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STAGE 1B ARCHAEOLOGICAL SURVEY
OF THE RED HOOK WATER POLLUTION CONTROL PLANT
BROOKLYN, NEW YORK

B.G. L1

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INTRODUCTION

The proposed impacts of the expansion at the Red Hook Water Pollution Control Plant (WPCP) have changed since the Stage 1A research was conducted. This research originally concluded that the only potential archaeologically sensitive area within the plant was located in the northwestern part of the WPCP near the corner of Little and Marshall Streets (see Figure 1). However, no impacts were proposed for that area at that time. The current plan now calls for a truck loading facility in that area.

Because the previous conclusions regarding the archaeological sensitivity were based on two historic maps, Martin's 1834 map and Johnson's 1776 map, of which the accuracy of scale had not been assessed, some additional research was warranted. This research was also aimed at assessing two buildings depicted on Dripps' 1850 map (see Figure 2). The research was to address two issues. The first issue was whether the two buildings depicted on Dripps' 1850 map were used residentially or commercially? If they were residential buildings, was there a potential to find significant archaeological deposits within rear yard features (i.e., privies or cisterns)? The second issue pertained to the nature and extent of the early landfill. How accurate were the maps originally used to assess the extent of the pre-1834 landfill? Were there other fill episodes which would also be considered potentially archaeologically significant? Would it be possible to determine the vertical extent of the potentially significant fill deposits without or prior to testing? Would any information on the construction of the landfill retention or bulkhead structures exist?

BUILDINGS RESEARCH

The nature of the two buildings depicted on the Dripps 1850 map were evaluated first. One difficulty in evaluating the project impact area stemmed from the fact that it is located in what was once part of the Brooklyn Navy Yard. All the Buildings Department's records for the Navy Yard have been turned over to the United States government. An effort was made to locate these records locally. However, it appeared they may be housed in Washington, D.C.. Therefore, information regarding the structures shown on the Dripps 1850 map was derived from deed indices, directories, sewer and water maps, and other maps.

Indices of nineteenth century deeds for Kings County, New York, housed at the Brooklyn Historical Society, were consulted to establish the chain of title for the parcel located on the northwest corner of Little and Marshall Streets, in the northwestern corner of the present Red Hook WPCP. It was possible to identify the parcel from descriptions and sketches included with some of the deed references. The chain of title for this parcel during the nineteenth century follows:



<u>GRANTOR</u>	<u>GRANTEE</u>	<u>DATE</u>	<u>LIBER:PAGE</u>
John Jackson	Samuel Evans	24 November 1817	12:142
Samuel Evans (heirs)	Henry Ruggles	8 May 1852	281:92
Henry Ruggles (heirs)	U.S. Government	1 May 1867	768:509

Since the 1850 Dripps Map showed two structures on this parcel, evidence of whether the property owners resided on the parcel was sought. No evidence was found that the structures shown on the 1850 Dripps Map were residences. Brooklyn directories for the early 1850s were consulted. No mention of Samuel Evans could be found, and no other Evans was listed on Marshall or Little Streets. Henry Ruggles was listed in the directories for 1852/53 and 1853/54. Both directories stated that Ruggles was a merchant with a business at 172 Front Street in New York City who resided at 66 Cranberry Street in Brooklyn (Hearne and Hearne 1852, 1853). Since the 1855 Perris Atlas showed this lot as a lumber yard with a small office at the corner of Little and Marshall Streets, it is possible that one of the structures shown on the 1850 Map was the same as the structure shown in 1855. If so, it was probably an office for the lumber business that may have been used by another business previously. As the chain of title shows, ownership changed between the dates of these two maps.

In order to evaluate the potential for privies at the buildings shown on the 1850 Dripps Map, information was sought from the Sewer Department of the Borough of Brooklyn. The sewer map of Brooklyn for this area showed that a sewer was laid under John and Little Streets as early as 1862, one block to the south of the project area. No evidence was found that any sewer ever existed adjacent to the project area under Marshall Street, or the blocks of Little Street north of John Street (Brooklyn Sewer Department n.d.:4).

The potential for the presence of cisterns was evaluated with information from the New York City Bureau of Water Supply. Unfortunately the Bureau's distribution maps depicting the distribution of water supplies obscure early installation dates with those of more recent modifications. Therefore the dates on these maps must be individually assessed in light of dates for nearby water services. The dates shown near the corner of Little and Marshall Streets were from the 1920s. However, dates in 1858 were shown for the block west of Little Street between John and Plymouth Streets, one block south of the project area.

The earliest possible dates for public hook-up to sewer and water services were 1862 and 1858, respectively. However, at least the western structure depicted on Dripps 1850 map within the project impact area was no longer there by 1855. By that time, the lumber yard office was occupying the eastern building. Combining this with deed and directory data, it seems quite unlikely that possible privies or cisterns from 1850, or earlier, would contain significant archaeological data, if they existed at all.



LANDFILL AND BULKHEAD RESEARCH

Additional cartographic research was conducted to address the questions related to the landfill (i.e., assessment of the 1834 map, identification of other possible fill episodes, the vertical extent of the landfill deposits and information on construction of landfill retention structures). While the 1834 Martin's map was quite detailed, the scale of the map could not be confirmed. In fact, it depicted the Little Street pier extending farther north than it did in later maps, including Dripps' 1850 map. In addition, the 1834 map depicted a slip north of United States Street (to the east of Little Street) which was also not shown on later maps. Because of these inconsistencies and apparent distortions, other cartographic sources (described below) were determined to be better suited for this analysis. A rough composite of the other sources used is depicted in Figure 3.

Figure 3 shows the current layout of the various existing tanks and the proposed truck loading building as depicted on the Red Hook Truck Loading Excavation plan (Stone and Webster/Hazen and Sawyer 1990). Other information on Figure 3 was derived from various sources. The original shoreline was taken from Robinson's 1886 Atlas. This shoreline was confirmed using Beer's 1874 Farm Line Map. The 1819 bulkhead line was depicted on the 1911 Street Closing Map of Little Street found at the Brooklyn Topographical Bureau. However, the Bureau did not have the 1819 Village Map of Brooklyn available to confirm the bulkhead line. Nevertheless, this street closing map was scaled and compared with modern maps to confirm its accuracy. Dripps' 1850 map has previously been assessed and seemed reasonably accurate. The final source used on the attached composite was an 1872 profile map of the northern end of Little Street. The condition of this map was quite poor. It had been rolled up and had several cracks. Therefore, only certain information could be accurately transcribed. This is why the 1872 bulkhead line is shown as a "possible" line on Figure 3. Although the length of Little Street has an unclear interpretation, based on the 1872 plan, other information was more legible. At least two fill episodes were clearly visible on the 1872 plan, with a total of 6.6 feet above the high water line. However, no information was available to assess the nature or individual depths of these fill episodes. The results of the cartographic research indicated that up to four early shorelines may be impacted by the Truck Loading Building and that the fill depth may be about six and one-half feet.

DOCUMENTARY AND CARTOGRAPHIC RESEARCH RESULTS AND RECOMMENDATIONS

The current research concluded that there was no basis for archaeological testing for nineteenth century residential rear yard features. However, there was potential archaeological significance within the early fill. The significance related to the contents of the fill deposits as well as the structures used for fill retention, in this case, bulkheads. Therefore backhoe testing was recommended to assess this potential. One long trench, approximately 125 feet in length and four feet wide, was recommended. It was to begin



just north of the current location of the hydrant and water pipe depicted on the excavation plan and to extend northward diagonally through the location of the proposed truck loading facility and related underground piping/conduits, parallel to the curb, crossing the early bulkhead locations. It was to be excavated to a depth of about six feet or until the trench began filling with water. The same methodology and recording techniques that were applied at the Oakwood Beach, Tallman Island and 26th Ward WPCPs were to be used at the Red Hook plant. The optional placement of a second trench was requested by the New York City Landmarks Preservation Commission (NYCLPC) and the New York State Department of Environmental Conservation (NYSDEC) in order to either identify deposits or features perpendicular to the first trench or to further investigate deposits or features which may be located in the first trench.

FIELD TESTING METHODOLOGY

Backhoe excavations were conducted as recommended at the Red Hook WPCP on May 6 and 7, 1991. One trench was placed. Figure 4 shows the location of the trench as excavated. It was approximately 130 feet long and three to five feet wide and excavated to a maximum depth of about eight feet (see Plate 1).

Two obstacles were encountered during the backhoe testing which were not previously identified or mapped on the Red Hook Truck Loading Building Excavation Plan (Stone and Webster/Hazen and Sawyer 1990). The first obstacle was a concrete "slab" encountered at a depth of about 3.7 feet below the surface, in the southern third of the trench. It was present in approximately the first fifty feet in length of the test trench and it seemed quite solid. No seams were found. Two breaks or cuts were found in the length of concrete, one in the middle and one at the northern end. These breaks revealed the concrete to be about one-half to three-quarters of a foot in thickness. The trench was widened by about three feet in its southern end to attempt to delimit the concrete. This attempt was unsuccessful. A small test hole, about as wide as one backhoe bucket, was placed to the west of the trench to determine if the concrete extended to the area where concrete footings were mapped on the excavation plan. There was no concrete found there. However, it was also not logistically possible to relocate the trench to that area because the concrete footings were spaced at only eight foot intervals. In addition, an existing water line was mapped to the east of the footings, between the test trench and existing footings preventing the option of moving the trench intermediately to the west. The site supervising engineer was requested to investigate the identity and purpose of the concrete and to determine if it would be permissible to break through it and excavate deeper. The concrete was not identified and therefore permission was neither given to destroy it nor to excavate below it.

The second obstacle encountered was in the northern part of the test trench. This was a pipe which was likely the water line mentioned in the preceding paragraph. If this was the referenced water line, it implied that the pipe location was slightly inaccurately



mapped on the excavation plan. The pipe was encountered on the western side of the trench at about five feet west of the curb and from 10 to 25 feet north of the mapped light pole. The trench was excavated slightly to the east so as to avoid this pipe.

FIELD TESTING RESULTS

Figure 5 is a cross section drawing of the test trench showing the eastern section. Table 1 cross references the section drawing with the soil colors and textures. Appendix 1 describes the field recording (context numbering) system used by Greenhouse Consultants. Appendix 2 contains the inventory of artifacts recovered at Red Hook along with tables for coding material culture. Most of the soil layers were completely clean fill containing no cultural material. Context 4001.07 was the only layer which contained any cultural material. It had some brick fragments and hundreds of pieces of redware, although no count was attempted. A sample of 24 pieces of redware was retained. All redware sherds were unglazed on their exteriors and all pieces exhibited glazed interiors, some mottled with manganese. Three bases and seven rims were recovered, all rims exhibiting a band of glaze on the exterior of the rim. Three sherds exhibited interior lugs ranging from 10.5 to 11 cm below the rim. A minimum of eight vessels were present in this sample, with four partially mendable. The attributes of the sherds indicated that only one vessel type, one with straight vertical sides, was present. Since only the interior was glazed, these vessels may represent utilitarian mixing or storage vessels.

Ketchum (1987:70) stated that a pottery, run by Thomas G. Boone was located on Navy Street between High and Sand Streets beginning in 1840, "... a site near the edge of the Wallabout Channel and not far from the Brooklyn Navy Yard" (1987:70). Boone started out in Brooklyn as a stoneware manufacturer, making jugs, pots, chimney tops, oven tile, fire brick and other objects. The stoneware was embossed with the address of the pottery and the name of the manufacturer: "T.G. BOONE & SONS, POTTERS/NAVY ST. BROOKLYN" and "T.G. BOONE & SONS/SANDS ST. BROOKLYN, N.Y." (Ketchum 1987:477). Ketchum described the ware as "nondescript" and the decoration as "mediocre." Benjamin and Thomas E. Boone joined their father in 1842 and they manufactured redware as well as stoneware (1987:516-17). The redware sample from the Red Hook backhoe testing might represent wasters from the pottery or "mediocre" utilitarian storage vessels. The coarse paste and minimal glazing on the vessels makes the term "mediocre" an overly polite phrase to describe this ware.

One feature was found during backhoe testing, a solid masonry structure made of concrete and brick with a flat oval surface (see Plate 2). This feature had finished surfaces and was generally conical in shape. The brick was contained within the cement as if to be used as an aggregate rather than laid in courses. The feature extended into the balk left to support the light post and into the eastern section of the test trench. The north/south top surface was fully exposed and extended for about four feet in width



and protruded 1.5 feet from the east section. The bottom limit of excavation in this part of the trench is depicted on Figure 5 as six feet total or two and a half feet down the feature. However, the bottom limit actually extended downward below the depth of backhoe excavation. During the excavation, another backhoe bucket in depth was excavated but not removed because of the pipe exposed in the side of the trench. The fill removed from around the two exposed sides and above the feature was clean. It contained no cultural material. It is of note that the top surface of this feature lines up with the concrete exposed in the southern part of the trench. It is speculated that these two elements were related.

The concrete and brick feature was likely part of a previous bulkhead construction and a support for the base of Little Street. The location of this feature in relation to the early shore and bulkhead lines as shown in Figure 3 cannot be precise. However, the feature location most closely approximates the possible 1872 bulkhead line.

CONCLUSIONS

Stage 1B investigations of the Red Hook WPCP contained two components, buildings/cartographic research and field testing. The buildings research documented that the buildings depicted on Dripps' 1850 map were not likely residential and therefore no testing was recommended for related potential archaeological features. The cartographic research was successfully able to address issues related to landfill and landfill retention structures. Up to four earlier shorelines may have been present within the impact area of the Truck Loading Building. Therefore backhoe testing was recommended.

Backhoe archeological excavations at the Red Hook WPCP did not reveal any early landfill deposits as had been expected. However, one possible bulkhead feature which may have dated to 1872 was identified. Dating this feature could only be accomplished using cartographic data because it was surrounded by clean fill, devoid of potentially datable cultural material.

A second backhoe trench to further investigate the probable bulkhead feature as originally suggested by NYCLPC and NYSDEC was not excavated for two reasons. First, it was not expected that excavating the area surrounding the rest of the feature would have provided any new or additional data. The clean fill found within the trench would likely have existed around the rest of the feature. The second reason the trench was not extended was due to practical considerations. The trench could not have gone more than four feet toward the east before encountering the electrical line feeding the adjacent light post. In addition to the potential hazard of the backhoe hitting electrical lines, there was an expressed concern about breaking up the curb and asphalt over one month prior to the scheduled construction. Therefore, it was recommended that the archaeological investigations were completed. Representatives of the NYCLPC visited the project site after the test trench excavation was completed and concurred with this assessment.



Since it was not possible to test the project area as thoroughly as was desired, the Division of Construction Management of the New York State Department of Environmental Conservation requested that the construction excavations be closely watched. In the event of potential archaeological resources being unearthed, archaeologists at the Division of Construction Management, the New York City Landmarks Preservation Commission and Greenhouse Consultants were to be notified promptly.

On 2 August 1991 construction equipment broke through the top of a brick and mortar feature. The appropriate notifications were made, and two representatives of Greenhouse Consultants went to inspect the feature. One of these archaeologists, William Sandy, co-authored a brief memorandum with Linda Stone regarding this visit. This document is included here as Appendix 3. The feature encountered was linear in nature, about six feet across, and arched at the top. It was constructed of red brick and mortar, and the top was three courses thick. It was interpreted as a sewer or storm drain dating to the nineteenth or early twentieth century. It may well be part of the Little Street sewer. It filled with water with the tide, so it was obviously still connected directly or indirectly with the East River. It was determined that additional investigation would provide little additional information, so no further work was recommended. This opinion was relayed to the archaeologists at the Division of Construction Management of the New York State Department of Environmental Conservation and the New York City Landmarks Preservation Commission, who concurred.



TABLE 1

**Munsell Soil Colors and Textures
of Red Hook Water Pollution Control Plant Test Trench**

Context	Munsell	Color	Texture
4001.01	7.5YR3/4	Dark Brown	Turf with clayey loam
4001.02	10YR3/4	Dark Yellowish Brown	Sand with small gravel
4001.03	10YR5/6	Yellowish Brown	Sand
4001.04	10YR3/3	Dark Brown	Sand with gravel
4001.05	10YR3/2	Very Dark Grayish Brown	Sand with gravel and ash
4001.06	10YR2/1	Black	Sandy silt with large gravel, slightly oily
4001.07	10YR5/3	Brown	Silty sand with profuse cinders and ash
4001.08	10YR4/6	Yellowish Red	Clayey silt
4001.09	10YR3/1	Very Dark Grey	Sandy gravel
4001.10	10YR2/1	Black	Silty Sand
4001.11	10YR5/8	Yellowish Brown	Sand

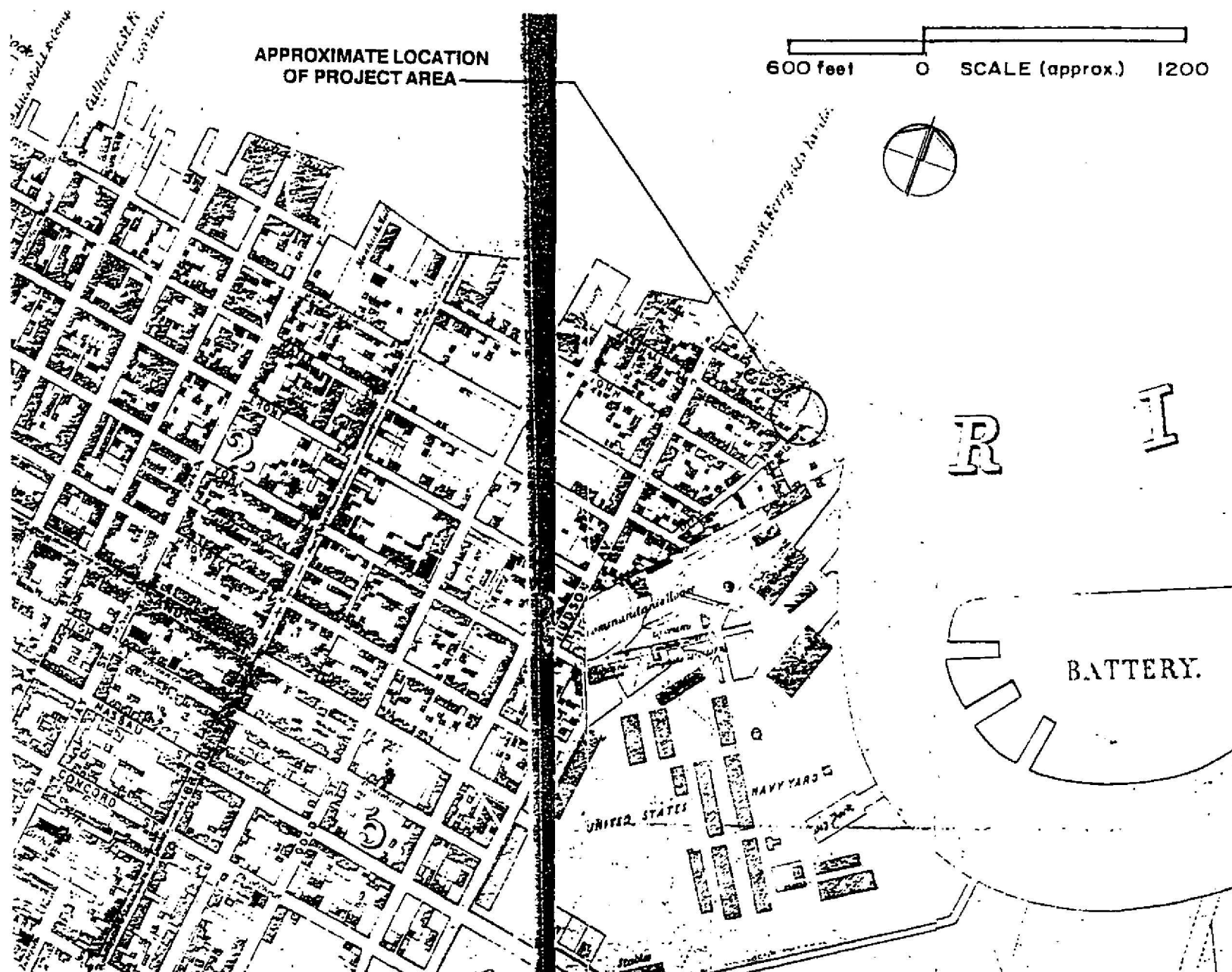


Figure 2

From the 1850 Dripps Map of the City of Brooklyn.

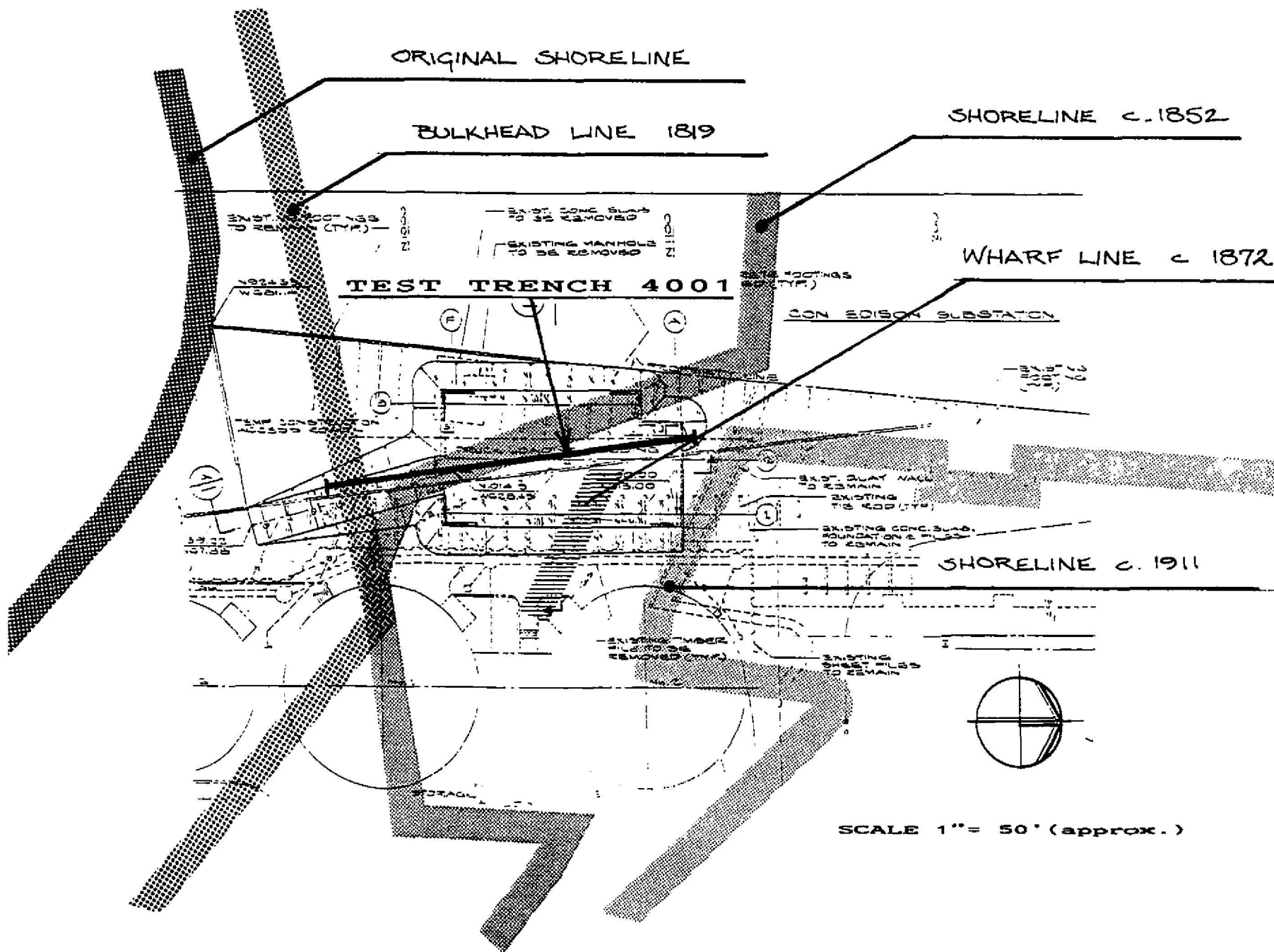


Figure 3

Composite of early shoreline and bulkhead locations.

REDHOOK WPCP

TEST TRENCH 4001

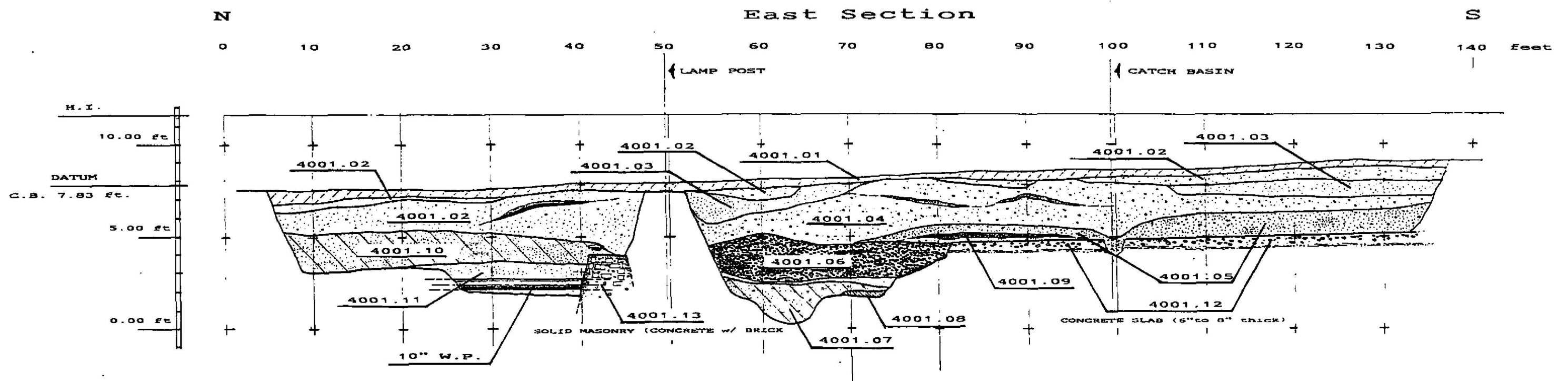


Figure 5 East section drawing of archaeological test trench 4001.



Plate 1 View of the completed test trench facing south.



Plate 2 View of eastern section of test trench 4001 at about 35-50 feet showing the masonry feature in the lower center of the frame.



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Stone and Webster Engineering Corp./Hazen and Sawyer, P.C.

1990 Red Hook Truck Loading Building Excavation plan. Sheet 14 of 83.
Drawing RH-GC-0004. September 1990.



APPENDIX 1

CONTEXT NUMBERING AND PROVENIENCE LABELING

A field recording system which encompasses a variety of conditions and situations is optimal for any archaeological project. Among these situations are the size of the project, the number of different field techniques and the number of expected artifacts. The field recording system used was developed by Greenhouse Consultants and was based on modifications of other accepted systems.

All contexts are numbered in the field and these numbers are applied to the artifacts. The format for numbering is XX-9999.99 where X is alphanumeric and 9 is numeric. The alphanumeric characters to the left of the hyphen are the prefix. The two digits to the right of the decimal point are used only when it is necessary to refer to strata within a context. The four digits between the prefix and decimal subdivision may be called the base code.

The prefix is a two character designation of the project parcel. The four digit numeric base code can be divided into two parts; the first digit being separate from the last three. The first numeric digit indicates the type of field technique used. The codes are as follows:

1. unprovenienced surface collection
2. provenienced surface collection
3. shovel testing
4. trenching
5. excavation units
6. feature excavation

The three digits following the technique code are unique for each location and are assigned sequentially. Decimal subdivisions may be used for techniques three through six to indicate specific strata. For example, 01-3001.02 refers to Area 1 (01), shovel test (3), number 1 (001), at the second layer (.02).



APPENDIX 2
COMPLETE ARTIFACT INVENTORY
TABLES FOR CODING MATERIAL CULTURE

- A. Table for National Park Service Material Culture Data Base Coding Chart: Groups, Classes and Material**
- B. Table for Data Base Coding Chart: Groups and Classes**

APPENDIX 2
A. Table for National Park Service Material Culture Data Base Coding Chart: Groups, Classes and Materials

GROUPS AND CLASSES		MATERIALS - COMMON LIST (CLASSIFIED)	
01 KITCHEN GROUP	09 ACTIVITIES GROUP	INORGANIC MATERIALS	ORGANIC MATERIALS
01 Dishes	01 Construction tools	CERAMIC	CELLULOSIC
02 Containers	02 Farm tools	001 Porcelain	115 Bark
03 Tableware	03 Leisure activities	002 Stoneware	108 Burlap
04 Kitchenware	04 Fishing gear	003 Earthenware	128 Charcoal
	05 —	004 Whiteware/ironstone/granite	092 Cork
02 FAUNAL/FLORAL GROUP	06 —	134 Undifferentiated ceramic	087 Cotton
01 Mammalia	07 Pottery class		131 Fiberboard/masonite
02 Aves	08 Storage items	CLAY	085 Hemp
03 Reptilia	09 —	047 Clay	011 Paper
04 Amphibia	10 Stable and barn	062 Kaolin	006 Wood
05 Pisces	11 Miscellaneous hardware	079 Red clay	121 Cellulose seeds/ seed covering
09 Ethnofaunal/Zoological	12 Specialized activities		
16 Ethnobotanical	13 Military objects	CONSTRUCTION	CONSTRUCTION
03 ARCHITECTURAL GROUP	14 Housekeeping	089 Brick	093 Asphalt
01 Window glass	15 Public services	071 Cement	125 Formica
02 Nails		070 Mortar	101 Linoleum
03 Spikes	10 PREHISTORIC GROUP	072 Plaster	102 Tarpaper
04 Door & Window hardware	01 Hunting and fishing activities		
05 Other structural hardware	02 Domestic activities	GLASS	WAX
06 Construction materials	03 Stoneworking	013 Milk glass	076 Wax
04 FURNITURE GROUP	04 Woodworking	078 Glass	
01 Hardware	05 Digging tools	112 Slag and clinker	GUM/RESIN
02 Materials	06 Other fabricating or processing tools		010 Rubber, elastic
03 Lighting device	07 Other general utility tools	METALS	009 Rubber, hard
04 Decorative furnishings	08 Ceremonial & ornamental	005 Tin	
	09 Miscellaneous	019 Silver	PETROCHEMICALS
05 ARMS GROUP		021 Gold	073 Carbon
01 Projectiles	11 SAMPLES	026 Cuprous metal	095 Coal
02 Cartridge case	-- Charcoal samples for radiocarbon dating	028 Ferrous alloy	048 Graphite
03 Arms accessories	-- Flotation samples	029 Aluminum	116 Tar
04 Gun parts	-- light fraction	032 Steel	
	-- heavy fraction	034 Lead	PROTEIN
	-- Soil samples	035 Chrome	118 Chitin (arthropod, exoskeleton)
06 CLOTHING GROUP		036 Mercury	106 Felt
01 Apparel	98 UNSPECIFIED GROUP	136 Undifferentiated metal	122 Flesh
02 Ornamentation			016 Hair
03 Making and repair		STONE	117 Keratin (horns/fingernail/claws)
04 Fasteners		129 Agate	015 Leather
07 PERSONAL GROUP		075 Asbestos	107 Silk
01 Coins		133 Chalk	090 Sponge, natural
02 Keys		052 Chert	105 Wool
03 Writing paraphernalia		042 Granite	
04 Grooming and hygiene		046 Gravel	COMBINATION MATERIALS
05 Personal ornamentation		109 Jet	017 Bone
06 Other personal items		038 Limestone	132 Ivory
08 TOBACCO PIPE GROUP		041 Marble	067 Pearl
01 Kaolin pipe class		049 Mica	089 Shell
02 Nonkaolin pipe		058 Obsidian	
03 Smoking accessories		057 Ochre	SYNTHETIC MATERIALS
		068 Precious stone	103 Celluloid
		053 Quartz	088 Nylon
		054 Quartzite	008 Plastic
		039 Sandstone	077 Soap
		044 Shale	091 Sponge, synthetic
		040 Slate	104 Synthetic
		060 Steatite	
		043 Schist	TEXTILE
		126 Undifferentiated stone	151 Undifferentiated textile



APPENDIX 2
B. Table for Data Base Coding Chart: Groups and Classes

GROUPS AND CLASSES

- | | |
|---------------------------------|--|
| 01 KITCHEN | SAMPLE ARTIFACTS |
| 01 Dishes | Plate, cup, saltcellar |
| 02 Containers | Bottle glass fragments |
| 03 Tableware | Eating utensils |
| 04 Kitchenware | Cooking utensils, pot, kettle |
| 02 FAUNAL/FLORAL GROUP | |
| 01 Mammalia | Mammal |
| 02 Aves | Bird |
| 03 Reptilia | Reptile |
| 04 Amphibia | Amphibian |
| 05 Pisces | Fish |
| 09 Other ethnofaunal/zoological | Oyster, crab, egg shells |
| 16 Ethnobotanical | Seeds, nuts |
| 03 ARCHITECTURAL GROUP | |
| 01 Window glass | Window pane glass |
| 02 Nails | Nails |
| 03 Spikes | Railroad spikes |
| 04 Door & Window hardware | Doorknob, doorhinge |
| 05 Other Structural hardware | Pipe, fireplace tiles |
| 06 Construction materials | Brick, mortar, roofing |
| 04 FURNITURE GROUP | |
| 01 Hardware | Handle, drawer pull, latch |
| 02 Materials | Stoveparts, chair part, bedframe |
| 03 Lighting device | Candlestick, lamp base |
| 04 Decorative furnishings | Flowerpot, clock parts, vase |
| 05 ARMS GROUP | |
| 01 Projectiles | Shot, bullets |
| 02 Cartridge case | Cartridge |
| 03 Arms accessories | Gun flints, bullet molds, powderhorn |
| 04 Gun parts | Pistol barrel, flintlock assembly |
| 06 CLOTHING GROUP | |
| 01 Apparel | Hat, coat, scarves, glove, shoe |
| 02 Ornamentation | Beads, sequin, hatpin, feather |
| 03 Making and Repair | Thimble, straightpin, scissors |
| 04 Fasteners | Buttons, snaps, buckles, cufflink |
| 07 PERSONAL GROUP | |
| 01 Coins | Coins |
| 02 Keys | Doorlock keys, padlock keys |
| 03 Writing paraphernalia | Quill, fountain pen nib, graphite pencil |
| 04 Grooming & hygiene | Hairbrush, razor, mirror, tweezers |
| 05 Personal ornamentation | Jewelry, ribbon, ornamental comb |
| 06 Other personal items | Pocketwatch, key chain, pocketknife |

GROUPS AND CLASSES

- | | |
|--|--|
| 08 TOBACCO PIPE GROUP | |
| 01 Kaolin pipe | Kaolin pipe |
| 05 Nonkaolin pipe | Corncob pipe |
| 06 Smoking accessories | Snuff tin, cuspidor, tobacco tin, pipe cleaner |
| 09 ACTIVITIES GROUP | |
| 01 Construction tools | Axe head, drill bit, saw, paintbrush |
| 02 Farm tools | Hoe, rake, plowblade |
| 03 Leisure activities | Marbles, Jew's harp, doll parts |
| 04 Fishing gear | Fish hooks, sinkers, crab trap |
| 05 — | |
| 06 — | |
| 07 Pottery class | Indian waterjar, effigy pot |
| 08 Storage items | Crock, barrel staves, sacks |
| 09 — | |
| 10 Stable and barn | Stirrup, horseshoe, rein, harness belt |
| 11 Miscellaneous hardware | Rope, bolts, nuts, washers, chain |
| 12 Specialized activities | Button blanks, metallurgic debris, saggars |
| 13 Military objects | Insignia, bayonets |
| 14 Housekeeping | Broom, coathanger, washboard |
| 15 Public services | Sewer pipe, water pipe |
| 10 PREHISTORIC GROUP | |
| 01 Hunting and Fishing | Projectile point, atlatl hook |
| 02 Domestic | Vessel, mortar, pestle |
| 03 Stoneworking | Hammerstone, baton, flake, core |
| 04 Woodworking | Celt, grooved axe |
| 05 Digging Tools | Hoe |
| 06 Other fabricating or processing tools | Drill, chisel, needle |
| 07 Other general utility tools | Knife, prismatic blade, chopper |
| 08 Ceremonial & ornamental | Sheet, gorget, bead |
| 09 Miscellaneous | Function unknown |





RED HOOK WATER POLLUTION CONTROL PLANT
ARTIFACT INVENTORY

Context	Gp	C1	Mat	Identity	Count	Cat#	Comments	Reference	Range
=====	==	==	==	=====	=====	=====	=====	=====	=====
4001.07	01	04	003	Redware	1	17	Clear lead glazed interior		
4001.07	01	04	003	Redware	1	22	Clear lead glazed interior		
4001.07	01	04	003	Redware	1	14	Base		
							Clear lead glazed interior		
4001.07	01	04	003	Redware	1	10	Base		
							Clear lead glazed interior		
4001.07	01	04	003	Redware	1	15	Rim		
							Clear lead glazed interior		
							Ring of glaze around exterior of rim		
4001.07	01	04	003	Redware	1	23	Clear lead glazed interior		
4001.07	01	04	003	Redware	1	20	Clear lead glazed interior		
							Mottled with manganese		
4001.07	01	04	003	Redware	1	21	Clear lead glazed interior		
4001.07	01	04	003	Redware	1	13	Clear lead glazed interior		
4001.07	01	04	003	Redware	1	16	Clear lead glazed interior		
4001.07	01	04	003	Redware	1	11	Clear lead glazed interior		
							Mottled with manganese		
4001.07	01	04	003	Redware	1	18	Lug on interior		
							Clear lead glazed interior		
							Mottled with manganese		
4001.07	01	04	003	Redware	1	12	Base		
							Clear lead glazed interior		
4001.07	01	04	003	Redware	1	5	Rim		
							Clear lead glazed interior		
							Ring of glaze around exterior of rim		
							MENDS with #8		
4001.07	01	04	003	Redware	1	6	Rim		
							Clear lead glazed interior		
							Ring of glaze around exterior of rim		
							MENDS with #5		
4001.07	01	04	003	Redware	1	1	Clear lead glazed interior		
							MENDS with #2		
4001.07	01	04	003	Redware	1	2	Clear lead glazed interior		
							MENDS with #1		
4001.07	01	04	003	Redware	1	7	Rim		
							Lug on interior, 10.5 cm from rim		
							Clear lead glazed interior		
							Mottled with manganese		
							Ring of glaze around exterior of rim		
							Mends with #8 & #9		
4001.07	01	04	003	Redware	1	8	Clear lead glazed interior		
							Mottled with manganese		
							MENDS with #7 & #9		
4001.07	01	04	003	Redware	1	9	Rim		
							Clear lead glazed interior		
							Mottled with manganese		
							Ring of glaze around exterior rim		
							MENDS with #7 and #8		
4001.07	01	04	003	Redware	1	3	Rim		
							Clear lead glazed interior		
							Ring of glaze around exterior of rim		
							MENDS with #4, #19, #24		
4001.07	01	04	003	Redware	1	4	Rim		
							Clear lead glazed interior		
							Ring of glaze around exterior of rim		
							MENDS with #3, #19, #24		
4001.07	01	04	003	Redware	1	19	Clear lead glazed interior		
							MENDS with #3, #4, #24		
4001.07	01	04	003	Redware	1	24	Lug on interior, 11 cm from rim		
							Clear lead glazed interior		
							MENDS with #3, #4, #19		
*** Total ***					24				

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APPENDIX 3

FIELD INSPECTION MEMORANDUM



GREENHOUSE CONSULTANTS' ARCHAEOLOGICAL INSPECTION
AT THE RED HOOK WATER POLLUTION CONTROL PLANT

August 6, 1991

On Friday morning, Aug. 2, 1991 the pile driver/crane broke through a brick feature near the center of the excavation at the Red Hook Water Pollution Control Plant. Stone & Webster's field representatives contacted Enid Lotstein of their New York Office. Enid Lotstein contacted Greenhouse Consultants. Archaeologists William Sandy, SOPA and Michael Davenport went to the site.

Upon discovery, the feature was examined by the S&W field team, and was photographed by Brett Maxwell of Ecology and Environment. They described it as a linear brick feature resembling a sewer or storm drain. It was about six foot in diameter and appeared to cut across the excavation at about 45 degrees.

When the Greenhouse Consultants team visited the site in the afternoon, the incoming tide had filled the feature with water, leaving only the top exposed. We met with Stone & Webster's Resident Engineer Bill White and Will Stefan. Brett Maxwell was also present. Mr. White believed that the drainage pipe was no longer directly linked to the bay. Because there have been several generations of drain pipes in the area, portions may have been filled with concrete. This pier has had problems with washouts, and it was clear that the feature is linked, directly or indirectly, with the bay. Further excavations at the site will be minimal, although more piles are to be driven.

It appeared that the brick feature encountered on August 2, 1991 at the Red Hook plant is either a sewer or a storm drain. It probably dates to the nineteenth or early twentieth century. Historical research indicates that it might be part of the "Little Street Sewer". The presence of this feature provides an explanation for the sterile fill found during Stage 1B testing. Excavation for the construction of the feature presumably removed earlier deposits, and replaced them with "clean" fill.

This sewer does not merit further investigation, because little information would be gained by additional examination. The proposed construction will not include much further excavation. Since little of the sewer will be exposed, monitoring by archaeologists would not be productive. Brett Maxwell has photographs of the feature, taken at low tide and we will attempt to obtain copies. Greenhouse Consultants took photos of the overall site and the feature.

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Resident Engineer Bill White will see that Greenhouse Consultants is contacted if anything else of potential archaeological interest is uncovered.

Principal Investigator Linda Stone has contacted Louise Basa of the New York State Department of Environmental Conservation and Daniel Pagano of the New York City Landmarks Preservation Commission about the developments. Neither has any concerns in regard to this feature.

William Sandy, SOPA
Linda Stone, SOPA