HISTORICAL AND ARCHAEOLOGICAL INVESTIGATION OF ROBERDEAU'S WHARF AT HARBORSIDE, ALEXANDRIA, VIRGINIA

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ABSTRACT

Historical and archaeological investigations of the Harborside development property were conducted on behalf of the 400 South Union Street Joint Venture (Alexandria, Virginia) in April and May of 1989. The property consisted of a 3.5 acre parcel at the south end of the Alexandria waterfront. Historical research indicated that most of the lot consisted of made-land, built as a wharf extending towards the Potomac River channel beginning in the late eighteenth century. The property was used as a commercial wharf and shipyard in the eighteenth and nineteenth centuries, contained a brewery and a large iron foundry and locomotive works in the nineteenth century, and an electric power generating plant in the first half of the twentieth century. Backhoe trenching revealed remains of the eighteenth century wharf surface, in the form of wood planking and a compressed wood chip and pine tar surface; portions of a brick furnace and coal bin associated with the brewery complex; and the remains of various structures related to the operation of the power plant. The cove in which the wharf was built in the eighteenth century appeared to have been quite shallow. Wharf fill was recorded as little as 2 to 3 feet in thickness in most areas tested; bulkheads probably served as retainers. Although no more archaeological work is scheduled, development of an interpretive display associated with a public easement planned at the entrance to the complex is recommended.

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I. Introduction

Project Description and Location

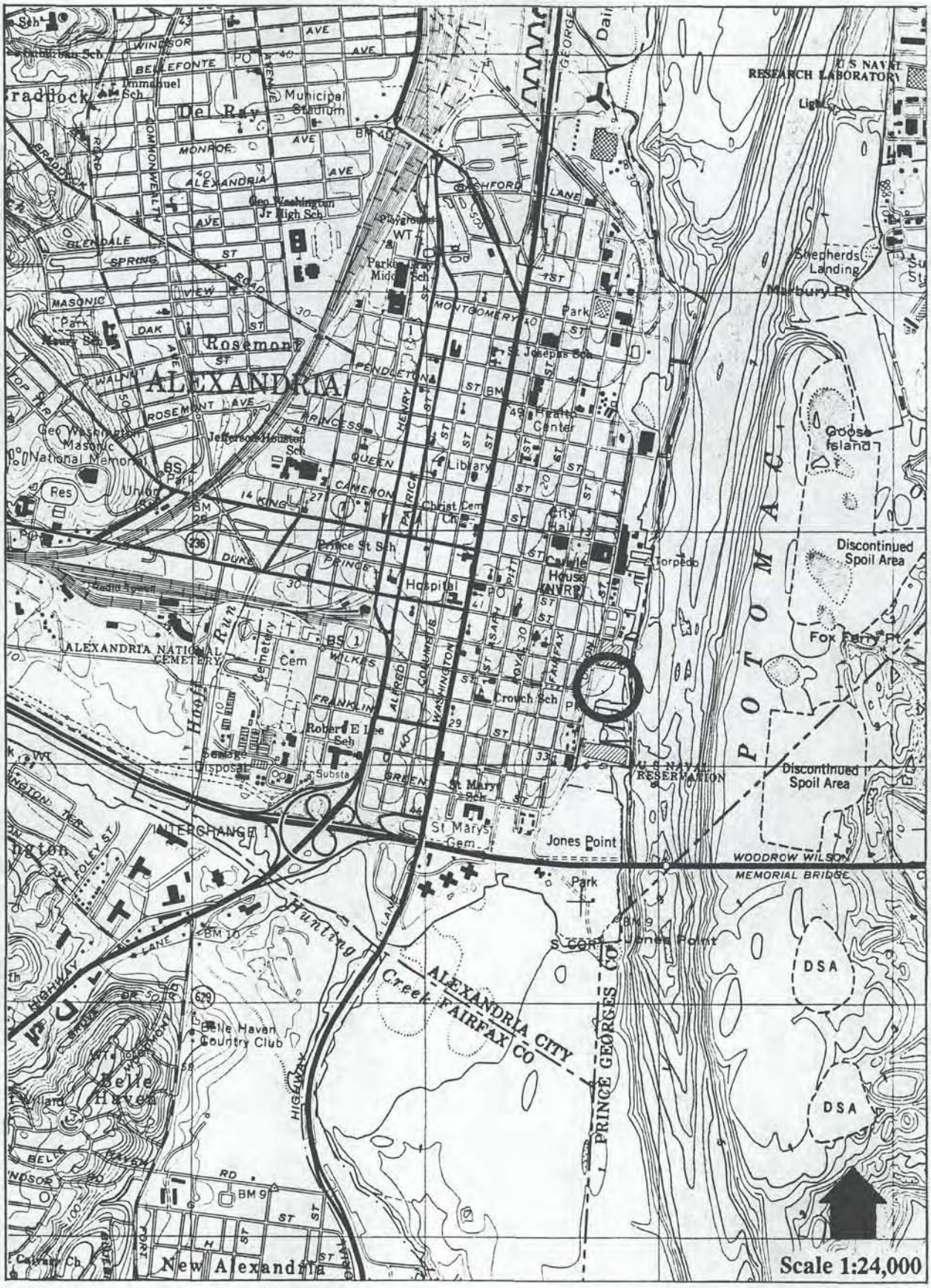
In April and May of 1989, an archaeological and historical study was carried out by Engineering-Science, Inc., at the Harborside property at 400 South Union Street in Alexandria, at the request of the 400 South Union Street Joint Venture, of 109 Oronoco Street, Alexandria, Virginia. The study consisted of archival research and on site archaeological testing in coordination with Alexandria Archaeology. The project was conceived of and funded by the 400 South Union Street Joint Venture.

The project area consisted of a 3.5 acre parcel at the southern end of the waterfront in Alexandria, bounded on the north by Wolfe Street, on the south by Wilkes Street, on the west by Union Street, and on the east by the Potomac River (*Figure 1*). As part of the survey, an official site number was requested from the Virginia Division of Historic Landmarks: the number 44AX114 was assigned.

Research Orientation

The main goal of the present investigation was the completion of a survey of the project area to determine the type of cultural resources remaining on the property and the degree of current depositional integrity. It was known from previous documentation that the area consisted almost entirely of made-land and that the site has seen a large amount of heavy industry, some of it begun quite early in the history of the site. The survey was conducted to test for remains of the early wharf which extended into the Potomac and for the presence of early structures associated with the wharf, for evidence of early industrial use of the property, and to determine the degree of disturbance resulting from later industry. A further aim was the initiation of a study of artifacts recovered from various test locations on the site for data relevant to general site chronology and use.

To this end, historical documentation was evaluated for data concerning past land use patterns. Based on this research, the presence of subsurface features was predicted and an appropriate field methodology developed, involving the excavation of a series of backhoe trenches. Greatest consideration was given to early deposits, which were assumed to lie in the west portion of the property along Union Street. The following report details the methods and results of the study and includes recommendations for further treatment of identified resources.



Source: USGS Alexandria 1983
Harborside

Figure 1
Project Location

II. PRESENT SITE CONDITIONS

The project area as it existed at time of survey consisted of a 3.5 acre lot (slightly over 152,000 square feet) bounded to the north by Wolfe Street, to the west by Union Street, to the south by Wilkes Street, and to the east by the Potomac River. The lot was almost entirely clear of standing structures. Historically, the north and south halves of the lot have been under separate ownership and have seen different uses. At the start of survey work, approximately two-thirds of the north half of the lot was surfaced with asphalt and used as a public parking facility. In the extreme northwest corner of the property, a small power substation operated by the Virginia Electric Power Company covered approximately 7,600 square feet and was enclosed by portions of a brick screening wall along Union and Wolfe Streets and by chain link fencing.

Brick walls ran along all or part of the north, west and south bounds of the lot. The west edge of the property, running the length of the block along Union Street, was bounded by a brick wall topped with barbed wire. Two walkway openings and two drive openings in the wall were secured by iron gates. The south edge of the property consisted of a 100 foot length of brick wall formed by the remnants of a twentieth century structure at the corner of Union and Wilkes, part of whose raised concrete slab remained in a relatively undisturbed state. To the north of the slab lay a deteriorated asphalt driveway and several low concrete ledges or footings. Chain link fencing, obscured by vines and small trees, ran the remainder of the south property line eastward to the waterfront.

The north edge of the lot consisted of a continuation of the wall which ran along Union Street, extending some 80 feet along Wolfe to the edge of the VEPCO substation, at which point a 16 foot opening with an iron gate served as an exit for the parking lot. To the east of the drive lay the remains of an older brick wall, which appeared to be the north wall of a foundry building erected by Thomas and Richards Smith in the 1830s. The wall was quite overgrown, almost completely obscured from Wolfe Street by trees and heavily covered with vines, including, to the chagrin of one observer who climbed the wall to measure its dimensions, poison ivy. The interior of the wall showed signs of repeated re-use, in the form of numerous and varied iron fittings attached to both brick and mortar, and several filled-in windows, some of which exhibited fairly complex histories of patching and refilling. The original floor of the building may have been considerably lower than the present grade, as evidenced by two pairs of window openings near the east end of the wall which appeared to continue below ground level. The corners of truncated walls running to the south were visible at either end of the wall, and sections of newer brickwork finished out the length of the present wall for 5 feet to the west and 3 feet to the east. Chain link fencing ran part of the remainder of the block toward the river's edge. Eighty feet east of the end of the foundry wall and several feet south of the fence lay a large concrete rail head, positioned as the terminus for a rail line extending eastward from the Wilkes Street tunnel and 'curving to the north to meet the rail head. Workers at the Robinson Terminal Warehouse, which occupies the block to the north across Wolfe Street, reported that

when the power plant was in operation, rail cars ran up to the rail head to off-load coal onto conveyors which carried it directly to the furnaces in the basement of the plant.

In general, the surface of the property was flat, with elevations ranging from 10 feet along Union Street, to 7.5 feet along the concrete bulkhead forming the east bound of the project area at the river. A slight rise southeast of the center of the lot was topped by a large iron I-beam set in concrete, another remnant of the power plant support facilities.

III. Previous Land Use

The town of Alexandria was officially organized in 1748 when an Act of the General Assembly called for the erection of a town on a portion of the lands belonging to Philip Alexander, John Alexander and Hugh West, lying on the west bank of the Potomac River at the mouth of Great Hunting Creek (*Figure 2*). The Act of the Assembly called for a survey of the 60 acres of land and the laying out of lots to be put up for public sale or auction. These lots were not to exceed a half acre of land each, and a portion of the 60 acres was to be set aside for a market place and a public landing. Furthermore, it was enacted that the buyer of the lot or lots

> shall within two years next after date of the conveyance for the same, erect, build and finish on each lot so conveyed, one house of brick, stone or wood, well framed, of the dimensions of twenty feet square and nine feet pitch at the least or proportionately thereto (in Powell 1928: 28)

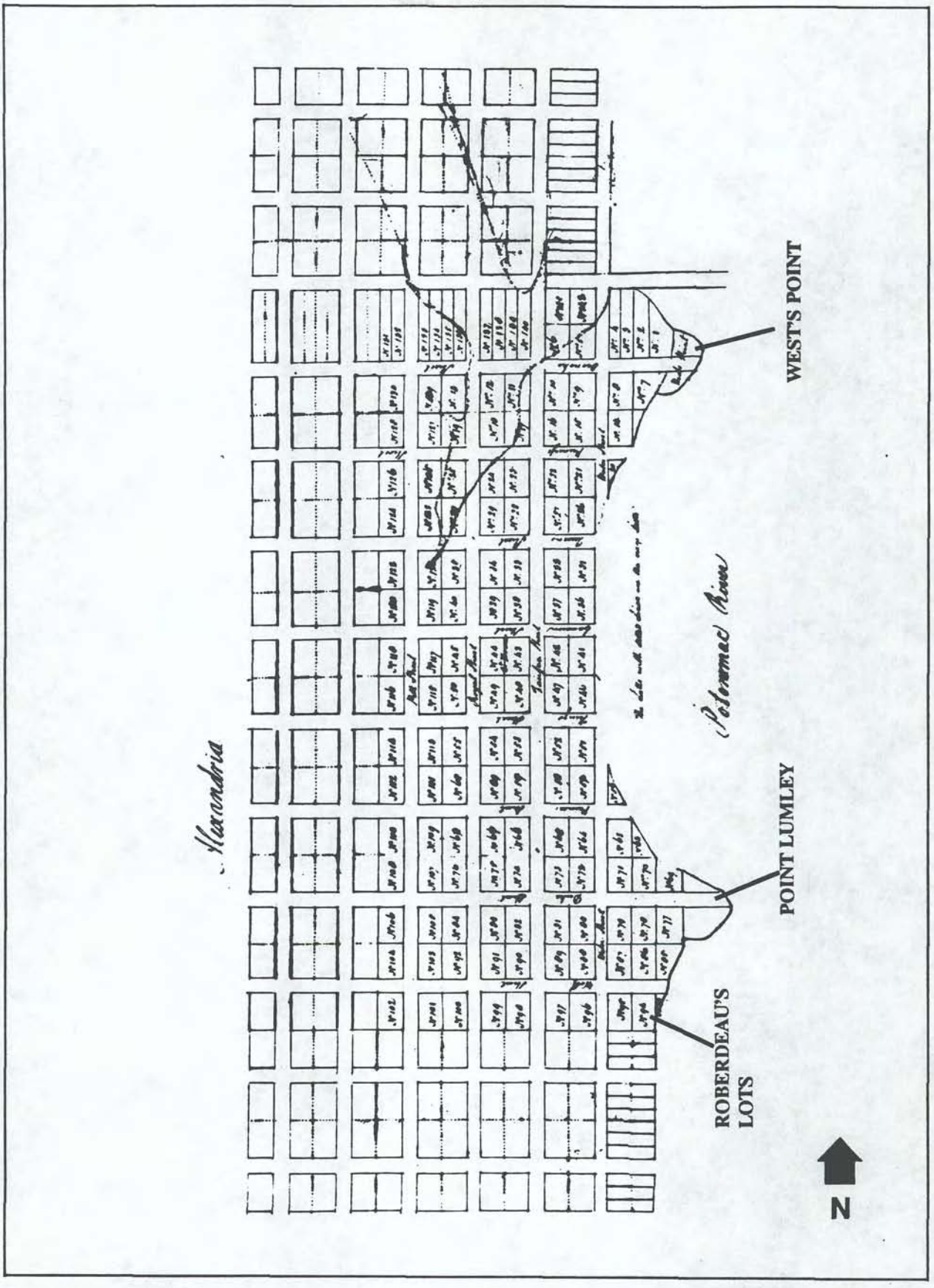
In July 1749, the County Surveyor, John West Jr., assisted by the young George Washington, staked out lots for the founding of the town. Sixty-six lots were initially delineated, nine streets were laid and two public landings, West's Point and Point Lumley, were established at either end of the town's waterfront. Several days subsequent to the laying of the lots, public auction was held and thirty-one lots were sold.

In 1753 the town was resurveyed and the bounds were marked with white oak posts. All of the buildings were ordered to front towards the streets, with gables only where streets crossed and with chimneys made of brick or stone (Powell 1928: 33) The streets were laid out north to south with the points of the compass. At this time, Water Street (now Lee Street) was the easternmost street in the town, running closest to the river, the shoreline of which created a curved harbor area or cove (*Figure 3*). While both of the public wharves at either end of the town provided access to the deep waters of the Potomac, the cove itself was a shallow bay or shoal that extended some distance from the banks of the river. Therefore, in order to better take advantage of Alexandria's position on the river, the Alexandria Board of Trustees wrote on September 1, 1760, that "every purchaser of Riverside Lotts by the terms of the sale was to have the benefit of extending the said Lotts into the River..." (Proceedings of the Alexandria Trustees: 34).

This act greatly encouraged development along the waterfront, especially in the central harbor area, so that eventually the town counted no less than 26 wharves and a variety of commercial and industrial sites along the river's edge (Miller n.d.). Growth occurred progressively. Banks as high as 10 feet ran along the water front and the shoal extended the length of the main frontage. To remedy this problem, the Virginia legislature moved in 1782 to grade and develop Water Street and add a new avenue, Union Street, to the east. The land was most likely extended in part by the sinking of derelict watercraft to form bulkheads, behind which fill, taken from the graded banks, could be placed (Shomette 1985; Miller 1987a). The extension of the land and the addition of Union Street followed the established grid laid out for

Source: Mitchell 1977
Harborside

Figure 2
West Bank of the
Potomac, 1746



Source: George West 1763
Harborside

Figure 3
Alexandria Waterfront
in 1763

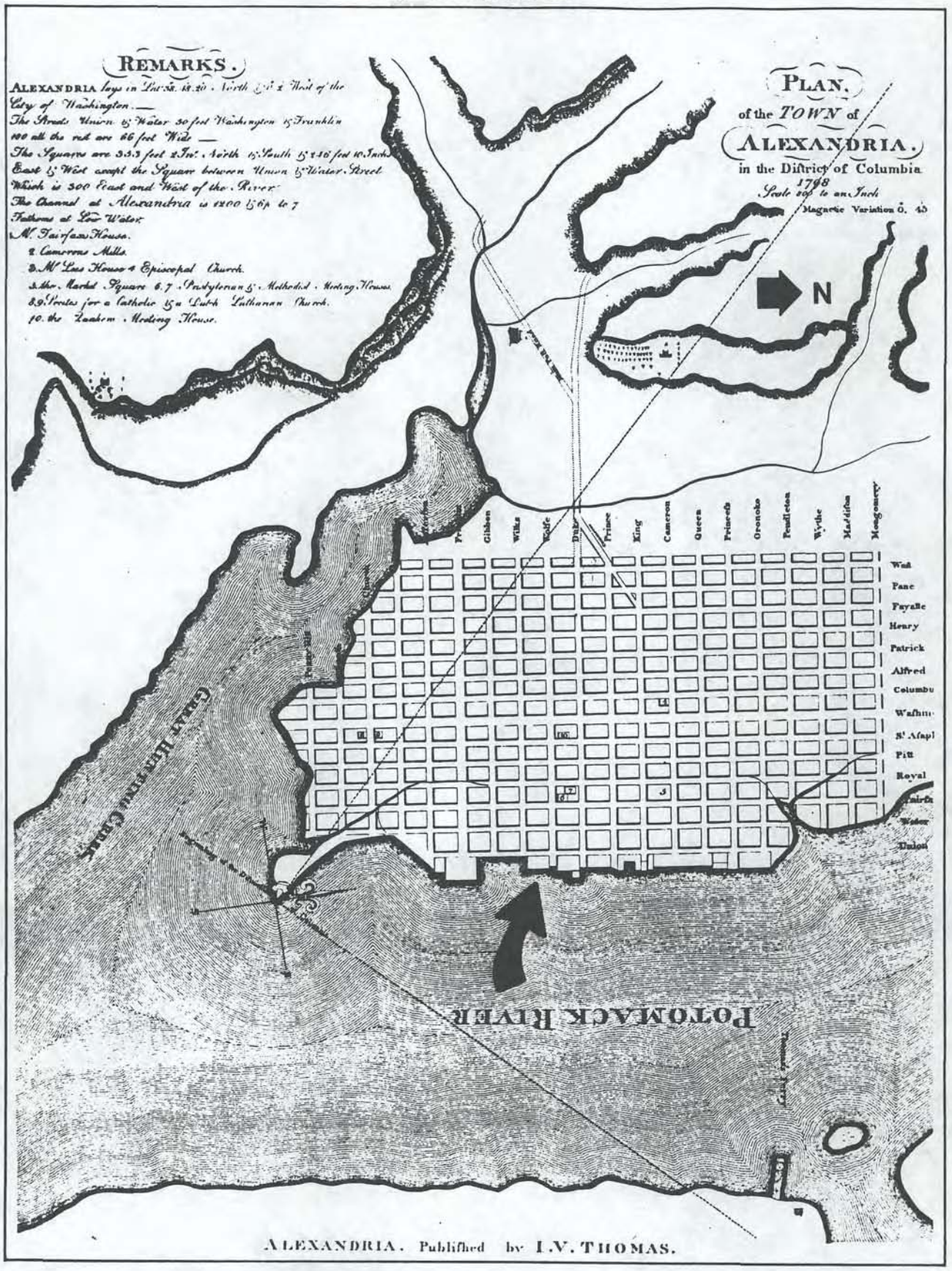
the city until eventually the curve of the Alexandria harbor had vanished, was replaced by a straightened shoreline (*Figure 4*).

The addition of Union Street and the extension of the land to the east brought the present Harborside site into existence, bounded as it is today by Wilkes and Wolfe Streets to the south and north, by Union Street to the west and by the Potomac River to the east. Originally, before the establishment of Union Street, the easternmost area between Wilkes and Wolfe Streets consisted of a large block divided into halves, each measuring approximately 200 feet along the Water Street edge. The north half of the area was delineated into three lots numbered 93, 94 and 95 (*Figure 3*), while the south half remained as one large parcel, not yet divided into separate lots. Lots 94 and 95 were of equal size, while lot 93 was cut off at an angle by the waterline of the Potomac. Union Street was eventually placed between lots 93 and 94.

While lots 93, 94 and 95 were all bought together by John Hughes in 1765, the south half of the original site was conveyed directly from John Alexander to several different merchants of Alexandria as late as 1774. At this time, according to the deed, John Alexander agreed that "a street 66' wide by the name of Wilkes shall be laid out and be forever kept open on the south side of the hereby granted two lots, beginning at Potomac River and running from thence to the westward and parallel to Wolfe Street..." (Fairfax County Deedbook M:127). The south half of the site was immediately contiguous to lots 93, 94 and 95, which were transferred from the Town of Alexandria to John Hughes in 1765. Nine years later, John Hughes' widow then sold the lots to Daniel Roberdeau, a distinguished general in the Revolutionary War, member of the Continental Congress and signer of the Articles of Confederation (Buchanan 1876), who erected a distillery complex on the site. A description of the complex, found in the December 1, 1774 issue of the *Virginia Gazette*, described it as consisting of several buildings including a stone distillery house, a store house, a wood frame structure, a cooper's shop and a woodyard. The main building, the stone distillery, measured 71 feet by 39 feet and conformed to the requirements of the 1748 Act of the General Assembly obligating owners to build a house of brick, stone or wood on the lot bought by them. The second building was a stone storehouse measuring 50 feet by 50 feet, with granaries in 2 stories above the ground floor and a sail or rigging loft above. The cooper's shop was a wood frame building with a "suitable chimney" and measured 23 feet by 16 feet. The article continued by describing the number and type of stills, and finished by giving the distillery's location:

> The whole of these improvements are situated in Alexandria, below the bank; the distillery on said ground, and the cisterns fixed above the highest tide waters; the stores and yard on a wharf which, with the public wharf adjoining, of 66 feet makes an extent of more than 200 feet in width, 156 feet of which run 300 feet into the Potowmack.
>
> (*Virginia Gazette*, 1 Dec 1774)

At this point the area of land below the bank was most likely part of lot 94 and the majority of lot 93. The distillery building itself was located at what is today the



Source: George Gilpin 1798
Harborside

Figure 4
Roberdeau's Wharf in 1798

northwest corner of Union and Wolfe Streets, across from Harborside, along with the stores and yard. One or more of the outbuildings may have been located on a wharf extending 300 feet into the river.

A few months later in April 1775, Roberdeau's distillery products were advertised in the *Gazette*:

> Roberdeau and Jackson have for sale at the new Distillery--Alexandria Rum which they engage to be equal in quality, flavour, agreeableness of smell, to any made in this Country. They propose to sell for CASH ONLY delivered to ship at the distillery wharf.
>
> (*Virginia Gazette* 21 April 1775)

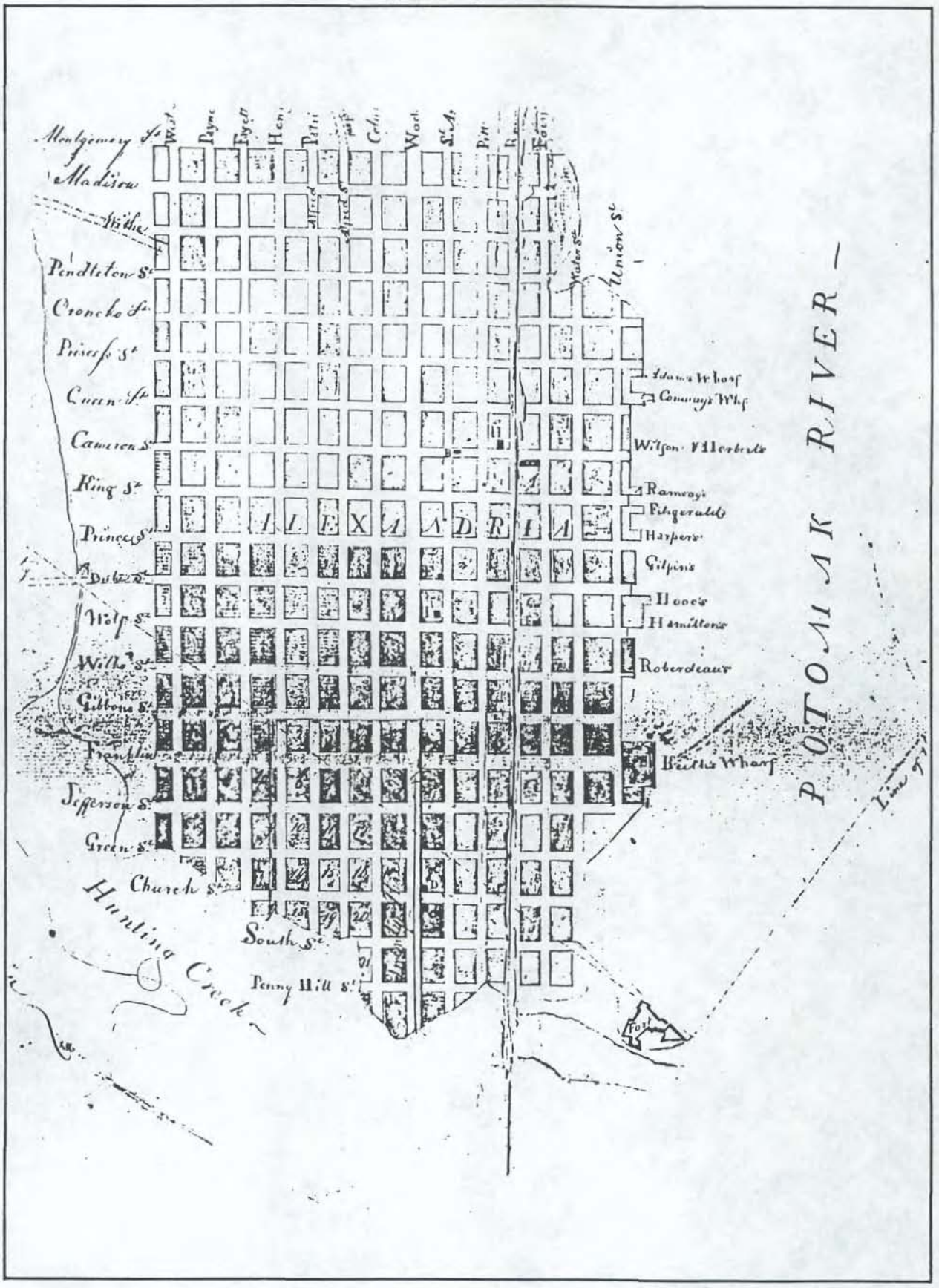
Thus, Roberdeau made immediate use of his land and presumably derived a measure of profit from it. Yet, while he devoted this first year to the production of rum, Roberdeau's long term intentions for the land were most likely associated with the shipping and trade industries.

By 1784 Union Street had been laid out along the waterfront (Miller n.d.), and ran between lots 93 and 94. By the 1790s, Roberdeau was extending lot 93 into the water, advertising a wharf to "accommodate Vessels of the deepest Draught of Water, also with the convenience of stores for their cargoes," and offered free wharfage in exchange for ballast (*Alexandria Gazette*, 23 September 1790). In a later entry in March 1791, Roberdeau advertised for materials to be used in the construction of his wharf which was in the process of being completed. A map of Alexandria, surveyed by Andrew Ellicot in 1791 and produced by Col. George Gilpin in 1798, begins to show the extension of Roberdeau's land east into the Potomac River (*Figure 4*). Although the map does not articulate the newly constructed wharves and slips, it is the first map that shows the intermediate extension of land and the area of infill between Wilkes and Wolfe Streets east of Union Street (see also the slightly later map of 1803: *Figure 5*). By May of 1791, Roberdeau's Wharf appeared to have been finished, as he was then advertising to let his various buildings:

> He has also a large Stone warehouse, with eleven or twelve different apartments, all private, and a Sail-Loft 50 feet square; either of these unoccupied may be immediately entered upon, monthly, or yearly; or the whole together
>
> (*Alexandria Gazette*, 12 May 1791).

At least one of these buildings being advertised, the square Sail-Loft, was most likely the same building used at Roberdeau's distillery complex. At that time the structure was described as:

> A second building, 50' X 50', served as a store with the two stories above the main floor serving as granaries, with a sail or rigging loft above.
>
> (*Alexandria Gazette*, 1 December 1774)



Source: Anonymous 1803
Harborside

Figure 5
Roberdeau's Wharf in 1803

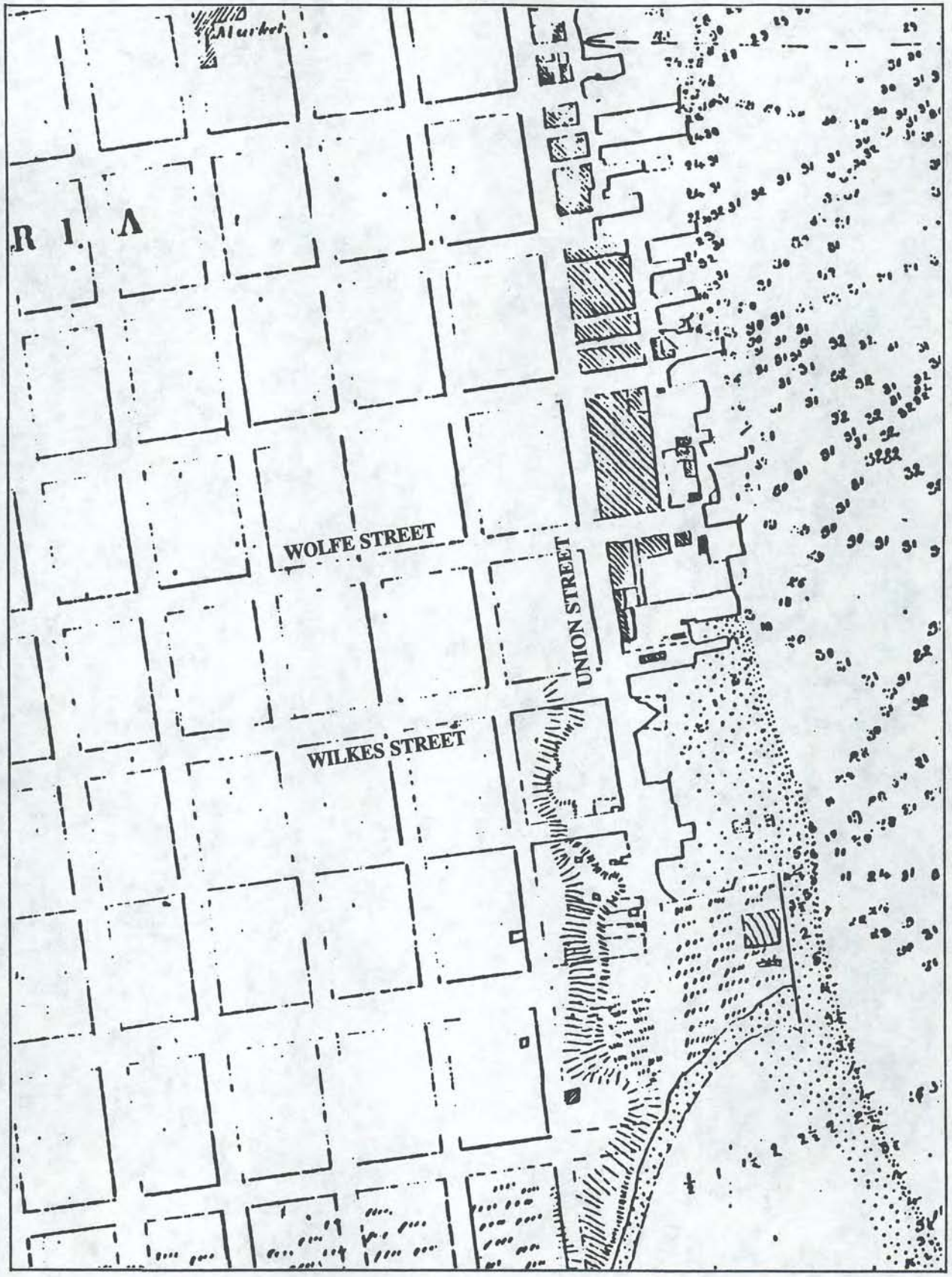
The idea of combining business, such as sail making and chandlery, became quite commonplace in the mid-nineteenth century when the United States was at the height of its shipping and shipbuilding industry. Men from vessels using the port could take advantage of stores on the wharves and not necessarily be obligated to go into town for certain purchases. A recently excavated site at the Bank Street Waterfront in New London, Connecticut provided archaeologists with a sail-loft which may not have been dissimilar to the one described at the Roberdeau property (Artemel *et al.* 1984). Historical evidence determined that the Bank Street sail-loft was four stories in height, with the upper levels used for sail-making, and the lower ones for ship chandlery. Other examples of combined businesses and sail-lofts can be found in the Boston area, indicating that this was a practice used up and down the east coast.

Roberdeau's advertisements eventually paid off when, in 1794, he leased all of lots 93, 94 and 95 to Abraham Morhouse, as well as the wharf extension running east into the Potomac River (Shomette 1985). Furthermore, the southern half of the original block of land was similarly extended towards the river and divided into two long and narrow lots, each measuring 78' 3 1/2" in width, separated by a 20' alley.

In 1794 Abraham Morhouse sold his lease to Robert Smock and Daniel Ketcham. It is not known to what use these men put the property, but according to the Mutual Assurance Records of 1796, Robert Smock actually occupied an adjacent lot, also owned by John Fitzgerald, at the southwest corner of Union and Wolfe Streets. Immediately west of the Harborside site stood several stone or frame structures associated with Roberdeau's early distillery.

A series of transactions occurred in the years between 1794 and 1810 that resulted in the parceling up of the northern half of the block into several smaller lots and its extension even further into the river. By the early nineteenth century, the Strand, a small road east of Union Street, extended from Wolfe Street to the center of the site. The majority of the parcels were by this period leased to Isaac Entwhistle, who also leased the area west of Union Street on which the distillery, now referred to in deeds as a brewhouse, was located. Thus the area east of Union Street at the foot of Wolfe, originally Roberdeau's Wharf, was known briefly as Entwhistle's Wharf. By 1836, the wharf area between Wilkes and Wolfe Streets was no longer depicted as a rectangular extension of the land into the Potomac, but was articulated as a series of recessions and projections serving as slips and wharves on the U.S. Army Topographical Engineer's Map of 1836 (*Figure 6*).

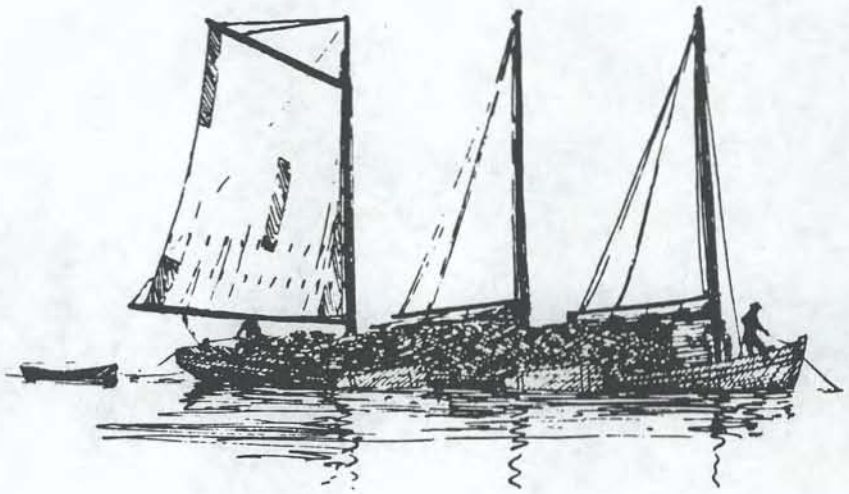
In the meantime, the southern half of the block from Wilkes Street to the center of the site remained fairly stable. By 1803, the area was divided into narrow halves. One of the owners, John Fitzgerald, sold the lease on his property to John Hunter, the noted shipwright, while the owner of the adjoining lot, William Herbert, leased his portion to the same. According to deed records, the 12 year lease was in tenure by John Hunter to be used by him as a shipyard. Conflicting accounts, none of which are substantiated, contend that John Hunter established the shipyard at the foot of Wilkes Street, adjacent to Roberdeau's wharf, as early as 1783. It is possible



Source: Topographic Engineer Department, U.S. Army 1836 Harborside

Figure 6
Southern End of Waterfront with Bathymetric Readings

that while Hunter's name does not appear in the deed books prior to 1803, he was subletting the site and using it as a shipyard. In any case, Hunter's Shipyard was one of the earliest in Alexandria (Lyman 1952), supported in part by business from merchants and shippers of the port of Georgetown--John Mason being perhaps the most prominent example--who shifted much of their shipbuilding and repair work to Alexandria from the increasingly silted in yards along the Anacostia waterfront at Bladensburg (Mason Family Papers, Manuscripts Division, Library of Congress). It was also at Hunter's yard that the so-called "Potomac River Longboat" was first produced, in 1815 (*Figure 7*). A low slung, schooner-rigged boat drawing only 18 inches of water when empty and 3 feet fully loaded, the Potomac Longboat was slow but economical, and particularly well-suited for the relatively quiet waters of the river. It was likewise known as the "wood-boat," because of its main cargo: cordwood, brought upriver to Washington, Georgetown and Alexandria, piled so high that the sails had to be shortened to the limit of their useful lengths (Tilp 1978).



Source:
Egeli in Tilp 1978

Figure 7
Potomac River Longboat

The Hunter yard remained in operation until after mid-century. No mention of buildings or structures is made in the existing deed, but Tax Assessor records indicate Hunter as "resident" and employing a small number of slaves, who may have lived on site. Small offices, warehouses and sail-lofts were probably also situated on this half of the property.

In the early 1830s, both the north and south halves of the site changed hands. Hunter's Shipyard continued to occupy the center of the south half of the wharf to

the river's edge, but was eventually offered for lease in September 1851. At that time the yard was described in the *Gazette* as "376 feet to the end of the wharf where there is 21 feet of water--the warehouse is 78 feet front, 2 stories of brick with a shed of 136 feet from the warehouse toward the wharf 20 feet covered with shingles." In the Virginia Directory for 1853, the property was still listed as a "Steam Saw Mill and Ship Yard" operated by Robert Hunter.

Portions of the north half of the property were sold to James and William H. Irwin, while the rest was bought by a Hugh Smith, a local entrepreneur dealing in a variety of commodities including china. The land bought by the Irwins included Entwhistle's holdings both east and west of Union Street, with the brewhouse and outbuildings remaining from Roberdeau's distillery. Business commenced during the 1830s, and thus the brewery may have comprised one or more of the buildings shown along the east side of Union Street on the Army Engineer's map of 1836 (*Figure 6*). As it is marked on the Maskell Ewing map of Alexandria in 1845 (*Figure 8*, No. 15), the brewery was situated along Union Street running from Wolfe southward at least half the distance toward Wilkes. In 1853, the brewery, listed as the Porter and Ale Brewery in the Virginia Directory of that year and owned by W. H. Irwin, produced 3000 barrels of beer.

Hugh Smith began purchasing lots to the east of the brewery as early as 1829. At approximately the same time, Thomas W. and Richards C. Smith set up a factory for the manufacture of steam engines on the property. Smith's Foundry, officially known as the Alexandria Foundry of T. W. and R. C. Smith, was built on the south side of Wolfe Street between Union Street and the Potomac River in the early 1830s. In 1835 T. W. Smith was advertising in the *Gazette* to "execute orders for High and Low Pressure Steam Engines, Fire Engines, Patent Rope Machinery..." (*Alexandria Gazette*, 15 April 1835). The map shows this main building to be located along the edge of Wolf Street, east of Union with several other dependencies attached to it. The foundry was a leader in the new art of locomotive construction, and by 1850 the Census of Manufacturers records that the Iron Foundry was producing $40,000 a year worth of machinery and castings. Smith's Foundry produced the first engine for the Orange and Alexandria Railroad, as reported on May 7, 1851 in the *Alexandria Gazette*. The newspaper account announced that this locomotive, named the Pioneer,

> was put upon the track of the Orange and Alexandria Railroad yesterday and in the afternoon steam was got up and the locomotive run over the line from the north end of Union Street (at Oronoco) to the tunnel on Wilkes Street. The performance was good and gave general satisfaction. Great numbers of our citizens collected and much joy was manifested at the successful commencement of railroad travel through our town.
>
> (*Alexandria Gazette*, 7 May 1851)

But despite the publicity that this accomplishment received, the greatest achievement of Smith's Foundry was later considered to be a 14 horsepower engine

Source: M.C. Ewing 1845
Harborside

Figure 8
Alexandria in 1845

built in 1837 for the Richmond, Fredericksburg and Potomac Railroad locomotive called the Washington (Macoll 1977).

In 1851 the Smith Foundry was joined by Thatcher Perkins, former master mechanic for the B&O Railroad, and for the next few years the business was known as the Smith and Perkins Foundry. The partners concentrated on the manufacture of locomotives, of which at least eight were sold to the Orange and Alexandria Railroad, making use of the newly opened Wilkes Street Tunnel, inaugurated on May 7, 1851, which linked the Orange and Alexandria directly with the commercial waterfront. An article on December 1, 1852 describes the Smith and Perkins establishment as follows:

> This establishment in Alexandria, Virginia is one of the most extensive in the country. The Locomotive and Car Works cover 51,000 Square feet of ground, front 177 feet on the Potomac river, which has an average depth of 18 feet for several miles above and below the works, and are connected by a turn-out with the Orange and Alexandria Railroad. The Machine Shop is a three story building, 130 feet long by 40 feet in width. On the first floor there are three tracks for setting up Locomotive Engines...On the same floor is the Tool Shop, in which we observed two facing lathes...
> The second floor is occupied, in part, for office and drafting room, but we also observed, in well-appointed apartments, fourteen power lathes, four planeing machines, three drill presses and very large bolt cutters.
> The third story is exclusively occupied as a Pattern Shop and is fitted up with suitable apartments for deposing patterns, models, &c.
> The Foundry building covers 81 by 60 feet and turns out from 3 1/2 to 4 tons casting per day. The Blacksmith Shop, 100 feet by 36 has 12 fires and a powerful steam hammer for heavy work--the Boiler Shop, 112 feet by 40, and the Car Shop 150 by 40 containing four tracks for setting up and removing cars.
>
> (*Alexandria Gazette*, 1 December 1852)

The article continued by announcing that Smith and Perkins were building other structures in addition to those mentioned in the account, while another newspaper account in 1855 claimed that the company was turning out 30 locomotives and 300 freight cars a year (Miller 1987b).

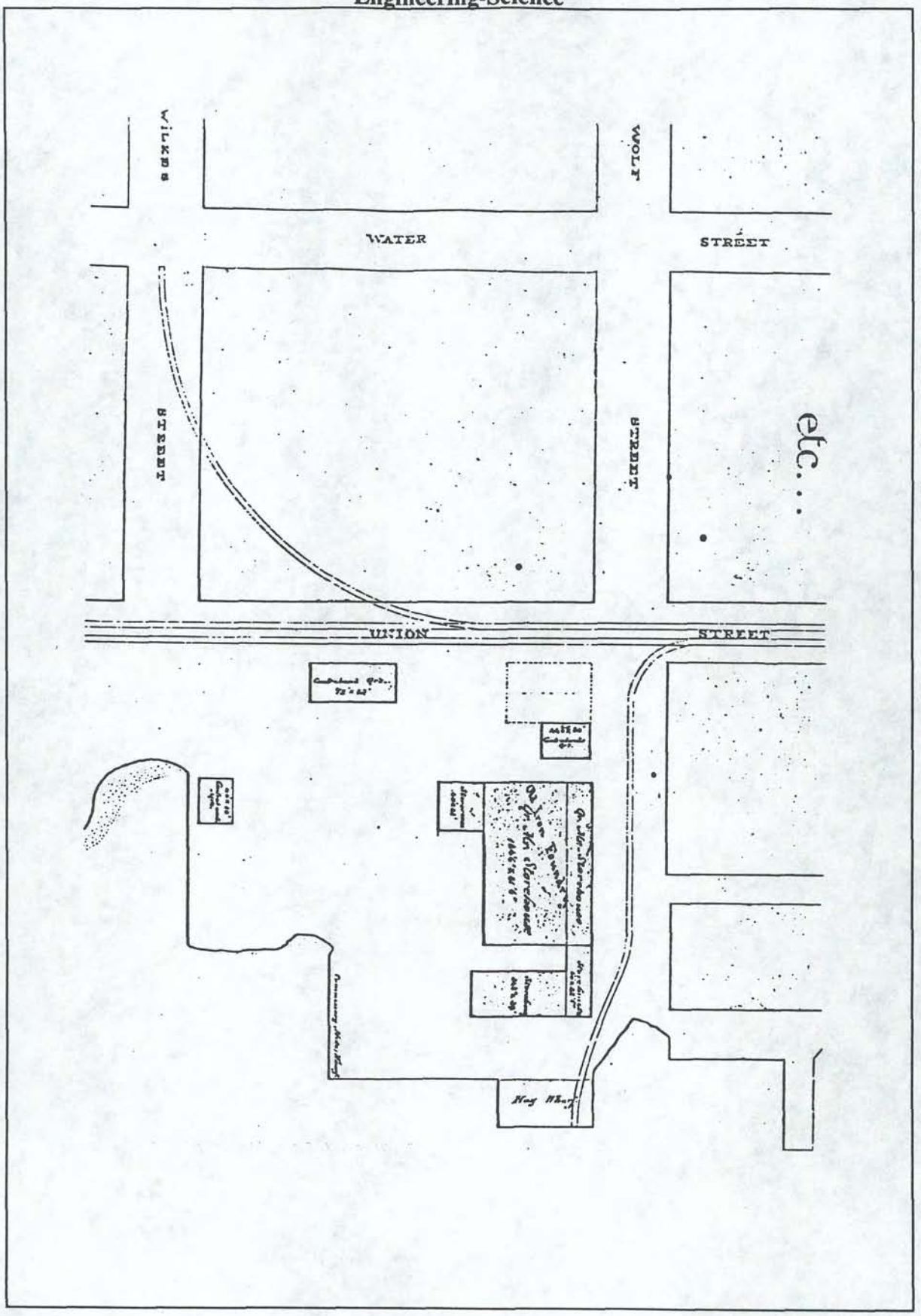
During the 1850s Smith and Perkins grew to include a large number and variety of buildings on the central and eastern portions of the Harborside site. In February of 1854, the General Assembly of Virginia incorporated Smith and Perkins as the Virginia Locomotive and Car Manufacturing Company, and stipulated that the annual stock be not less than $100,000 or more than $500,000 (Quenzel 1954). It was the largest and most important foundry in Alexandria, but the firm apparently became overextended, suffering banking and credit difficulties, and suspended its operations in March of 1855. The company reopened temporarily in May to complete the orders on hand, but closed again immediately afterwards. In 1856 the company was put up for sale, but was withdrawn because bids offered were too low.

At this point a group of citizens greatly desiring the reopening of the plant to promote the prosperity of the community organized a meeting to assist the company. It was determined that the earnings of the company during a four year period had been $89,000, and that business could recommence if the citizens would put up $50,000 in stock. Because of this intervention by the local citizens, the locomotive and car works opened again in 1857. In the same year, the company went bankrupt in the financial panic of 1857, and the plant was abandoned (Quenzel 1954).

During the Civil War, commercial and manufacturing activity on the waterfront came to a virtual halt, and many of the industrial structures were abandoned and eventually destroyed. According to the Union Quartermaster Map of 1865 (*Figure 9*), only the Smith Foundry, labeled the "Old Iron Foundry," and some scattered dependency structures remained on the Harborside site (*Plate 1*). The main foundry building and its additions had been converted into storehouses, and a portion of the wharf designated a Hay Wharf. Still other portions of the wharf may have been among the few areas on the Alexandria waterfront that was permitted to service local fishing vessels (Tilp 1987). Hunter's Shipyard is no longer indicated on the Quartermaster's map, and is reported to have been destroyed at some point during the war (Miller 1987b).

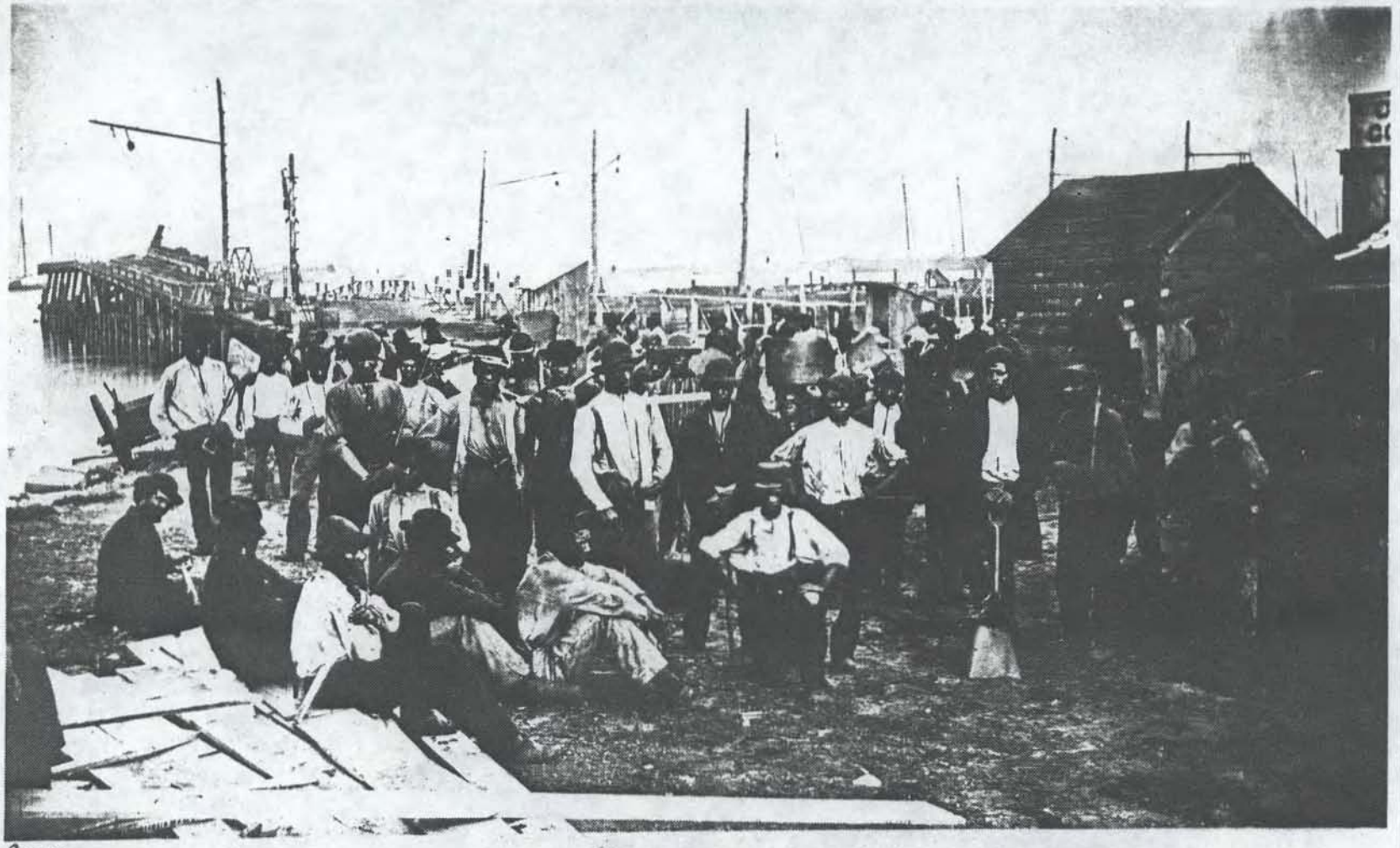
Several unattached buildings, randomly sited on the property, served as Contraband Quarters, housing runaway slaves (*Plate 2*). These runaways caused a great deal of conflict during the war, as slaveholders considered them escapees and demanded their return, while Abolitionists encouraged their emancipation. Though Union generals often issued opposing orders over blacks in their jurisdictions, it had been established early on by Union General Benjamin F. Butler that they be considered Confederate property, or "contraband," and thus need not be returned (Netherton *et al.* 1978). The Union Army holding Alexandria obviously respected this early order and provided several quarters for the Contrabands on the Harborside site.

After the War, Smith's Foundry was succeeded by the firm of Jamieson and Collins in 1876, who continued to manufacture steam engines, machinery and castings. Theirs was a shortlived enterprise that was superceded only a year later by the well known and wealthy coal entrepreneur, J. P. Agnew. The history of the J.P. Agnew Yard, located on the entire northern half of the Harborside site, actually began in 1849 at a nearby location at the end of Franklin Street, known as the Keith and Harper Wharf, and presently the site of the Old Ford Plant. During this year, Alexandria's sixth shipbuilding yard, the Alexandria Marine Railway Company, was established at Keith and Harper's Wharf specifically to repair and refit vessels of all sizes, which it did until the Civil War. In the 1870s, Robert Portner, "a Prussian from New York City," took over the shipyard and renamed it the Alexandria Marine Railway and Shipbuilding Company (Tilp 1987). Although Portner's main concern was to provide maintenance services on the fleet of coal schooners that worked out of Alexandria and Georgetown in the 1870s, he soon began to produce large three-masted ocean going schooners and a wide variety of smaller craft, on an average of 10 a year. By 1880 the company had six iron forges, a heating furnace and a 21-ton



Source: U.S. Army Quartermaster
Harborside

Figure 9
Site Use in 1865



Source: Library of Congress
Harborside

Plate 2
Contrabands at
Quartermaster's Wharf

This is at base of Montgomery at Tidelock Wharf

Source: Library of Congress
Harborside

Plate 1
Harborside During Civil War
View Southeast From Foundry

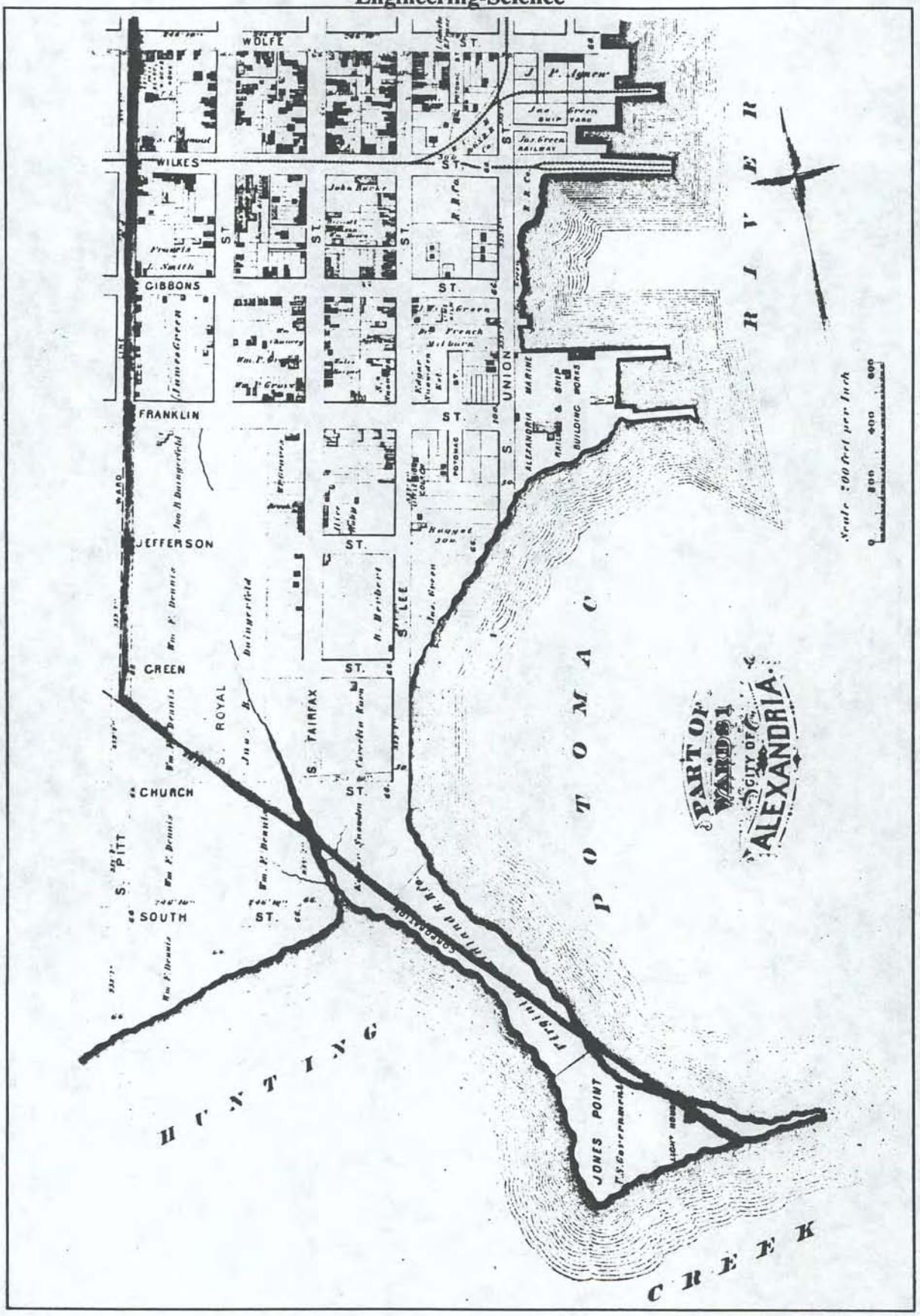
This is not Harborside it is base of Montgomery, wharf at Tide Lock

steam hammer. This successful trend continued when J.P. Agnew bought, first the site of Smith's Foundry at the Harborside site for use as a coal yard, and then, in 1883 Portner's Marine Railway and Shipbuilding Co. He changed the name of the company to the Virginia Iron Ship Building Company, and eventually the Alexandria Marine Railway, Shipbuilding and Coal Company, seeking to combine the efforts of the two companies by which he could build a his own fleet of schooners to carry his coal.

The J.P. Agnew Yard was located on the northern half of the block between Wolfe and Wilkes Streets and is indicated on the 1877 Hopkins Map of Alexandria (*Figure 10*). The site, although essentially the same since just before the Civil War, began to show two long wharf extensions that carry spurs of the Washington City, Virginia Midland, and Great Southern Railroad, controlled by the B & O Railroad, to the waterfront. The main railroad track ran east down Wilkes Street and through the Wilkes Street Tunnel. After the war the old O & A RR, along with several other Virginia railroads were incorporated into the W. C. V. M. & G. S. Railroad Co. (Lloyd House Vertical Files: Railroads). One spur of the main track continued as an extension of Wilkes Street beyond the tunnel and several hundred feet down a wharf into the Potomac. Another track split off immediately after the tunnel to bisect the Harborside site. This track similarly ran east through the site and extended into the river. These two spurs created separate slip areas between them in which the schooners could be filled with coal.

While J.P. Agnew was operating his Shipbuilding and Coal companies at two separate sites, the south half of the Harborside site was being redeveloped by James Green, an Alexandrian, who bought the site of the old Hunter Yard and rejuvenated it to serve once again as a shipyard. By 1877 he was building two-masted schooners and pungyboats, often for Agnew, whose sites were immediately adjacent to his in both the north and south directions. In 1880 Green leased the yard to Charles Ward of Kennebunkport, Maine, who renamed it the Potomac Manufacturing Co. In December of that year, the James Boyce, Jr., a 186 foot, three-masted schooner, was launched, destined to carry 1100 tons of coal, undoubtedly for Ward's neighbor, Agnew. In 1883, a 152 foot three-master, the Wilson and Hunting, was built for a firm in Baltimore (Tilp 1987).

Although the details are not known, the demise of Agnew's Coal Yard was quick to come. The yard is not indicated on the Sanborn Insurance Map of 1885, and by 1896 it had been replaced by the Haskin Wood Vulcanizing Plant, which had by that date already closed. That the plant was in operation by 1893 is indicated by an item in the *Gazette* (11 February 1893) stating that the company had been charged with the task of sealing the abandoned Pioneer Mill building lying to the north, across Wolfe Street. The Haskin plant consisted of one large brick building divided into various spaces to include rooms for vulcanizing boilers, engines and furnaces. This structure appeared to have remained from Smith's Foundry. It was a substantial structure with, according to maps, solid brick exterior walls, 12" thick, which reached 1-3 stories in height. The south side of the structure was pierced with windows or door openings separated by 4" pilasters, and the whole was covered with either a tin or a slate roof.



Source: G.M. Hopkins 1877
Harborside

Figure 10
Southern Waterfront
in 1877

By 1902 the building was occupied by the Osage Manufacturing Co., which manufactured ground ore for paints, and then, by 1907, by the Alexandria Light and Power Company, later the Alexandria County Lighting Company. Between 1921 and 1931 the structure was enlarged several times, and by 1941, a further annex had been added. By this time the plant, now operated by the Virginia Public Service Company, covered most of the western portion of the property, from Wolfe to Wilkes Streets. All of the new additions and the renovated original portion of the building were rectangular in shape and were built of brick, two stories in height, with basements and covered with raised iron roofs.

Although the importance of the south side of the site similarly decreased, its decline was less somewhat drastic. In 1900 Charles Dean of Maryland bought Green's shipyard, continuing the business, specializing in the repair of smaller river vessels (Tilp 1978). Small one story wood frame structures located along the continuation of Wilkes Street and next to the railroad tracks extending into the Potomac, served as offices, bunks, storage spaces and a boat house. While Dean moved his business to another site in 1917, the small structures remained at least until the early 1930s, after which they were removed for power plant renovation.

IV. PREVIOUS INVESTIGATIONS

The earliest record of occupation of the Alexandria area results from John Smith's voyage up the Potomac in 1608. On his map of the region, Smith recorded the presence of four villages on the west side of the river near the present site of Alexandria, inhabited by Native American groups now referred to as Virginia Algonquians (Feest 1978). The exact location of these villages is the subject of disagreement among scholars, but none of the villages seems to have been situated within the city itself.

Two late nineteenth-century archaeological studies indicated the presence of prehistoric sites on the Potomac both above and below the city. One site was located north of the city along Four Mile Run (Proudfit 1889), and the other lay to the south of Great Hunting Creek (Holmes, Dinwiddie, and Fowke 1891).

The foundation of Alexandria Archaeology in 1977 prompted a recompilation of all known archaeological sites within the city. This survey documented the locations of 22 prehistoric sites, only one of which was near the city's waterfront, with the remainder situated inland (Henry 1983). The shoreline, site 44AX53, was located immediately south of the project area near Jones Point, and was the subject of a recent study by LeeDecker and Friedlander (1984). The lithic material and ceramics found during the investigation indicated the site was occupied during the Late Archaic (3000-1000 B.C.) and Middle Woodland (A.D. 300-800) periods.

Thirteen prehistoric sites have been identified further to the south, along Great and Little Hunting Creeks. A survey of Mt. Vernon Memorial Highway, undertaken in 1985 by the National Park Service, investigated four of these sites, as well as identifying another, previously unrecorded site. The remaining sites were not fully explored (Inashima 1985).

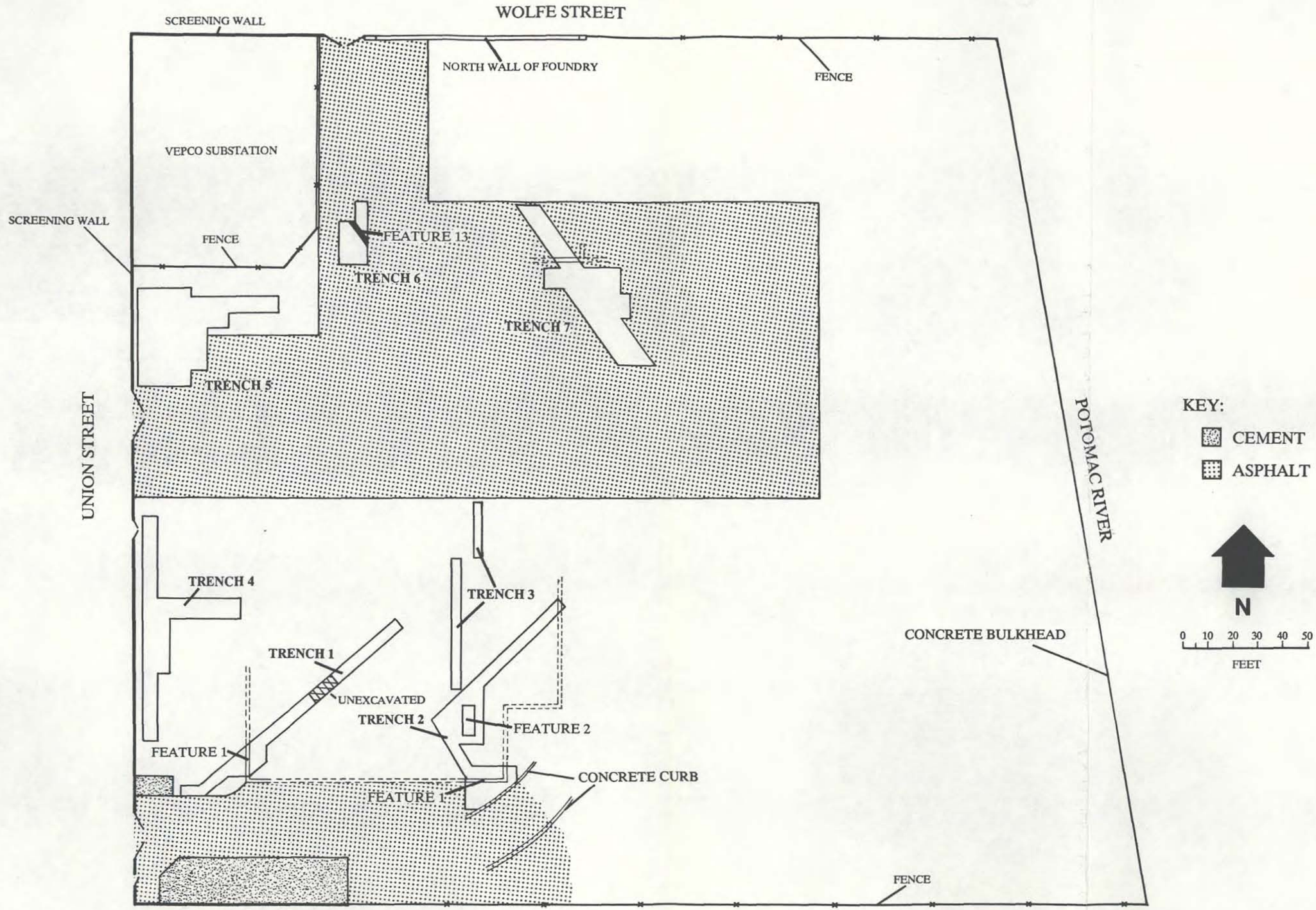
Research into Alexandria's historic past has been shaped by the work of Alexandria Archaeology. Emphasis has been placed on the concept of the "city-site," focusing on historical development within a city-wide context, and using a tripartite division of the city's history. The developmental periods are:

> Mercantile Capitalism (mid-eighteenth century)
> Indigenous Commercial Capitalism (late eighteenth to mid-nineteenth century)
> Industrial Capitalism (late nineteenth to early twentieth century)
> (Cressey and Stephens 1982; Cressey 1985).

With the assistance of an enthusiastic volunteer force, Alexandria Archaeology has conducted numerous archaeological investigations within the city, including extensive, and in some cases ongoing work at the Lee-Fendall House at Washington and Oronoco Streets, the Stabler-Leadbeater Apothecary Shop in the 100 block of South Fairfax Street, and at the Sugar House, site of a nineteenth century sugar refinery at Cameron and Alfred Streets. Of immediate relevance to

the current project at Harborside were excavations at the sites of two pottery factories in the city: in 1977 at a ceramic located at Wilkes and Washington Streets and owned variously by John Swann, Hugh Smith, and B.C. Milburn (Myers 1982), and a second, in 1984, at a pottery owned by Tildon Easton in the 1400 block of King Street (Magid 1986). Salvage excavations have also been conducted at the Carlyle-Dalton Wharf at the lower end of Cameron Street, which documented remains of large, yellow pine timbers related to wharf underpinning, and across Union Street from Harborside at the site of Daniel Roberdeau's eighteenth century distillery, where a large wooden vat and a cache of wine bottle glass were recorded (Steven Shephard 1989, personal communication).

And finally, a Phase I archival study was conducted in 1986 for the Old Ford Plant property, two blocks south of Harborside at the foot of Franklin Street (Cheek and Glendening 1986), followed later by limited Phase II subsurface testing, which identified materials potentially related to Keith and Harper's Wharf, constructed in the late eighteenth century (Artemel *et al.* 1988).



Source: Engineering-Science
Harborside

Figure 11
Site Map

the archaeological trenches, layers of water retaining fill were disturbed causing the rapid flooding of the excavation. It was usually possible to manage this type of influx by means of a combination of sump excavation and pumping. At depths of 7 to 8 feet, or more in some cases, the actual water table was reached within a silty sand deposit representing the river floodplain during the early historic period. Due to the loose nature of these deposits and the weight of the overlying, harder packed fill layers, deep excavation proved difficult, and water control was not feasible with the means at our disposal. Nevertheless, excavation to depths of 13 to 14 feet was usually possible, allowing adequate assessment of deposition. Entry into deeper trenches to clean and closely examine profiles was considered too hazardous to attempt. Caution proved to be warranted, since in every instance major cave-ins occurred as the wet, unconsolidated deposits sloughed into the excavation, undercutting the overlying fill, which eventually fell to the bottom of the trench in large chunks.

Excavation Techniques and Field Documentation

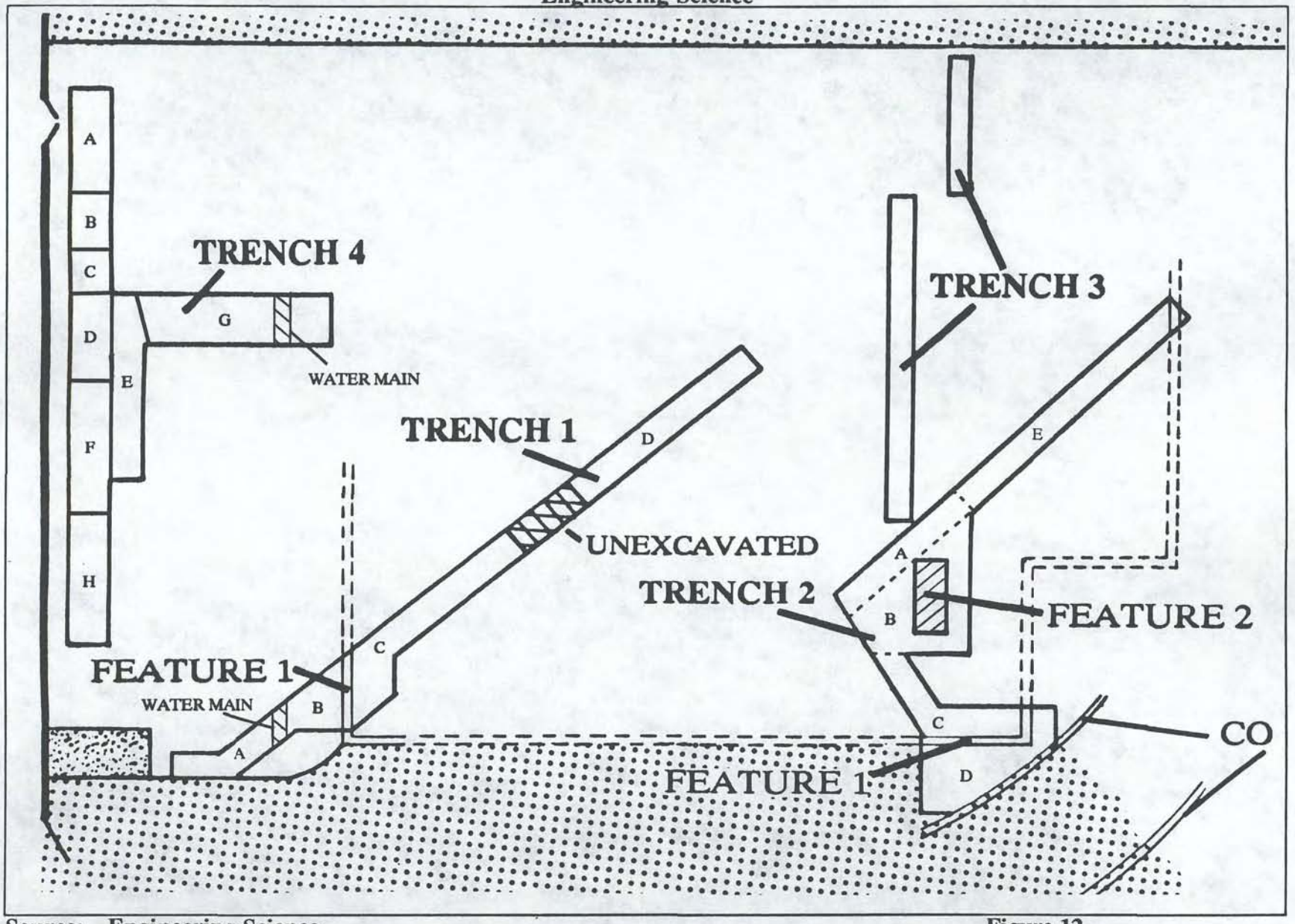
Trenches ranged in width from 3 to 12 feet or more. In several cases, excavations were greatly widened, as in Trench 5, for example, to expose large areas of structural features as an aid in assessment of function and dating. Trench depths ranged from 3 to 4 feet, in rubble fill deposits within building interiors, to a maximum depth of 14.5 feet. While most trenches were excavated to from 5 to 8 feet below current grade, depending on the level of features encountered, at least one area in each trench (except Trench 3) was excavated to at least 10 feet, well below the base of the fill layers.

Trenches were subdivided at convenient points, such as transecting modern utility disturbances or concrete obstructions near ground surface, with each Trench Section designated separately (*Figure 12, 13*). Stratum designations were unique to each Trench Section, though in cases in which correspondences between Sections were significant, in Trench 4, for example, universal designations were assigned during analysis--the correspondences are listed within the text. In an effort to save on the amount of paperwork generated in the field, modern utility disturbances and concrete structural features were not assigned feature numbers. Feature 1 was the sole exception, since its significance as a twentieth century feature was not immediately recognized.

Elevations were taken from ground surface, and are so presented in the text. Ground surface elevations, as extrapolated from elevations recorded by Schnabel and Associates during their testing program, are given in the summary preceding the description of each trench. When accurate relative elevations were required, as in Trenches 4 and 5 along Union Street, vertical datum points were established along the brick screening wall paralleling the street. These points were later tied in with actual elevations using a transit.

Careful excavation with the backhoe allowed deposits to be kept separate. Most materials from fill layers was trowel sorted after removal, though occasional bucket loads were screened through 1/4 inch mesh hardware cloth. Each trench was drawn to scale in plan view and relevant column profiles were recorded on standard

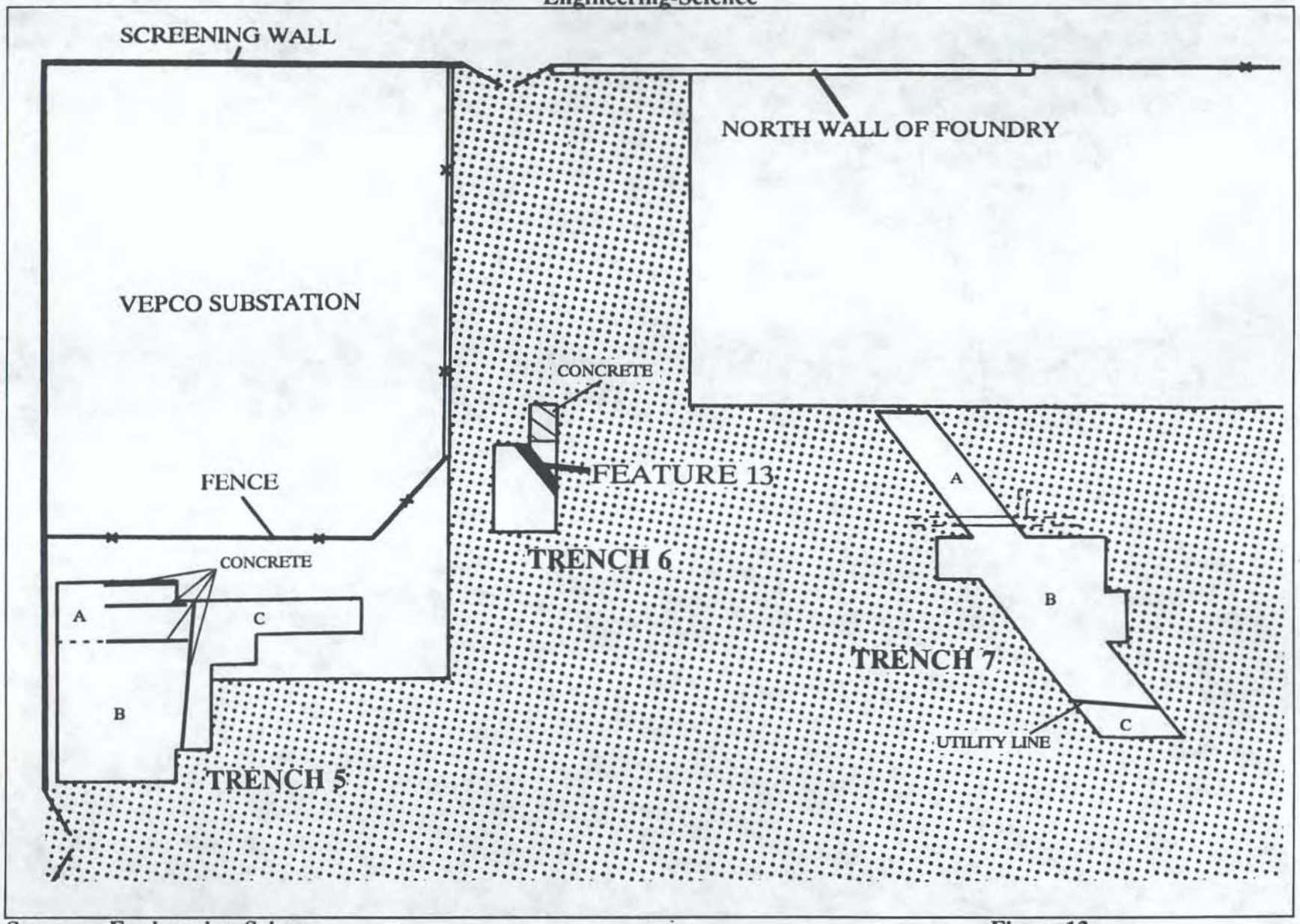
Engineering-Science



Source: Engineering-Science
Harborside

Figure 12
Trench Sections
Trenches 1-4

Engineering-Science



Source: Engineering-Science
Harborside

Figure 13
Trench Sections
Trenches 5-7

excavation forms. Scale drawings were made of all significant features, both in plan view and, if excavated, in profile. Trench profiles and features were extensively documented photographically, and a site map, drawn to scale, was prepared in the field.

In the interest of efficiency in laboratory processing, artifacts from layers of obviously mixed twentieth century fill were collected only as representative samples. Construction materials were for the most part noted by type and discarded, and only samples of modern ceramics and automatic bottle glass were collected. Those artifacts actually collected were placed in resealable polyethylene bags along with a label detailing complete provenience information written in indelible marker. Bags were numbered consecutively, and all information from each bag recorded on a Bag Inventory Sheet.

Hand excavations were carried out in selected locations. Several informal shovel tests were conducted to quickly assess the nature and integrity of certain deposits which had been exposed mechanically. Soils from these tests were either trowel sorted or a sample passed through 1/4 inch mesh screening to enhance artifact recovery. In addition, two formal Test Units were excavated using standard stratigraphic techniques: excavation was carried out according to natural or observed stratigraphy and all soils passed through 1/4 inch mesh screening. Stratigraphy was recorded on standard excavation forms, and upon completion, representative profiles from each unit were photographed and drawn to scale.

Laboratory Methods

After their arrival in the lab, all artifacts were cleaned. Non-organic materials, such as glass and ceramics, were washed. Iron artifacts were dried, if removed from wet soil environments, or dry brushed, if from dry soils, and packed in silica gel to retard further deterioration. Damp wooden objects were rinsed, placed in resealable polyethelyene bags containing distilled water, and refrigerated to inhibit the formation of mold, while awaiting the final disposition of the assemblage. Several samples of compressed wood wharf surfacing were processed by soaking in hot water to loosen the resinous binding material, followed by careful examination using trowels, tweezers and dissecting needles.

Artifacts were dried on mesh screens and inventoried directly onto computer disk. All processed artifacts were stored in resealable polyethylene bags by type, in order to facilitate retrieval and minimize damage to fragile objects. Each bag was labeled with site name and bag number. An acid free tag with complete provenience information was placed in each provenience bag. Bags were stored by bag number order in archival quality "Hollinger" boxes. An acid free label was attached to each box listing the site name and the number of the box in the series.

VI. INVENTORY OF EXISTING RESOURCES: STRATIGRAPHY AND FEATURES

The following is a presentation of the results of the field survey program conducted at Harborside, providing detailed information on the stratigraphy, structural features and artifactual materials observed and recorded. Trench locations and dimensions are listed and deposits summarized, or where appropriate, described in detail. The presentation is for the most part descriptive only: temporal and functional analyses are left to succeeding sections of the report. For easier reference, trench sections, relevant stratigraphic deposits and features have been rendered in bold type on their first occurrence in the text.

Trench 1 (*Figure 12*)

Length: 115 feet
Orientation: NE/SW
Width Range: 3.5 to 10 feet
Depth Range: 3 to 11 feet
Surface Elevation: 9 feet

Location: Southwest corner of property

While no specific structures were known in this portion of the lot, the entire southern half of the property has been the site of several shipyards since the late eighteenth century, and it was assumed that wharfing or structures related to maritime activities might still remain in the area. The trench was planned to run on a northeast diagonal for at least 100 feet to provide the greatest probability of intersecting structural features oriented at right angles to property lines.

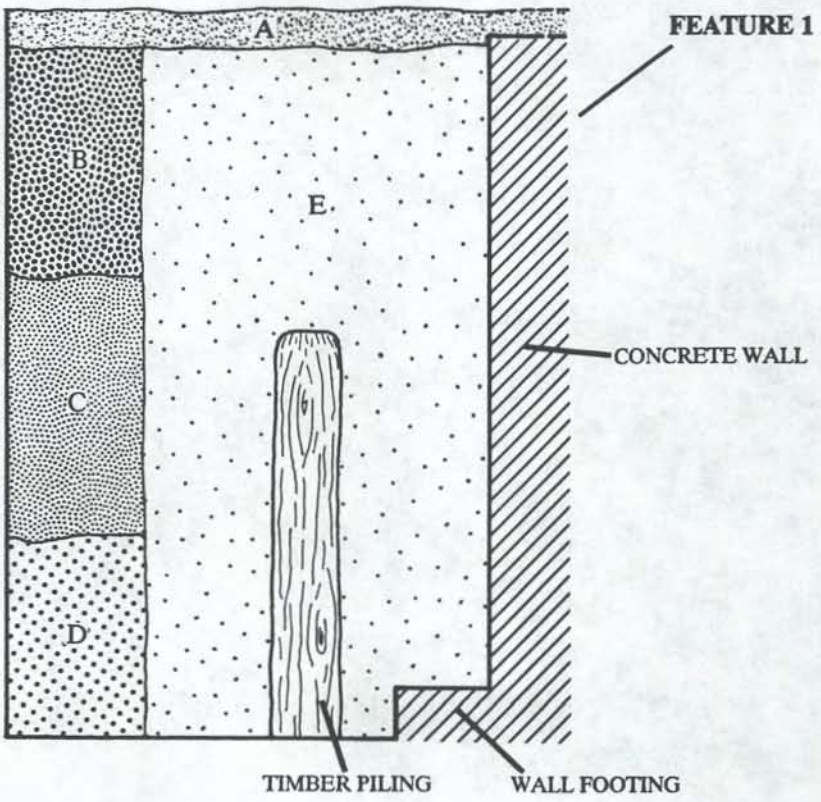
Trenching began within the asphalt surfaced driveway between two twentieth century concrete foundations, as near to the southwest boundary of the property as possible. Immediately below the asphalt lay a second, concrete driveway surface which resisted attempts at removal with the backhoe bucket. An edge of the concrete was found approximately 20 feet to the northeast, along a buried curbing east of a smaller section of concrete slab which extended from the screening wall along Union Street. A series of clay, gravel, coal and cinder fill deposits was encountered lying directly under a thin mantle of gravelly topsoil. Contained within the fill layers was a mixture of late nineteenth and early-to-mid twentieth century glass and ceramic artifacts, along with small amounts of brick, mortar, and metal construction debris, the latter including railroad spikes and lengths of braided copper grounding cable of various gauges left in place from the power plant. Due to the obviously disturbed nature of the deposits in this section of the trench, designated **Section A**, no artifacts were collected.

Water seepage from a gravel and rubble fill layer lying at a depth of 4 feet filled the trench, obscuring stratigraphy. The trench was extended to the northeast to allow for the excavation of a deep sump to drain the water. At a point 18 feet to

the north and at a depth of approximately 3 feet, a 42 inch water main was encountered, constructed of rolled steel plates, which were welded and coated with a tar-like substance to impede corrosion.

Trenching continued northeast of the utility line. Approximately 8 feet to the east, a concrete wall or foundation, which had been sheared off at ground level during demolition, was encountered just below the recently accumulated topsoil, running north/south parallel with the property line along Union Street. The wall, 16 inches in width, was designated **Feature 1**. The eight foot section of trench excavated between the 42 inch main and Feature 1 was designated **Section B** and was excavated on the assumption that it was the only accessible and relatively undisturbed portion of ground in the southwest corner of the lot. This did not prove to be the case, since fill was recorded almost to the base of the excavation. Excavation alongside the watermain did not expose evidence of a wide builder's trench east of the pipeline, though yellow clay fill and several pieces of lightweight wood planking were observed below the pipe itself. While the wood did not appear randomly placed within the deposits, the pieces appeared too flimsy to have served as part of a system of shoring in the heavy clays, and thus were assumed to have been either inadvertently added to the fill or to be part of an earlier construction episode: the presence of the utility line made further investigation unfeasible.

A series of fill layers lay below topsoil to the east of the watermain (*Figure 14*), including a 3 foot 6 inch deposit of black, coal stained clay loam, coal and cinder (Stratum B), containing small fragments of pearlware, yellow ware, Rockingham, whiteware, ironstone, porcelain, milk glass lid liner, automatic machine-made bottle glass, cut and wire nail, brick, roofing slate and oyster shell. Below lay an additional 4 feet of gray brown silty sand (Stratum C), containing an assortment of nineteenth and twentieth century artifacts similar to that observed in Stratum B above, with the addition of late nineteenth century mold blown bottle glass, twentieth century milk bottle glass, unglazed redware and butchered animal bone. Below this deposit lay a lighter gray sand (Stratum D) which was saturated and thus was obscured by water which drained with increasing speed from looser portions of the trench wall in Stratum C above. A builder's trench, designated Stratum E, containing a mixture of soils from Strata B and C was observed extending an average 5 feet 6 inches westward from the edge of Feature 1. The wall continued to a depth of 10 feet 2 inches below grade, at which point a poured concrete footing measuring 18 inches in width was encountered. A round, 13.5 inch diameter timber of yellow pine was located 2 feet west of Feature 1, the top lying 5 feet below grade. The timber continued well into the underlying sandy silt deposits, still solidly in place when excavation in that section of the trench was halted. Due to the confined area between the watermain and Feature 1, water management was impractical, and thus excavation ceased before the base of the builder's trench and of the footing west of Feature 1 were ascertained. The final depth excavated within Section B of the trench was approximately 11 feet. No early wharf structure was observed in this portion of the trench: the upright timber alongside Feature 1 was located within the builder's trench for the feature, and thus appeared to have been associated with the construction of wooden forms into which the concrete wall was poured.



KEY:

- A DARK BROWN LOAM AND GRAVEL: TOPSOIL
- B BLACK SILT LOAM, COAL AND RUBBLE
- C GRAY BROWN SILTY SAND
- D LIGHT GRAY BROWN SILTY SAND
- E DARK BROWN TO BLACK LOAM AND RUBBLE: BUILDER'S TRENCH

0 6 12 24
INCHES

Source: Engineering-Science
Harborside

Figure 14
Trench 1 Section B
North Profile

Excavation continued northeast of Feature 1 in what quickly became apparent was the lower floor or basement of a large twentieth century structure--maps showing the footprint of the building were not aquired prior to excavation, and thus its exact location was unknown. In **Section C** of Trench 1, immediately adjacent to the east face of Feature 1, a deep layer of orange sandy loam fill was encountered. The fill layer contained a large amount of heavy brick and concrete rubble, along with decomposed mortar, concrete reinforcement rods (rebar) and other light and heavy metal debris, quarter-inch window glass (plain and wired varieties), and small fragments of nineteenth and twentieth century domestic ceramic and glass. Standing water was reached at a depth of 4 feet, indicating the presence of a concrete floor below. In an attempt to identify the north wall of the structure, and thus to locate an area of undisturbed ground between that building and known structural disturbances dating to the mid-to-late nineteenth century in the north half of the lot (the Smith Foundry and its later additions), Section C of Trench 1 was extended some 35 feet to the northeast of Feature 1. **Section D** extended an additional 35 feet, following a gap of 12 feet which was left unexcavated. The deposits in Section D were identical to those in Section C: no wall was found. At one point within Section D, the rubble deposit was excavated to the concrete basement floor, slightly over 7 feet below grade. Because of the depth of standing water within the structure (over 3 feet), the floor was only identified indirectly, by dragging the backhoe bucket across its smooth hard surface.

Trench 2 (*Figure 12*)

Total Length: 146 feet
Orientation: NW/SE and NE/SW
Width Range: 5 to 20 feet
Depth Range: 4 to 13.5 feet
Surface Elevation: 10 feet

Location: 50 feet south of Trench 1

Trench 2 was excavated to further define the dimensions of the structure represented by Feature 1, the concrete wall encountered in Trench 1. Excavation in **Section A** began in a northeastwardly direction from a point approximately 120 feet east of the screening wall along Union Street and 75 feet north of the fence along the Wilkes Street property line. Immediately below a thin topsoil and gravel layer lay a rubble deposit composed mainly of dense yellow firebrick and metal debris, all apparently the remnants of a large boiler. Several large sections of the metal superstructure were found, along with iron gratings from catwalks, steampipe scales, a section of boiler plate and an assortment of custom made brick--half-beveled, ribbed, concave, convex--in a variety of sizes. Water was reached within the rubble deposit between 4.5 and 5 feet below grade.

Approximately 15 feet along the trench, the corner of a brick lined metal enclosure was located. Trenching was continued southward from the southern edge

of Section A of the trench to expose the brickwork. Excavation in this portion of the trench, labeled **Section B**, disclosed the feature as a boiler firebox measuring 10 feet 9 inches (north/south) by 3 feet 6 inches (east/west), lined with yellow firebrick surrounded by iron plating. Designated **Feature 2**, the box was found to extend to a depth of 6 feet below ground level. The floor of the feature was never visible due to standing water beginning at a depth of 4.5 feet. An attempt was made to pump out the water so that a close examination of construction techniques might be made, but after half an hour of pumping it became clear that water was entering between the brickwork from the rest of the basement, and that short of emptying the entire structure, it would not be possible to see the base of the feature.

Section C of Trench 2 was excavated at right angles to Section A (to the southeast), beginning at the south end of the trench. The yellow brick rubble in Section A ended abruptly, replaced by rubble made up of common red brick, mortar, concrete, and fragments of quarter inch window glass, some embossed with a hobnail design and others plain but wired. A concrete wall, apparently the southern wall of the structure represented by Feature 1 in Trench 1, was encountered 50 feet north of the Wilkes Street fence. As in Trench 1, the wall was approximately 16 inches wide and had been sheared off when the structure was razed. Three-quarter inch rebar was visible extending upward from the wall in several locations along the 17 foot length exposed, including at a small interior pilaster and at the 90 degree corner found at the south end of the trench, which appeared to be the southeast corner of the structure. In most cases the wall was damaged somewhat, where the concrete had cracked and spalled as the rebar was wrenched during demolition. Other rebar fragments seemed to extend horizontally both to the north and south from the top of the feature, suggesting reinforcement for a poured concrete floor. North of the wall, within the structure, water was encountered at 5 to 5.5 feet below grade.

Section D consisted of a 10 by 20 foot trench segment excavated immediately south of the Feature 1. A builder's trench similar to that observed in Trench 1 extended approximately 5 feet to the south from the concrete wall. At the east end of the trench, within the builder's trench, another round timber piling (13.5 inch diameter, yellow pine) was encountered at a level 42 inches below grade. At a depth of 9 feet 6 inches, a wide concrete footing was reached. Parallel to the footing was a 10 by 10 inch oak timber, 15 feet 9 inches in length, abutting the round piling. Below lay a series of forms for the footing, left in place after the wall was poured.

An attempt to extend Section D of the trench to the south was stopped by the presence of a poured concrete curb which curved to the northeast on a line with portions of curbing visible in eroded areas farther to the south and west. The curb formed the north edge of a concrete surfaced drive, 22 feet in width, and passed within 2.5 feet of the corner of Feature 1. The concrete curb extended 2 feet below grade and proved to be too substantial to be removed by the backhoe.

Stratigraphy in Section D consisted of three modern fill layers--crushed or bank run gravel, brown clayey loam and crushed brick, and black cinder, coal dust and iron slag--to a depth of 2 feet below grade, capping the builder's trench adjacent

to Feature 1 and a series of earlier fill layers to the south. The uppermost of the latter, Stratum D, was a layer of brown clayey sand heavily mixed with mortar, gravels, and brick bats, and contained late nineteenth and early twentieth century artifacts, including fragments of bottle glass from the Robert Portner Brewing Company in Alexandria, a complete mold blown bottle with slug plate and blob top finish, various other pieces of blown and molded glass, and fragments of undecorated and flow blue whiteware, undecorated ironstone, butchered animal bone and part of a glass themometer. The remaining deposits consisted of brown and gray silty sands, interspersed with lenses of coal and containing scattered brick bits. Water seepage became a problem at a depth of 8 feet, obscuring stratigraphy somewhat and contributing to the slumping of the lower silty deposits which eventually led to the partial collapse of the southern trench wall. The final depth excavated was 13 feet 6 inches, the maximum extent of the backhoe arm within the constricted area of the trench section.

Trench 2 was then extended to the northeast an additional 55 feet to locate the east or north wall of the structure represented by Feature 1. Rubble in this portion of the trench, **Section E**, was increasingly heavy, including large cutstone lintels or window ledges, several of which were partially encased in copper alloy sheathing, long sections of steamline and electrical conduit, asbestos sheeting and segments of concrete roof slab reinforced with heavy gauge wire mesh and coated with tar and tarpaper. Water was reached consistently at a depth of 5 feet. A deteriorated section of the concrete wall was encountered 175 feet east of the screening wall along Union Street and 120 feet north of the Wilkes Street fence. This point was well beyond the line extrapolated from the portion of the feature visible in Section C, indicating the presence of a corner between the wall segments exposed.

Due to scheduling priority, areas closest to Union Street were to be investigated first, and thus excavation was not immediately continued to the south, outside the structure.

Trench 3 (*Figure 12*)

Total Length: 76 feet
Orientation: N/S
Width: 5 feet
Depth Range: 4 to 6 feet
Surface Elevation: 9.5 feet

Location: North of Trench 2

Trench 3 was excavated as an extension of Trench 2, northward from the north edge of Feature 2, the brick lined firebox, in an effort to locate the north edge of the structure represented by Feature 1. Fill encountered in the trench was similar to that recorded in Section E of Trench 2, consisting mainly of dense yellow firebrick, mixed with red brick, brown sandy loam, decomposed mortar, cut stone, metal debris and tangled masses of heavy wire mesh, some with portions of tarred

concrete slab still attached. Few non-structural artifacts were noted. Those observed were small bits of late nineteenth and early-to-mid twentieth century ceramic or glass: none were collected.

The trench was excavated in two sections. The density of the rubble fill in one portion of the trench made it more practical to shift excavation to a parallel line, though the relative uniformity of the rubble fill made it unnecessary to designate a separate trench section. As in Trench 2, water was encountered at a depth of 5 feet all along the trench, confirming the continuation of the concrete floor below.

Trench 4 (*Figure 12,15,16*)

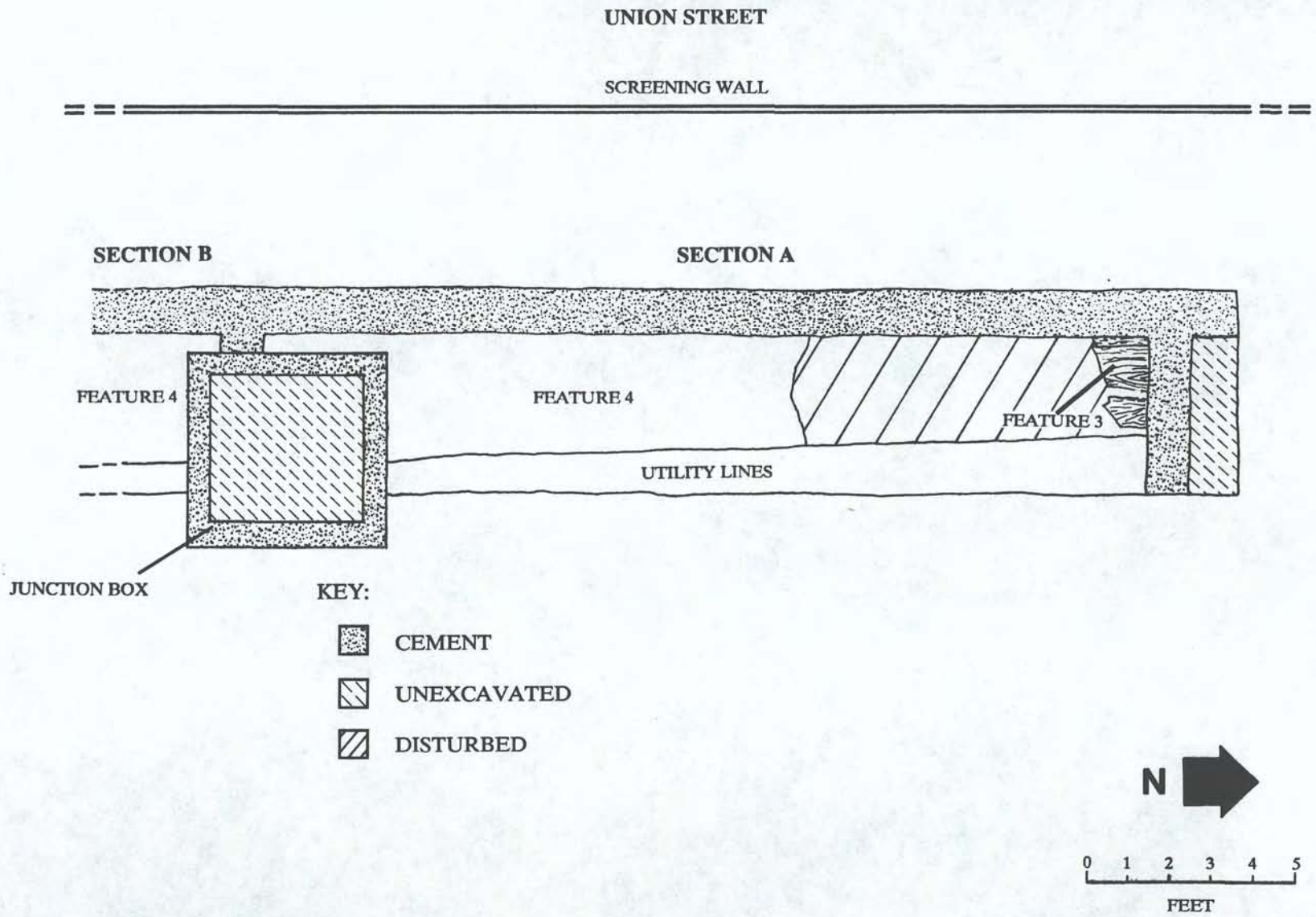
Total Length: 150 feet
Orientation: N/S with E/W extension
Width Range: 4.5 to 8 feet
Depth Range: 4 to 10 feet
Surface Elevation: 9 to 10 feet

Location: Adjacent to Union Street, south half of property

As early as the late eighteenth century, wharf construction had extended the natural bank of the Potomac eastward from Union Street toward the main channel of the river. The portion of the project area lying along Union Street was thus judged to exhibit the highest potential for the discovery of early historic remains. Wharf and shipyard industries were once situated in this part of the site, though the details and locations of specific structures are not known. Maps do indicate that later in the nineteenth century several buildings were constructed along Union Street, at least one of which was eventually used as housing for Contrabands during the Civil War. Trench 4 was placed along Union Street to document the presence of remaining eighteenth and nineteenth century features. Excavation was initiated at a point approximately midway along the block and continued to the south, keeping as near to the screening wall along Union Street as possible while maintaining sufficient space within which to step trench walls if necessary for safety.

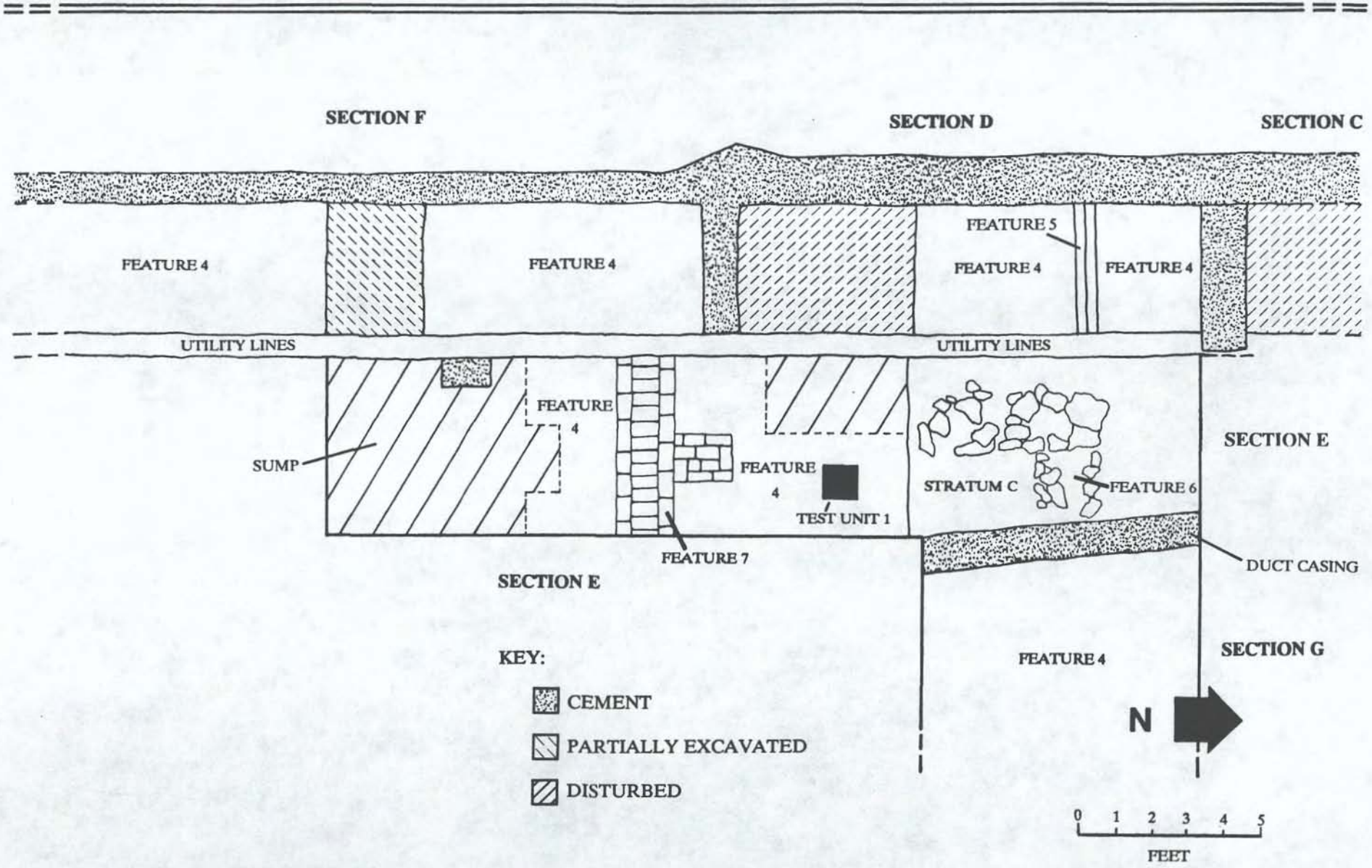
Trench 4 was subdivided into seven sections, the divisions based on twentieth century disturbances encountered in the form of concrete foundations, concrete piers or utility lines intersecting the excavation (*Figure 12*). Sections A through D, F and H were excavated on a north/south line, Section E on a parallel adjacent to Section D, and Section G at right angles from Section E.

Ground surface along Trench 4 sloped gently to the south. Several extensive fill deposits exhibiting similar slopes were followed along much of the length of the trench. The deposits in the main north/south line of the trench, Sections A-D, F and H, are summarized below, followed by a more detailed treatment of the individual trench sections, including descriptions of features. The deposits in Sections E and G varied somewhat from those in the main line of the trench and will be described separately.



Source: **Engineering-Science**
Harborside

Figure 15
Trench 4 Sections A/B
Plan View



Source: Engineering-Science
Harborside

Figure 16
Trench 4 Sections D-G
Plan View

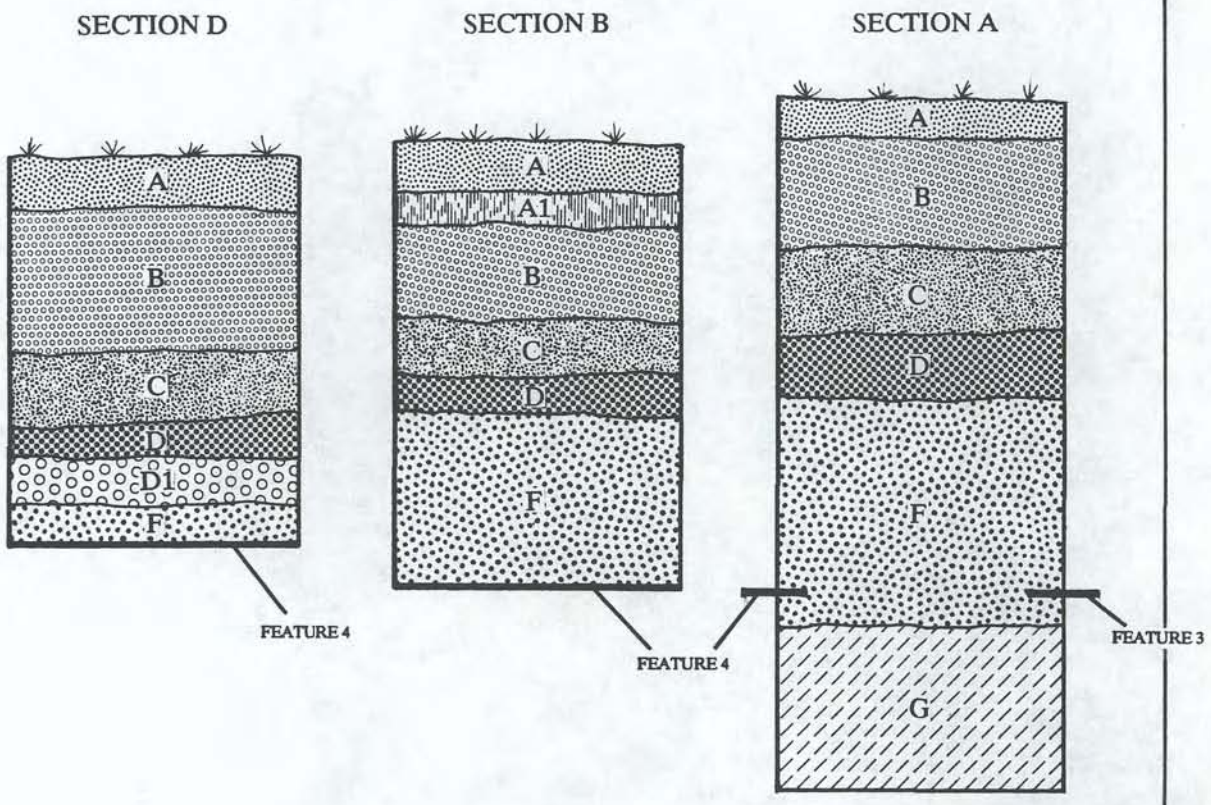
At a depth of from 4 to 6 inches below grade lay a truncated concrete foundation or wall footing, which ran the entire length of the excavation along a line 5 feet east of the screening wall. Due to the lack of space for safe excavation between the footing and the screening wall, the concrete became the west boundary of the trench. The footing was 16 inches in width and measured from 22 to 25 inches in depth. At the same level, a perpendicular footing extended eastward across the main line of the trench at a point 1.5 feet from its north end: excavation began south of this footing. Parallel with the footing along Union Street and at roughly the same depth lay a series of iron utility lines. On average the lines were situated 4 feet east of the foundation line running along the length of the trench, and thus formed the east edge of the excavation.

Throughout the trench, topsoil, designated Stratum A, extended to a depth of from 4 to 6 inches and was often quite gravelly in content. Below lay three main strata, B, C and F, only one of which, Stratum F, continued unbroken in all sections of the trench (*Figure 17,18*).

Stratum B, consisted of a layer of relatively modern fill described as a brown and orange clayey loam variously mixed with gravels, brick, bits of coal and cinder, roofing slate, glass and ceramic electrical insulators, lengths of copper alloy grounding cable and a variety of late nineteenth and early-to-mid twentieth century domestic ceramics and glass, none of which were collected. While the deposit averaged from 18 to 24 inches in depth in the north portions of the trench (in Sections A, B and D), it was not observed in the north half of Section F, and was only 3 to 5 inches thick in the south half of Section F and in Section H.

The second main layer was Stratum C, consisting of a 9 to 12 inch deposit of black, coal-rich clay loam mixed with cinder, slag, gravels, pockets of small cobbles, crushed brick, cut and wire nails, fragments of ceramic electrical insulator, oyster and clam shell and late nineteenth and early twentieth century domestic materials, including small fragments of white salt glazed stoneware, creamware, pearlware, whiteware, ironstone, yellow ware, locally manufactured blue and gray stoneware, Chinese and domestic porcelain, free and mold blown bottle glass, and kaolin and stoneware tobacco pipe fragments. Stratum C was not observed in all portions of the east wall of the trench--it was thin and patchy in Section A, for example--and it occurred at a much higher level in the south end of the trench, in Sections F and H, indicating a break in the layer between Section D and F. The artifact content of Stratum C was virtually the same throughout the trench, suggesting that although not a single continuous deposit, the two segments constituted the same type of fill, perhaps dumped and spread in several layers during the same episode of filling.

Below Stratum C, depostis varied from north to south in the trench. In the north, Sections A through D, lay Stratum D, a thin stratum of coal ash and crushed brick, while to the south, in Sections F and H, Stratum C was followed by a an increasingly deep layer of orange silty sand, clay and brick rubble, Stratum E. Several intervening layers, consisting of transitional zones between more prominent strata, were recorded (e.g., Stratum C_1 in the south half of Section F).



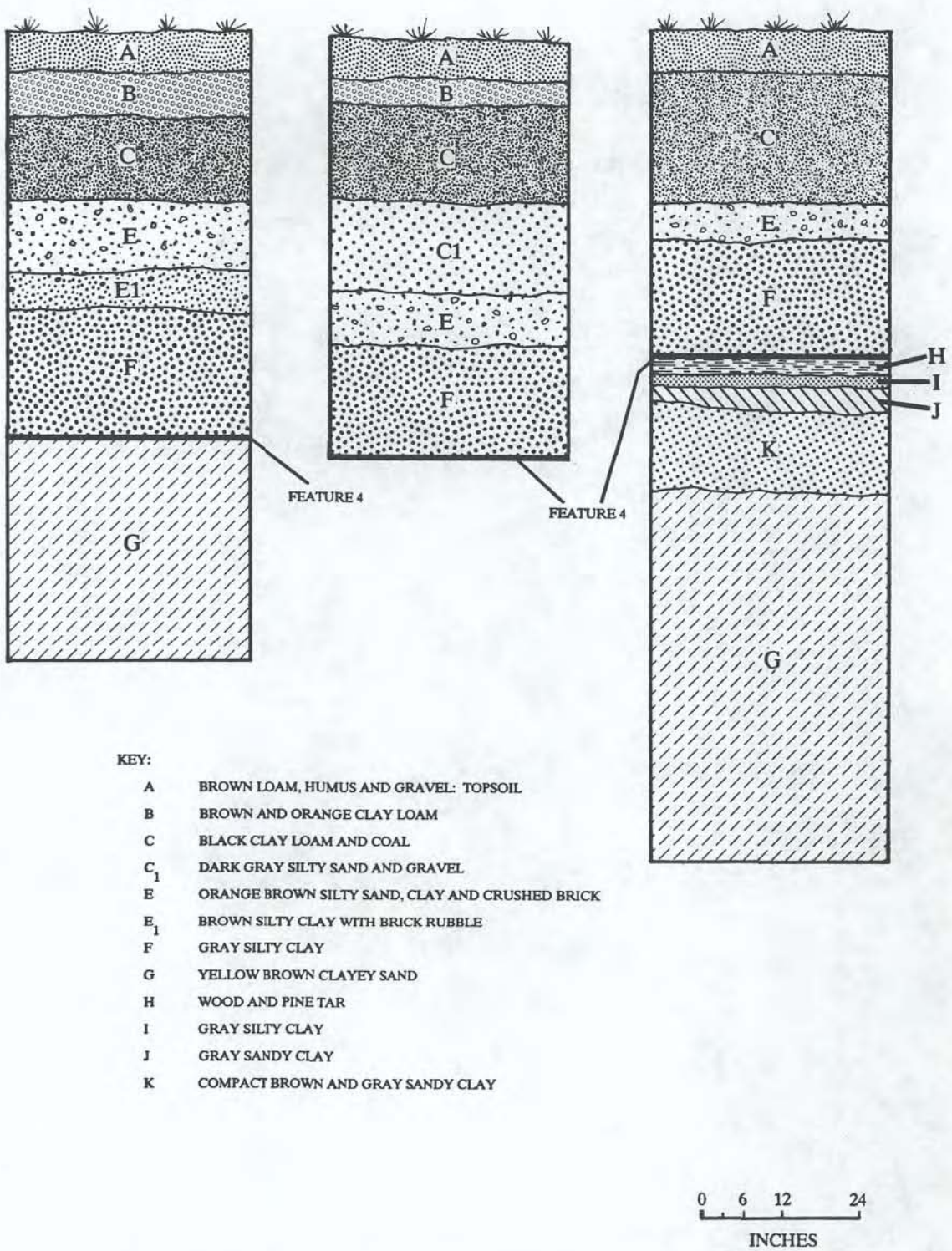
KEY:

A	BROWN LOAM, HUMUS AND GRAVEL: TOPSOIL
A_1	DARK BROWN LOAM, COAL AND GRAVEL
B	BROWN AND ORANGE CLAY LOAM
C	BLACK CLAY LOAM AND COAL
D	DARK GRAY COAL ASH AND CRUSHED BRICK
D_1	LIGHT BROWN SAND, DECOMPOSED MORTAR AND CRUSHED BRICK
F	GRAY SILTY CLAY
G	YELLOW BROWN CLAYEY SAND

0 6 12 24
INCHES

Source: Engineering-Science
Harborside

Figure 17
Trench 4
Sections A/B/D
West Column Profiles



Source: Engineering-Science
Harborside

Figure 18
Trench 4
Sections F&H
West Column Profiles

The third main deposit, Stratum F, was continuous throughout the length of the trench. It consisted of a sticky gray to gray brown silty clay ranging from 12 to 24 inches in thickness and resting on Feature 4, a layer of wood chips and pine tar comprising the eighteenth century wharf surface (see below). Few artifacts were recovered from Stratum F. Those which were consisted of late eighteenth and early nineteenth century materials--white salt glazed stoneware, creamware, pearlware, locally made gray stoneware, ironstone, and cut and hand wrought nails.

Several features were encountered at or near the base of Stratum F in various portions of the trench. **Feature 3** lay at the north end of Section A, consisting of a series of heavy, waterlogged planks lying horizontally at a depth of approximately 4.5 feet below grade at the base of Stratum F. The planks were oriented north/south, on line with the trench, with only 1 to 1.5 feet extending into the trench from the north wall of the excavation. Only one plank was sufficiently exposed to allow a width measurement (12 inches); all were approximately 1.5 inches thick and had been sawn off at an oblique angle. Deeper excavation into a disturbed area south of the feature eventually led to the collapse of the west wall of the trench, exposing another plank set on edge and running east/west into the trench wall. Due to the proximity of the screening wall along Union Street, no further investigation of the perpendicular planking was attempted. Below Feature 3 lay a bed of black sandy gravel and coal varying in thickness to 1 inch, atop thick gray, brown and orange clayey silt which continued beyond the final depth excavated, 7 feet.

Feature 4 was a hard, floor-like surface encountered 6 feet to the south of Feature 3 and at approximately the same level as the horizontal planking of that feature. The surface originally appeared to be a form of laminated wood, but close examination showed it to consist of wood shavings and sawdust bonded with a black adhesive substance which gave off the pungent, resinous odor of pine tar. The north edge of the feature was truncated by the disturbance south of Feature 3. In profile, the surface measured less than 1 inch thick, lying atop 3 to 4 inches of hard packed gray sandy clay containing bits of brick and plaster, followed by a 3 to 4 inch layer of silty sand and coal bits, and the deep layer of clayey silt recorded below Feature 3. It was unclear at this point whether Feature 4 was the interior floor of a large structure or the surface of the early wharf.

Excavation of Section A was halted by the presence of a square concrete junction box visible at ground level. South of this obstruction, excavation continued in **Section B** of the trench. Feature 4 was encountered at a depth similar to that recorded in Section A, approximatley 53 inches in this case. Section B was cut short after 9 feet by a second east/west concrete footing. Rapid and continuous accumulation of water from looser fill layers made detailed investigation of Featue 4 in this portion of the trench impractical. **Section C** to the south was only partially excavated--yet another concrete footing intersected the trench after only 6 feet, rendering water management even more of a problem than in Section B.

In **Section D**, to the south, Feature 4 was reached at a similar elevation (approximately 45 inches below grade, with the southward slope at surface making the relative depth comparable to that in Sections A and B). Section D of the trench remained relatively dry, and here the surface of Feature 4 was found to be extremely hard. A drain or gutter, set within the floor surface, was encountered 40 inches from the north trench wall. Cross-cutting the trench at nearly right angles, the gutter, designated **Feature 5**, was formed of two 1 by 5 inch planks forming a V-shape 7 1/8 inches wide at the floor surface and 3 1/4 inches deep. When first identified, the gutter was filled with sawdust, straw, small gravels, oakum, bits of leather and a hand wrought nail, all coated or impregnated with the same resinous pine tar observed binding the flooring of Feature 4.

Section D was truncated after 13 feet by another east/west concrete footing. To the south, **Section F** was excavated in two segments with a 30 inch balk left across the center of its length as an aid in water control. The horizontal extent of Feature 4, by this point observed in three trench sections over a distance of more than 50 feet, suggested that it was in fact the surface of the eighteenth century wharf. Excavation to the south, in Section F, was carried out to further define the southern limits of the feature.

In the north half of Section F, Feature 4 was again encountered, here at a depth of approximately 48 inches, similar to that in Section D. The flooring appeared less well preserved in this part of the trench. Taking advantage of the less hard packed surface, a shovel test was excavated near the north wall of the trench section. The resinous floor surface (shown in *Figure 18* as Stratum H) was 2.5 to 3 inches thick and may have consisted of more than a single layer, though the state of deterioration made such a determination uncertain. Directly below lay 1 to 1.5 inches of gray silty clay (Stratum I) containing bits of brick, mortar, wine bottle glass, a fragment of refined earthenware too badly burned to type, lead glazed redware, bone and oyster shell. Below lay 3.5 inches of gray sandy clay (Stratum J) containing brick, mortar and coal bits, wrought and cut nails, fragments of burned earthenware, bits of leather, bone and shell. In the north wall of the trench, two planks measuring 2.75 by 7.5 inches extended a short distance from the trench wall within this lower stratum, 4 inches below the base of the flooring. The final layer observed was a brown and gray, hard packed sandy clay (Stratum K). The backhoe was then used to dig more deeply below the level of the floor surface. To a depth of 10 feet, a brown, coarse grained sandy silt (Stratum G) was encountered. Water influx proved to be a problem in this section of the trench, and eventually caused the west wall of the trench to collapse.

Excavation in Section F continued further to the south, beyond a 30 inch balk left to retain the large amount of water collected in the north end of the trench section. Feature 4 was encountered at a depth of 59 inches, 10 inches lower than in the excavations to the north, suggesting either a step-down lying between the two portions of Section F, or disturbance, possibly in the form of settling, in the southern end of the lot. The surface of the feature was in an even more highly deteriorated state in this part of the trench. Water drainage from the fill layers in the trench

walls again presented problems in excavation, and may have contributed over time to the poor preservation of the wharf surface below.

In the final section of the trench, **Section H**, Feature 4 was reached at the same level as in the south half of Section F, but was so deteriorated that it was almost missed in excavation. Whereas in the northern portions of the trench--Section D, for example--the surface had resisted the backhoe teeth, there was no resistance in Section H. In fact, the feature was more readily seen in the profile of the trench than as a distinct surface in plan view. Near the southern end of the section, the surface disappeared altogether within increasingly mixed deposits, though no formal end was observed. Below lay very wet, brown silty sand to a depth of at least 8 feet. Excavation to the south in Trench 4 was halted after a total distance of 92 feet, due to the disturbed nature of the deposits in the southwest corner of the lot, in the form of concrete platforms visible at ground level, and in the form of highly mixed subsurface deposition.

Section E was opened east of Section D to expose a larger segment of the wooden drain, Feature 5. Stratigraphy in the northern portion of Section E was similar to that in Section D to the west, except that the coal layer, Stratum C, was much less evident. At a depth of approximately 35 inches, 10 inches above the level of Features 4 and 5, the base of a roughly laid foundation was discovered. Labeled **Feature 6**, the foundation consisted of cobble sized pieces of green and gray steatite broken from larger cut blocks (portions of wire sawn faces were visible on some pieces) along with several brick bats, all bonded with gray and brown mottled loamy clay. The feature measured 18 to 24 inches in width and formed a right angle, with one arm running east and the other south. Contained within the dark gray silty loam fill over the feature (Stratum G of trench Section E) were fragments of creamware, whiteware, ironstone, yellow ware, gray salt glazed stoneware, cut nails, press molded glass, a pair of porcelain and brass collar studs and a silver three cent piece dated 1853. The east arm of the foundation entered the east wall of the trench: further excavation in that direction was obstructed by a concrete duct casing which lay 12 to 14 inches below grade and housed several utility lines. Five feet to the south, the foundation was truncated by a large concrete pier extending to a depth of more than 4 feet. Feature 6 was left in place, but the pier was removed and excavation was continued to the south, revealing Feature 4 at a depth of 45 inches. The surface was followed another 10 feet to the south, by which point it lay 3 to 4 inches lower than in the north part of the trench section. Another large concrete pier was removed at this point, but the deposits were very disturbed both below the pier and further south in the trench. Water control was maintained by the excavation of a deep sump at the south end of the section, into the brown and gray silty sand which formed the basal deposit in this portion of the trench: the maximum depth excavated was approximately 12 feet.

Feature 7 was located in Section E just north of the disturbed area at the south end of the excavation. It consisted of a wall fragment composed of red brick 18 inches in width and running east/west, continuing into both walls of the trench. Midway along the north edge of the wall lay a rectangular pad, 17 by 22 inches, butted against the wall forming a pilaster. The brick work in Feature 7 was bonded

with a dark gray, coarse grained sand and lime mortar. The initial remaining course of brick was encountered approximately 1 inch below the surface of Feature 4. The composite surface did not appear to have been cut nor was a builder's trench apparent along either edge, while the flooring material had overlapped a portion of the brick on one corner of the rectangular pilaster segment, all suggesting that the wall was either contemporary with or predated the wood surface. While the feature was not fully excavated, bricks were removed in one section revealing the wall continuing at least 3 courses (8 inches) below the surface of Feature 4. After the profiles of the trench section were cleaned, a narrow trench filled with brick rubble was observed in the west profile corresponding with the line of Feature 7, beginning 28 inches below grade, suggesting that the wall had at one point been buried, later excavated and robbed of its brick, and the resulting trench then refilled with rubble. The disturbance caused by the concrete pier lying over the feature had obscured traces of this trench in the east profile, and masked its presence during excavation--some of the rubble had found its way back into the fill around the pier, and made the robber's trench virtually unrecognizable in plan view. Feature 7 did not appear in trench Section F, to the west.

To further investigate the composite wharf surface, Feature 4, a 1 by 1 foot hand excavation, **Test Unit 1**, was placed in Section E between Feature 6 and Feature 7. At least three distinct surfaces were recorded (*Figure 19*), each one hard and thick enough to require the use of an iron wedge and hand sledge for removal. The strata are summarized as follows (note: stratum designations are unique to the unit; elevations are from present grade):

Stratum A: 45-46 inches wood shavings and pine tar, with small gravels and small pieces of clear flat glass and olive green wine bottle glass, brick bits and a small wrought iron spike

Stratum B: 46-47 inches light brown to gray sand

Stratum C: 47-48.5 inches wood shavings and pine tar, with pieces of canvas, sissal rope and oakum, a wooden dowel, brick bits, a cut nail and a wrought, flat headed canvas nail, fragments of cockle shell, fish scales, and several kernels of corn

Stratum D: 48.5-49 inches gray, coarse grained sand, with a kaolin pipe stem fragment, a fragment of coral and a fish scale

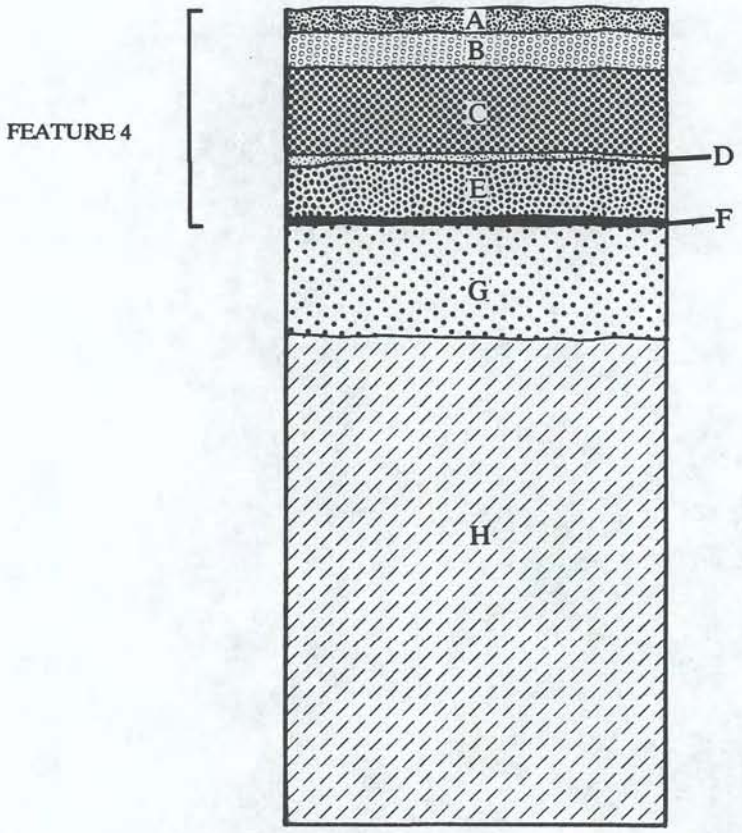
Stratum E: 49-50.5 inches wood shavings and pine tar, with small gravels, small pieces of olive green wine bottle glass, oakum, brick bits and straw

Stratum F: 50.5 inches 1/8 inch layer of black oily sand

Stratum G: 50.5 inches + brown to gray silty sand, with small sherds of creamware and pearlware, and cut nails with hand wrought heads

Strata A, C and E were identified as wharf surfaces, and Stratum F as either the earliest, oiled surface or an oiled base for the first wood and pine tar surface.

Section G of Trench 4 was excavated eastward from Section E, beyond the concrete duct casing which formed the east wall of that excavation. Investigation in this area was aimed at intercepting Feature 6, the steatite foundation segment, or at



KEY:

A	WOOD CHIPS, SAWDUST AND PINE TAR
B	TAN TO GRAY FINE GRAINED SAND
C	WOOD CHIPS, SAWDUST AND PINE TAR
D	GRAY COARSE GRAINED SAND
E	WOOD CHIPS, SAWDUST AND PINE TAR
F	BLACK OIL SOAKED SAND
G	BROWN SANDY CLAY
H	BROWN SILTY SAND

Source: Engineering-Science Harborside

Figure 19
Test Unit 1
North Profile

a lower level, Feature 5, the wooden gutter set in Feature 4. The trench section measured approximately 8 feet in width and 28 feet in length.

Below the topsoil layer of light brown loam and gravel lay Stratum B, the mixed brown clay loam fill deposit containing gravels, brick fragments and assorted nineteenth and twentieth century glass and ceramic artifacts. Stratum B ran to a depth of 3.5 feet below grade, notably deeper than in the trench sections to the west. Small fragments of steatite were observed within the lower portions of Stratum B, but since none appeared to be in place, Feature 6 could not be identified within this section of the trench.

Underlying Stratum B was a 5 inch deposit of black clay loam, Stratum C, full of coal and cinder. While not directly connected with Stratum C in the main line of the trench, the corresponding nature of the soil and artifact contents in the two areas suggested that the deposits represented similar, if not the same, fill deposits. Clustered in the northwest corner of the trench within Stratum C was a concentration of artifacts including construction materials in the form of window glass, ceramic tile and drain pipe fragments; mold blown bottle glass in a variety of colors (e.g., clear, amber, aqua, blue, dark olive green), representing several molding techniques (e.g., 2-piece molds with post and cup bottoms) and finishes (e.g., tooled patent lip, early crown cap lip); press molded glass tableware; molded lamp chimney glass; opaque white, or milk glass; fragments of undecorated creamware, transfer printed pearlware, undecorated and transfer printed whiteware, undecorated and decal decorated ironstone, yellow ware, European porcelain, Rockingham/Bennington earthenware, lead glazed redware, locally produced blue and gray salt glazed stoneware (most of which appeared to be from 2 crock-like vessels, though only a few pieces actually mended), a molded red clay pipe bowl fragment, a porcelain button and a fragment of shoe leather.

Stratum C lay atop a 3 inch layer of dark gray and red coal ash and sandy mortar and plaster, Stratum D, which was hard packed and contained an assortment of artifacts similar to those in Stratum C above: fragments of mold blown bottle glass, olive green wine bottle glass, several complete or fragmentary post-bottom pharmaceutical bottles, fragments from a mold blown ink bottle with a fire polished finish, clear and opaque white press molded glass tableware, undecorated whiteware, unglazed redware, local blue and gray salt glazed stoneware (including several pieces from a single vessel which cross mended with fragments from Stratum C), a small copper alloy buckle, a porcelain button and several cut nails.

Stratum E, below, was an 8 to 11 inch deposit of black, clayey silt and gravel, similar to Stratum C above, though more compact and clayey. It also contained numerous late nineteenth and early twentieth century artifacts, including bits of mortar and plaster, a cut nail, fragments of mold blown bottle glass, olive green wine bottle glass (including a base fragment with sand tipped pontil mark), undecorated creamware, whiteware and ironstone, and locally made blue and gray salt glazed stoneware.

Feature 4 was identified at the base of Stratum E, approximately 5 feet below grade, considerably lower than in trench Sections D and E to the west. Though poorly preserved and hardly recognizable in plan view, two resinous wood chip layers were identified in profile. The upper layer was 1.5 to 2 inches thick, beginning at a slightly higher elevation to the north. Hand excavation was not attempted, but a single cut nail was recovered from the deposit during machine excavation. Sandwiched between the two layers of composite wood material were a 2.5 inch layer of green gray silty sand containing bits of wood, brick and shell, similar to Stratum F in the western sections of the trench, and a 1.5 inch layer of coarse white sand, similar to Stratum D in Test Unit 1, between the second and third wood surfaces in that excavation. The sand was designated Stratum G in this section of the trench, and a small piece of water worn coral was recovered from it as a result of cursory examination during excavation. The lower resinous wood deposit averaged less that 1 inch in thickness and was very deteriorated. Below lay a 1 to 1.5 inch layer of dark gray oily sand and silt, followed by waterlogged gray silty sand beyond the maximum depth excavated, 8 feet.

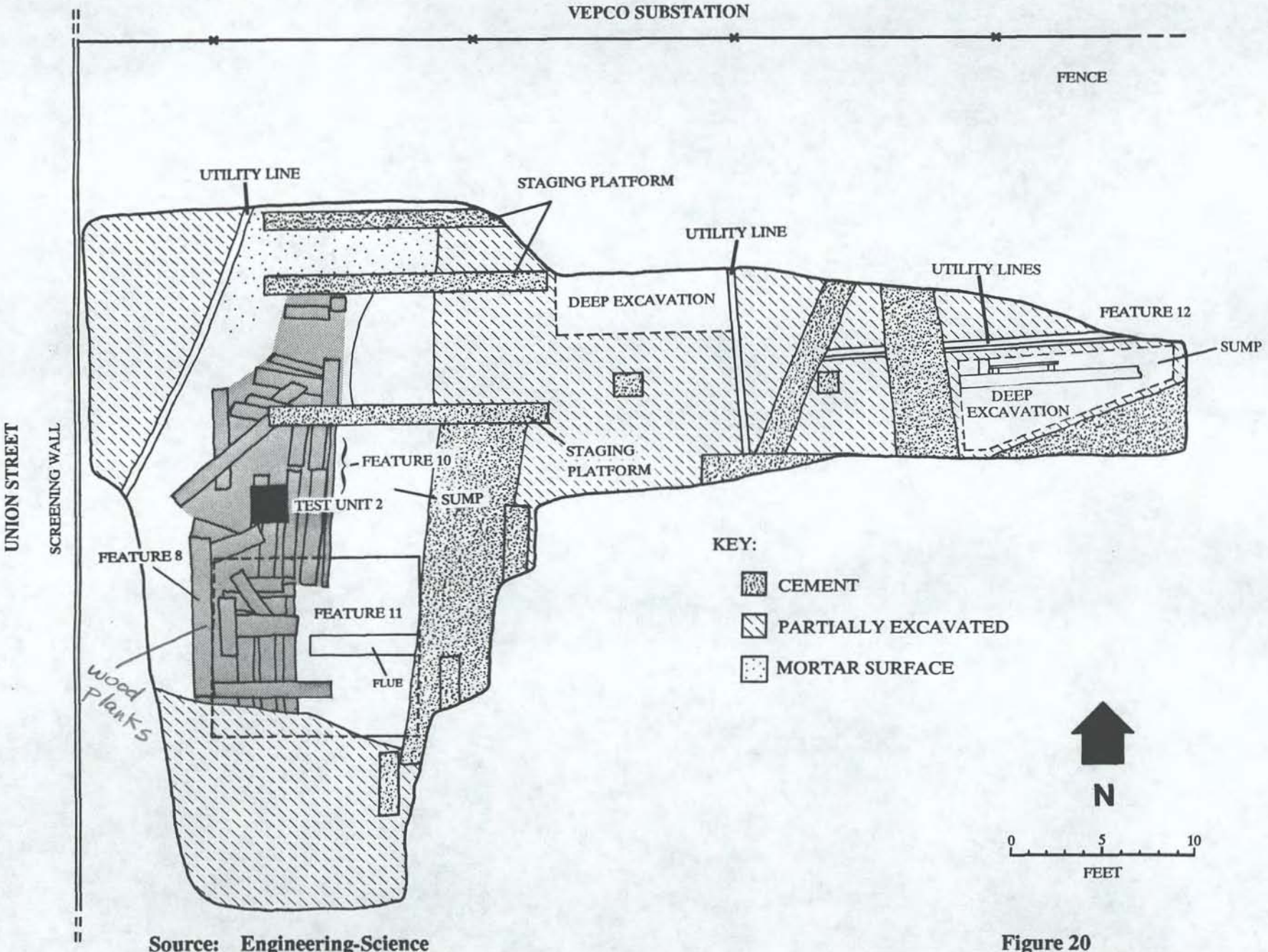
Trench 5 (*Figure 20*)

Length: 85 feet
Orientation: N/S with E/W extension
Width Range: 10 to 20 feet
Depth Range: 3 to 11 feet
Surface Elevation: 10 feet

Location: Northwest corner of lot, south of VEPCO substation

According to the earliest maps of lots in the southern portion of Alexandria, the early shoreline of the Potomac dipped in toward the southwest from Point Lumley (where the Robinson Warehouse Terminal sits today), leaving a small section of dry land in the northwest corner of Lot 93. It was predicted that the northwest corner of the Harborside lot would hold high potential for both eighteenth and nineteenth century structures, including portions of Roberdeau's wharf structure, outbuildings associated with his distillery, as well as structural remains of Irwin's brewery. Trench 5 was excavated along the southern edge of the VEPCO substation, as near to the present northwest corner of the lot as possible, in an attempt to locate the position of the shoreline and any early structural remains which might exist.

Excavation of **Section A** of Trench 5 began at a point 5 feet west of the screening wall along Union Street and 10 feet south of the chain link fence forming the edge of the VEPCO property. The initial deposits consisted of a surface layer of 3 inches of light gray sand and bank run gravel, followed by 5 inches of yellow brown silty clay loam and gravel fill. Two narrow concrete footings, 12 inches wide, 17 feet in length and 24 inches deep, were encountered within 6 inches of ground surface, running east/west, perpendicular to the screening wall. The footings lay 30 inches apart, and the chamfered edges and sheared bolts along the surface of the concrete



Source: Engineering-Science Harborside

Figure 20
Trench 5: Plan View

indicated that the they were in fact supports or staging platforms for heavy electrical equipment, similar to those still visible within the VEPCO yard to the north (note: several of the footings in Trench 4 probably served the same purpose). Excavation was shifted south of the platforms.

At the west end of the trench section, near the screening wall, a pair of 3 inch metal utility lines was encountered beneath 3 feet of mixed clay loam fill, Stratum B, running on a northeast/southwest diagonal to a concrete junction box adjacent to the wall. A third concrete staging platform was encountered approximately 6.5 feet south of the two previously identified it was of the same shape and dimensions. Contained within Stratum B between the three platforms were small fragments of late nineteenth century artifacts, including fragments of whiteware, ironstone, yellow ware, Rockingham/Bennington earthernware, and locally produced gray salt glazed stoneware, along with mold blown bottle glass, and oyster shell. At a depth of 4 feet, a series of wooden planks was encountered running beneath the southernmost staging platform. Designated **Feature 8**, the wood extended to a point 2 feet north of the concrete (*Figure 20*). At approximately the same level, 4.5 feet in this case, a short, 5 x 8.5 inch timber lay adjacent to the southern edge of the central concrete platform, with a 6 x 6 inch upright at its eastern end. Below the wood between all three platforms, at a depth of 5 feet, lay a hard mortar surface running under the utility line to the west and becoming increasingly deteriorated to the east, though clearly visible within the trench profile.

Further examination of the profiles between the staging platforms indicated that there was a slight difference in fill directly over Feature 8. Designated Stratum C, the fill above the feature was somewhat more mixed, containing brick and mortar rubble and coal, as opposed to the combination of orange brown sandy clay with lenses of coal and scattered brick bits to the east. Due to the similarity of the deposits in plan view, there may have been a degree of mixing during excavation, so that the artifacts described may have come from either stratum, a situation which highlights one of the pitfalls inherent in backhoe excavation; i.e., deposits of similar color and consistency can become mixed as the backhoe bucket pulls across them, obscuring the line of separation. Later excavation in Section B of the trench, south of the staging platforms (see below), indicated that while the two deposits were in fact distinct, the difference was not chronologically significant.

Water which had collected in the looser deposit over Feature 8 rapidly filled the trench, forcing the excavation of a sump through the deteriorated mortar floor in the east end of trench Section A. Soil excavated from the sump area consisted of a brown sandy clay to the maximum depth excavated, between 9.5 and 10 feet.

Section B of Trench 5 was excavated southward from the third, or southernmost concrete staging platform to more fully expose the wooden planking of Feature 8. Below the 6 to 8 inches of gravel, coal and silt loam fill at ground surface lay a continuation of Stratum B, 18 to 22 inches in depth in this area and consisting of dark brown to black, coal-rich sandy loam, containing gravels, brick bats, a 6 foot length of railroad track, heavy cast iron deck plates (several with spikes and portions of wood still attached), a nineteenth century bayonet, roofing

slate, cut nails and a variety of glass and ceramic fragments with manufacture and use dates ranging from the eighteenth through the twentieth centuries, including white salt glazed stoneware, creamware, pearlware, whiteware, Shaw brown slipped stoneware, locally produced gray salt glazed stoneware, lead glazed redware, and mold blown and automatic bottle glass. Stratum C, below and extending to the top of Feature 8, consisted of brown loam with brick and mortar rubble, becoming increasingly mixed with decomposed wood near the surface of the feature. The deposit contained cut nails along with various other pieces of ferrous metal hardware and gas or electrical conduit, window glass, roofing slate, a fragment of Devon gravel tempered earthenware, small amounts of creamware and pearlware, a much larger representation of whiteware, ironstone, yellow ware, local salt glazed stoneware, mold blown bottle glass, a porcelain button and a small fragment of coral.

The planking of Feature 8 was very uneven, encountered variously between 4 and 4.5 feet below surface, probably disturbed by the rubble fill placed on top during later infilling. Judging from the least disturbed areas at the south end of the trench excavation, there were originally at least three layers of planking put down perpendicularly, for the most part without fasteners. The eastern edge of the feature lay 14 feet from the wall along Union Street, finished with a 1 x 8 inch plank set on edge. The western edge of the feature was less well defined: laid boards were encountered to within 6 feet of the Union Street wall, but scattered lumber and fill were found still closer to the wall. The southern end of Feature 8 was not located. A large, 4 x 6 inch timber lay across the width of the feature on a line 14 feet south of the concrete staging platforms, but probing indicated that planking continued to the south. These planks were not fully exposed, and excavation was discontinued due to the close proximity to the entry way to the modern parking lot and the potential of wall slump undercutting and destabilizing the asphalt pavement.

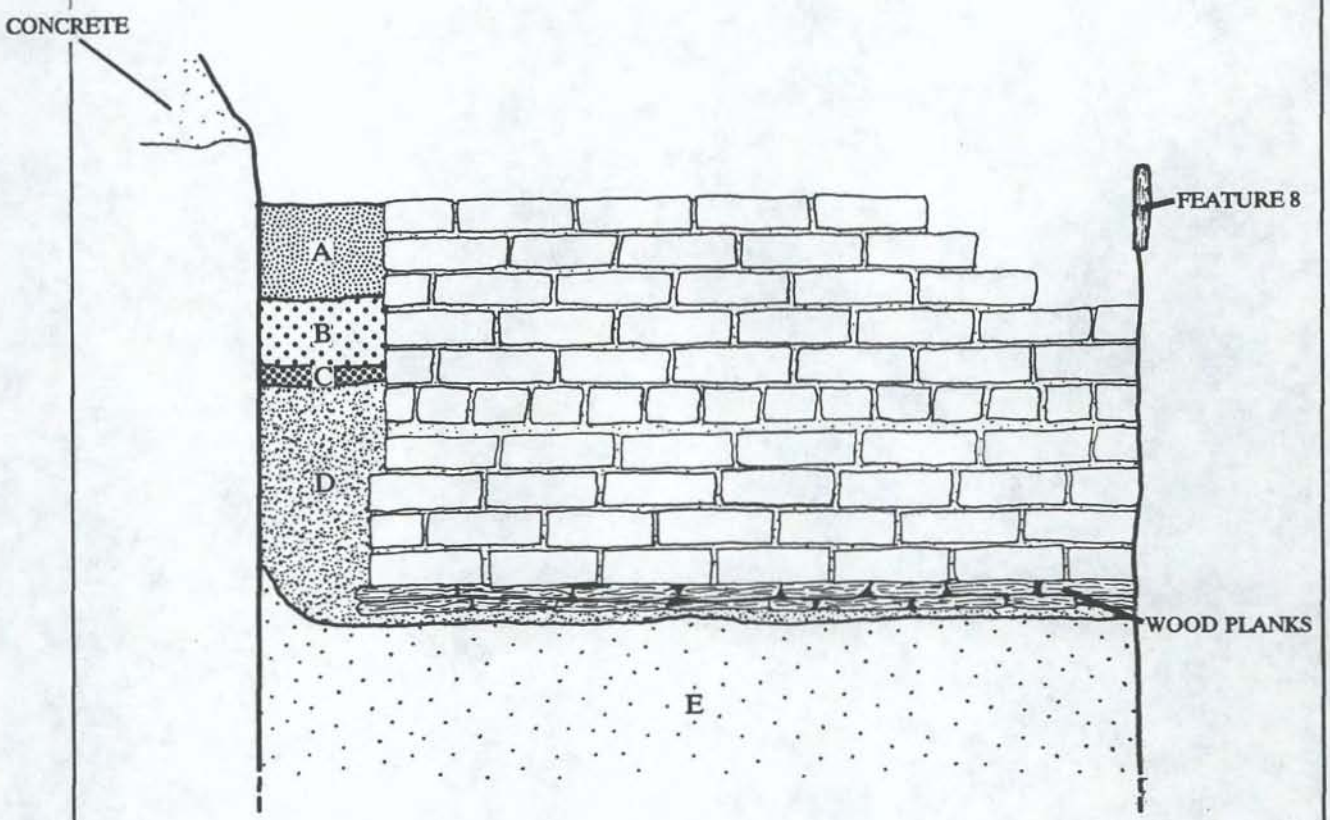
The accumulation of water from the disturbed fill layers in this portion of the trench required the excavation of a sump east of the edge of Feature 8, within a deep deposit of brown sandy clay fill. The area available for for the sump was limited to the east by a rough edged concrete surface lying approximately 18 inches below grade. The concrete was at least 4 feet in width and 6 to 9 inches thick, and appeared to serve as a protective casing for electrical conduits. On several occasions over a period of three days, the sump was pumped out and silt runoff excavated. The maximum depth reached during excavation was approximately 11 feet. The exact depth of fill in the sump area was difficult to determine due to the wet nature of the excavation, but it appeared to extend between 8 and 9 feet below grade.

An open plywood box, 28 inches square, was encountered lying approximately 15 feet south of the staging platforms and southeast of Feature 8. Designated **Feature 9**, the box first occurred at a depth 3 feet below grade and continued approximately 18 inches into the fill. The box appeared to be a wooden form constructed for a concrete pier which was never poured.

Feature 9 was removed and a brick platform exposed below, lying at a depth of 5 feet. Designated **Feature 11**, the platform measured 10.5 by 11.5 feet, composed of well-laid, reddish-orange brick bonded with a friable sand and lime mortar. The platform lay partially under and to the southeast of Feature 8. One to three courses of brick had been removed from the western portion of Feature 11 before the planking of Feature 8 was laid down. To the east, the surface was level, though mortar adhering to the upper surfaces of the brick indicated that other courses had been removed when the structure was demolished. Running east/west across the middle of the platform and extending 6 feet in from the eastern edge was a trough, 15 inches wide and 1 course in depth. Soils removed from the base of the trough were gravelly and contained more coal and coal ash than the overlying fill (trench Stratum C), and the brick within the trough was stained a dark gray, suggesting that the trough may have functioned as a flue beneath a furnace structure. In the south profile exposed by the sump excavation alongside Feature 8 (*Figure 21*), the platform was seen to continue approximately 2.5 feet, 10 courses, in depth. At the base of the feature was a thin, 1 inch layer of dark brown loamy fill into which two layers of overlapping 1 x 4 and 1 x 6 inch planks had been laid (oriented north/south). Three courses of brick were then laid in common bond, followed by another course of stretchers, stepped in approximately 1 inch. The next layer was a course of headers followed by five courses laid in common bond. The sandy mortar was thick in some places and in others had deteriorated greatly, so that when the excavated sump hole was pumped out at the start of work in the morning, water which had collected on top of the feature overnight poured out from between the bricks. Portions of a builder's trench with stratified fill deposits was visible to the east of Feature 11, but the full profile was not accessible due to the presence of the concrete duct casing above. Excavation to the east or southeast was impeded by the casing and a further series of concrete staging platforms, these oriented north/south. No well-defined builder's trench was apparent in either the east or west walls of the sump excavation.

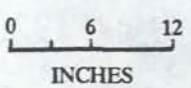
The west profile of the sump did reveal that a wide, shallow notch had been cut into the plank edging Feature 8 to allow it to fit over a 4 x 7 inch timber running to the west beneath the feature (*Figure 22*). Also revealed was **Feature 10**, a pier composed of red brick lying below the timber. At least 2 inches of mortar-rich fill dirt separated the pier from the overlying timber, indicating that their alignment was not intentional. The pier consisted of three courses laid in common bond, measuring a total of 26 inches in width, with a base course of headers measuring a total of 29 inches. The face exposed in the profile appeared finished, and thus undisturbed. Probing between the boards in Feature 8 indicated that the pier extended at least 18 inches to the west.

To further investigate Feature 8 and its relationship with the brick features, Features 10 and 11, below, a section of wood planking was cleared, and a 2 x 2 foot hand excavation, **Test Unit 2**, placed in the underlying soil deposits. Four layers of planking were removed, including the skewed upper layer covered with rubble. At least one of the lower planks was secured with a cut nail. Sandy silt occurred between each layer of planking along with artifacts similar to those in the overlying fill layer, Stratum C.



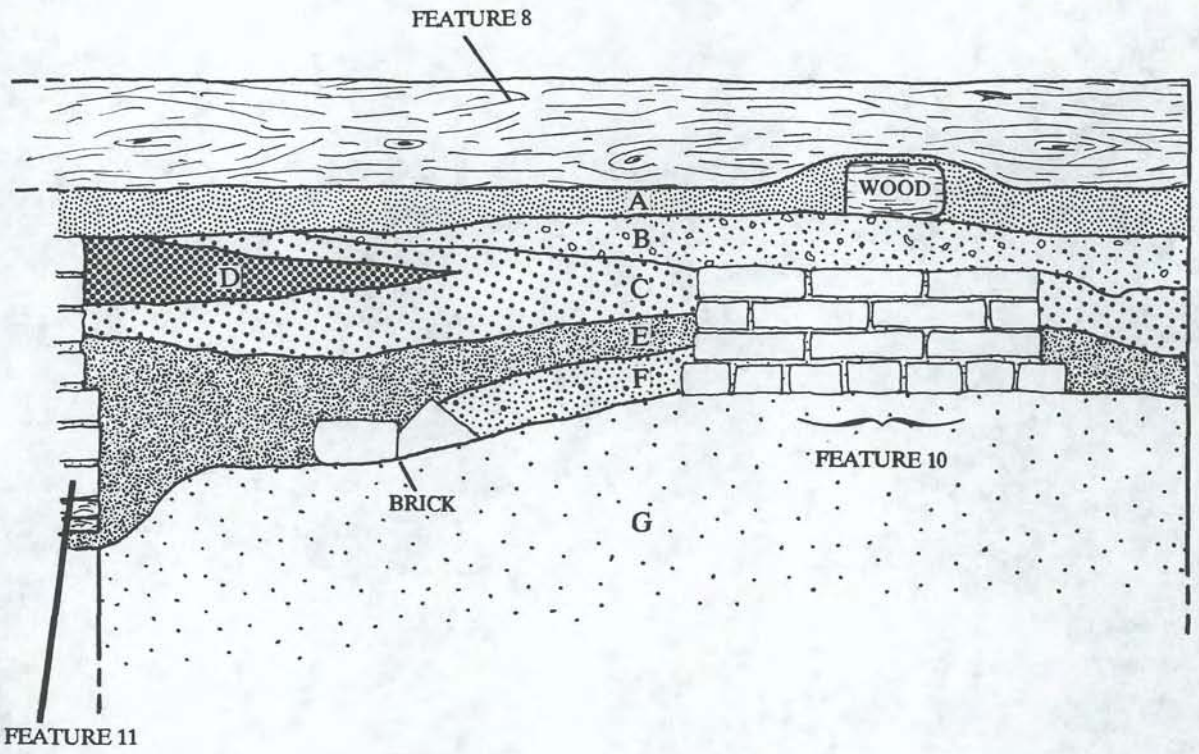
KEY:

A	BROWN SANDY CLAY AND DECOMPOSED MORTAR
B	YELLOW BROWN SILTY SAND
C	BLACK CRUSHED COAL
D	DARK BROWN LOAM AND RUBBLE
E	BROWN SANDY CLAY



Source: Engineering-Science
Harborside

Figure 21
Feature 11
South Profile



KEY:

A	BROWN SANDY LOAM WITH BRICK AND MORTAR BITS
B	LIGHT GRAY DECOMPOSED MORTAR AND SHELL
C	BROWN SANDY CLAY
D	BLACK SANDY LOAM, COAL AND CINDER
E	DARK BROWN LOAM, COAL, DECOMPOSED WOOD, BRICK AND MORTAR
F	YELLOW GRAY SILTY CLAY
G	BROWN SANDY CLAY

0 6 12
INCHES

Source: Engineering-Science
Harborside

Figure 22
Feature 8/9/11
West Profile

The test unit was located 9 feet east of the screening wall along Union Street, and 4 feet south of the concrete staging platforms, in line with the southern edge of Feature 10. The base of the wood, and thus the surface of the underlying deposits, lay 59 inches below grade. All deposits were continuous across the unit, and can be summarized as several thin layers of sandy silt or decomposed mortar near the base of Feature 8, followed by thicker and darker coal stained sand and rubble deposits, a thin flat mortar surface lying 12 inches below the feature and finally, brown silty sand fill (*Figure 23*). Details are listed as follows (note: stratum designations are continuous with trench strata; elevations are relative to present grade):

Stratum C: 59-60 inches dark brown to gray silty loam; continuation of overlying fill deposit with a similar mixture of nineteenth and twentieth century artifacts: pearlware, whiteware, ironstone, mold blown bottle glass, window glass and cut nail

Stratum D: 60-61 inches light gray decomposed sandy mortar with small fragments of brick and slate

Stratum E: 61-63.5 inches yellow brown sand mottled with gray sandy clay with bits of brick and mortar, a portion of wood planking pierced by a cut nail with hand wrought head, a fragment of pearlware and several small animal bone fragments (probably rodent)

Stratum F: 63.5-67 inches dark brown to black loam, heavily mixed with coal, coal slag and cinder, and small brick and mortar rubble and wood bits; loose, holding oily water

Stratum G: 67-68 inches brown to olive green compact silty clay with scattered bits of brick and mortar

Stratum H: 68-71 inches brown to gray sand and silt loam with decomposed mortar, brick bits, slate, coal, coal dust, slag, oyster shell fragments and a single corroded cut nail; loosely packed

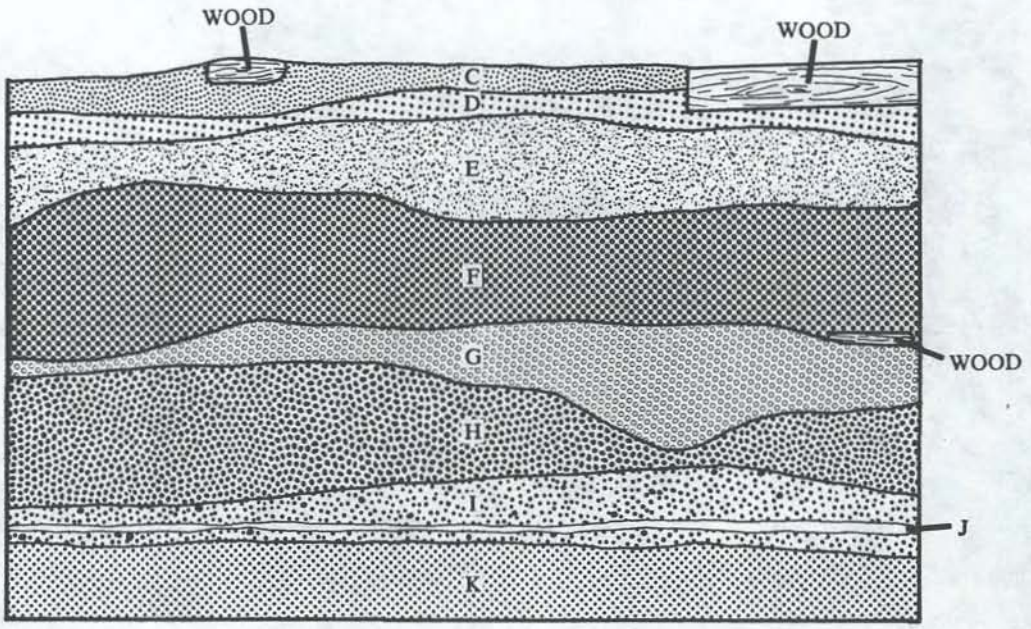
Stratum I: 71-75 inches compact brown silty sand; Stratum J transects deposit 1 inch below surface

Stratum J: 72 inches deteriorated gray sandy mortar surface, less than one-half inch thick

Stratum K: 75 inches + brown silty sand

Because of the increasing number of obstacles along the south and southeast edges of Section B of Trench 5, excavation was continued to the east, toward the river from Section A. This eastern extension of Trench 5 was designated **Section C**. East of the southern concrete staging platform, several further modern impediments were encountered, including utility lines, a concrete pier and a section of concrete curbing. Excavation in these disturbed portions of Section C did not extend below 3 feet.

A narrow patch of unobstructed ground was located east of the center staging platform (*Figure 20*), at which point a deeper trench, measuring 4 by 9 feet at surface, was excavated. The surface deposit in this area consisted of 6 to 8 inches of yellow and gray sandy clay and gravel fill. Below lay a deep layer of brown to dark brown sandy loam fill to an average depth of 54 inches below grade. The deposit



KEY:

C	DARK BROWN SILTY LOAM AND DECOMPOSED WOOD
D	LIGHT GRAY SAND AND MORTAR
E	YELLOW BROWN SAND, MORTAR AND CLAY
F	BLACK COARSE SAND LOAM AND CLAY
G	BROWN TO GREEN COMPACT SILTY CLAY
H	GRAY BROWN SAND AND SILT LOAM
I	COMPACT BROWN SILTY SAND
J	DETERIORATED GRAY MORTAR
K	BROWN SILTY SAND

0 3 6
INCHES

Source: Engineering-Science
Harborside

Figure 23
Test Unit 2
West Profile

contained gravels, coal, brick and only a few non-diagnostic glass and ceramic artifacts, none of which were collected. Following this deep fill layer was an 18 inch stratum of oily gravels and cobbles mixed with sandy clay and brick rubble, to a final depth of 72 inches below grade. This deposit was relatively loose in spots and acted as an aquifer, collecting surface drainage and discharging it when disturbed by the backhoe bucket. Below this layer lay dark greenish gray sandy silt containing small bits of wood, brick and mortar in the upper 6 to 10 inches. Excavation continued to a depth of over 9 feet, with little vartiation noted. Judging from the character and depth of the deposit, the sandy silt was provisionally interpreted as an intact alluvial deposit with artifactual materials intrusive either from overlying fill layers or washed into the silts from the earlier shoreline.

Deep excavation was continued some 12 feet further to the east beyond another series of utility lines, duct casings and concrete piers. Stratigraphy was similar in this portion of the trench, with 8 inches of sandy clay and bank run gravels at the surface, followed by a series of loamy clay fill layers, variously containing brick rubble, coal and gravels, to a depth of 70 inches. No diagnostic artifacts were observed within these deposits. Below lay a 4 inch stratum of yellow gray, coal stained clay, followed by 2 inches of gray to black loam with coal, coal ash, gravel and oyster shell fragments, and 6 inches of gray brown to green silty sandy clay containing coal and decayed wood, to a final depth of 82 inches below grade. At this level, a segment of wooden cribbing, designated **Feature 12**, was encountered consisting of two intersecting 4 x 6 inch timbers. One timber extended from the west profile, running parallel to the north edge of the trench for a distance of 10 feet, at which point it had been roughly truncated. Several cut nails were observed in the timber, though the pieces they had attached were no longer present. The second timber extended from the north wall of the trench 10 inches, butting against the first timber. Two 4 x 6 inch piles supported the long timber along its north edge. They were set 39 inches apart and were faced with three-quarter inch planking to the north. North of the planking lay a deposit of coal and coal dust 8 inches deep, underlain by a 10 inch layer of mixed fill consisting of brown sandy loam with small amounts of coal, ash, coal slag, brick and mortar. To the south of the long timber lay a 12 inch deposit of dark brown decayed wood and sawdust, interbedded with a 6 inch lens of yellow gray clay. Contained within the sawdust were cut nails, fragments of wine bottle glass, a small fragment of transfer printed earthernware and animal bone fragments. The long timber was removed revealing a continuation of the brown decayed sawdust deposit, which contained a hand wrought nail, a wrought iron hinge, a fragment of creamware and more pieces of free blown wine bottle glass, including a complete base fragment with sand tipped pontil mark.

Obstructions were present on all sides of the excavation, making more extensive investigation of the feature impossible. Water influx was managed by means of a small sump excavated at the narrow, east end of the trench. Oily sludge drained from the trench walls, which tended to slough into the sump. Several episodes of excavation to clean the sump indicated the presence of dark greenish gray sandy silt below the fill deposits which lay under the feature, running to a depth of at least 9.5 feet. With the small amount of the feature exposed, interpretation was difficult, but based on the structural characteristics and associated artifacts,

Feature 12 was assumed to have been a late eighteenth or early nineteenth century coal bin.

Trench 6 (*Figure 13*)

Length: 26 feet
Orientation: N/S
Width: 12 feet
Depth: 10 feet
Surface Elevation: 9 feet

Location: Southeast corner of VEPCO substation

Excavation in this portion of the site was aimed at further investigating the shoreline of the river as it existed prior to the construction of Roberdeau's Wharf, and of the location structural remains related to the wharf or other early commercial and industrial use of the property. Late nineteenth and early twentieth century maps of the property indicated that only a small area south of the VEPCO lot had the potential of yielding deposits undisturbed by later industrial structures, including western and southern extensions to the original foundry building, as well as the present power substation. Thus, excavation began 67 feet south of the screening wall along Wolfe Street and 16 feet east of the VEPCO lot, at a point judged to be just inside the south wall of one of the late nineteenth century additions to the original foundry. Because of the small area of undisturbed deposits assumed to be available for investigation, it was hoped that the wall could be located and excavation could proceed southward from it, maximizing efforts in the restricted area.

Below the existing asphalt parking surface lay a second, earlier tarmac surface separated from the present blacktop by 2 to 3 inches of brown sandy clay and gravel fill. The two asphalt layers were together designated Stratum A, and measured on average a total of 8 inches. Underlying the asphalt was a thin layer of gray sand, coal ash, cinder and gravels lying on a concrete slab, which was at first assumed to be the floor of the building west of the foundry. The slab was followed southward for a distance of 8 feet, at which point a formal edge was encountered. The slab measured between 4 and 5 inches thick. No wall or foundation was visible, and for this reason it was assumed that the south wall of the building lay slightly to the north of the excavation, and that the slab in fact represented an apron adjacent to the wall.

Excavation continued south of the apron, revealing several layers of fill--hard packed yellow brown sandy clay and brick rubble, or dark brown clayey sand, cinder and brick rubble--to a depth of 29 to 30 inches below grade. Except for rubble debris, no artifacts were observed in these fill layers, and so they were lumped together as Stratum B.

Stratum C consisted of a layer of black, compact loam, heavily mixed with coal, cinder and gravels. The deposit also contained brick rubble, fragments of creamware, pearlware, gray salt glazed stoneware, wine bottle glass, a portion of what appeared to be a wooden bung or barrel stopper, and several fragments of animal bone. At the base of Stratum C, at a depth of 3.5 feet, lay **Feature 13**, a wooden walkway consisting of two parallel lines of 3 x 6 inch timbers of varying lengths, set on edge approximately 1 foot apart and covered with planking approximately 1 inch thick and 15 to 17 inches wide. The feature ran on a line roughly northwest/southeast. Several aspects of the feature suggested that it had been intended for short term use: the timbers were merely butted together and though at least two were notched as if for splicing, the notches were not aligned; various cut nails were observed in the timbers on all faces, but none were used to either fasten the timbers together or to fasten the overlying planks to the timbers; and last, the timbers were laid directly on the surrounding sandy deposit with no supporting bed. At least two badly deteriorated 1 x 5 inch uprights were observed along the interior of the feature supporting the parallel beams. As noted, the feature rested within Stratum D, a gray, coarse grained sand deposit, with no discernable builder's trench below or to either side. Stratum D contained fragments of tin-glazed earthenware, pearlware, undecorated porcelain, unglazed redware, free blown wine bottle glass, fragments of shoe leather, animal bone, oyster and cockle shell, bits of coral and numerous large and small pebbles, including several types of flint.

Along the east wall of the trench lay a large terra cotta utility line, running along the western edge of the foundry building and obstructing further excavation in that direction. The trench was widened to the west to a total width of 12 feet, but little more of Feature 13 was uncovered before it entered the north wall of the excavation, which was obstructed at that point by the concrete apron lying just below present grade. Excavation to the south was stopped after a total of 26 feet due to the presence of another concrete obstruction, a foundation situated at a point consistent with the mapped location of a late nineteenth century extension south of the foundry building.

Informal hand excavation into Stratum D revealed the deposit to extend 5 to 6 inches in depth, or about 4 feet below grade. Below it lay a dark greenish gray silty sand, **Stratum E**, which exhibited a hard packed, dark gray to black surface, layered in places in the top quarter to one-half inch of the deposit. Within the upper 3 to 4 inches of Stratum E, bits of resinous wood chips were observed, along with brick bits, wooden pegs, free blown wine bottle glass fragments, including a base fragment with a glass tipped pontil mark, a fragment of tin-glazed earthernware and a prehistoric artifact--a quartzite biface.

Water problems in Trench 6 existed in the form of slow drainage from the rubble layers in Strata B and C. Both Stratum D and Stratum E were waterlogged and required care in excavation. Stratum E was increasingly unconsolidated with depth, causing the walls of the excavation to slough off periodically, finally undercutting the overlying fill layers. At a depth of 8 to 8.5 feet, the backhoe bucket met a buried obstruction running east/west across the south end of the trench within

the otherwise soft matrix of Stratum E. The machine was unable to move the obstruction, but was able to break off a section of rough cut timber 6 feet in length. Nothing could be seen within the trench itself due to the loose, wet soils, and there was insufficient space within which to excavate a usable sump. Excavation was shifted to the north end of the trench, leaving a slight balk across the center of the excavation to hold back some of the water accumulated in the deep hole to the south. A second obstruction, again running east/west, was encountered at a similar depth 8 feet north of the first occurrence. While the soil matrix was equally loose and waterlogged, the backhoe was able to scrape across the surface of the obstruction before it was inundated. Though the shape and dimensions were not determined, enough of the impediment was exposed to indicate that it consisted of a large, yellow pine timber. Again, due to the restricted area, with brick or concrete obstacles on all sides, it was impossible to widen the trench to allow a sump to be excavated so that more of the timbers might be exposed. From their horizontal positions, it is assumed that the materials may have represented a portion of cribbing used either in the construction of the eighteenth century wharf or as support for a large structure on the wharf.

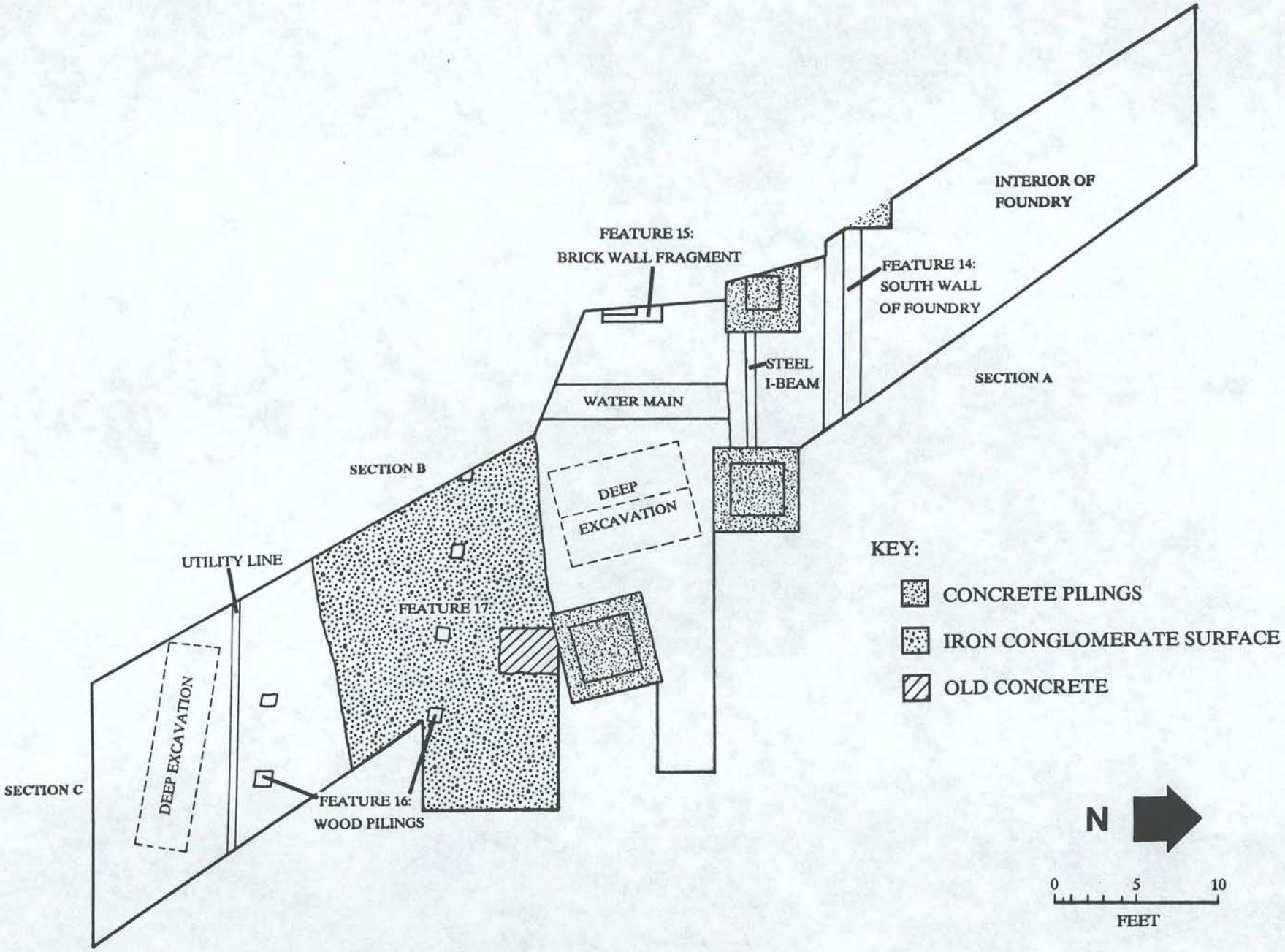
Trench 7 (*Figure 24*)

Length: 79 feet
Orientation: NW/SE
Width Range: 8-25 feet
Depth Range: 7 to 14.5 feet
Surface Elevation: 8 feet

Location: North central portion of the lot near southern edge of foundry building

The location of the Smith foundry in the northern half of the lot has been well documented, and in fact a portion of the original wall of the building was still standing along Wolfe Street, exhibiting many brick and mortar patches and concrete and iron attachments on its southern elevation to indicate a long history of reuse. Late nineteenth and early twentieth century maps of the project area suggested that little heavy structural disturbance should be expected south of the building and east of an extension erected in the 1920s at the southwest corner. Trench 7 was excavated to locate the south wall of the foundry near the southeast corner of the building, and to investigate the potentially undisturbed ground to the south for further evidence of wharf related structural remains.

Excavation began farther inside the building than was originally planned in order to allow the backhoe to work from the edge of the asphalt parking surface which covered the central portion of the property. The description below follows the trench as it was excavated from northwest to southeast. In preface, it should be noted that because of the length of the trench and the relative complexity of the fill deposits, few of which contained artifacts other than brick rubble, only the most pertinent strata will be listed by formal stratum designation.



Source: Engineering-Science Harborside

Figure 24
Trench 7: Plan View

Section A of Trench 7 began within the interior of the original foundry building. Two layers of asphalt with an intervening layer of sand and gravel fill lay at the surface of the trench to a depth of 5.5 to 6 inches. Immediately below lay heavy brick and mortar rubble from which fragments of concrete, roofing slate, structural metal debris and two large counter weights made of cut slate with numerous iron fittings attached were excavated. Interbedded with the rubble were several thin layers of orange brown sandy clay and gravel. Very few bits of late nineteenth and early twentieth century glass and ceramic artifacts were observed within the rubble--none were collected. Standing water was reached at approximately 4 feet below grade. It was impractical to clear the rubble fill from the trench in the time allotted, but a level floor, presumably of poured concrete, was located with the backhoe bucket at a depth of 7 feet.

At a point 89 feet from the foundry wall along Wolfe Street, the south wall of the building was encountered, the top remaining course lying just below the base of the asphalt layers, some 6 inches below grade. Designated **Feature 14**, the wall stood three courses wide (13 inches), with a second three course run apparently serving as a footing or buttress along the interior, 36 inches below grade. A later concrete pier had been poured against the wall at this lower level, presumably to support a heavier addition to the interior of the structure.

South of the wall, outside the building, lay a black, coal-rich sandy loam deposit containing cinder, ash and brick rubble. Two concrete piers, roughly 5 feet square, were located 2 feet south of the wall just below the asphalt surface layers. Connecting the piers was a pair of steel I-beams, 8 inches wide with 6 inch webbing, lying 2 feet below grade. South of the piers lay several strata of hard packed yellow brown clay and gravel fill, interbedded with black sand, coal and cinder. No diagnostic artifacts were encountered within these deposits. At a depth of 6 feet below grade, a layer of hard, yellow and gray, coal stained clay fill was reached.

Another brick wall fragment, designated **Feature 15**, was encountered 11.5 south of the foundry wall, beginning 4 feet below grade and running east/west, parallel with the foundry wall. The wall was three courses in width (13 inches) and extended 10 courses, to a depth of almost 6.5 feet, with a one course, stepped footing. The final course lay atop two layers of thin wooden planks, which in turn rested on yellow and gray clay fill. No builder's trench was visible in the profile exposed by the trench excavation, and the fill deposits were uniformly mixed on either side of the wall. There were no artifacts observed within the fill. Judging from its relative depth and structural characteristics--the use of similar brick and mortar and a similar width--the feature may have been an outbuilding associated with the original foundry operation. The wall had been truncated to the east by a wide trench excavated on a north/south line for the laying of a 28 inch water main, similar to the 42 inch line encountered in Trench 1. The pipe lay 4 feet east of Feature 15, beginning at 4 feet 10 inches below grade. It was manufactured of rolled and welded steel plates coated with an anti-corrosive substance. Excavation of the wet clay fill between the feature and the utility line located a hard, flat surface 9 feet below grade, but the continual influx of water and tight space made sufficient cleaning for an absolute definition of its composition impossible.

Excavation shifted to the east, beyond the water main disturbance: the area south and east of the utility line was designated **Section B.** The same varied fill layers noted west of the pipe line were observed in this portion of Section B to a depth of approximately 5 feet. There were no artifacts other than brick rubble within the fill strata, and there was no evidence of a continuation of Feature 15.

Below the fill lay greenish gray sandy silt, presumed to be the original river silts. A deep trench, 8 feet in length, was excavated into this deposit on a northwest/southeast diagonal to test for underlying structural materials, such as cribbing, within the silts. A few small brick bits were observed in the upper 6 to 9 inches, but otherwise the deposit was sterile. The soil was wet and unconsolidated in patches throughout, and the walls of the trench began to slump uncontrollably at a depth of 10 feet, at which point excavation was halted. Using this first trench as a sump, a second parallel trench was excavated to the east, with a narrow balk left to minimize immediate flooding. The maximum depth excavated in the second trench was 12.5 to 13 feet: the character of the deposit was the same, and no structural remains were encountered.

Excavation of Section B of the trench continued to the southeast. Along the east wall of the trench, another large concrete pier, 5.5 feet square, was exposed just below the asphalt surface deposits, set slightly askew from the line of the foundry wall. Within the black, coal rich fill layer lying 18 inches below grade (Stratum C), several complete or partially complete milk bottles from a local dairy in operation during the 1930s were recovered, the only diagnostic artifacts observed within this portion of the trench.

Further to the south, beginning on a line 17 feet south of the south wall of the foundry, a hard, iron conglomerate surface was uncovered at a depth of 4 feet below grade. At surface, the deposit appeared to be composed largely of iron slag, along with cinder and gravels, solidly packed and partially cemented by corrosion from the ferrous metal. The surface of the deposit was hard and level enough to resemble an intentionally laid surface, and thus was designated **Feature 17.** A 3 foot square section of deteriorated concrete lay on top of the surface in the east wall of the trench. The concrete was 7 inches thick and also contained a large amount of slag and cinder. The underlying conglomerate surface, Feature 17, stretched 13 to 14 feet to the south: the edges, both north and south, were ill-defined. Along the north edge, an informal shovel test showed the conglomerate to extend 5 inches in depth, and to contain, along with iron tailings and cinder, fragments of brick, coal, oyster shell and cut nail. Several 2 to 2.5 inch thick layers of clay, crushed brick and hard packed sandy clay lay below, followed by a second 5 inch conglomerate deposit composed of iron slag, brick, coal and gravels. Below the second iron deposit lay a 6 inch layer of yellow and brown hard packed clay fill, similar to that observed below Feature 15, the wall fragment south of the south foundry wall, containing gravels and small bits of brick and coal. Green gray sandy silt was reached at a depth of approximately 72 inches, 1 foot lower than in the deep trenches excavated to the northeast.

Approximately 21 feet from the south wall of the foundry, a row of four 8 x 10 inch upright timbers was encountered. The top of each had been truncated at different levels, the highest lying against the west wall of the trench, just under the blacktop surface (about 9 inches below grade at this point). Collectively the timbers were designated **Feature 16**. They were set into the surface of Feature 17, ranging between 42 and 51 inches apart, on a line slightly north of west. Ten and one-half feet to the south, 2 additional pilings were encountered, set 49 inches apart on a line parallel with the first line of pilings: they were also designated as Feature 16. The iron conglomerate deposit, Feature 17, was deteriorated beyond recognition at this point. In the west profile of the trench, the end of a truncated horizontal beam was visible. Measuring 8 x 10 inches, it appeared to have been attached at one time to the south face of the upright standing at the trench wall, on a level 12 inches below the base of the recent asphalt surfaces, and to have extended to the east, probably connecting with several of the other pilings in Feature 16.

The character of the fill layers differed on either side of the north line of Feature 16. To the north lay mixed clay loam and gravels, while to the south, lay a distinct stratum of black crushed coal and coal dust, 8 to 10 inches in depth, and corresponding in elevation with the the horizontal timber in the west profile. Although no similar timber was observed to the east in the excavation or in the east wall of the trench (the upright near the east wall was almost completely rotted away), the coal layer was visible, if at a somewhat deeper level--beginning at a depth of 25 inches--and appeared somewhat thicker, extending a total of 18 inches. Below the coal layer lay a series of clay loam strata containing brick, ash, coal and gravels, running to the surface of Feature 17, which lay 48 inches below grade. Again, other than brick fragments, no artifacts were observed in any of the deposits.

Approximately 1 foot from the southern edge of Feature 16 (the southern pair of pilings), and 35 feet from the south wall of the foundry, a 5.5 inch metal utility line was encountered 4.5 feet below grade. The area south of the line was designated **Section C**. The upper fill layers there appeared more mixed than to the north, over Feature 16, and there was no indication that the iron conglomerate surface, Feature 17, extended southward into this portion of the trench. At and below the level of the utility line, a dark brown to black layer of sandy loam, 18 to 24 inches thick and containing coal, gravels, small cobbles and oyster shell fragments, was recorded. The deposit was followed by a 15 to 18 inch layer of dense yellow and gray clay fill, Stratum L, which contained a large number of ceramic fragments. Most of the ceramics were wasters, portions of misfired vessels. Of the nearly 700 pieces, approximately 69% were gray salt glazed stoneware, some with blue cobalt decoration, and 31% were coarse earthenware, or redware, exhibiting a variety of lead glazes. Along with the vessel fragments, nearly 200 pieces of kiln furniture--bricks or tiles lining the kiln, various stilts or caps to prop up or protect the unfired vessels--were recovered. The conclusion drawn was that the fill deposit was derived from a dump or trash area associated with a pottery, either on-site or relatively near the wharf. Also contained in the deposit were fragments of animal bone, oyster shell, brick, wine bottle glass, creamware and pearlware and a large quartz flake.

Below Stratum L lay green gray silty sand. Again, as in Trench 6, the upper several inches of the deposit contained small bits of wood and brick. A deep trench was excavated into the silts on a northwest/southeast line for a length of 18 feet to investigate the presence of structural features related to the early wharf. At the north end of the excavation, at a depth of 9 feet, a 1 inch layer of badly preserved laminated wood was encountered within the silts. The wood lay on a 30 degree angle sloping down to the southeast, occurring at a depth of almost 10 feet at the south end of the trench cut, and appeared to have been refuse introduced into the silts before or during the infilling process. Below lay a continuation of the silty sand deposit, very wet and unconsolidated at increasing depths. The maximum depth excavated was 14.5 feet. No structural features were encountered. Excavation was halted at this point due to time limitations.