to the manhole location in Stone Street near the

corner of William Street was begun on November 23, 1999. The trench, approximately 3 feet wide and 5.5 feet deep, ran from the south face of the catch basin, southwest to the brick man hole through heavily disturbed soils. The trench for the 12 inch chute ran under the Con Edison (Con Ed) ducts and clean yellow brown sand fill, through the reddish brown silty sand fill to the man hole located in the side walk on the north side of Stone Street. No significant cultural material, intact historic surfaces, or architectural features were noted or encountered.

CATCH BASIN #2

Catch basin #2 is located on the northeast corner of Coenties Alley and Stone Street, in front of the double lot building, #45 Stone Street. Excavation work commenced on November 19th, 1999. The foot print for the catch basin was 8 feet by 8 feet by 10.5 feet deep. The excavation was primarily within Stone Street, with about 2 feet extending northward under the former brick sidewalk.

Two DWS man holes were present within the catch basin footprint, located along the north curbline of Stone Street, marking more or less the northeast and northwest corners of the catch basin excavation under the street. Eventually, the excavation was expanded approximately 2 feet northward, removing part of the sidewalk and cobbled curb on the north side of Stone Street.

The stratigraphy encountered along the north wall of the excavation was as follows. The brick street pavement and sidewalk brick pavers were cut using pneumatic chisels. Under the .2 foot thick sidewalk along the north wall was a cinder under bedding approximately .6 foot thick and the two iron manhole collars. Just below the cinder layer, at approximately .8 foot below grade, a brown silty sand fill (7.5YR 5/6) with some gray pockets (7.5YR 5/1) was encountered. Continued backhoe and hand excavation along the north wall exposed the man hole skirts, which extended down to 3.2 feet below grade. The surrounding fill soils were becoming a more reddish-gray (2.5YR 4/1), 3/1) with a very dark gray (10YR 3/1) mucky fill in close proximity to the manhole skirts. At a depth of approximately 3.5 feet below grade the excavation shifted to the southern portion of the footprint. It was noted at this time that this northern section of the excavation was highly disturbed during the 20th Century due to the presence of the two manholes.

The stratigraphy encountered in the southern portion of the excavation was quite different. Below the .2 foot thick brick street powers was a .6 foot thick cement underbedding, which was atop a .4 foot thick cinder and coarse gravel bedding. Below the gravel, at approximately 1.2 feet below grade, the soil encountered was a dark yellow brown silty sand (10YR 4/4) grading to a gray brown (10YR 5/2) and a reddish brown (2.5YR 3/2) silty sand. At approximately 4.0 feet below street grade, the soil was a uniform brown silty sand fill (10YR 4/3) which then graded to a strong brown (7.5YR 5/6) sandy fill by 6.0 feet below street grade. In the southwest corner of the excavation, the corner of the concrete manhole for the extant sewer line running down the middle of Stone Street was exposed. The concrete extended for approximately 1.5 feet northward into the western wall of the excavation. Also in the west wall of the excavation, at approximately 4.6 feet below street grade, an iron pipe, 6 inches in diameter, was encountered. It was running northeast at a downward angle, roughly located in the middle of the excavation. In this southern section of the excavation, it was apparent that the soils were highly disturbed, at least twice by construction activities, to a depth of at least

6.0 feet below grade.

Excavation for the catch basin now shifted back to the northern section. Continued excavation in the northern section came down on one of the two extant water mains, at approximately 3.9 feet below grade, running more or less parallel to Stone Street. At this point, a (construction) test pit was excavated approximately 10 feet east of the catch basin location to determine the position of the second extant water main. It was determined that the second main lay adjacent to the first to the north, under the Stone Street sidewalk/cobbled curbline. The catch basin excavation was resumed, and the northern limit was expanded 2.0 feet to the north of the cobbled curbline, under the sidewalk. Once the sidewalk and curb were cut through and removed, the second main was exposed using the backhoe and hand tools, at approximately 3.9 feet below grade. The construction crew next shored up the south, east and west walls of the excavation for safety reasons.

The manhole covers, collars and skirts were subsequently removed with the aid of the backhoe. The exposed sections of the two water mains were saw cut at both the east and west walls of the excavation and removed with the backhoe. The mains were lying within the reddish gray (2.5YR 4/1,3/1) and very dark gray (10YR 3/1) mucky fill. Once the cut sections of mains had been removed, the backhoe began to clear out the bottom of the excavation, as much water and muck had collected when the mains were cut through. As the machine cleared the soils beneath the mains (3.9'-@5.0' below grade), a section of a stone wall was exposed in the north wall of the excavation, at approx. 5.1 feet below sidewalk grade. Excavation by backhoe ceased.

The exposed stone wall section appeared to be in association with a yellow brown clayey silt (10YR 5/6), not encountered elsewhere in the catch basin or test pit excavations. This soil layer represented a potentially intact historic surface, 17th Century, 18th Century or 19th Century, below the depth of disturbance created by the placement of the watermains and manholes. It was decided by the monitoring principal investigator that an archaeological test unit be placed adjacent to the stone wall, in the yellow brown clayey silt to determine whether or not there were any intact historic surfaces in association. The north wall of the catch basin excavation was shored up from street grade to the top of the stone wall, tied into the shoring along the east, west and south walls and cross-braced before the archaeological test unit was laid out and hand excavated.

The shoring along the north wall of the excavation was removed, exposing the stone wall section excavated as Feature 1 (see below - EU 1/ FT 1). The wall was dismantled by the construction crew (by hand), enabling the monitoring archaeologists to note the dimensions of the stones used in its construction. The stones were approximately 14-20 inches wide, a few as wide as 24 inches; were

4, 6, 8 and 10 inches thick; and were 12-14 inches deep, with a few as deep as 18 inches. Raw material consisted mainly of micaceous schist, with brownstone (sandstone), and granitic rock. A similar stone wall had been recorded as a stone cellar foundation during the 1997 Phase IB field investigation by NYC LPC. That structure was located near 53 Stone Street (LPC 1998:7). Once the wall had been dismantled the debris was removed by the backhoe down to the level of the archaeological excavation unit, or approximately 10 feet below grade.

At this depth, the 6 inch diameter iron pipe excavated archaeologically as Feature 2 was cut and removed (see below- EU 1/ FT 2). The catch basin excavation continued with the removal of an additional .5 feet of soil by the backhoe. At this depth of 10.5 feet below grade, the backhoe exposed the top of a large diameter terra cotta pipe. This pipe was running east-west within Stone Street, located approximately 4 feet south of the former location of the stone wall. The pipe was broken, and yellow braided nylon rope and cloth rags were noted in association at 10.5 feet below grade. It would appear that Feature 3, the rubble filled trench disturbance excavated in EU1 was in fact, the 20th Century trench for the installation of this terra cotta pipe, or some 20th century repair work trench activity.

The excavation with heavy machinery was completed and the catch basin put into place the afternoon of November 29, 1999.

The chute connection from catch basin #2 to the extant sewer line within Stone Street was next completed. The construction required the sawing of a hole on the east face of the concrete manhole column just southwest of the catch basin. The excavation was confined to the area of heavily disturbed brown fill (10YR 4/3) probably the result of the 20th century installation of the extant sewer line and manhole. No historic artifacts, intact surfaces or architectural features were encountered.

EXCAVATION UNIT 1 (EU1)

EU 1, a 3 by 3 foot unit, was laid out adjacent to the stone wall (designated as Feature 1, or context 6001.01) exposed on November 22, 1999, the wall itself being the north wall of the unit. The unit datum was set just off the northeast corner of the excavation unit at 7.25 feet below grade. All measurements, including opening and closing depths for stratigraphic levels excavated, were taken relative to this datum. Once the stone wall itself had been sufficiently cleared off and defined, the artifacts recovered were bagged as Feature 1, Cx. 6001.01. Level 1 of the excavation unit was excavated by hand as Cx. 5001.01 (Figure 5, Plate 2).

EU 1 LEVEL 1

Cx.5001.01 was a mottled brown (10YR 4/3) and dark yellow brown (10YR 4/4) silty sand level which covered the entire unit. Level 1 appeared to represent a temporally mixed or disturbed deposit, yielding artifacts dating from the 17th through 20th Centuries. The subsequent artifact analysis confirmed included ceramic sherds from the 17th through Mid-19th centuries such as decorated and undecorated tin enameled earthenwares (delftware), 1650-1800+, creamwares, 1762-1820, pearlwares, 1780-1830, whitewares 1820-1900+, and ironstone sherds, 1859-1900+. Also recovered from level 1 were numerous 20th century artifacts including cellophane, plastic printed labels, molded hard plastic fragments, and plastic cigarette filters (see Appendix 3).

Level 1 was deeper in the central and southern portions of the excavation unit, being .95-1.0 feet thick. To the north, adjacent to Feature 1, the stone wall, level 1 was .3-.33 feet thick. Excavation of level 1 revealed a finer textured yellow brown (10YR 5/6) clayey silt adjacent to the stone wall, with most of the central and southern portions of the unit covered by a deposit representing mixed rubble, possible backhoe scar or former trench disturbance. Chunks of macadam road bed, gravel, cinders and concrete were visible once level 1 was removed. Depths were taken, a plan view was drawn an level 1 was closed out. Level 2, or Cx. 5001.02 was next excavated (Figure 6).

EU1 LEVEL 2

Cx. 5001.02 consisted of a fine textured yellow brown (10YR 5/6) clayey silt covering the northern portion of the unit adjacent to the stone wall (Figure 6). This level was .84-.9 feet thick, or 1.34-1.4 feet below datum, and extended into the unit approximately 2.0 feet south along the west wall, and approximately 2.5 feet south along the east wall.

The excavation of level 2 revealed a distinct mottled area in the center of the unit, at 1.3 feet below datum, running north-south or perpendicular to the stone wall, Feature 1. This possible trench feature ran from the stone wall southward across the unit for 2-2.5 feet, and was about 2 feet wide. The soil matrix, in clear contrast

to the yellow brown clayey silt of level 2, was mottled yellow brown (10YR 5/6) clayey silt, dark yellow brown (10YR 4/4) sandy silt, greenish gray (5YR 5/2), gray brown (2.5YR 5/2) and brown (10YR 4/3) silty sand. This potential feature was given the designation Feature 2, or Cx. 6002.01.

In the southern portion of the test unit, level 2 was only .2 feet thick near the southwest corner and less than .1 feet thick near the southeast corner. After level 2 was removed it appeared that another disturbance, this one running east-west across the southern portion of the unit was exposed, also at 1.3 feet below datum. This disturbance, probably representative of another trenching episode, was given the designation Feature 3, or Cx 6003.01.

At this point during excavation, the yellow brown clayey silt taken out as level 2 was still going down east and west of the north-south running Feature 2. The yellow brown clayey silt seemed to have been truncated to the south by the east-west running Feature 3. At this depth during excavation, 1.3-1.4 feet below datum, level 2, or Cx. 5001.02 was closed, depths taken, and a plan view drawn (see Figure 7)

Subsequent artifact analysis of level 2 indicated that it too had been mixed or disturbed by 20th century activity. Although 17th, 18th and 19th century ceramics had been present in association with clay pipe bowl and stem fragments, bottle glass sherds, mammal bone and oyster shell fragments, also recovered was 20th century molded plastic fragments (see Appendix 3).

EU1 FEATURE 2

Feature 2, or Cx. 6002.01 was next excavated, the north-south running feature in the center of EU1. During excavation, the top of an iron pipe, 6 inches in diameter, was exposed running north-south from the stone wall feature at 1.6 to 1.8 feet below datum, or 8.65-8.85 feet below grade. This pipe lay at 1.1 feet below the lowest course of the stone wall, and it appeared that the disturbance created by the placement of the pipe had knocked away several stones belonging to the lowest course. It was clearly visible in the north profile of EU1 that the disturbed area was confined to an approximately 1.0-1.5 feet wide by 2.3-2.6 feet deep area below the stone wall. It appeared that the placement of the pipe had been such that it was pushed or punched through the yellow-brown clayey silt (level 2 Cx.5001.02) from within the sidewalk vault of the #45 Stone Street building, under the stone wall, disturbing the lowest course. If the pipe had been placed in the bottom of a trench dug down from a former sidewalk or street grade, evidence of such a trench would have been apparent within level 1, and the stone wall would have been broken through.

It was not possible at this point during excavation to determine if the iron pipe (water/sewer?) was active or inactive, intact or broken, as the southern portion of EU1 was still high - at 1.3 feet

below datum - with the east-west running possible trench episode designated as Feature 3. In addition, the east and west portions of the unit were also high- 1.3- 1.4 feet below datum - with the yellow brown clayey silt excavated as level 2, Cx. 5001.02 still going down (Figure 8). Therefore, at the depth of approximately 2.0 feet below datum, excavation of Feature 2 was stopped and Cx.5001.03 was next excavated to the east and west of Feature 2.

Analyses of the artifacts recovered from Feature 2 indicated a late 19th century or early 20th century date of installation. The artifacts recovered appeared to be mixed 17th century through late 19th century. Decorated tin enameled earthenware, a probable 17th century clay pipe bowl and red transfer printed whiteware were noted (see Appendix 3).

EU1 LEVEL 3

Cx. 5001.03, level 3 was next excavated, the yellow brown (10YR 5/6) clayey silt east and west of Feature 2. Level 3 was excavated to 2.0-2.1 feet below datum, roughly to the same depth as the pipe disturbance, Feature 2.

Few artifacts were recovered from level 3, and it remains unclear whether or not these artifacts are in fact from the area directly below the iron pipe of Feature 2. (See Appendix 3).

Level 3 was closed out, depths taken and Feature 3 was next excavated (Plate 4).

EU1 FEATURE 3

Feature 3, Cx. 6003.01, the east-west mixed rubble/trench episode in the southern portion of EU1 was next excavated. It was hoped that removal of Feature 3 would shed more light on the extent/condition of the north-south running iron pipe, Feature 2.

Feature 3 was a deposit of yellow brown (10YR 5/6) clayey pockets mixed with a brown (10YR 4/3) silty sand, also mottled grayish black in places, with construction debris and rubble throughout. The disturbance extended to 2.0-2.4 feet below datum on the southwest and southeast corners of EU1 respectively.

Excavation of Feature 3 came down on the yellow brown (10YR 5/6) clayey silt matrix at the southeast and southwest corners of the unit. This was the same matrix excavated as Cx. 5001.02 and Cx. 5001.03 (level 2 and 3). However, the matrix was becoming coarser in texture, now mottled with light yellow brown (10YR 6/4) and brown (10YR4/3, 10YR5/3) silty sand. The iron pipe (Feature 2), running north-south was also exposed upon removal of Feature 3 and was found to be crushed and broken at the south wall of EU1. The later trench episode resulting in the mixed Feature 3 deposit had impacted the earlier iron pipe, most likely during the 20th century (Plates 5 & 6).

The artifacts recovered from Feature 3 also support the field observation that the trench episode most likely dates to the 20th century. Much rubble and modern debris (plastic coffee cup lids) was noted but not sampled. Sampled artifacts included mid-late 19th century ceramic and glass sherds, oyster shell fragments, red, yellow and orange fire brick fragments, and 20th century building materials such as asphalt floor tile and tar paper fragments (See Appendix 3).

The remainder of the Feature 2 disturbance that lay beneath Feature 3 was removed from the central portion of the unit, screened separately and all artifacts recovered were bagged with Feature 2. The maximum depth of disturbance caused by the Feature 2 iron pipe was 2.4 feet below datum, or 9.65 feet below grade.

EU1 LEVEL 4

Level 4, or context 5001.04 was next excavated across the entire unit. This level was sterile and represented the subsoil which was coarser in texture than the overlying yellow brown clayey silt. The subsoil was a silty sand with some clay, predominantly yellow brown (10YR 5/6) mottled brown (10YR 4/3) and light yellow brown (10YR 6/4). Excavation into the subsoil continued to 3.0 feet below datum, or 10.25 feet below grade, the maximum depth required for the installation of catch basin #2, according to specifications (Plates 7 & 8).

On November 24, 1999 excavation of EU1 was completed , all wall profiles were drawn and photographs taken. It was determined that the installation of catch basin #2 would have no adverse impact on significant archaeological resources. On November 29, 1999, work on the machine assisted excavation for catch basin #2 was resumed.

CATCH BASIN #3 ORIGINAL LOCATION

Catch basin #3 was originally planned to be located on the southeast corner of Coenties and Stone Street. Excavation work began on November 30, 1999. The footprint for the catch basin was to be (in feet) 8x8x10, primarily within the roadway of Stone Street, and extended south incorporating part of the cobbled curb and brick paved sidewalk in from of #44 Stone Street (the corner building also known as #77 Pearl Street). The north wall of the catch basin excavation was approximately 9 feet north of the actual building line.

The stratigraphy sequence was as follows: First, the brick roadway, cobbled curbline and sidewalk pavers were pneumatically chiseled and removed. Below this .2 foot thick paving was approximately 1.1 feet of reinforced concrete underbedding, which was jackhammered and removed. This concrete was 1.5 feet thick in the northeast portion of the excavation. Below the concrete was .5 foot thick gravel bedding across most of the excavation. The exception was in the northwest portion of the excavation, where a clean yellow-brown (10YR 5/6) sand fill was encountered. Below the gravel bedding, a brown silty sand (10YR 4/3), obviously redeposited modern fill was encountered. A Colt 45 can, a Budweiser beer can, 7-up soda can, plastic coffee cup lids, etcetera were noted in this fill, to approximately 3 feet below grade in the southern portion of the excavation. In the northwest corner of the excavation, at 1.67 feet below grade, Con Edison concrete ducts (.5 foot square, identified by the on-site Con Edison representative) were exposed within the yellow brown sand, running more or less parallel with Stone Street. To the south of the Con Edison ducts, within the disturbed brown fill, another concrete layer was encountered at 4.5 feet below grade. Two PVC cables were visible within the broken concrete, and identified as telephone cables by the on-site representative of Bell Atlantic. Continued excavation under the sidewalk area exposed the brick vault wall for the 44 Stone Street building, which was located 4.5 feet south of the concrete encased PVC telephone cables. At this point, the excavation was plated, to await further clarification regarding the subsurface utilities encountered thus far.

Work on catch basin #3 resumed on December 1, 1999, by extending the hole to the north of the Con Edison ducts encountered at 1.67 feet below grade. Street pavers, concrete underbedding and gravel bedding were all removed by heavy machinery. The brown (10YR 4/3) silty sand fill was encountered at 1.5 feet below grade, as the gravel layer was approximately .2 foot thick in this area of the excavation. The backhoe came down on another concrete layer at 1.7 feet blow grade, just north of the Con Edison ducts. This east-west running concrete layer, parallel to Stone Street, was encasing more PVC telephone cables. The construction crew dug by hand to determine the depth of the cable bank, which extended to approximately 5 feet below grade.

It was determined by the on-site telephone company representative that the concrete encased PVC cables first encountered to the south of the Con Edison ducts were part of a bank of 60-plus cable which extended down 5 feet from its top-first encountered at 4.5 feet below grade. This indicated that the depth of disturbance in the southern portion of the catch basin excavation extended to at least 9.5 feet below grade. The on site telephone company representative indicated that this subsurface location map had the identities of the town concrete encased phone cable banks transposed; his map indicated that the larger bank of cables was to the north of the Con Edison ducts, when in fact it is the bank to the south, nearest the building line of #44 Stone Street (a.k.a #77 Pearl Street).

The decision was made to abandon this location, as there was not enough space to fit the catch basin preform - 5 feet 4 inches on a side, between the 60-plus bank of telephone cables made the brick wall of the sidewalk vault for #44 Stone Street, a distance of 4.5 feet. This location was backfilled with clean sand fill and the roadbed and sidewalk with cold patch.

CATCH BASIN #3 ALTERNATE LOCATION

The alternate location for catch basin #3 lies approximately 10 feet to the west and just south of the original location, lying within the roadway of Coenties Alley, southwest of its intersection with Stone Street. As laid out, the southeast corner of the excavation was approximately 6 feet west of the curbline of the #77 Pearl Street corner store front (actually fronting onto Coenties Alley). The footprint for the excavation was to be approximately 6 feet by 10 feet. The excavation in this location began on December 2, 1999.

The stratigraphy sequence was much the same as that seen in the original location. First, the brick road bed was pneumatically chiseled and removed. Under the .2 foot thick pavement was a layer of asphalt .1 foot thick. Below the asphalt was a re-inforced concrete layer approximately .9 foot thick, which was jackhammered a part and removed. The gravel bedding layer below the concrete was a fairly uniform .5 foot thick, except in the northwest corner of the excavation. In this corner, clean yellow-brown sand (10YR 5/6) associated with the Con Edison concrete ducts was encountered at approximately 1.2 feet below grade. At 1.4 feet below grade, apparently within the gravel layer, a plastic covered (not PVC) telephone cable was located, running northwest-southeast across the excavation. The cable appeared to be running from the ECS manhole in Coenties Alley (NW of the catch basin location) to the store front buildings located on the east side of Coenties Alley (#77 Pearl Street). The ECS service manhole was accessed by the on-site telephone company representative and the cable was determined to be inactive. The cable was cut, and the excavation proceeded.

Across the rest of the excavation, the brown silty sand fill (10YR 4/3) was directly below the gravel layer at approximately 1.7 feet below grade. At approximately 4.0 feet below grade, within the brown disturbed fill, the top of a 12 inch water main was located, running north-south, parallel to Coenties Alley. The second main was soon located at the same approximate depth, lying 1 foot west of the first. This second main was almost in the west wall of the catch basin location.

Within the yellow-brown sand in the northwest corner of the excavation, the Con Edison concrete ducts were exposed at approximately 1.7 feet below grade. This was the same duct line as first encountered running east-west in the original catch basin location. In the northwest corner of the alternate location excavation, the ducts are curving from a north-south orientation within Coenties Alley, turning up Stone Street to run east-west within Stone Street toward William Street.

It was noted during the original location excavation that the brown (10YR 4/3) sandy fill had been disturbed during the 20th century, as much 20th century debris had been encountered. In this alternate location, the brown fill contained cultural materials from the 18th through 20th centuries. Eighteenth century and 19 century ceramic artifacts, oyster and clam shells and fragments, 20th century paper, plastics and bottle glass were noted throughout this brown fill layer. No intact historic surfaces or architectural features or remnants were located. This brown fill was highly disturbed to at least 5 feet below grade.

Next, the sections of the two 12 inch water mains were cut and removed from the catch basin excavation. The concrete encased bank of telephone cables first located in the original location excavation was exposed in the north wall of the excavation, within the brown fill, at approximately 1.6 feet below grade. The east-west running bank of cables was perpendicular to the north-south water mains, which ran directly below.

The excavation was at this point widened some 1.5 feet to the east, making the eastern wall of the excavation approximately 4.5 feet west of the curbline of the store fronts on the east side of Coenties Alley. Excavation continued through the brown disturbed fill layer to approximately 7.7 feet below grade. At this depth, concrete was encountered, which appeared to cover the entire bottom of the excavation. The bottom was cleared off with shovels, and it appeared that a concrete slab was across the entire excavation location, extending beyond in all directions. At the southeast corner of the excavation, a PVC pipe was located lying atop the concrete at approximately 8 feet below grade (Figure 11, Plate 9).

The excavation ceased at this point on December 6, 1999, and the location was back filled with clean sand fill. It was decided that a different type of catch basin was to be used in this location, to

accommodate a lesser depth and different chute connection location necessary to connect the catch basin to the sewer, which lay northeast of the alternate location.

The clean sand fill was re-excavated on December 20, 1999, and a Type 3 catch basin was put into place.

The excavation for the chute connection, which ran from the north wall of the in-place catch basin approximately 8 feet northeast to the manhole in Stone Street was begun on December 20, 1999. The 2 foot wide excavation cut through the reinforced concrete underbedding, exposed the Con Edison concrete ducts in clean yellow-brown (10YR 5/6) sand 1.7 feet below grade and the telephone cable concrete bank 1.6 feet below grade in the disturbed brown sandy fill (10YR 4/3). On December 21, 1999, the chute excavation was continued from the manholes in Stone Street, south southwest to the north wall of the catch basin, running under the extant utility lines. To complete the chute connection, a section of 12 inch iron pipe was cut to size and put into place, and the excess space in the catch basin wall was bricked up.

No significant cultural material, intact historic surfaces, or architectural features were noted or encountered during the excavations for the catch basin or the chute connection.

CATCH BASIN #4

Catch basin #4 was originally to be located within Coenties Alley near Pearl Street, adjacent to the property line of the Goldman Sachs building at 85 Broad Street. As an agreement had not yet been reach within the property owners as of December 1999, the location of catch basin #4 was moved to the east, within Coenties Alley, closer to the store fronts which line the east side of Coenties alley from Pearl Streets (see Figure 12, Plate 10).

The footprint was laid out on December 3, 1999 and was to be 8 feet by 8 feet by 10 feet deep. The new location would abut on the east the replacement 12 inch water main trench within Coenties Alley. The west wall of the catch basin excavation incorporated the replacement watermain trench section previously excavated on November 17 and December 2, 1999. This trench section ran from Pearl Street northward, across the curbline and into Coenties Alley. The catch basin excavation began on December 3, 1999 by saw cutting the brick pavement of Coenties Alley immediately east of the previously excavated (and backfilled) trench section.

The stratigraphy encountered was much like that noted during the excavation for catch basin #3 (alternate location). First .2 foot thick brick pavers were removed. Below was a .1 foot thick layer of asphalt atop approximately 1.1 feet of reinforced concrete underbedding. A .5 foot thick layer of gravel bedding was next removed. The soil matrix below the gravel was a brown sandy fill (10YR4/3), containing demolition rubble and mixed cultural material dating from the 18th century through the 20th century throughout.

During excavation of the brown fill, the trench area for the north-south running 12 inch water mains was relocated at approximately 3.9 feet below grade in the western portion of the catch basin excavation. The first 12 inch main had been cut and removed during the replacement main trench excavated on December 2, 1999. The second 12 inch main, parallel to that removed, was located approximately 1.5 feet to the west, in the western wall of the catch basin excavation. This second main was cut and removed, and after clean up of the excavation, Con Edison duct lines were exposed in the west wall of the catch basin excavation. These lay approximately 1.7 feet below grade within a matrix of clean yellow-brown sand (10YR 5/6). The lines were running north, parallel to the former 12 inch mains , toward the Con Edison service vault visible in the Coenties Alley road bed as a rectangular steel plate.

Continued backhoe excavation revealed mulch rubble within the brown fill matrix. This rubble is most likely related to the demolition of the buildings once occupying this portion of the present line of Coenties Alley (#42 Stone Street, #75 Pearl Street). Pieces of cut and polished marble - possibly window or door lintel or saddle fragments, mulch broken and whole red brick, mortar and plaster fragments, pieces of dressed wood, broken iron and copper pipe

segments, cut bundles of wires and 20th century debris such as braided nylon rope, cloth rags, plastic fragments and ceramic and bottle glass sherds were noted throughout the brown fill to at least 7 feet below grade. No intact historic surfaces or intact architectural features were located. At approximately 7 feet below grade the backhoe hit concrete. Hand shoveling by the construction crew revealed this to be the protective covering for a 42 inch sewer pipe, running more or less in a south southwest-north northeast direction from Pearl Street. The excavation was shored up for safety and steel plated to await further direction.

It was at this point decided that in order to install the catch basin in this location, the replacement 12 inch water main would have to be placed on the east side of the catch basin, closer to the storefronts lining Coenties Alley, rather than to the west as planned. This easterly water main trench would incorporate a test pit location in Coenties Alley, previously excavated on November 30, 1999 to replace on extant fire hydrant 3-way connection had exposed the west wall of an extant catch basin located in Coenties Alley which was to be abandoned after the installation of Catch basin #4. This new catch basin, therefore, was to be located between the north-south running ConEdison duct lines to the west and the replacement water main trench to the east, adjacent to an extant catch basin. The entire footprint of catch basin #4 lay within highly disturbed, redeposited (probably numerous times) fill.

Excavation for catch basin #4 resumed on December 14, 1999. The clean sand fill to 7 feet below grade was taken out with the backhoe and the construction crew dug by hand to re-expose the 42 inch sewer pipe located on December 7, 1999. Concrete footings protecting both sides of the sewer pipe were exposed at approximately 8 feet below grade, and were approximately 1 foot wide. At this depth of 8 feet below grade, practically the entire excavation was taken up with the pipe itself and the footings on either side. The laborers continued to dig by hand on either side of the footings, to approximately 10 feet below grade. The matrix was still the same brown sandy fill first encountered below the gravel bedding at 1.7 feet below grade.

It was decided that the catch basin would rest on concrete piers to protect the sewer line from its weight. The piers were to be poured directly into the excavation at a later date, weather permitting. the shored up excavation was replated at this time.

The concrete pier were poured in place on December 20, 1999. Six inches of concrete was poured atop the sewer pipe, which meant the piers were approximately 3 feet deep on either side. The shoring was removed on December 22, 1999, after the concrete had set.

The chute connection for catch basin #4 runs south to the east-west running sewer line manhole within Pearl Street. A 14 foot long

section of this chute connection trench had been machine and hand excavated on December 16, 1999, from the manhole in Pearl Street northward into Coenties Alley, approximately 2 feet north of the curbline. the excavation had revealed highly disturbed brown fill (10YR 4/3) to at least 7 feet below grade around extant utility lines, including the 13,000 plus volt Con Edison electric lines in concrete ducts running east-west along the north curbline of Pearl Street. The chute connection at the manhole was 6 feet below grade. The trench excavation running northward from the manhole connection was approximately 5.5 feet below grade, entirely within the brown fill matrix. In this trench area, the brown fill contained much 20th century debris throughout, as well as mixed 18th century and 19th century ceramic sherds and other artifacts. No historic surfaces, intact deposits or architectural features or remnants were encountered under Pearl Street or Coenties Alley during the December 16, 1999 excavation for this portion of the chute connection.

The excavation for the chute connection from catch basin #4 southward to join with the above described completed trench section began on December 21, 1999. This section was approximately 7 feet long, about 2 feet wide, within the same brown fill to approximately 6 feet below grade. Excavation began with the backhoe, but had to be completed by hand, as the Con Edison electric line ducts turning north up Coenties Alley were exposed in the west wall of the trench.

Continued excavation in the southernmost three feet of this trench revealed a pocket of artifacts, notably mid-19th century ceramic sherds at approximately 4.1-4.7 feet below grade. In association with the ceramics, beginning about 2.6 feet below grade, was much demolition related rubble-cobble stones, whole red bricks, yellow brick fragments, oyster shells and fragments, terra cotta utility pipe fragments, modern 20th century bottle glass, late 19th century safety glass etcetera. No stratigraphic breaks or distinct surfaces were discernable in the matrix of brown sandy fill (10YR 4/3). The Principal Investigator and assistant stopped the laborers at this point and went into the trench to more closely examine the trench wall profiles. No stratigraphy was noted to suggest a potential historic deposit had been located. A pocket or concentration of mixed debris and rubble at 2.6 -4.7 feet below grade was seen in the east trench wall. The pocket included dressed wood fragments, granite cobbles, whole red bricks, concrete and asphalt chucks, bottle glass fragments, and ceramic sherds. The west trench wall contained clean yellow brown sand fill (10YR 5/6) around Con Edison concrete ducts 1.9-2.9 feet below grade.

This concentrated rubble/artifact pocket within Coenties Alley lay about 2-4 feet north of the Pearl Street curbline, suggesting that this mixed debris may be in the area under the historic side walk. However, the highly disturbed nature of the brown fill matrix further suggests numerous 20th century disturbances, notably the

trenching activities for the Con Edison 13,000 plus volt electric lines in Pearl Street, the Con Edison duct lines turning up Coenties Alley, the 1906 and 1913 installations of the 12 inch water mains, and the 42 inch sewerline at 7 feet below grade located during the excavation for catch basin #4. It was decided by the Principal Investigator that no further archaeological testing was warranted in this location. The chute connection trench was completed and the pipe was put in place on December 22, 1999.

CATCH BASIN #5

Catch basin #5 was excavated at the Coenties Alley and Pearl Street intersection on March 2, 1999. This catch basin was situated west of catch basin #4. The soil here consisted of a mottled 10YR4/4 dark yellow brown, 10YR5/6 yellow brown,and 10YR4/3 brown, loamy sands. Concrete and some brick fragments were mixed in with this fill layer. This mottled fill layer continued down until 7.5 feet below the surface. At 7.5 feet below surface, a large steel plate was encountered which encompassed most of the width of the basin. It is possible that the steel plate was associated with the underground parking lot. Excavations for this catch basin ceased at this point. Dimensions of catch basin #5, taken from ground surface, were 16 feet by 6 feet. No significant cultural material, intact historic surfaces, or architectural features were encountered here (Figure 13).

During March 7, 1999, at approximately 23 feet south of Catch basin #5, a test pit was excavated (apparently to locate a telephone line). Soils here were a mottled fill of 10YR4/4, 10YR5/6, 10YR4/3, and 10YR4/2 (dark gray brown) loamy sands similar to Catch basin #5. Cement and brick fragments and metal debris were mixed within this fill. This test hole measured approximately 3.5 feet by 10 feet in diameter. Excavation ceased at 5 feet below surface.

During the same day, a trench was excavated connecting the test pit with Catch basin #5. The trench measured 23 long by 5 feet deep by 4 feet wide. Mottled fill soils, similar to the above mentioned test pit and catch basin were removed. This was the last day of archaeological involvement for this project.

THE WATER MAIN TRENCHES

A total of 515 feet of new water main was laid during the course of the project, as shown on a map titled "The Water Main Plan. Stone Street, Borough of Manhattan, Contract No. HWMP107," as drawn by the RBA Group on 11-6-1998 (Figure 3). As per the scope of work protocol prepared by the NYCLPC dated 11-30-1998, all excavations for the replacement-in-kind water main were archaeologically monitored by the TRACKER-Archaeology Services Principal Investigator.

The water main trenches were, on average, 4.5 feet wide by 5.5 feet deep. As this water main work was to be replacement-in-kind, the trench excavations for the most part followed the lanes of extant low pressure and high pressure 12 inch mains installed circa 1906 and 1913. Test pits were first excavated with heavy machinery in Pearl Street, Coenties Alley and Stone Street to locate the extant 12 inch mains. Once located, the line of the replacement water main trench was spray painted on the surface, and followed out in sections with heavy machinery. This water main excavation work was not a continuous operation, ie. proceeding from point A to point B, but was accomplished by completing sections of the route, as the trench was often interrupted by unforeseen subsurface conditions such as misrepresented utility line locations and the like. Catch basin excavation and installation work often preceded the water main replacement, particularly in those areas of Coenties Alley where the catch basins had to be relocated.

WATER MAIN REPLACEMENT-PEARL STREET

The water main trench excavation within Pearl Street began on November 17, 1999. A roughly 12 feet (north-south) by 20 feet (east-west) area was opened up on the south side of Pearl Street, approximately 55 feet east of the corner made by Coenties Slip. The 4 inch thick pavement was jackhammered and removed. Below the pavement, 7 inches of reinforced concrete underbedding was jackhammered apart and removed by the backhoe. Directly below the underbedding was a brown (10YR 4/3) silty sand fill with much 20th century debris noted throughout. At 3.9 feet below grade, a 12 inch water main was located, running north-south toward Coenties Alley. Atop and around this pipe, modern bottle glass (very fine juice), plastic flagging and oyster and clam shells were noted in the brown fill. Continued excavation along the southern portion of the excavation exposed a 12 inch iron main running east-west within Pearl Street at 3.5 feet below grade. Next, the excavation was doubled in size to the west (towards Coenties Slip). A second east-west running main was located at 4.0 feet below grade. At this point the excavation was 4.0-4.6 feet below grade, entirely within the disturbed brown fill matrix.

Next, the lane of the north-south water main located 3.9 feet below grade under Pearl Street was projected on the ground to the north curbline of Pearl Street at Coenties Alley, where the replacement trench was to be excavated down to the depth of the extant 12 inch water main. The Pearl Street pavement was removed by the backhoe, which immediately came down on a steel plate/I-beam configuration along the north curb line of Pearl Street at Coenties Alley. The plate and beams were removed by the backhoe to reveal the top of the north-south running 12 inch water main directly below-less than .5 feet below street grade. Several smaller iron pipes were exposed running east-west directly below the main, and just below these, a concrete duct bank was located, also running east-west along the Pearl Street curbline. Continued excavation just south of the east-west running iron pipes and concrete ducts, within Pearl Street in the same brown disturbed fill matrix, a brick sewer line was exposed at 5.6 feet below grade, also running east-west. Just north of the sewer line, an unexpected (mismapped?) 12 inch iron main was exposed at 5.0 feet below grade, also running utility and public services lines encountered from 1.5 to 5.6 feet below grade had undoubtedly impeded the installation of the north-south running main from the Pearl Street connection to Coenties Alley, which had been installed atop the disturbances and covered with steel (Plates 11, 12, & 13).

The replacement main, however, could not be so placed due to NYC code restrictions and regulations. Eventually the replacement main was installed below the concrete ducts (which turned out to be Con Edison 13,500 plus volt lines). This Pearl Street connection to Coenties Alley portion of the replacement water main excavation work was accomplished over the weekend of December 4th-5th, 1999.

The entire excavated area within Pearl Street, to and across the north curbline, and into Coenties Alley was highly disturbed, probably several times during the 20th century debris throughout. No historic levels, intact historic surfaces or architectural features were encountered during excavation.

WATER MAIN REPLACEMENT TRENCHES-COENTIES ALLEY

A test pit to locate the extant water mains within Coenties Alley was begun on November 30, 1999. The test pit was located just west of the fire hydrant located on the pavement in front of the store fronts lining the east side of Coenties Alley approximately 35 feet north of Pearl Street. The test pit was about 3 feet wide by 4 feet long.

The stratigraphy encountered was as follows: brick pavers 0-.2 feet below grade; asphalt layer .2-.3 feet below grade; reinforced concrete underbedding .3-1.2 feet below grade; gravel bedding 1.2-1.7 feet below grade; brown sandy fill 1.7-4.5 feet below grade (Figure 15).

The top of one 12 inch water main was located at 3.9 feet below grade, and the second was located 1.5 feet to the west at the same depth. To the east of the mains, the 3-way 'T' connection for the hydrant was located at 4.0 feet below grade. Once the mains had been located, the excavation for the replacement main continued northward up Coenties Alley toward Stone Street. The trench was approximately 4.5 feet wide and 5.5 feet deep to expose the extant mains prior to their cutting and removal. The excavation trench was entirely within the brown sandy fill which contained much building related rubble such as broken bricks, mortars, wood etc.

Approximately 20-25 feet north of the test pit location, the east wall of a concrete vault was exposed in the west trench wall. This vault, a Con Edison electric line access vault is visible on the road bed surface as a rectangular steel plate. The vault has the concrete duct-encased electric lines (seen in the Pearl Street trenches and the excavation for Catch basin #4) entering from the south, and exiting to the north, while continuing to run north up Coenties Alley to a second vault located near the intersection of Stone Street. The vault wall and duct line trenches had been excavated through the already disturbed (by water main installation ca. 1906, 1913) brown fill (10YR 4/3) and back filled with clean yellow-brown sand (10YR 5/6). Along this section of the replacement water main trench, the 12 inch main to be cut, removed and replaced is running north-south down the centerline of the trench, and the second 12 inch extant main is to the west, where it apparently is below the level of the Con Edison vault and duct lines. The extant 12 inch main in the center of the trench was next cut and removed for approximately 30 feet from the test pit location to 5-10 feet north of the Con Edison vault.

The replacement main excavation then shifted back to the intersection of Pearl Street and Coenties Alley, where a portion of the trench had already been excavated and backfilled (from within Pearl Street turning northward to the curbline and into Coenties Alley, in the vicinity of Catch basin #4). This section was re-

excavated and proceeded northward, angling to the east to avoid catch basin #4, incorporating the test pit location dug on November 30, 1999, and thereby was connected to the section excavated previously from the test pit northward, to just beyond the Con Edison vault. As mentioned above, the replacement trench within Coenties Alley contained much demolition related rubble, building materials and modern debris. No historic levels, intact historic surfaces or architectural features were encountered (Plates 14 & 15.

The replacement water main trench excavation continued within Coenties Alley from the area just north of the Con Edison vault, northward towards the intersection with Stone Street. This section of trench would also have to skirt the area near the southeast corner of the intersection of Coenties Alley and Stone Street, where catch basin #3 had been installed earlier in the month. The catch basin had to be installed south and west of the original planned location, so the replacement water main trench would be in close proximity as it neared the corner.

Heavy machinery was used to remove the pavers, asphalt, concrete underbedding and gravel bedding. By December 8, 1999 the trench had been completed to the south face of catch basin #3 and the trench was shored up. This section was 55-60 feet in length, between 3 and 4 feet wide, and about 5 feet deep. The entire trench was within the disturbed brown (10YR 4/3) fill. By December 15, 1999 both the extant 12 inch water mains had been cut and removed. The cleanup and grading for the removal of another .5 feet of soil from the trench, making the average depth 5.5 feet, still entirely within the brown fill.

The next replacement watermain trench section excavated was in the vicinity of catch basin #3. At this point, the trench ran between the catch basin to the east and the Con Edison duct lines to the west. This 15-20 feet long section ran from the southeast corner of Coenties Alley and Stone Street north to the point at which the new main would turn east and continue up Stone Street toward William Street/Hanover Square. In this same area, the Con Edison duct lines are coming from the second vault in Coenties Alley and are also turning eastward to run up Stone Street. The duct lines are at approximately 1.5-2.5 feet below grade, within the clean yellow-brown (10YR 5/6) sand fill. In this section of the trench, the second extant water main was still in place, lying beneath the Con Edison ducts in the western wall of the excavation.

The excavation in this section was begun with heavy machinery but was dug mostly by hand due to the presence of the Con Edison lines as well as the large concrete encased telephone cable banks. These were first encountered during the excavation for catch basin #3 at the original location, which required the catch basin to be moved to the alternate location (Plates 16 & 17).

The trench excavation continued northward, past the centerline of the Stone Street intersection with Coenties Alley. The trench fill in this section was a dark yellow brown (10YR4/4) silty sand mixed with brown silty sand (10YR4/3), and has been disturbed and redeposited, probably several times, due to the numerous utility lines encountered. This fill, which was basically the same matrix as that of the rest of the Coenties Alley trench sections, contained much modern debris such as various types of plastic fragments and braided nylon rope as well as 19th century ceramics, pipestems, oyster shells, brick fragments and chunks of concrete. Some artifacts were collected, from an area 3.9-4.0 feet below grade, from the brown fill of the trenches for the two extant 12 inch water mains, and from an area 4.9-5.0 feet below grade just west of the 12 inch main to be replaced.

The replacement trench excavation continued to the east northeast to locate the position of the 90 degree angle of the two extant mains as they turned up Stone Street. These angle connections were located approximately 6 feet west of catch basin #2, already in place. In this area, the trench was 5 to 5.5 feet deep to expose both extant mains which had to be cut and removed (both had been cut and removed from the footprint of catch basin #2 during excavation).

The Con Edison duct lines were now running east-west within Stone Street at approximately 1.5-2.5 feet below grade. The concrete bank of phone cables runs directly under the Con Edison lines, also running east-west in Stone Street from the ECS service manhole located within Coenties Alley near the plaza steps of the 85 Broad Street building. A small "deposit" of mixed historic and modern artifacts was noted in a pocket of black muck, gray brown and brown sandy fill in the west wall of the water main trench, just south west of the turn up Stone Street. Artifacts noted included 19th century transfer printed and annular decorated whiteware sherds, late 18th-19th century pearlware sherds, 19th century bottle glass sherds, plastic from old phone cable, a cutlery handle, oyster and clam shell fragments and recent debris such as coffee cup lids and plastic straws.

This "deposit" is most likely the 20th century trench fill for the 5 feet deep phone cable bank which has obviously disturbed whatever historic material that was once present. It is equally possible that it represents the trench fill for the 20th century Con Edison duct lines and vault installations. In either case, the same area was disturbed in 1906 and 1913 to at least 5.5 feet below grade by the placement of the extant 12 inch water mains.

WATER MAIN REPLACEMENT TRENCHES-STONE STREET

The actual replacement trench excavation for the Stone Street section of water main was begun on January 29, 2000. The water main work was resumed after a month-plus long hiatus (from 12-23-1999) during which the construction crew had been installing new gas service lines in Pearl Street , Coenties Alley and Stone Street to William Street. The gas line work was not archaeologically monitored by TRACKER-Archaeology Services as it was not part of the scope of work protocol drawn up by the LPC for the catch basin and water main work within the Stone Street Historic District. The depth of disturbance for the gas line was not to exceed 2 feet below grade, therefore archaeological monitoring was not deemed necessary. The new plastic encased pipeline was to be inserted into the extant iron pipeline, thereby minimizing the depth of disturbance. In Stone Street, the replacement water main was to be located below this gasline, to a depth of approximately 3-4 feet below grade.

The test pit to determine the location of the two 12 inch extant water mains within Stone Street had already been dug by the construction crew during the excavation for catch basin #2. On November 19, 1999, the test pit had been excavated in an area about 10 feet east of catch basin #2, which had been covered by blacktop patch, not pavers. This location may well have been that of one of the 41 trenches dug during the 1998 Phase IB study undertaken by the LPC. Below the blacktop patch removed by the backhoe was a strong brown (7.5YR 5/6) sand, apparently clean fill. An iron gas line was exposed at about 1.8 feet below grade, lying within a distinctive yellow-brown (10YR 5/6) clean sand fill, seen elsewhere during the course of the project in association with the Con Edison duct lines. The two extant water main were located at about 3.9 feet below grade, running east-west along the present northern curbline of Stone Street. A 3-way 'T' connection for the extant fire hydrant in front of #45 Stone Street was also located at approximately the same depth. The test pit location was highly disturbed by the above mentioned utility and public service lines running both east-west and north-south within Stone Street. No historic artifacts or architectural features were encountered. The test pit was back filled and covered with cold patch on November 24, 1999 (Figure 14).

The replacement water main was to run directly below the newly installed gas line within Stone Street. The extant 12 inch mains would have to be cut and removed in sections from just east of catch basin #2, through the test pit, eastward up Stone Street, across the intersection with Mill Lane, and into the intersection with William Street at Hanover Square. In William Street itself, the replacement main was to tie-in with the extant north-south running 12 inch main.

By January 29, 2000 the extant gas line had been exposed and

upgraded with the new plastic line for most of its length from just east of catch basin #2 to the William Street intersection. Portions of the trench were steel plated, and in other sections, the work of inserting the new pipe was still being done. At the William Street end of the gas line excavation trench, the tie-in was completed. The tie-in, at the northwest corner of Stone and William Streets, seemed to have been installed some 3 plus feet below grade.

The replacement water main trench excavation work began just east of catch basin #2 and proceeded eastward, below the gasline (at 2.0 feet below grade) within the trench of the two extant mains. The trench was about 4.0-5.0 feet below grade, in brown (10YR 4/3) disturbed fill.

When the archaeological monitoring work was resumed on January 29th, the new hydrant connection (in front of #45 Stone Street) was already in place, and the top, arched section of a brick sidewalk vault was visible in the north wall of the trench just beyond the hydrant connection. The excavation for the new gas line and hydrant connection appeared to have been within the same brown (10YR 4/3) disturbed fill already seen in the Pearl Street and Coenties Alley trenches.

The construction crew was hand excavating the area around and below the newly installed gas line to reach and expose the two extant water mains. Once the mains were exposed, and the trench was sufficiently deep (usually 4.5-5.0 fee below grade), they were cut and removed in sections, (usually 12-18 feet) and the new section of replacement main was maneuvered into place.

Near catch basin #2, the tops of the extant mains were about 2.8 feet below grade, and the replacement main trench was about 4.0 feet deep. As excavation proceeded eastward, the mains were located slightly deeper below grade, as it appears the Stone Street roadbed rises slightly but steadily to the east, from Coenties Alley to William Street. The replacement main trench was entirely within the disturbed brown (10YR 4/3) fill of the extant mains, below the new gas line.

In front of the east side of #45 Stone Street, near the lot line with #51, a 4 inch diameter iron pipe connection was located running north, which had broken through a brick sidewalk vault. This pipe may have been the old water service to #45, 47 or 49 Stone Street before the present building had been erected ca. 1927. This pipe was exposed at about 2.5 feet below grade. Other iron pipe connections were exposed in the replacement trench which ran south, presumably the water connections to the even numbered addresses on the south side of Stone Street. A manhole was encountered in front of #45 Stone Street, part of the sewer line running more or less down the center of the Street.

Further eastward in this trench excavation, approximately opposite #48-50 Stone Street, a 2 inch diameter copper pipe encased in wood was exposed at about 32-34 inches below grade. This pipe was resting atop a concrete bank at about 3.0 feet below grade, which turned out to be the large 60 plus bank of telephone cables, first seen running east-west in Stone Street during the excavation for Catch basin #3's original location. The entire replacement trench was within very disturbed brown fill, with coffee cup lids and other 20th century debris noted to 4.5 feet below grade.

Opposite #52-54 Stone Street, a bank of terra cotta tile ducts was exposed in the south wall of the replacement water main trench. The ducts were 3-4 inches square, began approximately 2.0 feet below grade, and extended to at least 4.0 feet below grade. According to the Bell Atlantic representative on-site, these ducts housed (former) telephone cables, predating the large concrete covered bank of the 60 plus telephone cables already encountered. The entire replacement main trench was highly disturbed throughout this section in the brown sandy fill and a reddish brown (2.5YR 3/2) sandier matrix fill seemingly in association with the terra cotta tile ducts.

Many additional utility lines were encountered. Opposite #51 Stone Street PVC telephone cables were exposed at about 1.5 feet below grade cutting across the replacement trench on a diagonal. In the south wall of the trench, two 2 inch diameter copper pipes were exposed running east-west just north of and atop the large concrete bank of telephone cables (rumored to have been part of Western Union's pneumatic tube system). The construction crew had to hand dig much of this section of replacement main trench to avoid the new gas line and other utility lines encountered. At this point during excavation, the new water main runs east-west about 7.0 feet south of the north curbline, and the in-place gas line is about 1.0 foot north of the watermain.

The replacement trench was widened to the south across from #51/53 Stone Street, as the extant mains were angling slightly to the south. Excavation was proceeding eastward toward the intersection with Mill Lane. At this point during the trench excavation, the new gas line is still to the north of the new water main, the terra cotta tile ducts are in the south wall of the trench and numerous smaller utility lines have been paralleling and crossing the trench at various depths. The whole area has been highly disturbed.

A manhole was encountered in front of #54 Stone Street, and the extant 12 inch main and terra cotta tile ducts run right through it, making this manhole somewhat useless for access. The replacement main trench was excavated around this manhole to the north, to run parallel to the sidewalk vaults and new gas line.

Partial sidewalk vaults were exposed in the north wall of the trench for the #55 and #57 Stone Street buildings. The vault

associated with #57 appeared to have been already impacted. No cultural material was noted in this trench section, and the same brown (10YR 4/3) disturbed fill was present to approximately 5.0 feet below grade. The sandier, reddish brown fill (2.5YR 3/2) in association with the terra cotta tile ducts was also present along the south wall of the trench (Plate 18).

Trench excavation continued eastward across the intersection with Mill Lane, following the route of the two extant mains. Two iron pipes, 4 inch diameter and 3 inch diameter, containing telephone cables were exposed, crossing the trench on a diagonal. These proved to belong to the Fire Department-line for fire alarm boxes. Excavation continued by hand in this section of trench opposite #60-64 Stone Street as gas service lines to buildings, the FDNY telephone lines, and a hydrant connection were all encountered crossing the trench. This section of trench was completely within the disturbed brown fill and no cultural material or architectural features were encountered.

The replacement trench excavation next shifted to the corner of William and Stone Street after a one week hiatus, during which no archaeological monitoring had been deemed necessary. During this week, the new gas line work in Stone Street had been completed, from the east side of Mill Lane to the connection in William Street.

When archaeological monitoring was resumed on February 12, 2000, the trench was unplated and the new gas line exposed. The trench appeared to be between 2.0-2.5 feet below grade between Mill Land and William Street, but was easily at 3.5 feet below grade in William Street. The trench was within the highly disturbed brown fill, in association with the trench for the extant water mains and numerous PVC iron pipes as well. The replacement water main in this section was to connect with the north-south running main within William Street, about 2.0 feet south of the new gas line connection (Plates 19 & 20)

The remainder of the Stone Street replacement main trench (from opposite #64 Stone Street) was excavated with heavy machinery and by hand to a depth of about 5.0 feet below grade to connect with the area in William Street already excavated for the gas line work. Numerous small utility lines were exposed ie. a 4 inch diameter iron water pipe for the sprinkler system to the Italian Bank Building on the north side of Stone Street. The terra cotta tile ducts were no longer in the south wall of the trench opposite #66 Stone Street. The whole trench was within the disturbed brown fill of the extant mains.

Another manhole was exposed in the lane of the replacement main trench near the intersection of William Street. As was the case for the manhole exposed opposite #54 Stone Street, the trench was angled to the north to avoid the manhole.

The William Street tie-in of the replacement water main proved a difficult task due to numerous utility lines encountered. The William Street trench was a total of 26.0 feet long north-south; the section north of the tie-in was 9.5 feet long; and the section to the south was stopped at 16.5 feet long. The whole length was 4.0 feet wide.

The asphalt road bed was 4 inches thick and the concrete underbedding was 6 inches thick. Directly below the concrete, several steel plates were exposed, 8 feetx30 feet. Below the steel plates, several groups of 4 inch diameter PVC pipes encasing telephone lines were exposed, most of which were crossing the trench from the northeast to the southwest. In addition, a number of iron pipes were encountered running in all direction, at varying depths. The northern section of the trench was hand excavated to a depth of 5.0-5.5 feet below grade to expose the extant north-south running main, and the newly installed gas connection. The southern section averaged 2.5-3.0 feet below grade in depth, and was being extended to the south in order to locate an access point at which the extant water main could be removed and replaced for the tie-in with the Stone Street main. This proved to be impossible to accomplish, and it was decided to replace the water main in Stone Street only to the tie-in with the extant William Street main, not to remove and replace the main within William Street.

The digging was extremely slow going due to the number and density of gas, electric and telephone lines criss-crossing and paralleling the trench for the replacement main. The fill around these utilities was a reddish brown (2.5YR 3/2) sand mixed with patches of dark yellow-brown (10YR 5/6) sand, obviously representing different episodes of installation and/or repair. The fill of the extant water main trench was a brown (10YR 4/3) sandy silt matrix (seen elsewhere) with some reddish brown (2.5YR 3/2) sandier patches.

The entire trench area excavated for the tie-in of the Stone Street main to the William Street main was extremely disturbed, probably several times, due to the density of utility lines encountered. 20th century debris such as plastic, paper, a cloth bandanna, pieces of green garden hose, nylon braided rope and a rubber glove were all noted to a depth of 5.0-5.5 feet.

The Stone to William Street tie-in was completed on February 19, 2000. This was the last day of archaeological monitoring for the water main portion of the project.

SUMMARY AND CONCLUSIONS

The purpose of the Phase IB monitoring investigation was to determine the presence or absence of archaeological sites (intact artifact deposits, historic surfaces or features) on the project area. The project area existed within an historic district.

During the course of the investigation, construction excavations for a water main and 5 catch basins along Stone Street, Coenties Alley and Pearl Street, were subjected to archaeological monitoring. Maximum depth reached on the mater main trenches averaged 5.5 feet below grade (b.g.). Maximum depths reached for catch basins (CB) were CB#1 at 7 feet b.g., CB#2 at 10.5 feet b.g., CB#3 at 10 feet b.g., CB#4 at 10 feet b.g., and CB#5 at 7.5 feet b.g.

Archaeological monitoring has determined that virtually the entire project area had been heavily and adversely impacted during the past. Evidence for the disturbance has been recorded on this project consisting of densely concentrated utility lines (water, sewer, electric, gas, and telephone), ranging in depth from 10 feet b.g. to just under ground surface. In fact, utility lines dated from turn of the century to modern (later 20th century). Additional impacts to the project area included an underground parking lot along Coenties Alley and sidewalk vaults along Stone Street.

The only potentially intact historical deposit consisted of a stone wall located at CB#2. The wall was encountered at about 5 feet below surface and was approximately 2.8 feet high. It ran the width of the catch basin and was oriented along Stone Street lengthwise. An excavation unit was conducted adjacent to this feature. However, no intact deposits of artifacts were found associated with this feature. In fact, the wall was undercut by a turn of the century utility pipe. No intact deposits of artifacts, historic surfaces, or significant historic features were encountered anywhere across the project area.

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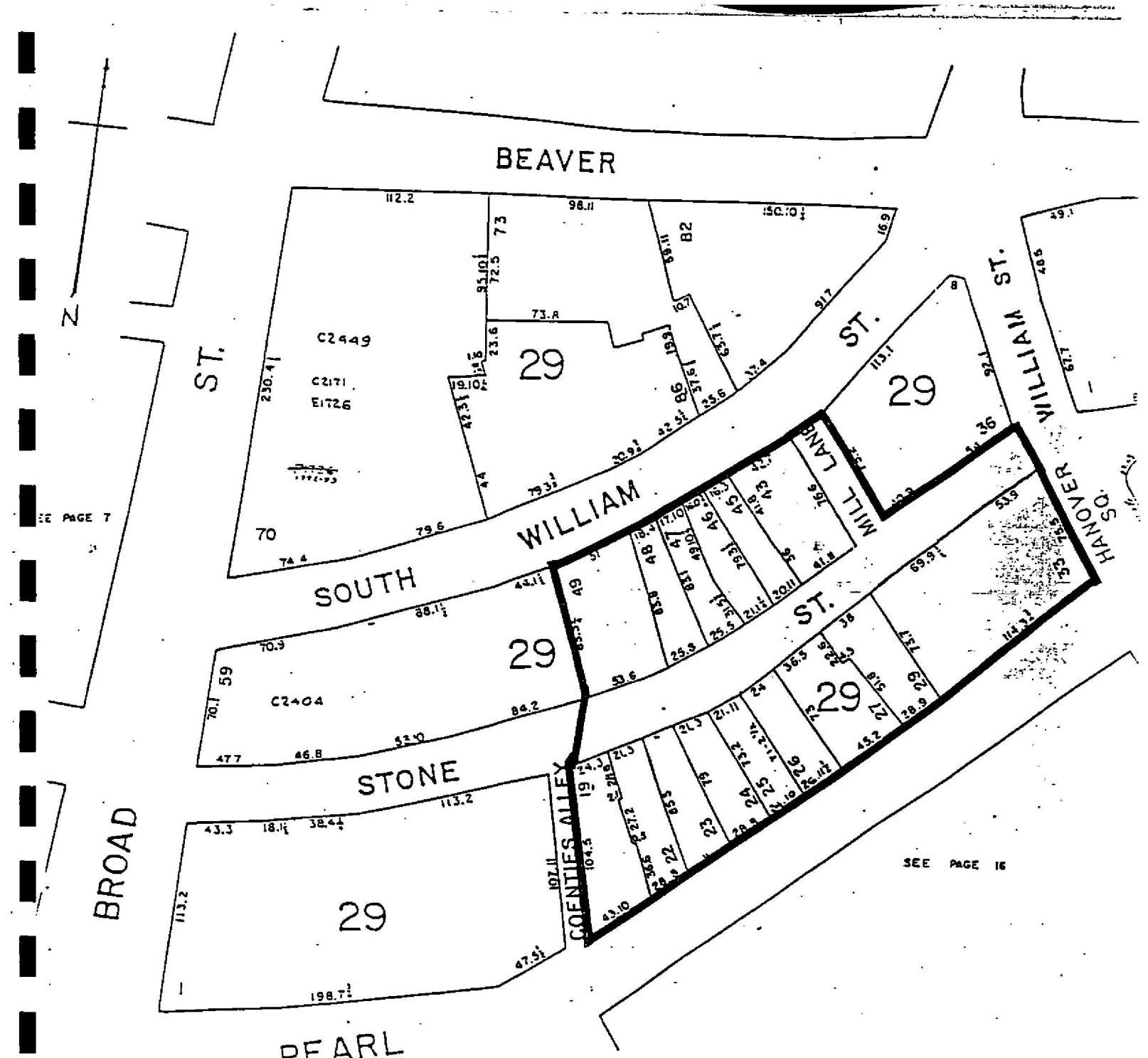
Bankoff, Arthur H.
1998 *Phase IB Archaeological Monitoring Report, Stone Street Historic District (LP-1938).* NYC Landmarks Preservation Commission.

New York City Landmarks Preservation Commission
1998 *Protocol for Water Main and Catch Basin Work in the Stone Street Historic District.* NYC Landmarks Preservation Commission.

APPENDIX 1

Figure 1

Location of the project area on a portion of the U.S.G.S. 7.5 minute series, Jersey City, New Jersey-New York quadrangle map.



STONE STREET HISTORIC DISTRICT
Designated June 25, 1996

Landmarks Preservation Commission

Figure 2 Stone Street Historic District Map.

SOUTH WILLIAM STREET

BLOCK 29

MILL LANE

STONE STREET

BLOCK 29

ALLEY

COENTIES SLIP

PEARL STREET

BLOCK 30

WILLIAM STREET

BLOCK 28

HANOVER SQ.

BLOCK 28

PEARL STREET

REMOVE EXIST. 12" HP WM AS NECESSARY AT NO ADDITIONAL COST TO THE CITY.

ABAND REMAINDER OF EXIST MAIN AND SEPARATE PAYMENT?

TWO 45° BENDS

NOT IN CONTRACT

THE NEW 12" WM SHALL BE PLACED IN THE SAME LANE AS THE EXISTING 12" HP WM THE EXISTING 12" HP WM SHALL BE REMOVED AND DISPOSED OF AT NO ADDITIONAL COST TO THE CITY.

REMOVE HP HYDRANTS & VALVE BOX ABAND CONN.

NEW 12" VALVE

UNDER CONTRACT HWMP107

NEW 12" WM

CUT, CAP & ROD 12" HPWM ABAND WM, CLOSE VALVE & REMOVE VALVE BOX

REMOVE HP HYDRANT & VALVE BOX ABAND CONN.

REMOVE EXIST. HYDRANT

INSTALL NEW HYDRANT W/FENDERS

REMOVE EXIST. 12" WM & INSTALL NEW 12" IN SAME TRENCH AS EXISTING

NEW 12" VALVE

EXIST. HYDRANTS TO BE REMOVED UNDER CONTRACT NO. MED583AR

NEW HYDRANT FENDER (TYP.)

NEW 12" x 12" 3-WAY

CUT, CAP & ROD 12" HPWM ABAND WM, CLOSE VALVES & REMOVE ALL VALVE BOXES AS PER PAGES AS-2 & AS-3 OF CONTRACT SPECIFICATIONS.

LIMIT OF SUBWAY STRUCTURE

KEY

■ = Catch Basin CB(1) (1)

WM = numbered water main branch

Scale = 20 feet

NOTE:

1. ALL PAYMENT FOR WATER MAIN WORK WILL BE PAID UNDER WM-1.
2. PAVEMENT EXCAVATION SHALL BE PAID UNDER ITEM NO. 6.02AAN. TEMPORARY PAVEMENT RESTORATION SHALL BE PAID UNDER ITEM NO. 4.02 CB.
3. PRIOR TO ABANDONING THE HIGH PRESSURE WATER MAIN, THE CONTRACTOR IS ADVISED TO CHECK THE STATUS OF THE SAID MAIN, WHICH AT THE TIME OF PREPARATION OF THIS DRAWING WAS TO BE ABANDONED AND CAPPED UNDER CONTRACT NO. MED-579, AT LOCATIONS IMMEDIATELY OUTSIDE OF THE LIMITS OF THIS PROJECT.

Figure 1 Project area map with trench and catch basin excavations.

SECTION LOOKING WEST ON STONE STREET

SECTION LOOKING EAST ON STONE STREET

SECTION LOOKING NORTH ON STONE STREET

NOTE:
FURNISH & INSTALL A NEOPRENE PAD WHERE CLEARANCE IS 6" OR LESS BETWEEN PROPOSED WATERMAIN AND TELEPHONE FACILITIES.

0 1 2 3 4
ORIGINAL SCALE IN INCHES
SCALE: 1" = 20'-0"

RBA Engineers for Infrastructure

CITY OF NEW YORK
DEPARTMENT OF DESIGN & CONSTRUCTION

WATER MAIN PLAN

STONE STREET
BOROUGH OF MANHATTAN

SHEET 17 OF 54 | CONTRACT NO. HWMP107

CATCHBASIN #1 STONE STREET

WEST WALL PROFILE

Scale :1 Foot

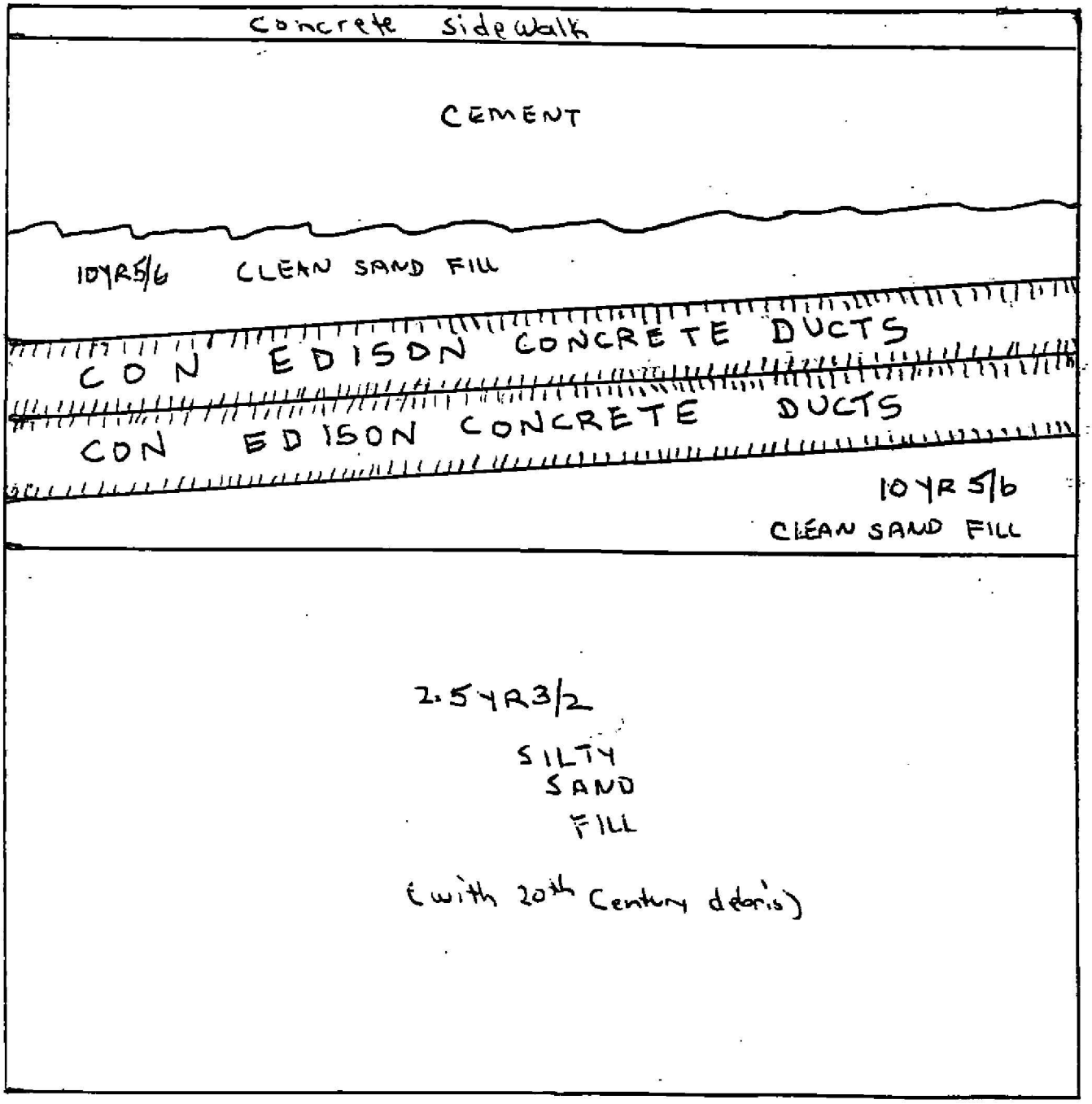


Figure 4 Catch basin 1, west profile.

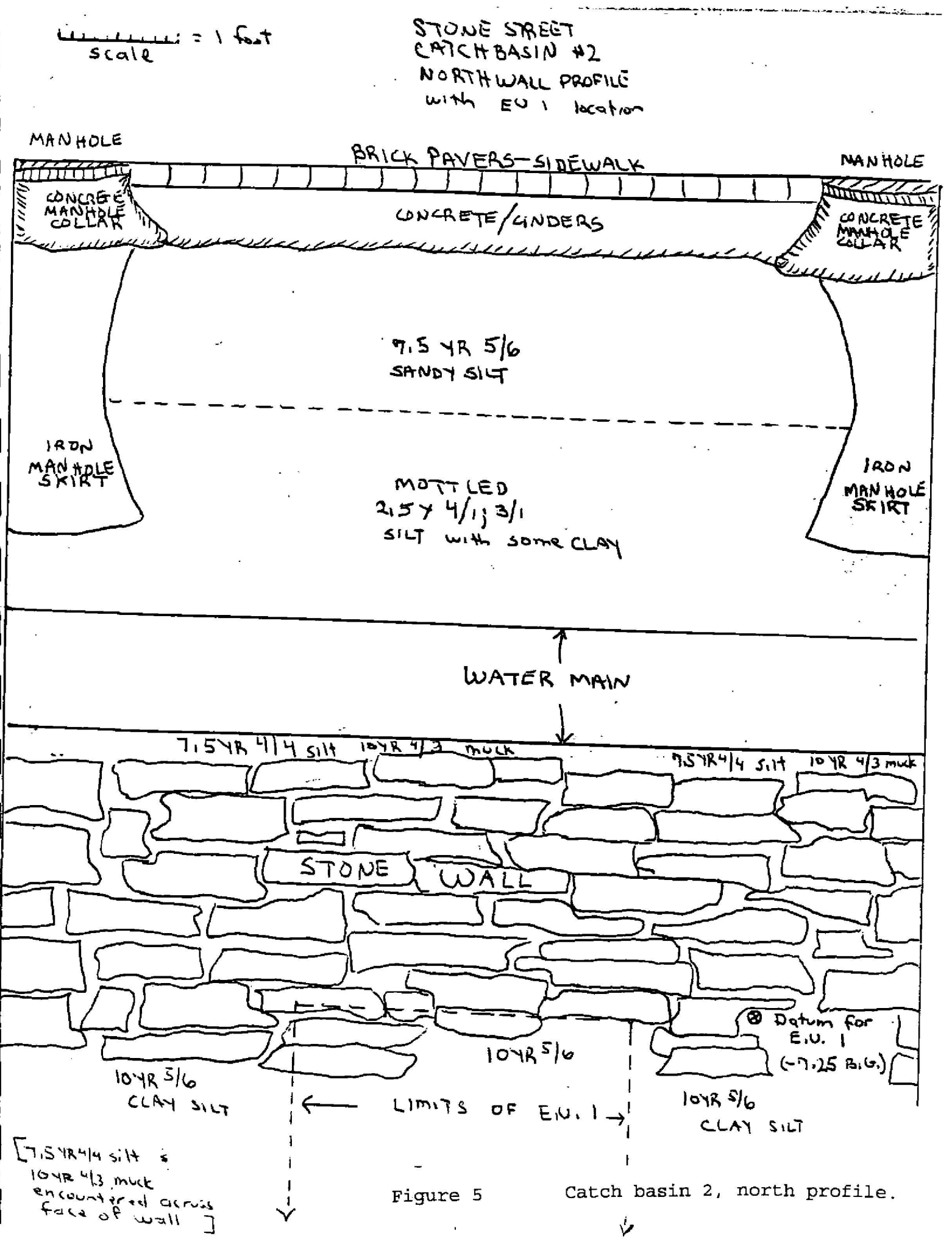
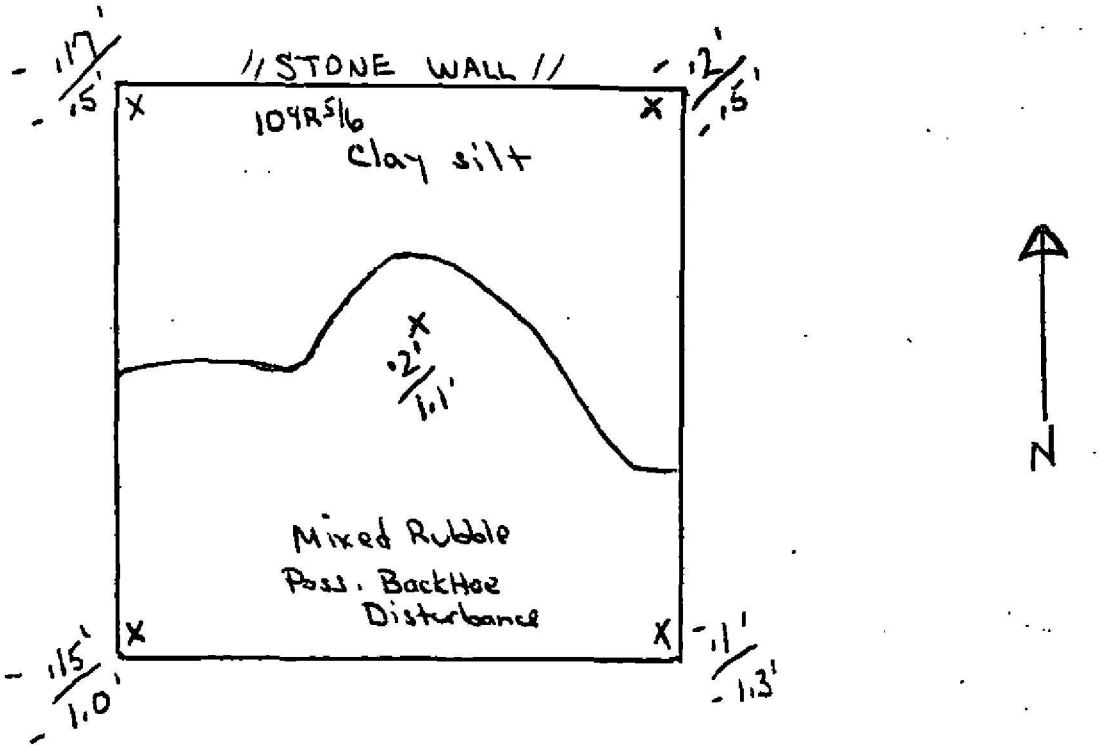


Figure 5 Catch basin 2, north profile.

STONE STREET E.U. 1 CATCH BASIN #2 11/23/99
PLAN VIEW - LEVEL 1 (after excavation)



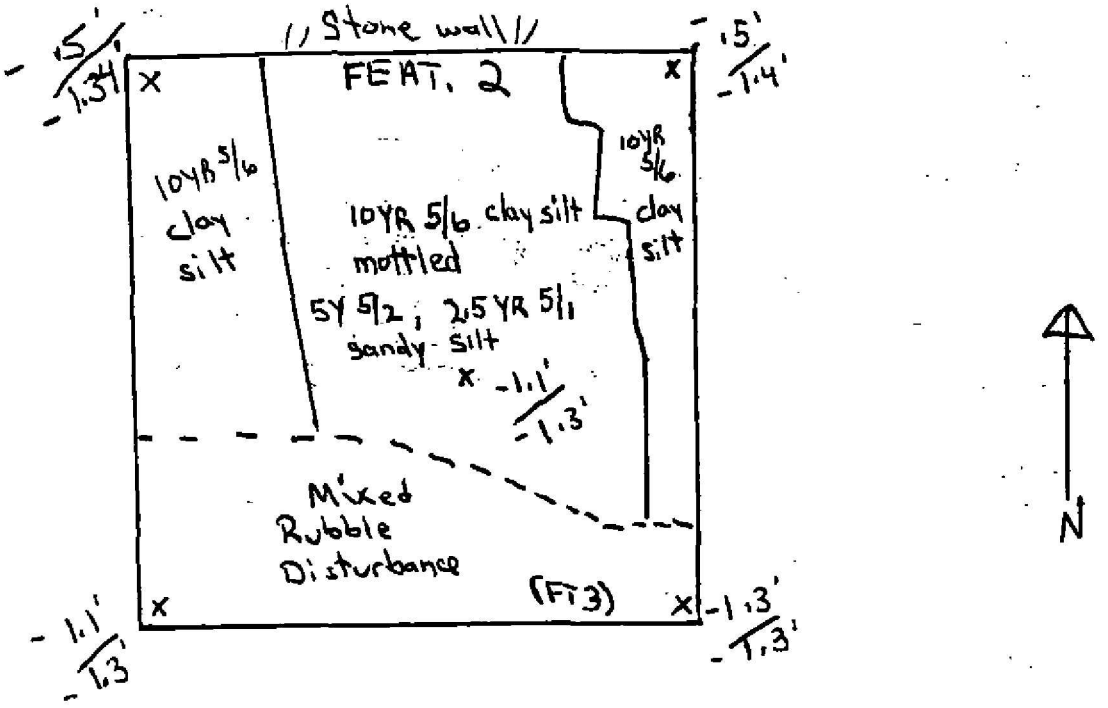
scale = 1 foot

Elev: open/close (all elevations below datum)

Datum (at NE cor.) = -7.25' below sidewalk grade

Figure 6 Plan of EU 1, bottom of Lv. 1.

STONE STREET EU #1 CATCH BASIN #2
PLAN VIEW - LEVEL 2 (after excavation)
with limits of FEATURE 2



Scale = 1 foot

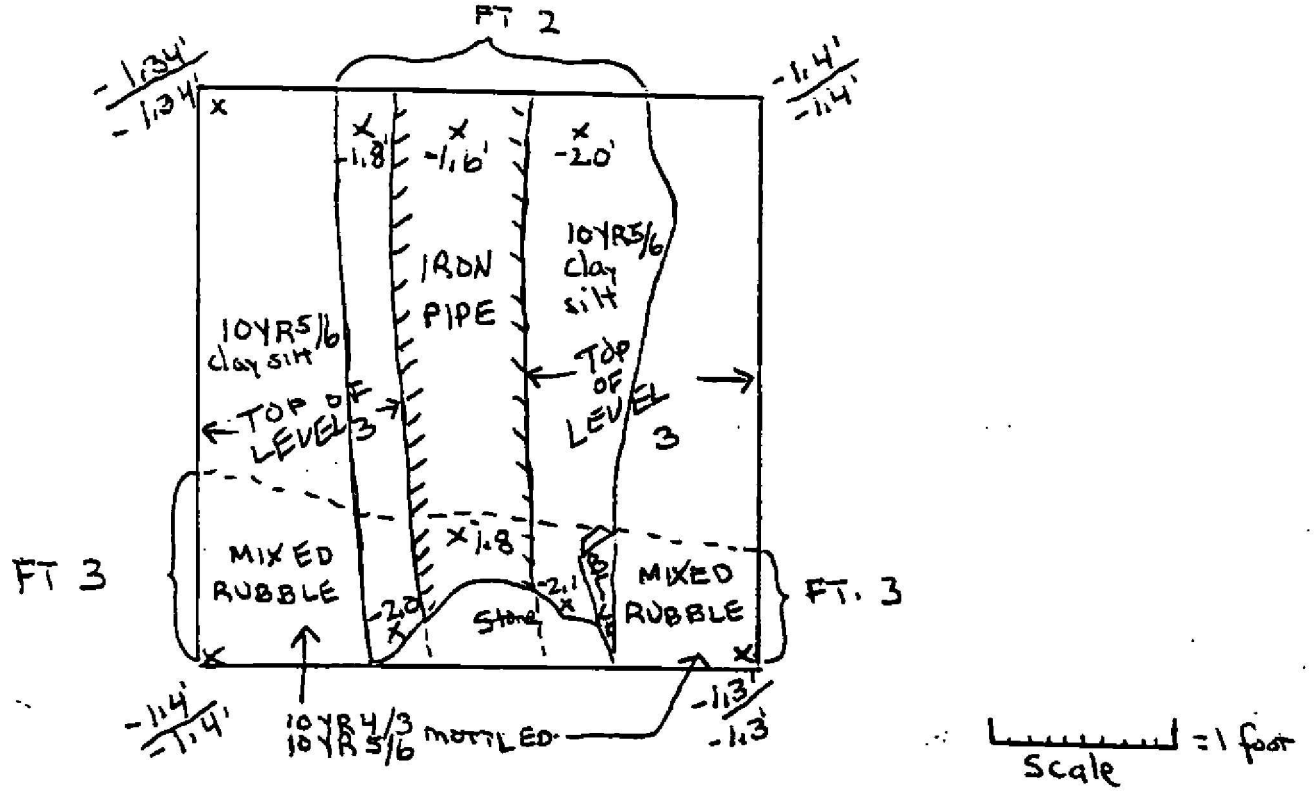
Elev: open/close (all elevations below datum)

Datum (at NW cor.) = -7.25' below sidewalk grade

Figure 7 Plan of EU 1, bottom of Lv. 2.

STONE STREET CATCH BASIN #2

EU 1 PLAN VIEW : Feature 2 (during excavation)
with limits of FT 3



EU 1 Plan Views of FT 2, FT 3 and Lv 3 (after excavation)

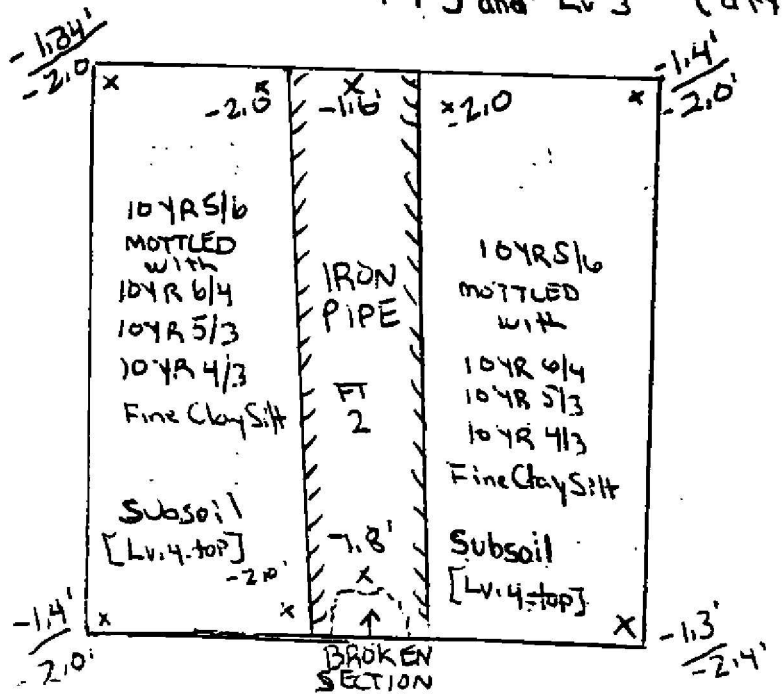
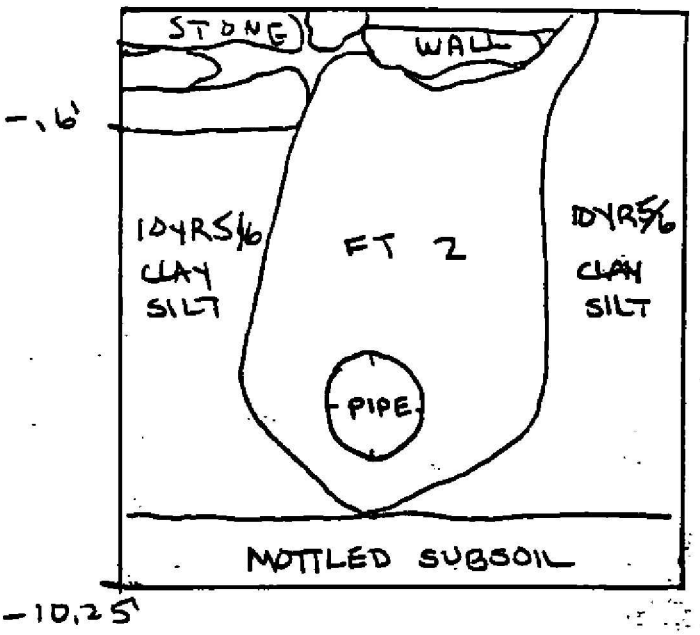
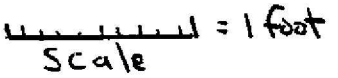


Figure 8 Plans of Feature 2, during and after excavation.

STONE STREET
CATCH BASIN #2

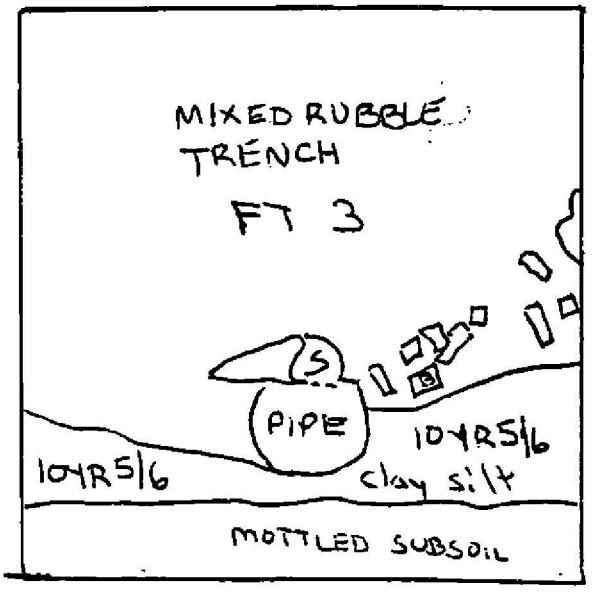
EU 1
North Wall Profile





Datum: -7.25
below grade

EU 1
South Wall Profile



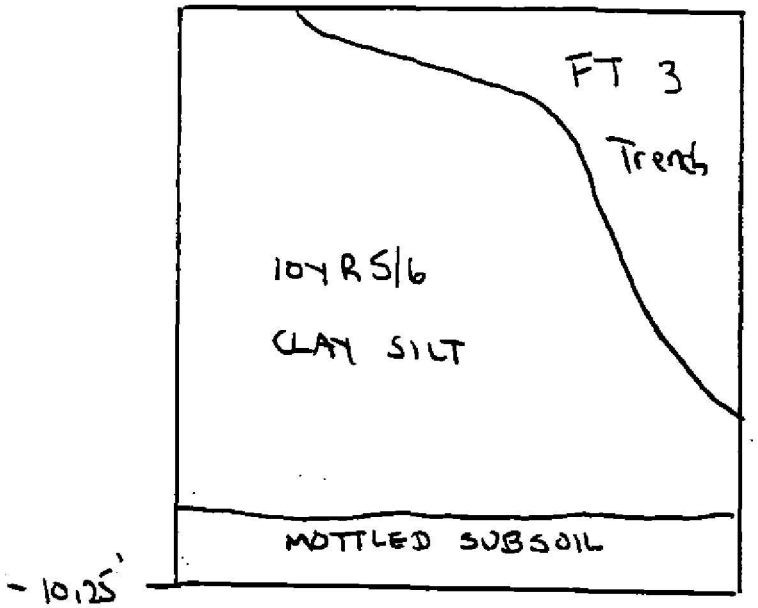
B= Brick
S= Stone
Mottled Subsoil= 10YR6/4 clay silt
10YR5/3 clay silt
10YR4/3 clay silt

Figure 9 EU 1, north profile and south profile.

Stone Street Catch Basin #2

EU 1

East Wall Profile



Scale = 1 foot

EU 1

West Wall Profile

Datum = -7.25' Below Grade

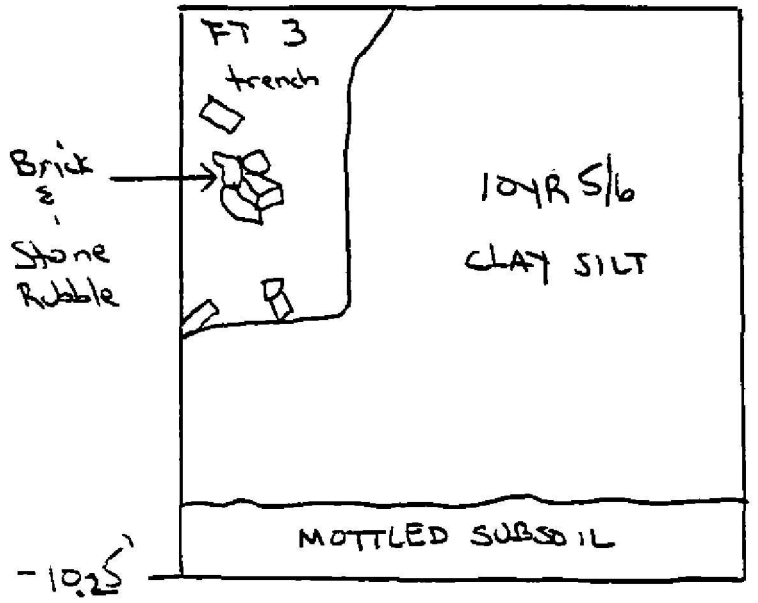


Figure 10 EU 1, east profile and west profile.

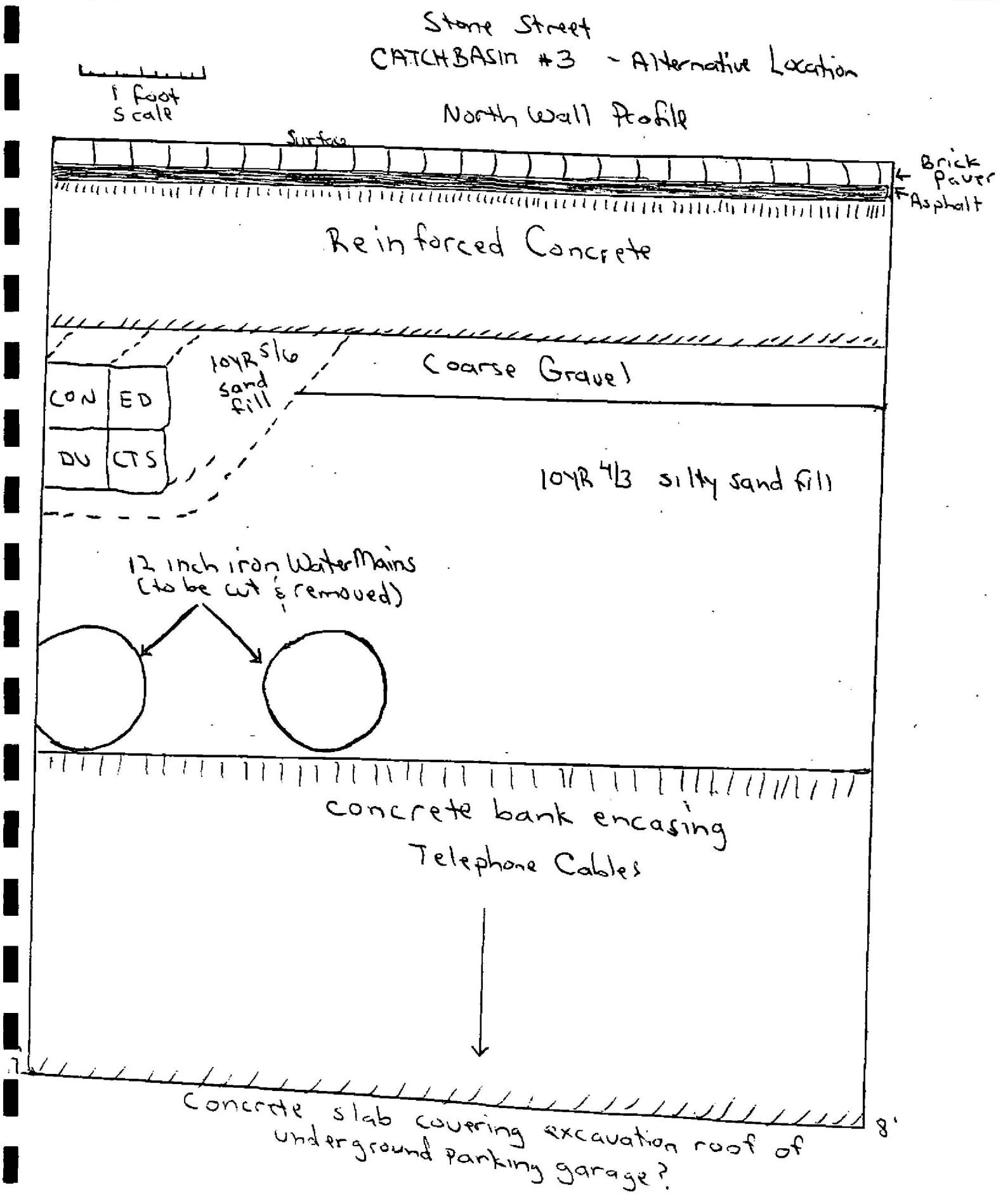


Figure 11 Catch basin 3 (alternative location), north profile.

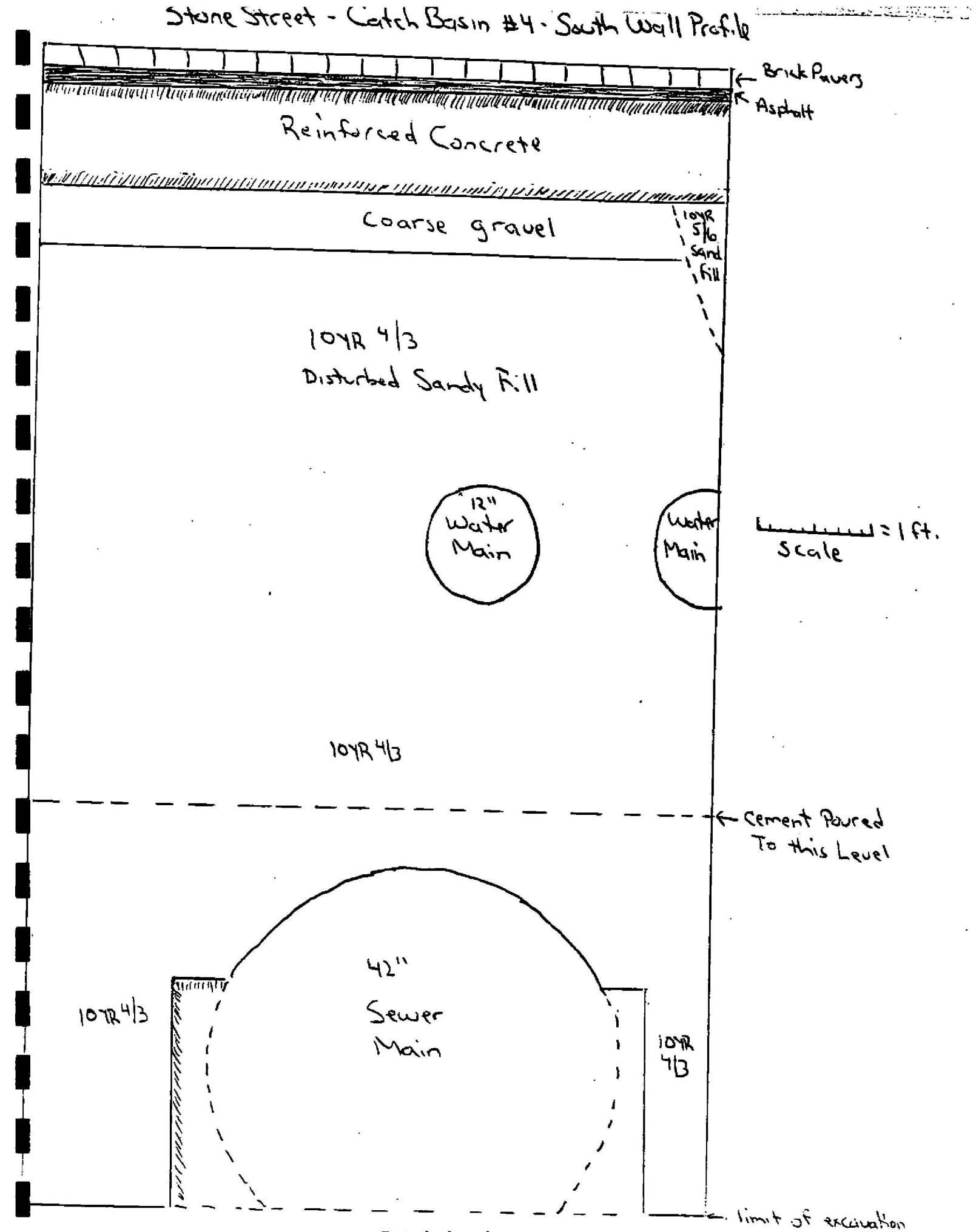


Figure 12 Catch basin 4, south profile

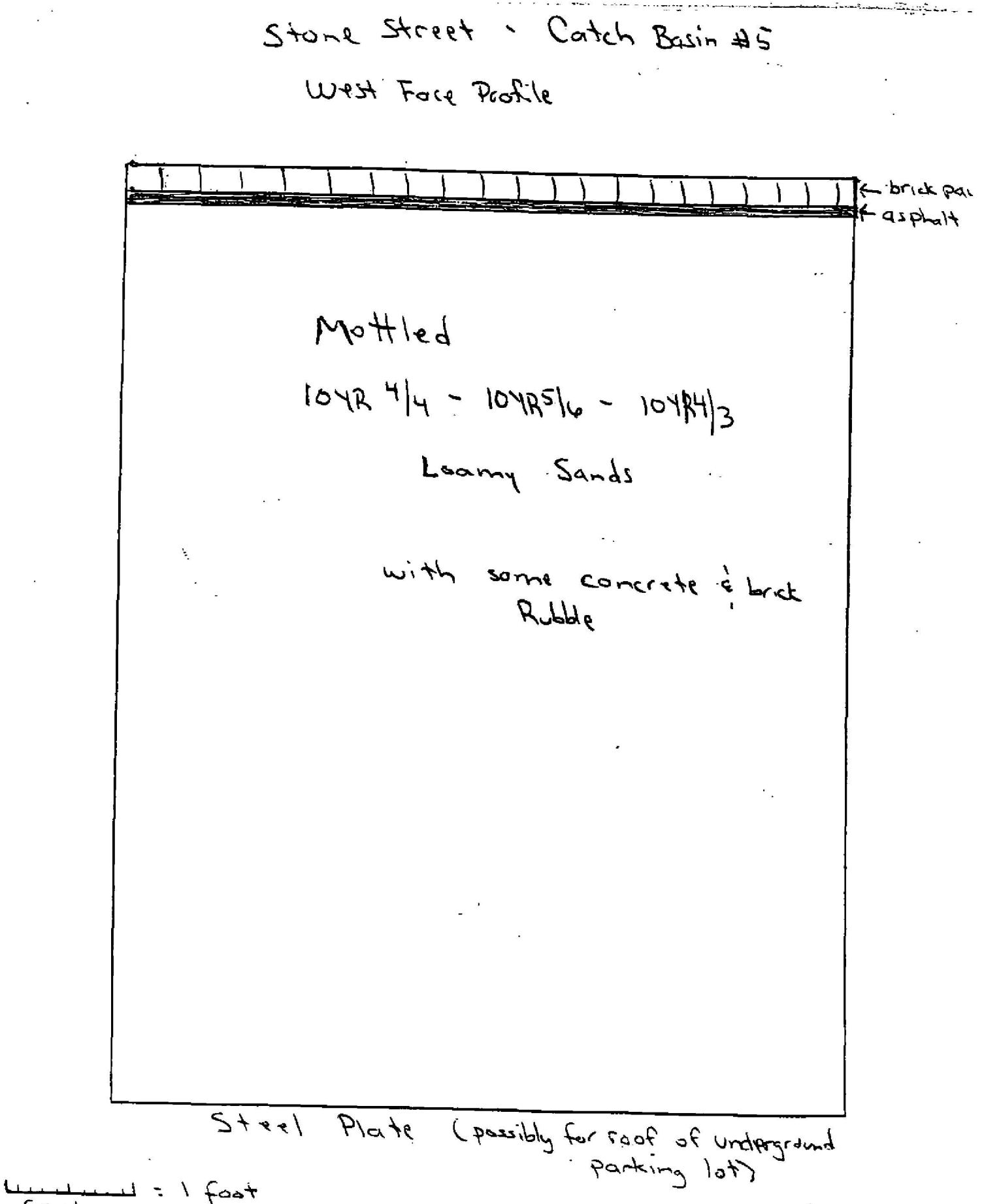


Figure 13 Catch basin 5, west profile.

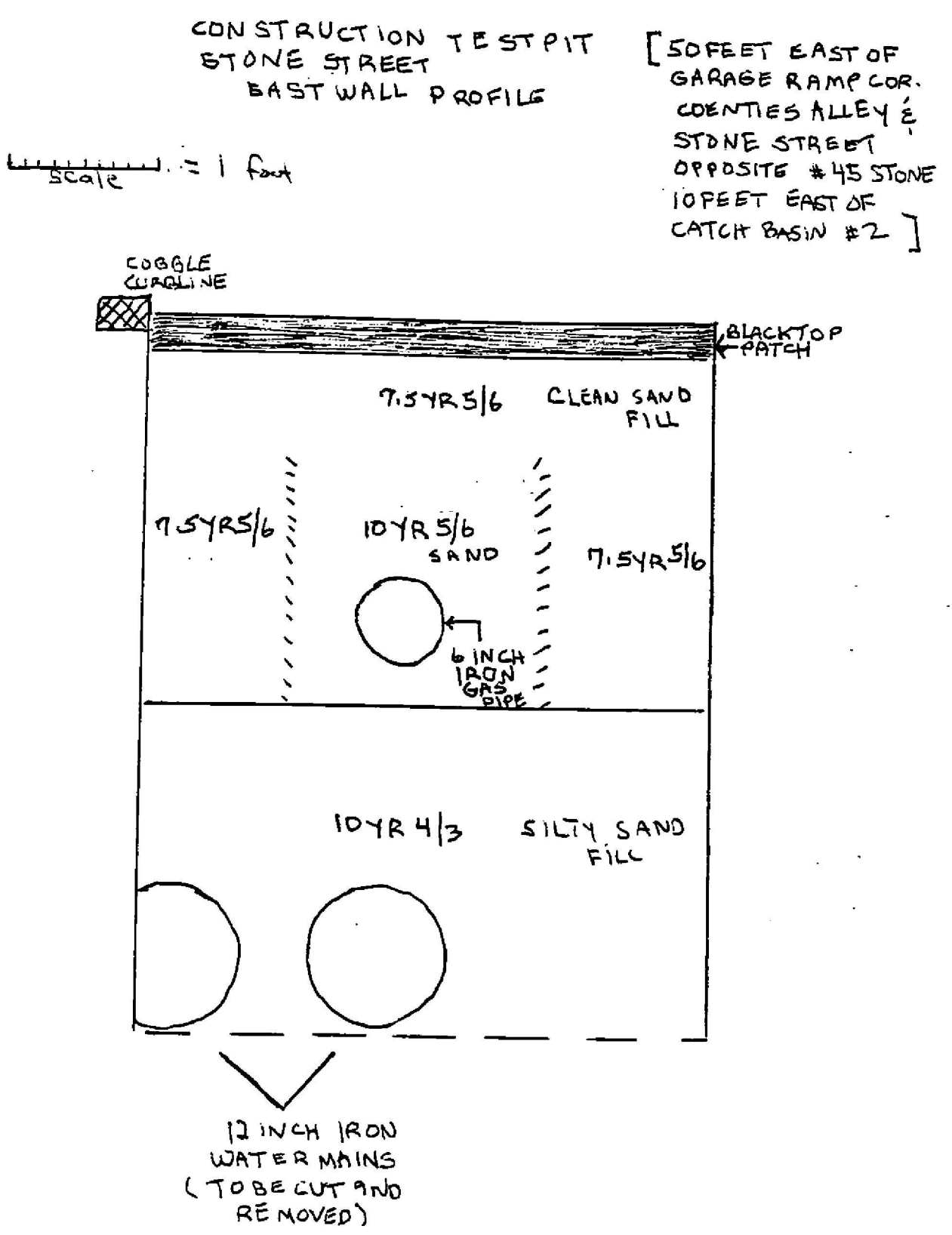
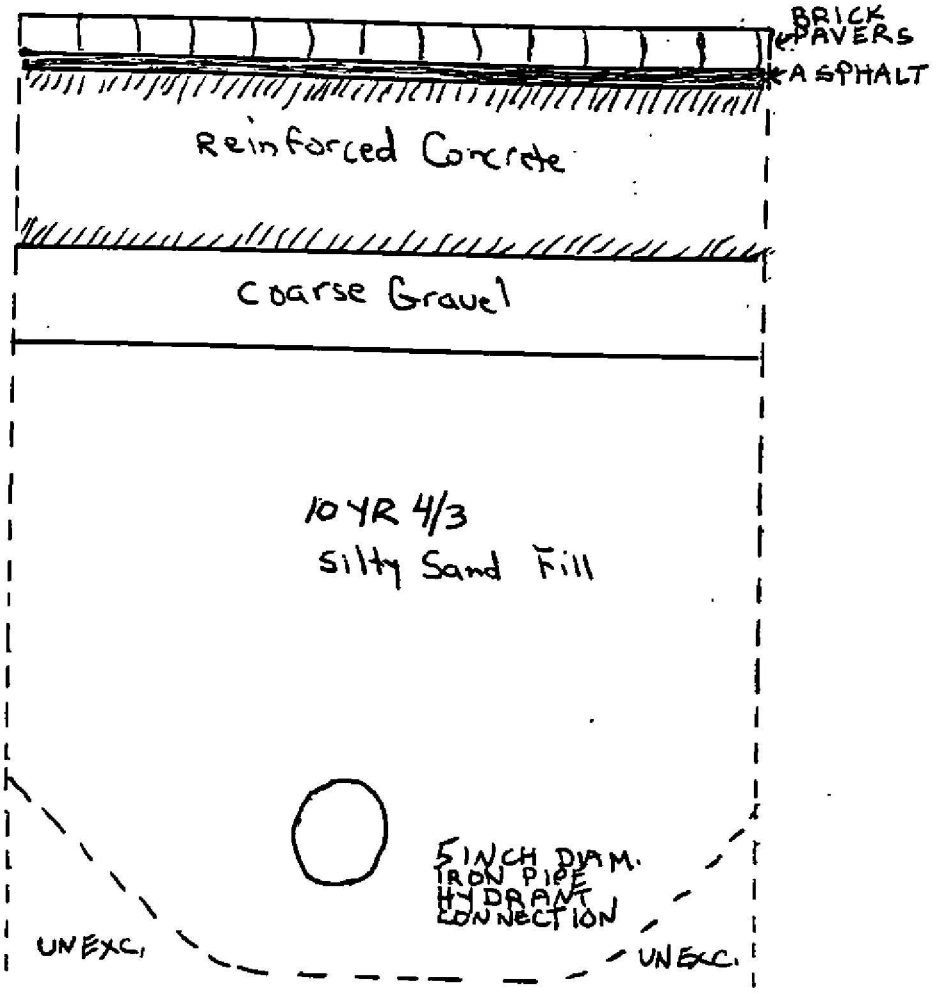


Figure 14 Stone Street construction test pit, east profile.

CONSTRUCTION TEST PIT
COENTIES ALLEY
EAST WALL PROFILE

[120 FEET NORTH OF PEARL ST. OPPOSITE FIRE HYDRANT ON EAST SIDEWALK OF COENTIES ALLEY]



scale : 1 foot

Figure 15 Coenties Alley construction test pit, east profile.

Plate 1 Catch basin 1, east wall.

Plate 2 Catch basin 2, facing north showing stone wall (FT 1).

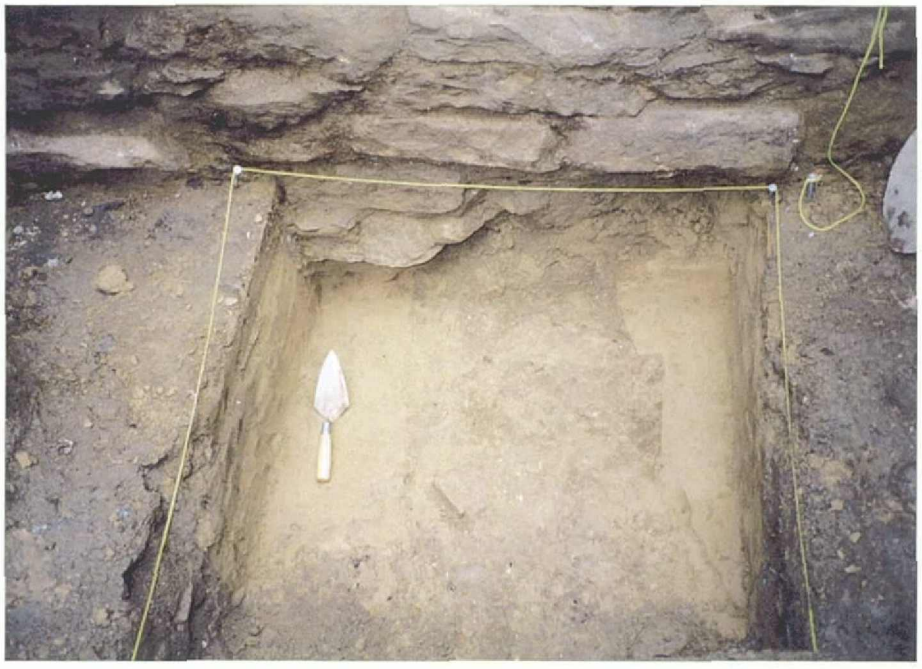


Plate 3 EU 1, FT 2 (stain), facing north.

Plate 4 EU 1, Lv. 3, after excavation, facing north.

Plate 5 EU 1, FT 3 (open), looking south.

Plate 6 EU 1, FT 3 (close), looking south.

Plate 7 End of EU 1, looking north.

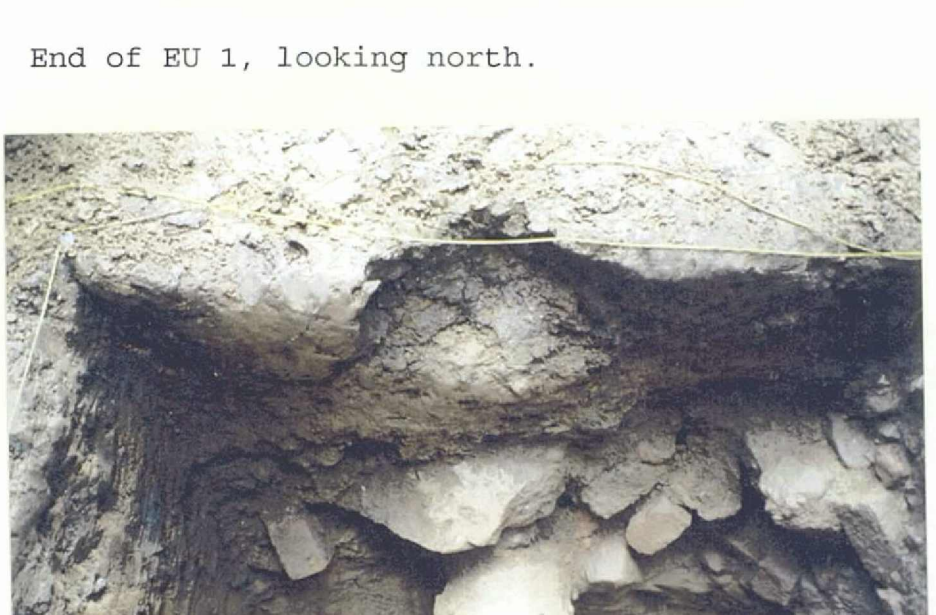


Plate 8 End of EU 1, looking south

Plate 9 Catch basin 3, looking north showing cement slab at bottom of hole.

Plate 10 Catch basin 4, looking north.

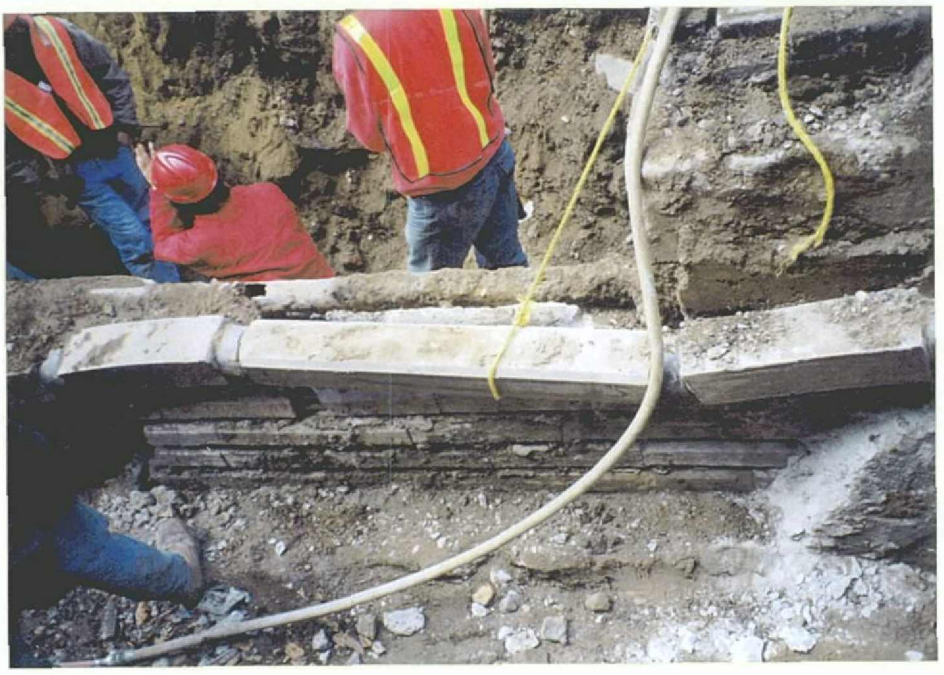


Plate 11 Looking north at trench on Pearl Street at Coenties Alley showing Con Ed ducts and electric line.

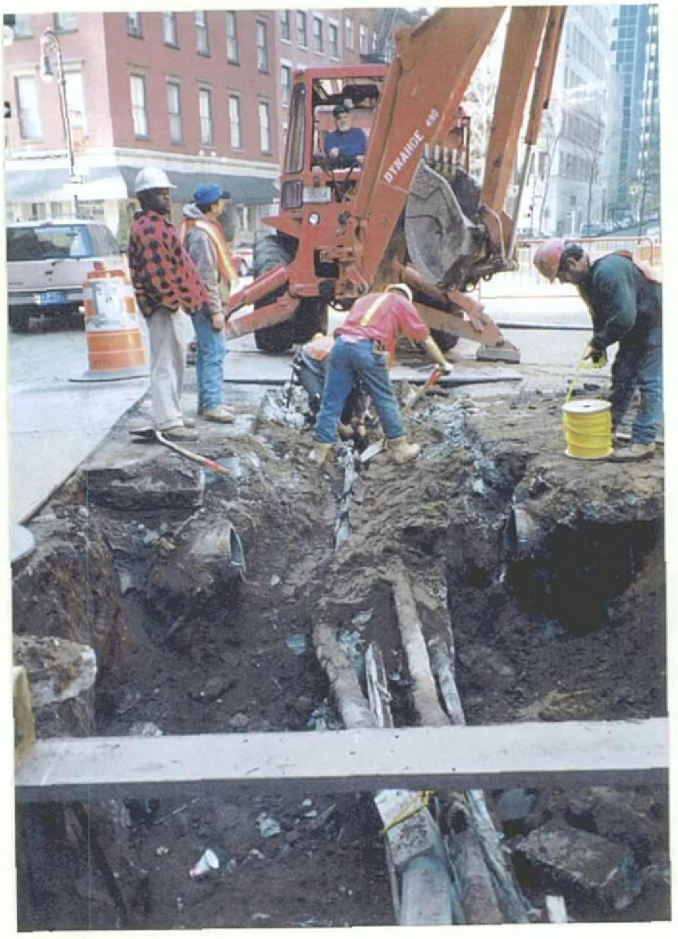


Plate 12 Looking west at electric line on Pearl near Coenties Alley.

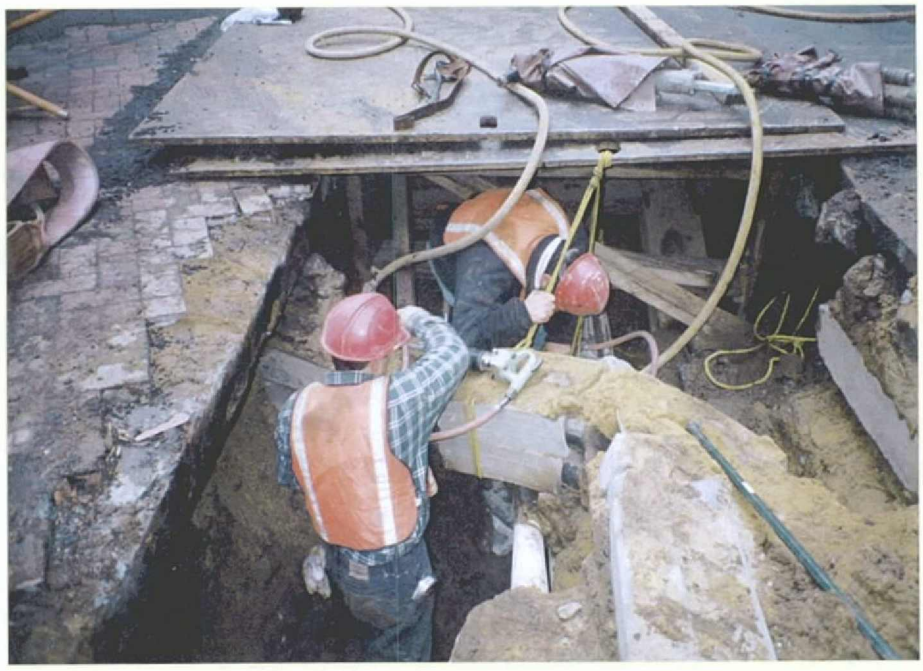


Plate 13 Looking northeast at cables and ducts in Pearl Street at Coenties Alley.

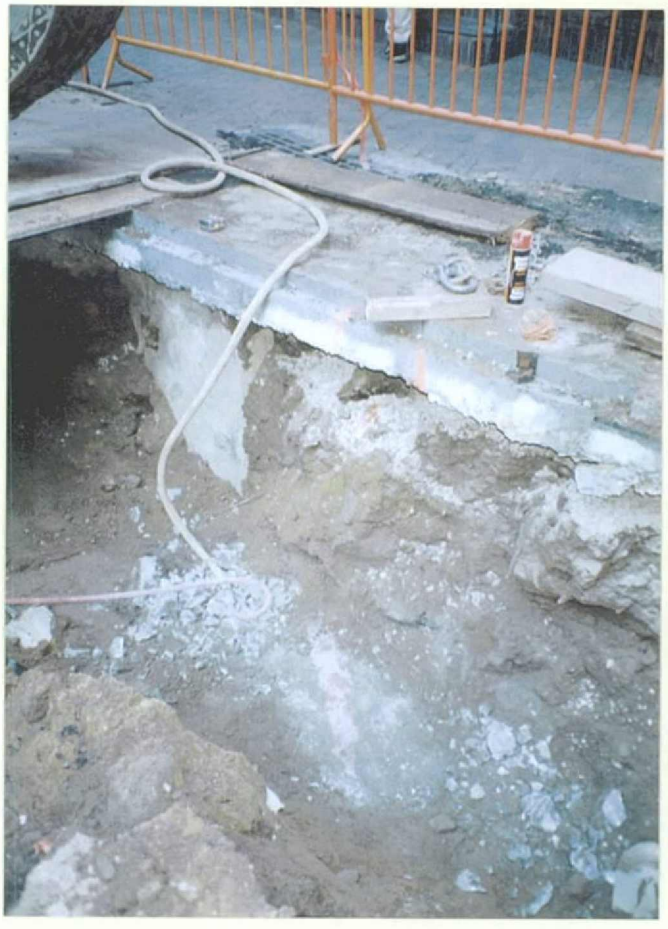


Plate 14 Looking north at water main in Coenties Alley at Pearl Street showing extant catch basin and terra cotta pipe at bottom of trench.

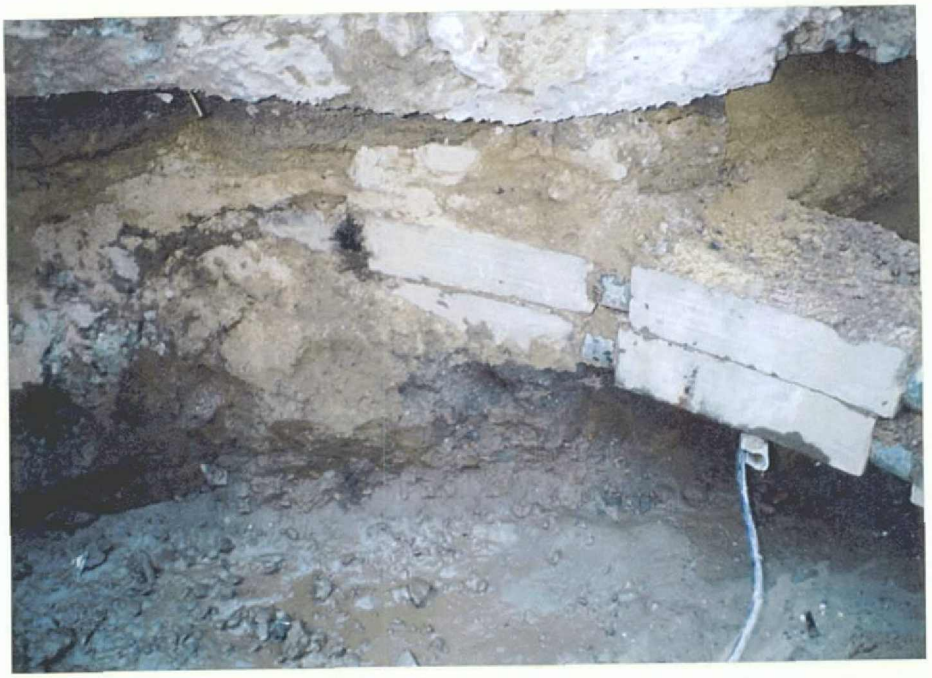


Plate 15 Looking at west wall of trench in Coenties Alley showing Con Ed ducts and mixed soil matrix.

Plate 16 Looking north at trench in Coenties Alley near Stone Street.

Plate 17 Looking north at trench in Coenties Alley near Stone Street.

Plate 18 Looking north at trench in front of 55 Stone Street showing sidewalk vault and PVC phone line.

Plate 19 Looking west along Stone Street from William Street at trench.

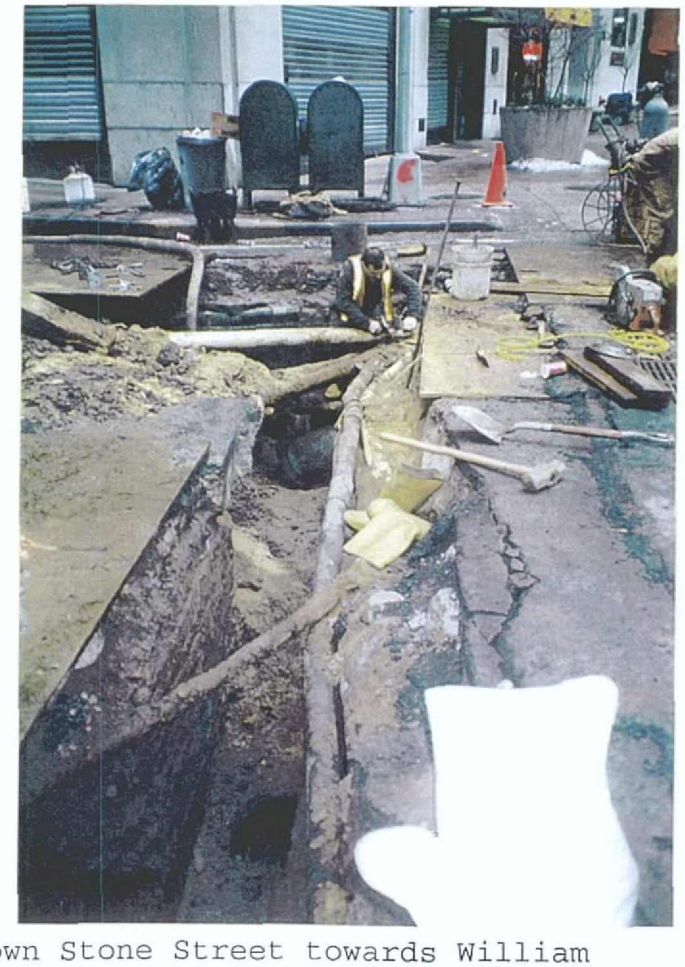


Plate 20 Looking east down Stone Street towards William Street at trench.

APPENDIX 2

FEATURE FORM

PROJECT/SITE: Stone Street

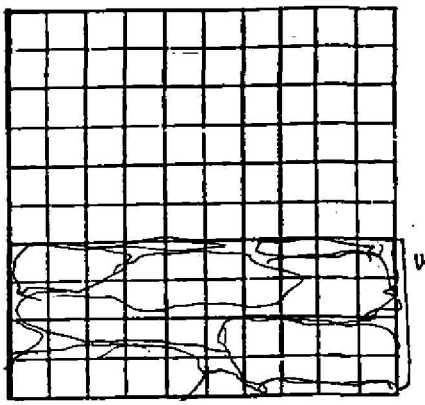
FEATURE TYPE: Foundation
Clean Up - defining Wall

CONTEXT NUMBER
FEATURE · LEVEL
□□-6001.01

HORIZONTAL LOCATION

DIMENSIONS

OPENNING PLAN

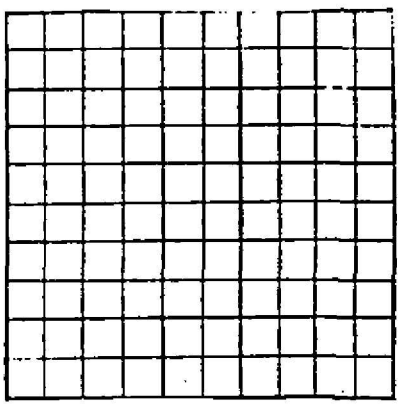


ELEVATIONS brick side wall to top of wall/foundation
1 5.1
2
3
4
WALL/FOUNDATION
5
DATUM

SOILS WALL 7.5YR 4/4
MUNSELL SURFACE
patches 10YR 5/6 clayeey silt
10YR 4/3 Black muck
TEXTURE Silty sand

COMMENTS INTACT SECTION OF MORTARED STONE WALL RUNNING E-W

CLOSING PLAN



ELEVATIONS
1
2
3
4
5
DATUM

STRATIGRAPHIC ASSOCIATIONS
UNDERLIES SIDEWALK - N SIDE STONE ST.
OVERLIES YELLOW CLAYEY SILT 10YR 5/6
~~INTRUDES INTO~~ ABUTS 12" WATER MAIN
INTRUDED BY

ELEVATION COMMENTS
TOPSTONE OF WALL IS =4.6' BELOW SIDE WALK GRADE

ARTIFACTS
Ceramic - Poss. CREAMWARE
pipe - steam
oyster shell / clam shell
bone frags BOTTLE GLASS

DRAWINGS

PHOTOS ✓

SAMPLES —

SCREENED 1/4 INCH - YES ☐ NO ☒

TOOLS USED TROWELS, BRUSHES WHISKS,

EXCAVATORS CM NS

DATE 11-22-99

EXCAVATION RECORD SHEET : Trenches and Area Excavations

PROJECT : Stone Street	TRENCH/AREA :	CONTEXT TYPE :	CONTEXT NO. :
SITE : CATCHBASIN #2	EU #1		5001-01

HOW DUG ?	SAMPLES :	SCREENED ?	SUPERVISOR :	EXCAVATOR :	DATE :
SHOVEL	BRICK	1/4" ALL	AC	AC, NS, CM	11/23/99

CONTEXT DESCRIPTION (Composition, texture, moisture, inclusions, etc.)

MIXED RUBBLE, LV 1
OVERBURDEN,
POSS. BACKHOE
DISTURBANCE - DAMP SILTY SAND
BROWN/BLACK/GRAY

Color (Munsell) : 10YR mottled 4/3, 4/4

EXTENT OF CONTEXT : DATUM AT NE CORNER 7.25 below sidewalk grade

Horizontal Coordinates	Top Levels	Bottom Levels
NE	.2	.5
SE	.1	1.3
NW	.17	.5
SW	.15	1
C	.2	1.1

STRATIGRAPHIC RELATIONSHIPS : SEE PLAN VIEW DATED 11/27/99 - NTS

Overlaid by : 2 12" WATER MAINS

Overlies : LEV 2, IN MOST OF 3 & 3 UNIT

Cuts :

Cut by :

Others :

GENERAL FINDS :

Ceramics : #22 EU 1 LOOK HUNK and 1 LV 1

Others : 17-20 MC MIXED BAG. CERAM, BOTT GL, PIPESTEMS ETC. BRICK, PLASTIC, PAPER

IN-SITU FINDS : (with Seq. No's)

Sketches and other notes overleaf :

EXCAVATION RECORD SHEET : Trenches and Area Excavations

PROJECT : Stone Street	TRENCH/AREA : EU. 1	CONTEXT TYPE :	CONTEXT NO. : 500 1-02
SITE :			

HOW DUG ? TROWEL, SHOVEL	SAMPLES : BRICK	SCREENED ? 1/4" MW	SUPERVISOR : AC	EXCAVATOR : CM NS AC	DATE : 11/23/99

CONTEXT DESCRIPTION (Composition, texture, moisture, inclusions, etc.)

YELLOW-BROWN Silt very fine sand, SOME CLAY Lv 2

Color (Munsell) : 10YR 5/6

EXTENT OF CONTEXT :

Horizontal Coordinates	Top Levels	Bottom Levels
NE	.5	1.4
SE	1.3	1.3
NW	.5	1.34
SW	1	1
C	1.1	1.3

STRATIGRAPHIC RELATIONSHIPS :

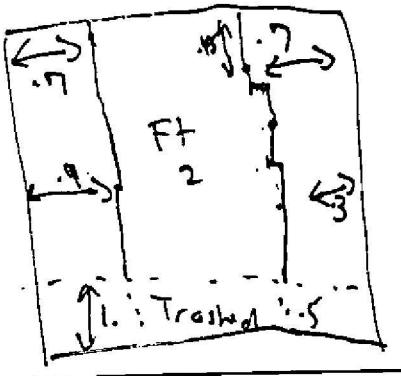
Overlaid by : Lv 1

Overlies : Lv 3, FEAT. 2

Cuts :

Cut by : FEAT. 3

Others :



SEE PLAN ON GRAPH PAPER 11/23/99

GENERAL FINDS :

Ceramics : green transfer print 19th century

Others :

IN-SITU FINDS : (with Seq. No's)

Sketches and other notes overleaf :

FEATURE FORM

PROJECT/SITE: Stone ST.

FEATURE TYPE: Ft 2 (Pit?) (PIPE TRENCH)

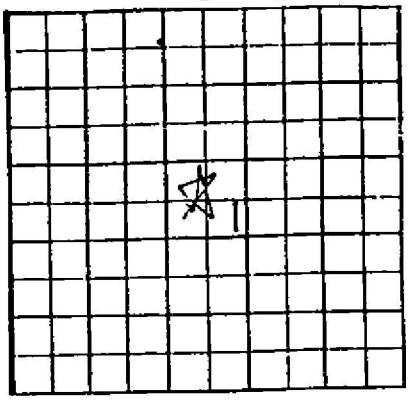
CONTEXT NUMBER FEATURE: [ ][ ]-[6][6][0][2].[0][1] LEVEL

HORIZONTAL LOCATION: center of EU 1

CATCHBASIN #2 LOCATION NE COR. B TOLF + COUNTIES

DIMENSIONS: SEE PLANS

OPENNING PLAN: see Lv 2

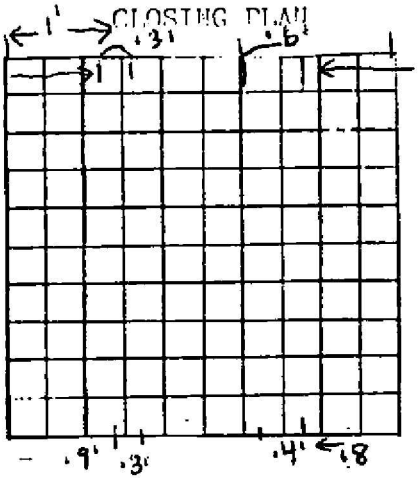


ELEVATIONS
1 1.3
2
3
4
5
DATUM

SOILS
MUNSELL: mottled Lv 2 w/ green, grey + brown
TEXTURE: SILTY SAND, SOME CLAY

COMMENTS:

CLOSING PLAN



ELEVATIONS
1 SEE PLAN VIEW DATED 11/24/99 FOR ALL CLOSING S -NS
2
3
4
5
DATUM

STRATIGRAPHIC ASSOCIATIONS
UNDERLIES: stone wall Ft 1
OVERLIES:
INTRUDES INTO: Lv 2
INTRUDED BY:

ARTIFACTS: MIXED 19TH C ART'S.

COMMENTS: TRENCH TYPE PIPE SEEM TO HAVE BEEN RUNCHED THRU YELLOW CLAYEY SILT UNDER WALL - ~~NOT EXCAV. FROM ABOVE~~ P.O.S. SEWER CONNECTION FROM FORMER (L.19TH C??) BLDG. ON 45 STONE ST.

ELEVATION COMMENTS: pit starts beneath wall (where wall steps) + travels south to later E.20TH C TRENCH DISTURBANCE IN SOUTH WALL UNIT

SCREENED 1/4 INCH - YES ☑ NO ☐

TOOLS USED: TROWELS, WHISKS

DRAWINGS: PLAN VIEW 11/23/99 BEFORE EXCAVATION
PLAN VIEW 11/24/99 AFTER EXCAV.

PHOTOS ✓

SAMPLES

EXCAVATORS: CM ; NS ; RA (RICK AFFLECK)

DATE: 11/23 - 11/24/99

EXCAVATION RECORD SHEET : Trenches and Area Excavations

PROJECT : Stone Street	TRENCH/AREA :	CONTEXT TYPE :	CONTEXT NO. :
SITE : CATCHBASIN #2	Ev 1		50061-03

HOW DUG ?	SAMPLES :	SCREENED ?	SUPERVISOR :	EXCAVATOR :	DATE :
SHOVEL, TROWEL		1/4	AC	AC, CM, NS	11/23/99

CONTEXT DESCRIPTION (Composition, texture, moisture, inclusions, etc.)

Level 3
TEXTURE SAME AS Level 2
YELLOW BROWN CLAYEY SILT
SEE PLAN VIEW 11/24/99 -
YELLOW CLAYEY SILT
E+W OF FEAT. 2,
NORTH OF RUBBLE.

Color (Munsell) : 10YR 5/6

EXTENT OF CONTEXT :

Horizontal Coordinates	Top Levels	Bottom Levels
NE	1.4	-2.0'
SE	1.3	-2.0'
NW	1.34	-2.0
SW	1	-2.4'
C	1.3	see plan for top of pipe 11-24-99

STRATIGRAPHIC RELATIONSHIPS :

Overlaid by : Lvl. 2

Overlies : Level 4

Cuts :

Cut by : FEAT 2, FEAT 3

Others :

GENERAL FINDS :

Ceramics : VERY LITTLE CULT. MAT - PROB IS COMING FROM FEAT 2 UNDER PIPE, AND/OR FEAT 3 -

Others : UNSTABLE SOUTH WALL

IN-SITU FINDS : (with Seq. No's)

Sketches and other notes overleaf :

FEATURE FORM

PROJECT/SITE: STONE STREET

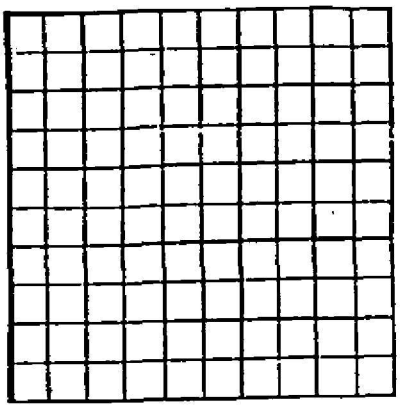
FEATURE TYPE: TRENCH

CONTEXT NUMBER FEATURE · LEVEL: □□-6003.01

HORIZONTAL LOCATION: SOUTH 1/2 OF UNIT MORE OR LESS

DIMENSIONS

OPENNING PLAN



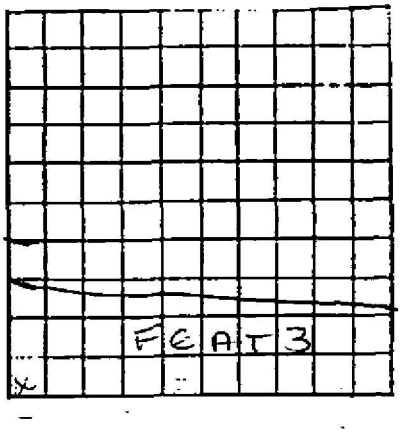
ELEVATIONS
1
2
3
4
5
DATUM

SOILS YELLOW CLAMEY SILT
MUNSELL MOTTLED GRAY BUFF BRN 10YR5/6 MIXED 10YR4/3

TEXTURE SANDY SILT w/ CLAY

COMMENTS RUBBLE / TRENCH FILL PROB. 20th C. - IT BROKE THE IRON PIPE!

CLOSING PLAN



ELEVATIONS OPEN:
1 SW-1.4'
2 SE-1.3'
3
4
5
DATUM NE CORNER 7.
BELOW SIDEW DATUM

CLOSING SE 2.4 SW 2

STRATIGRAPHIC ASSOCIATIONS
UNDERLIES
OVERLIES F.2 IN SOUTH END OF UNIT
INTRUDES INTO
INTRUDED BY

ARTIFACTS
MIXED 17(?) THRU 20th C. CERAM, GLASS, PIPES, BRICKS, SLATE, MORTAR, BONE, METAL, ETC ETC PLASTIC, MACADAM, PAPER ETC

ELEVATION COMMENTS

DRAWINGS SEE PLAN VIEWS

PHOTOS ✓

SAMPLES

SCREENED 1/4 INCH - YES ☒ NO ☐

TOOLS USED SHOVEL, TROWEL

EXCAVATORS CM NS RA

DATE 11/2/89

EXCAVATION RECORD SHEET : Trenches and Area Excavations

PROJECT : Fort Street	TRENCH/AREA : EU1	CONTEXT TYPE :	CONTEXT NO. : 5001 - 4
SITE :			

HOW DUG ? SHOVEL TROWEL	SAMPLES :	SCREENED ? 1/4	SUPERVISOR : AC NS	EXCAVATOR : CM, NS	DATE : 11/24/99

CONTEXT DESCRIPTION (Composition, texture, moisture, inclusions, etc.)

Mottled subsoil 10YR 5/6 w/ 10YR 4/3 and 10YR 5/3 / bottom 4" see profile
Yellow Clayey silt
LV 4

@ THE CLAYEY YELLOW BRN SILT GETTING SANDIER AND MOTTLED WITH DEPTH

Color (Munsell) : 10YR 5/6

EXTENT OF CONTEXT :

Horizontal Coordinates	Top Levels (NOT ALL CORNERS OF EU)	Bottom Levels
NE	1.4	3
SE	2.4	3
NW	1	3
SW	2.1	3
C	1.3	3

STRATIGRAPHIC RELATIONSHIPS :

Overlaid by : Lv 3

Overlies : ——

Cuts :

Cut by :

Others :

GENERAL FINDS :

Ceramics : NCM

STERILE SUBSOIL

Others :

IN-SITU FINDS : (with Seq. No's)

N/A

Sketches and other notes overleaf :

APPENDIX 3

TRACKER-Archaeology Services
Stone Street Monitoring Project

INVENTORY

CAT	LATC	VERC	FT	GP	CL	MAT	MOR1	MOR2	IDENTITY	COMMENT	CT	DATE
1	6001		1	1	1	3		101	delftware	blue dec bodysherd, small	1	1640-1802
2	6001		1	1	1	3		101	delftware	undec yellow paste bdyshd	1	1640-1802
3	6001		1	1	1	3	1		red slipware	whitetrailed slipdec bdsd	1	
4	6001		1	1	1	3	1	102	cw	undec bodysherds, thin	2	1762-1820
5	6001		1	1	1	3	1	103	pw	green shellsdge rim	1	1780-1830
6	6001		1	1	1	2	31	87	sw	gray salt-gl ext bodysd	1	
7	6001		1	1	1	3	31		white e'ware	burned bodysherd	1	
8	6001		1	9	3	1		83	doll leg	porcelain doll leg frag	1	
9	6001		1	1	2	78			wine/liquor	patinated olive gr bodysd	1	
10	6001		1	8	1	62			pipestem	unmarked frags	2	
11	6001		1	2	1	17			unident mammal	large broken frags	2	
12	6001		1	2	9	89	1		oyster	shells & frags	14	
13	6001		1	2	9	89	3		clam	frag, hard shell	1	
14	6001		1	2	9	89	1		oyster	burned frag, morter?	1	
15	6001		1	3	1	78			window glass	greentint 1 mm thick	2	
16	6001		1	3	1	78			window glass	aquatint 2mm thick	1	
17	6001		1	3	6	69			red brick	frags	4	
18	6001		1	3	6	72			plaster	thin flat frags	4	
19	6001		1	3	6	72			plaster	chalky	1	
20	6001		1	3	6	6			dressed wood	frags	2	
21	6001		1	3	6	6			dressed wood	frag w/white paint	1	
22	6001		1	3	5	3			terra cotta tile	red bodied w/cement	1	
23	6001		1	3	6	155			red brick	frags	2	
24	6001		1	3	6	69			buff brick	buff bodied frags	3	
25	6001		1	3	6	69			fire brick	buff/pink frag	1	
26	6001		1	3	6	3			pantile/duct	reddish e'ware frag	1	
27	6001		1	98		49			mica	small muscovite frag	1	
28	5001	1		1	1	3		101	delftware	blue on white dec bdysd	1	1640-1802
29	5001	1		1	1	3		101	delftware	undec basesd. footring	1	1640-1802
30	5001	1		1	1	3		101	delftware	undec small bosdysherd	1	1640-1802
31	5001	1		1	1	3		101	delftware	blue on white sm bodyshd	1	1640-1802
32	5001	1		1	1	3		102	cw	undec sm. bodysherd	1	1762-1820
33	5001	1		1	1	3		103	pw	undec bodysherd	4	1780-1830
34	5001	1		1	1	4		110	ww	undec base/body sherds	3	1820-1900+
35	5001	1		1	1	4		108	ironstone	undec base/body sherds	4	1850-1900+
36	5001	1		1	1	4		110	ww	blue sponged bodysherd	1	1830-1900+
37	5001	1		1	1	3			buff e'ware	green gl. footring spall	1	
38	5001	1		1	1	1			porcelain	blue on whitre soft paste	2	
39	5001	1		1	1	2	31	87	sw	brown mottled gl. bottle?	1	
40	5001	1		1	1	2	31		red sw	refined,unglazed,sprigged	1	1690-1775
41	5001	1		1	1	2			sw	gray paste brown glazed	1	
42	5001	1		1	2	78			wine/liquor	patinated dk olivegr. bds	1	
43	5001	1		1	2	78			beer bottle	amber bodysherd modern	1	20th C
44	5001	1		1	2	78			case bottle?	medium green bodysherd	1	
45	5001	1		1	2	78			unident glass	clear curved bodysherd	1	
46	5001	1		8	1	62			pipebowl	bellybowl frag 1/roulette	3	17th C?
47	5001	1		8	1	62			pipestem	unmarked frags	2	
48	5001	1		2	1	17			unident mammal	large mammal frag	1	
49	5001	1		2	1	17			unident mammal	poss. patella? astragalus	1	
50	5001	1		2	1	17			unident	mammal	1	
51	5001	1		2	1	132			unident mammal	horse/cow mocar	1	

INVENTORY

CAT	LATC	VERC	FT	GP	CL	MAT	MOR1	MOR2	IDENTITY	COMMENT	CT	DATE
52	5001	1		2	1	132			unident mammal	unident incisor	1	
53	5001	1		2	1	132			unident mammal	unidnt bicuspid	1	
54	5001	1		2	1	17			unident mammal	frag. cut/sawed	1	
55	5001	1		2	1	17			unident rodent	long bone	1	
56	5001	1		2	1	17			unident mammal	frags	5	
57	5001	1		2	5	17			unident fish	prob. fish	1	
58	5001	1		2	9	89	1		oyster	shell frags	13	
59	5001	1		2	9	89	3		clam	hard shell frag	1	
60	5001	1		3	5	3			bathroom tile	7mm thick pink glazed	1	
61	5001	1		3	1	78			plate glass	6mm thick	0	1
62	5001	1		3	1	78			safety glass	7mm thick wire embedded	1	1891 +
63	5001	1		3	6	3			unident e'ware	poss. brick/terra cotta	3	
64	5001	1		3	2	28			unident nail	3.5" corroded	1	
65	5001	1		3	2	28			unident nail	corroded frags	2	
66	5001	1		3	6	6			dressed wood	prob. construction relate	1	
67	5001	1		3	6	155			yellow brick	frags	2	
68	5001	1		3	6	69			red brick	frag	1	
69	5001	1		3	5	69			fire brick	frags	2	
70	5001	1		3	6	101			linoleum	frag	1	1860+
71	5001	1		3	6	70			mortar	frag	1	
72	5001	1		4	3	78			unident glass	light bulb/lamp chimney?	1	
73	5001	1		5	3	52			gunflint	amber frag, poss. french?	1	
74	5001	1		6	4	89			shell button	2-hole, very worn	1	
75	5001	1		6	2	78			glass bead	round, blue faceted	1	
76	5001	1		6	1	15			leather shoe	prob. sole frag	1	
77	5001	1		9	11	28			unident iron	misc. hardware, coroded	1	
78	5001	1		9	15	3			e'ware pipe	water/sewer frag	1	
79	5001	1		9	15	3			e'ware duct	terra cotta duct frag	1	
80	5001	1		98		6			unident	wood or bark frag	1	
81	5001	1		98		49			unident mica	muscovite frags	3	
82	5001	1		98		8			cellophane	clear wrapper frags	2	20th C
83	5001	1		98	8				plastic	printed label frags	2	20th C
84	5001	1		98		8			plastic	cigarette filter	1	20th C
85	5001	1		98		8			plastic	cear hollow frag	1	20th C
86	5001	2		1	1	3		101	delftware	blue dec yellowpaste bdsd	1	1640-1802
87	5001	2		1	1	3		101	delftware	undec buff paste bodyspal	1	1640-1802
88	5001	2		1	1	3	16		jackjfield	teapot base w/turn rings	1	1740-1780
89	5001	2		1	1	3		102	cw	undec bodysherd	1	1762-1820
90	5001	2		1	1	4		110	ww	undec bodysherds	4	1820-1900+
91	5001	2		1	1	4		110	ww	blue transfer bodysherd	1	1830-1900+
92	5001	2		1	1	4		110	ww	green transfer bodysherd	1	1840-1900+
93	5001	2		1	2	78			wine/liquor	olive gr, heavy patina	2	
94	5001	2		8	1	62			pipe stem	mouth piece end, unmarked	1	
95	5001	2		8	1	62			pipe stem	unmarked frag	1	
96	5001	2		1	2	78			unident glass	clear curved bodysherd	1	
97	5001	2		2	1	17			unident mammal	rib frag	1	
98	5001	2		2	9	89	1		oyster	frags	9	
99	5001	2		3	1	78			window glass	aqua tint. 2mm thick	3	
100	5001	2		3	2	28			unident nail	ver corroded frag	1	
101	5001	2		3	6	69			red brick	frads	3	
102	5001	2		6	4	26			unident fastener	copper alloy, grommet?	1	

INVENTORY

CAT	LATC	VERC	FT	GP	CL	MAT	MOR1	MOR2	IDENTITY	COMMENT	CT	DATE
103	5001	2		9	15	3			e'ware pipe	terra cotta pipe frag	1	
104	5001	2		98		8			plastic	hard gray molded frag	1	20th C
105	5001	3		1	1	3	31	105	luster rw	handle sherd,prob. cup	1	1790-1840
106	5001	3		1	1	3		102	cw	undec bodusherd	1	1762-1820
107	5001	3		1	1	4		108	ironstone	undec thick bodysherd	1	1850-1900+
108	5001	3		1	2	78			wine/liquor	olive gr heavy patiina	1	
109	5001	3		1	2	78			wine/liquor	olive gr thin bodysd	1	
110	5001	3		2	9	89			oyster	frags	2	
111	5001	3		3	6	69			red brick	waethered frags	7	
112	5001	3		3	6	72			plaster	thin, flat frag	1	
113	6002	1	2	1	1	3		101	delftware	blue dec bodysd	1	1640-1802
114	6002	1	2	1	1	3	1	101	delftware	undec bodysd	2	1640-1802
115	6002	1	2	1	1	3		102	cw	undec bodyspall	3	1762-1820
116	6002	1	2	1	1	3		103	pw	undec bodyspall	8	1780-1830
117	6002	1	2	1	1	4	1	110	ww	blueshelledge, scalloprim	1	1840-1900+
118	6002	1	2	1	1	4		110	ww	red transfer bodysd	1	1840-1900+
119	6002	1	2	1	1	1			porcelain	blue on white softpaste	1	
120	6002	1	2	1	1	1	1		porcelain	undec softpaste basesd	1	
121	6002	1	2	1	2	78			unident glass	very thick 12mm black shd	1	
122	6002	1	2	1	2	78			wine/liquor	olive green bodysherd	2	
123	6002	1	2	1	2	78			unident glass	clear, curved 1 w/seam	2	
124	6002	1	2	2	1	17			unident mammal	weathered frags	2	
125	6002	1	2	2	5	17			unident fish	prob fish	1	
126	6002	1	2	2	9	89			oyster	shekk & frags	7	
127	6002	1	2	3	6	155			yellow brick	frag	1	
128	6002	1	2	3	6	69			red brick	frags	2	
129	6002	1	2	3	2	28			unident nail	very corroded frags	3	
130	6002	1	2	3	6	40			cut slate	gray frags, poss. roofing	4	
131	6002	1	2	3	6	101			linoleum	flooring frag	1	1860+
132	6002	1	2	3	6	30			mortar	small frag	1	
133	6002	1	2	3	6	71			cement	chunk	1	
134	6002	1	2	3	6	3			e'ware tile	buff bodied, black glazed	1	
135	6002	1	2	8	1	62			pipe bowl	belly bowl 'BC' cartouche	1	17th C
136	6002	1	2	8	1	62			pipe bowl	heelw/moldedflowers/2side	1	17th C
137	6002	1	2	8	1	62			pipe bowl	rouletted rim frag	1	
138	6002	1	2	8	1	62			pipe stem	unmarked stem frag	1	
139	6003	1	3	1	1	4	31	110	ww	undec bowl sherd	1	1820-1900+
140	6003	1	3	1	1	2	31	87	sw	gray sltglz bodysd	1	
141	6003	1	3	1	2	78			unident glass	aqua curved thick bodysd	1	
142	6003	1	3	2	9	89	1		oyster	shell frags	2	
143	6003	1	3	3	1	78			window glass	green tint 2mm thick	2	
144	6003	1	3	3	6	69			red brick	small frag	1	
145	6003	1	3	3	6	155			yellow brick	frag	1	
146	6003	1	3	3	6	69			fire brick	orange body frags	2	
147	6003	1	3	3	6	71			concrete	underbeddind frag	1	20th C
148	6003	1	3	3	6	70			mortar	fine grained frag	1	
149	6003	1	3	3	6	102			tar paper	roofing frags?	2	20th C
150	6003	1	3	3	5	93			asphalt tile	flooring frag?	1	20th C
151	6003	1	3	8	1	62			pipestem	unmarked	1	
152	6003	1	3	98		28			unident iron	corroded lump	1	

NATIONAL PARK SERVICE
MATERIAL CULTURE DATA BASE TAXONOMY

Contact: Beth Acuff or
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KITCHEN GROUP (01)

Dish Class (01)
Morphological Design:

01 plate
02 platter
03 bowl
04 coffee cup
05 demi-tasse
06 tea cup
07 saucer
08 tureen
09 knife rest
10 bouillon cup
11 custard cup
12 cruet-stand
13 cream-boat
14 tumbler-unstemmed drinking vessel
15 coffee-warmer
16 teapot
17 coffee urn
18 chocolate stand
19 chocolate cup
20 chestnut basket
21 cheese mould
22 cheese dish
23 charger
24 butter dish
25 butter cooler
26 goblet-stemmed drinking vessel
27 argyll (gravy warmer)
28 accouchement cup
29 harvest jug
30 punch bowl
31 hollow ware
32 trencher
33 trembleuse
34 tray
35 cup
36 ladle bowl
37
38
39 shakers (salt and pepper)
40 drinking vessel
41 pitcher
42 mug
43 salt cellars
44 jar
45 jug

KITCHEN GROUP (01) (continued)

Container Class (02)

Morphological Design:

01 wine
02 beer
03 liquor
04 soft drink
05 case
06 milk
07 water
08 pharmaceutical
09 fruit juice
10 fruit
11 vegetable
12 meat
13 fish
14 decanters
15 jar
16 canning jar
17 flasks
18 syrup
19 flavorings and extracts
20 candy wrapper
21 condiments
22 tin can
23 beer can
24 soda pop can

Secondary Morphological Design:

01 cork closure
02 blob top (wired on cork)
03 hutchinson
04 lightening
05 baltimore seal (internal rubber gasket)
06 internal marble stopper
07 crown
08 screw-external threads
09 screw-internal threads
10 paper seal
11 vacuum seal
12 glass stopper
13 unthreaded lid
14 can key/metal strip
15 ampule
16 pop top/pull tab
17 mason jar lid - ext. screw threads with rubber gasket
18 bottle cap

FAUNAL/FLORAL GROUP (02)

Mammalia Class (01)
Morphological Design: element (to be coded)
Technomorphology:
01 Bos taurus
02 Sus scrifa
03 Canis familiaris
04 Scuirus caroleninsis
05 Sylveligus floridana
06 Ondatra zibethicus
07 Rattus norvegicus
08 Peromyscus sp.
expanded as needed
09 Cervus

All other categories: NA

Aves Class (02)
Morphological Design: element (to be coded)
Technomorphology:
01 Gallus domesticus
02 Meleogris galloparo
03 Anas rubripes
04 Brnata canadensis
05 Anas platyrhynchos
06 Haliaeetus leucocephalus
07 Anas crecca
expanded as needed

All other categories: NA

Ptilia Class (03)
Morphological Design: element (to be coded)
Technomorphology:
01 Heterodan platychinos
02 Diadophis punctatus
03 Elaphe obsoleta
expanded as needed

All other categories: NA

Amphibia Class (04)
Morphological Design: element (to be coded)
Technomorphology:
01 Amlystoma opocum
02 Bufo terrestris
03 Bufo woodhousei
04 Rana pripiens
expanded as needed

All other categories: NA

Pisces Class (05)
Morphological Design: element (to be coded)
Technomorphology:
01 Lepisosteus osseus
02 Salvelinus fontinalis
03 Silgostedion vitrean
expanded as needed

All other categories: NA

FAUNAL/FLORAL GROUP (02)

Other ethnofaunal/zoological (09)

1 oyster
2 scallop
3 clam shell
4 slipper/hot sauce
5 whelk
6 mussell

Ethnobotanical (16)

7 charcoal
8 coal

ARCHITECTURAL GROUP (03)

Window Glass Class (01)
Morphological Design:

01	window glass

Nails Class (02)
Morphological Design:

01	sprig
02	brad
03	finish
04	floor
05	siding
06	masonry
07	shingles
08	box
09	clout
10	hinge
11	slating
12	roofing
13	boat
14	barge
15	L-headed
16	T-headed
17	long-lead helical thread
18	short-lead helical thread
19	annular thread
20	common
21	rose-headed
22	double-headed

Spikes Class (03)
Morphological Design:

01	boat
02	barge
03	L-headed
04	gutter
05	common
06	hinge

Door and Window Hardware Class (04)
Morphological Design:

01	knob
02	knob with internal lock
03	lever handle
04	rose
05	rose thimble
06	spindle
07	door pull
08	entry handle
09	push plate
10	escutcheon
11	case lock, parts, or strike
12	other door locks, parts, or strikes

ARCHITECTURAL GROUP (03)

Construction Materials Class (06)
Morphological Design:

01 plaster/mortar
02 sheeting
03 sheathing
04 paneling
05 siding
06 lumber
07 milled lumber
08 strip
09 trim
10 frame (door or window)
11 block (cinder)
12 tile
13 pane
14 flue
15 brick
16 wallpaper
17 shingles
18 metal roofing
19 pegs
20 bars and strikes
21 paint
22 capping stone or brick
23 insulation
24 structural clay tile
25 mason's flakes, stone

ARCHITECTURAL GROUP (03)

Other Structural Hardware Class (05)
Morphological Design:

01 masonry anchor
02 beam or column anchor
03 truss or beam plate
04 strap
05 beam hanger
06 other heavy timber connectors
07 light wood framing anchors
08 other framing connectors
09 staples
10 ventilator
11 ventilator pipe
12 ventilator pipe flashing sleave
13 other flashing or drip edge
14 rain gutter
15 rain downspout
16 gutter or downspout hanger
17 gutter or downspout strainer
18 drain
19 drainpipe or connector, non-septic (storm)
20 house sewer
21 house drainpipe
22 house trap
23 branch drainpipe
24 branch trap
25 branch DP connectors, cleanout, Y branch
26 water supply pipe
27 water supply pipe connector
28 faucet part
29 tub or lavatory (built-in)
30 W.C. or part
31 electrical insulator
32 panelboard
33 fuse
34 circuit breaker
35 conduit
36 coupling or connector
37 outlet or junction box
38 outlet
39 switch
40 light fixture
41 natural gas line
42 natural gas connector
43 fireplace accessories
44 fireplace crane
45 furnace
46 radiator
47 water heater
48 stair-rail bracket
49 "snow birds"
50 fireplace poker
51 fireplace grate
52 fireplace backplate
53 pipe - undifferentiated
54 chimney damper
55 electrical wire

SMOKING GROUP (08)

Kaolin Pipe Class (01)
Morphological Design:

01 kaolin

Non-Kaolin Pipe Class (05)
Morphological Design:

01 pamplin pipes
02 other short-stemmed tobacco pipes
03 briar
04 meer schann
05 corncob

Smoking Accessories Class (06)
Morphological Design:
(continued)

10 pipe rock
11 pipe cleaner
12 cigarettes
13 cigarette package
14 ashtray
15 matchbooks
16 kitchen or wooden matches
17 cigar clipper
18 cigar box
19 cigar mouthpiece

ACTIVITIES GROUP (09) (continued)

Specialized Activities Class (12)
Morphological Design:

01 button manufacturing blanks
02 kiln masters furniture
03 silversmithing debris
04 barber bowl
05 saggers
06 glass cutting debris (actual glass debris)
07 wood working debris
08 metallurgic debris
09 Christmas decorations
10 flag
11 syringe (medical)
12 leather working debris

Military Objects Class (13)
Morphological Design:

01 swords
02 insignia
03 bayonets
04 military buttons
05 military arms
06 cannon balls
07 grape shot
08 canisters (shot)
09 bomb
10 rifle shell
11 military belt plate
12 friction primer

Housekeeping Class (14)
Morphological Design:

01 cleaning agent container
02 broom
03 brush
04 mop
05 vacuum cleaner
06 rug beater
07 coat hanger
08 wax container
09 sponge
10 washboard

Public Services (15)
Morphological Design:

01 sewer pipe
02 water pipe
03 power line insulator
04 utility pole anchor
05 utility meter seal

MATERIAL - COMMON LIST

01 porcelain
02 stoneware
03 earthenware
04 ironstone/granite china/whiteware
05 tin
06 wood
07 pewter
08 plastic
09 rubber, hard
10 rubber, elastic
11 paper
12 glass, frosted
13 glass, milk
14 glass, flashed
15 leather
16 hair
17 bone
18 horn
19 silver
20
21 gold
22 nickel/copper
23 nickel
24 copper
25 brass
26 other cupreous metal
27 stainless steel
28 ferrous alloys
29 aluminum
30 cast iron
31 wrought iron
32 steel
33 pot metal
34 lead
35 chrome
36 zinc
37 amber
38 limestone
39 sandstone
40 slate
41 marble
42 granite
43 schist
44 shale
45 bluestone
46 gravel
47 clay
48 graphite
49 mica
50 flint
51 jasper
52 chert
53 quartz
54 quartzite
55 basalt
56 chalcedony
57 ochre
58 obsidian
59 rhyolite
60 steatite
61 catlinite
62 kaolin
63 petrified wood
64 diamond
65 ruby
66 emerald
67 pearl
68 other precious stone
69 brick
70 mortar/cement
71 concrete
72 plaster
73 carbon
74 spun glass
75 asbestos
76 wax
77 soap
78 glass
79 red clay
80 clay, shell-tempered
81 clay, grit-tempered
82 clay, grog-tempered
83 clay, sand-tempered
84 clay, vegetable material-tempered
85 hemp
86 cotton, mercerized
87 cotton, not mercerized
88 nylon
89 shell
90 sponge, natural
91 sponge, synthetic
92 cork
93 asphalt
94 foil
95 coal
96 mercury
100 crystal
101 linoleum
102 tar paper
103 celluloid - as in buttons
104 synthetic
105 wool
106 felt
107 silk
108 burlap
109 jet
110 glass patina
111 metal unknown
112 slag and clinker
113 aluminum oxide

APPENDIX 2

D. Table for Data Base Coding Chart: Ambiguous Items of Material Culture

Note: The items listed below may be ambiguous or hard to place in a taxonomic category, but as a convention, for inventory purposes, will be coded as follows:

Unidentified wood fragments	98	00	006
Construction wood	03	06	006
Pegs, Wood planks	03	06	006
Twigs, branches	09	16	006
Burned wood (partial)	Code as wood (above) and put "burnt wood" in the comments section.		
Charcoal and all small fragments of completely burnt wood	*Code as charcoal*		
Coal	98	00	095
Slag, burned coal, vitrified metalworking or manufacturing by-products	98	00	112
Pantiles	03	06	003
Delft fireplace tiles, wall skirting, etc.	04	04	003
Porcelain bathroom tiles, other bathroom furniture (tub, toilet, etc.)	03	05	001
Chamber pot	04	02	00-
Flowerpot	04	04	002 00-
Teeth	02	–	132
Fish scales	02	09	118
Coral	04	04	119
Eggshell	02	09	119
Seeds, seed covering	02	16	121
Schist (construction)	03	06	043
Schist (unidentified)	98	00	043
Red brick	03	06	169
Yellow brick	03	06	155
Linoleum	03	06	101
Metal hardware (probably construction)	03	06	( )
Furniture hardware	04	01	( )
Miscellaneous hardware (other and unidentified including screws, car parts)	09	11	( )
Leather shoe parts	06	01	015
Unidentified leather scraps	98	00	015
Leather personal items	07	()	015