

A PHASE I ARCHAEOLOGICAL SURVEY
OF THE
OLD FORD PLANT PROPERTY,
CITY OF ALEXANDRIA, VIRGINIA

submitted to

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ABSTRACT

The Phase I archaeological survey reported herein was conducted at the site of a 9.5 acre parcel of land known as the Old Ford Plant property on the waterfront in Alexandria, Virginia. Located at the corner of Franklin and South Union Streets, the parcel is scheduled for development by Cook Inlet Region, Inc. The investigation was undertaken by John Milner Associates, Inc. to assist in compliance with Section 106 of the National Historic Preservation Act of 1966, as amended. The project area is all made land, the major portion of which is comprised of a late eighteenth century wharf with twentieth century additions. Documentary research and studies of settlement location for prehistoric and historic sites indicated that historic archaeological resources may exist in the project area. An evaluation of the degree of previous disturbance in combination with the background research revealed that two areas have the potential to contain evidence of shipbuilding activities that had taken place on the surface of the wharf in the latter part of the nineteenth century. It was also determined that two different kinds of resources from earlier periods may exist beneath the surface of the wharf: the wharf structure itself, and artifacts in the fill of the wharf. It is recommended that additional documentary and archaeological investigations be undertaken in order to determine whether properties eligible for the National Register of Historic Places exist within the project area.

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1.0 INTRODUCTION

1.1 Purposes and Goals of the Investigation

The project reported herein consisted of a Phase I archaeological survey of the site commonly known as the Old Ford Plant, in Alexandria, Virginia (Figure 1). Cook Inlet Region, Inc. (CIRI), which intends to develop the property, engaged John Milner Associates, Inc. to conduct the survey of this property to assist in compliance with Section 106 of the National Historic Preservation Act of 1966, as amended. CIRI acquired the property from the General Services Administration (GSA). Since the sale of this property is considered a Federal Action under the 1966 Act, and therefore subject to Section 106 procedures, GSA required the consideration of cultural resources which might be located on the property.

The purpose of the survey was to locate and identify archaeological resources potentially eligible for the National Register of Historic Places which might be affected by the proposed development and to develop a series of prioritized alternatives, as appropriate, to afford such resources further consideration. Following a description of the project area and the proposed development, subsequent report sections provide the prehistoric and historic cultural contexts, describe the methods and results of the survey, offer preliminary evaluations of significance of identified and potential archaeological resources, assess the degree of disturbance likely to result from the proposed development, and offer recommendations for further action.

1.2 Description of the Project Area

The project area is a parcel of land of approximately 9.5 acres located on the southern end of the Alexandria waterfront east of the intersection of Franklin and Union Streets (Figures 1 and 2). A portion of the property is occupied by two adjacent buildings. The one nearest the intersection is a 1943 building constructed by the Federal Government. The second and larger building is a plant built by the Ford Motor Company in 1932, which is commonly known as the "Old Ford Plant." While a parking area occupies the major portion of the remainder of the parcel, there are also a boiler building near the center of the plant, some underground tanks, and a water tower.

The north and east sides of the property are surrounded by water. To the west is Union Street and the mainland. The south side is bordered by Jones Point Park, a parcel of twentieth century made land covered with small trees and shrubs. As detailed below, the Old Ford Plant property is made land and was originally built as a wharf.

1.3 Description of the Proposed Undertaking

Although specific plans have not been finalized, the preliminary plans for development are to construct a series of town houses on the area currently used as a parking lot. The boiler structure and other features, and possibly the 1943 Federal Building, will be removed. The new construction will be at grade, on pile foundations. Utilities will be located underground and a new sewer system will be constructed. It

is also anticipated that a marina may be cut into the east side of the property.

2.0 METHODS AND PROCEDURES

This investigation focused on a review of existing information. Repositories visited or consulted include the Alexandria Library, Lloyd House; the Department of Planning and Community Development and the Engineering and Design Division of the Department of Transportation and Environmental Services, Alexandria; the Library of Congress Geography and Map Room; the Alexandria Archaeology Office of Historic Alexandria (AAO); the Virginian Room of the Arlington County Central Library; the Land Records Room, Alexandria Courthouse; the National Archives; and the Martin Luther King Branch of the District of Columbia Public Library. A variety of unpublished as well as published sources were examined, including archaeological reports on Alexandria and other waterfront cities, local and specialized histories, newspaper articles, and historic maps and atlases. A deed search was undertaken to identify past property owners and to determine the changes in the boundaries of properties within the project area. For prehistoric resources, the site files of the AAO were reviewed. Published and unpublished archaeological reports were also examined.

A wide range of archaeological information was collected to develop a model of prehistoric site location. Historic maps were the primary documents used to determine the presence of structures or other cultural features on the surface of the wharf. Comparative material was also drawn from other waterfront archaeological sites and from historical

descriptions to predict the presence of archaeological resources under the surface of the wharf.

3.0 CULTURAL BACKGROUND

3.1 Prehistoric Cultural Context

3.1.1 Culture History

A summary of the archaeology of the Potomac Valley in the vicinity of Washington, D.C. and Alexandria has been produced by Humphrey and Chambers (1975). They review the results of early pioneers in the archaeology of the area, such as William Henry Holmes, who worked at the turn of the century, and of more recent research which began in the 1930s and has continued to the present. The discussion that follows is taken from Cheek, Meyer and Zatz (1986) and is based upon the above reference and the work of Carbone (1976); Cheek, Friedlander and Warnock (1983); and Gardner (1982); and Johnson (1981). The cultural periods defined for the Potomac River parallel those in other areas of the East Coast, and include: Paleo-Indian (11,000 to 8,000 B.C.), Early Archaic (8,000 to 6,500 B.C.), Middle Archaic (6,500 to 3,000 B.C.), Late Archaic/Transitional (3,000 to 1,000 B.C.), Early Woodland (1,000 to 500 B.C.), Middle Woodland (500 B.C. to A.D. 900) and Late Woodland (A.D. 900 to 1,500).

A hunting and gathering or foraging economy was characteristic of all prehistoric cultural periods except the Late Woodland. During the latter period subsistence was based, at least in part, on the cultivation of domesticated plants. Although the earlier societies utilized a hunting and gathering economy, there were considerable differences in the kinds of protein sources exploited and in the

intensity with which particular resources were collected. During the Paleo-Indian and Early Archaic periods the subsistence pattern seems to have concentrated on larger game animals. The relatively small human populations lived in bands that exploited relatively extensive territories. Vegetative sources of food were not ignored and probably contributed a considerable portion of the caloric intake. However, it is probable that game movements were more important in determining the schedule of group behavior than was the seasonal availability of plants. It is also likely that the seasonal round of activity was at least partially determined by a need to reside near deposits of particular types of fine-grained stone which were necessary for the manufacture of tools and weapons (Gardner 1980).

Although the basic adaptive strategy seems to have been the same during the Paleo-Indian and Early Archaic periods, game sources may have been different. During the Paleo-Indian stage, Pleistocene fauna such as mammoth, mastodon, and caribou may have been the focus of the hunt. At the end of the Pleistocene the vegetation in the eastern United States changed as the climate grew warmer and the glaciers retreated. As a result of these environmental changes, perhaps exacerbated by over-hunting, much of the large Pleistocene fauna became extinct. More solitary animals, such as deer and other smaller game became the only available meat sources. However, some scholars (e.g., Gardner 1980) believe that even the Paleo-Indian groups hunted primarily deer and moose rather than caribou or mammoth.

During the Middle Archaic, subsistence seems to have been focused more on seasonal plant resources and on their more intensive exploitation. This is reflected in the larger range of environments in which sites are found and the appearance of tools specifically made for plant processing. The large number of sites attributed to this period implies a substantial increase in population.

The next three cultural periods (the Late Archaic/Transitional, the Early and Middle Woodland) can be considered together (Cheek, Friedlander and Holt 1983:71) as has been done for other areas of the Mid-Atlantic region (Custer 1984).

The deciduous Eastern Woodland environment had become established by the beginning of this period, and a wide-ranging adaptation to it was developed by the indigenous societies of the region. The subsistence economy was based on an intensive exploitation of the flora and fauna of the woodlands as well as riverine and estuarine resources. Sea level continued to rise and gradually leveled off, creating salt- and brackish-estuarine marshes attractive to migrating birds and suitable for the development of extensive shellfish beds. Anadromous fish such as shad and herring traveled upstream seasonally to find fresh water in which they could spawn, creating large-scale fish runs. Seasonal camps along the Potomac were established to exploit this resource.

Seasonality was a primary determinant of economic organization throughout this period, and there was a great deal of variation in settlement

pattern and seasonal group movement dependent on local patterns of resource distribution and density, and on local responses to population increase (Gardner 1982). In the Middle Atlantic region, it is likely that major aggregations of population would have occurred seasonally on the major streams during the annual migrations of fish.

The Late Archaic/Transitional and Early Woodland periods witnessed the introduction of pottery. It is, however, unlikely that the pattern of adaptation changed significantly with the adoption of ceramic technology. Most archaeologists agree that, during both the Early and Middle Woodland in the Coastal Plain and the Piedmont, subsistence was based primarily on intensive hunting and gathering strategies. There may have been some manipulation of wild plants to increase their yields, but there is no firm evidence for this, nor for the establishment of true horticulture with actual plant domesticates in the Coastal Plain until approximately A.D. 900.

Late Woodland (after A.D. 900) societies supported themselves with horticulture based on the cultivation of corn, beans, and squash. Hunting, gathering, and fishing still played major roles in the subsistence economy but were now scheduled around the requirements of the horticultural cycle. People tended to live for most of the year in semi-permanent villages (i.e., villages that were moved only every generation or so), and that were often stockaded, at least in the area at and above the Fall Line (Potter 1980). Villages of this type were witnessed by Captain John Smith when he explored the Potomac in the

early part of the seventeenth century. Contact between Europeans and the local Indians in northern Virginia started with the exploration of the Potomac by John Smith in 1608 (Feest 1978) and became more intense by the mid-1600s. By 1700, most of the tribes in northern Virginia and southern Maryland had been dispersed. Some had been placed on reservations, while others had left the region altogether (Feest 1978).

3.1.2 Previous Research

The record of known prehistoric archaeological sites in Alexandria, and to the north and south of the city on the west side of the Potomac, is reviewed below. The purpose is not only to determine if prehistoric sites have been previously identified within the project area, but also to collect data necessary for a preliminary model of the factors affecting prehistoric settlement patterns in this area. Such a model will allow the prediction of whether there is a high, medium, or low probability of sites being located within the project area.

Information on the location of prehistoric sites in and about Alexandria comes from several sources. A map by John Smith (Feest 1978: Figure 2) recorded sites on both sides of the Potomac. Four were noted on the west side of the river in the vicinity of Alexandria. From south to north these were called Tauxenent, Manassingakent, Assaomeck and Namoraughquend. Because of the problems inherent in superimposing Smith's map on modern maps, there have been disagreements about the exact locations of the settlements. Many scholars follow Mooney (1889) and place Tauxenent at Mt. Vernon (see for example Powell 1963).

However, Feest (1978: Figure 2) has recently placed it on the Occoquan River south of Mt. Vernon. Mooney and Feest both place Namoraughquend near the modern 14th Street Bridge (formerly known as Long Bridge), while Humphery and Chambers (1975) place it further upstream. The only village that might have been close to Alexandria is Assaomeck (Mooney 1889), but Feest places it south of Hunting Creek. In summary, the precise locations of these contact period sites are unknown, but it is unlikely that any of them were located in Alexandria or within the project area.

A survey of the earlier archaeological literature revealed that only two sites were recorded for the area in the vicinity of Alexandria, and none actually from within Alexandria. Proudfit's (1889) map of the location of known sites included one north of Alexandria, on the site of the modern National Airport. The site was apparently located above the mouth of Four Mile Run which enters a small bay on the south side of the airport. The map does not note any sites close to Alexandria, although it does include some sites opposite the city on the east bank of the river. An archaeological base map prepared by the National Park Service (Powell 1963), which roughly located known sites in the Washington, D.C. vicinity, also fails to note any sites in the area.

Modern archaeological survey of the City of Alexandria was not initiated until the Alexandria urban archaeology program was founded in the late 1970s. This survey, partially reported by Henry (1983) and on file at Alexandria Archaeology, Office of Historic Alexandria, recorded 22

locations of prehistoric sites. However, all but one of these are located well inland. The exception, Site 44 AX 53, was identified by a collector at Jones Point, immediately south of the project area. Ceramic and lithic material recovered during recent testing at the site suggests occupation during the Late Archaic and Middle Woodland periods (LeeDecker and Friedlander 1984:35).

South of Alexandria, between Great Hunting Creek and Little Hunting Creek, thirteen prehistoric sites have also been identified (Inashima 1985:21). A recent survey of the Mt. Vernon Memorial Highway (Inashima 1985) reported preliminary testing of four of these sites and identified an additional one. From north to south these sites are 44 FX 723, 44 FX 713, 44 FX 618, and 44 FX 604. Collections exist in the Smithsonian Museum of Natural History for sites FX 723, and FX 604. No detailed information was presented by Inashima on the eight other sites recorded along this shore. They are simply listed as Woodland Village, Archaic camp, multi-component site, or undefined prehistoric site.

Collections from FX 723 were made in the late 1880s and 1890s as part of a survey of the Potomac made by the Smithsonian and in the 1940s by a collector (Inashima 1985:65). Artifacts included both hafted bifaces and ceramic sherds. The bifaces belong to types dating from the Middle Archaic to the Late Woodland, mostly from the Late Archaic. The three groups of sherds from the collection can, on the basis of temper and decoration, be tentatively identified as Accokeek Creek, Mockley and Potomac Creek wares. These ceramic types span, respectively, the Early,

Middle, and Late Woodland periods. The testing by Inashima recovered "Popes Creek-like Net Impressed Sherds" which also date to the Early Woodland period.

The newly recorded site, FX 713, contained Early Woodland Pope's Creek ceramics. Unlike the other sites tested it was characterized by a functionally diverse lithic tool kit and had no temporally diagnostic bifaces.

The third site, FX 618, was collected by Judge W. Graham in the middle of the twentieth century, but no record of the collection was found. Testing recovered shell-tempered Mockley sherds and sand-tempered, net impressed (probably Pope's Creek) sherds from, respectively, the Middle and Early Woodland periods.

Collections made by Graham were available for Site FX 604, and revealed a sequence from the Early Archaic through the Late Woodland based on biface lithics. Subsequent archaeological testing recovered Late Woodland pottery of Potomac Creek (A.D. 1300 through the seventeenth century) and Yeocomico (A.D. 1510-1690) wares (Egloff and Potter 1982:112-114).

As indicated above, knowledge of the types of prehistoric archaeological sites and their periods of occupation in the Alexandria area is not very detailed. Very little modern work has been done, and that which has been undertaken has been hampered by the intense development that has

disturbed and/or destroyed sites. The indiscriminate collection of sites, beginning in at least the late 1800s and continuing to the present, is another factor which, by removing many diagnostic artifacts from sites, has hampered their modern study.

3.1.3 Prehistoric Site Locations

It is the purpose of the following section to briefly outline and discuss the factors which are prime indicators for the location of prehistoric sites. These commonly used variables include the presence of water, topography (land form and elevation), and density and diversity of food resources. The area from which specific site and environmental information is drawn is the same area reviewed under Section 3.1.2 (from Four Mile Creek north of Alexandria to Little Hunting Creek south of Alexandria). More general information was drawn from the Middle Atlantic region as a whole.

Archaeological research throughout the Middle Atlantic region has revealed that, while prehistoric sites are found in other settings as well, sites are very frequently found at the confluence of two streams. The Potomac River, which borders the entire area under review, is joined at several points by both large and small streams flowing from the west. Four Mile Creek, Great Hunting Creek, and Little Hunting Creek are the larger streams. Between Four Mile Creek and Great Hunting Creek, the only water course noted on the historic and modern maps reviewed is that at Ralph's Gut, also known as the Orinocco Marsh, at the north end of Alexandria. South of Great Hunting Creek a small stream feeds a marsh.

South of that marsh, there are four intermittent streams and a spring before the mouth of Little Hunting Creek is reached. Of the thirteen sites south of Great Hunting Creek all but three are within 500 feet of an additional water source (Inashima 1985). North of Great Hunting Creek, two sites, AX 53 on Jones Point and the village site on Four Mile Creek, are also at a stream juncture on the Potomac.

Topography is a useful indicator of high and low probability areas for prehistoric site locations because often sites are located on particular landforms in much higher frequencies than on others. Bluffs line most of the shore under consideration, and become increasingly higher from south of Ralph's Gut to Little Hunting Creek. There is a "beach" at the base of the bluffs of varying, but relatively narrow, width. North of Great Hunting Creek, the land inland from the Potomac is a relatively flat, undissected terrace approximately a mile wide and between 10 and 40 feet in elevation. Higher elevations, between 30 and 250 feet, characterize the more heavily dissected inland area between Great Hunting Creek and Little Hunting Creek. This terrain continues inland for at least a mile. While only one water course drains the interior of the land north of Great Hunting Creek, several drain the area to its south.

Only four of the prehistoric sites noted above are known to be located at elevations of 10 feet a.s.l. or lower--AX 53 on Jones Point, the site at the mouth of Four Mile Run, and both FX 31 and FX 723 near the marsh

south of Great Hunting Creek. The other reported sites are on the bluffs at or above 35 feet a.s.l.

The presence of specific food resources or a combination of resources is another important factor affecting site locations. Within this reasonably small area, there are few, but possibly significant, variations in the environment. One source of variability in the available resources is the presence of wetland food resources around the mouth of Four Mile Run, at Ralph's Gut, and at the wetlands south of the mouth of Great Hunting Creek. Besides various plants and animals used for food and raw material that are available year round, these areas attract migratory waterfowl during the spring and fall. It is not known whether these specific wetlands were in existence in the prehistoric past or if, as is more likely, others existed in place of or in addition to the wetlands of today. Inashima (1985) found considerable evidence of shoreline change on historic maps, including both additions to and erosion of the shoreline. Furthermore, as many have pointed out, major changes occurred to the riverine systems at the end of the glacial period as sea level gradually rose. It was not until approximately 4500 years ago that the riverine environment approximated modern conditions.

Another seasonally abundant resource is the runs of anadromous fish. Historic sources mention that some locales were particularly good fisheries. However, historic fishing technology has not been compared to prehistoric technology and, therefore, it is unknown whether these same locales would have attracted prehistoric groups. It is also

uncertain if the prehistoric fishing technology would have been effective everywhere along the river or only in a few restricted locations.

The topographic differences between the area immediately adjacent to Alexandria and the area to its south discussed above may also have affected the available resources for prehistoric peoples. The greater number of streams in the uplands to the south created a fine grained mosaic of upland and riverine resource zones. North, around Alexandria, the uplands are more uniform. The adaptational values of the greater resource diversity in the south is not precisely known because detailed biomass studies have not been performed in the Middle Atlantic region. However, the greater number of habitat zones, even if repetitious, may have created an area of more abundant resources in the south. The concentration of such resources may help explain the larger number of sites (13) found along the shore of the Potomac between the two Hunting Creeks and the two sites found in the Alexandria area.

In summary, this review of the shore-line environment and prehistory of the Potomac River on either side of the project area has documented that sites are associated with stream confluences and are generally at higher elevations adjacent to areas of greater inland environmental diversity. Those sites at lower elevations are adjacent to a specific food resource such as wetlands (FX 31, FX 723, and Four Mile Run) or are at the mouth of a stream (AX 53 and Four Mile Run). It must be pointed out that this analysis is based on the assumption that the historic development of

Alexandria and adjacent land has not biased our understanding of site locations through the destruction or burial of prehistoric sites. While it is uncertain how accurate this assumption is, it is an assumption that must be made. Given this caveat, it can be concluded that the project area itself has none of the characteristics of areas with high probability for prehistoric sites. The project area is adjacent to uplands of relatively less environmental diversity; it has no additional water source joining the Potomac; it is below 10 feet a.s.l.; and it is not adjacent to known wetlands. Accordingly, the project area is predicted to have a low probability for the presence of a prehistoric site.

3.2 Historic Cultural Context

3.2.1 History of Alexandria

The area which is now the City of Alexandria was originally part of a 700 acre tract awarded in a 1654 patent to Margaret Brent, formerly of St. Mary's City, Maryland. The Brent family was the earliest English landholder in this area of Virginia bordering on the Potomac. Margaret, with her brothers and sister, accumulated over 9,610 acres of Virginia land in the mid-seventeenth century. The patent for the tract in which the site of Alexandria was included was reissued in 1662. It was the center of a title dispute in 1669. The land was eventually purchased by a Scottish merchant, John Alexander, for 600 pounds of tobacco. He was, however, required to pay an additional 10,500 pounds of tobacco in 1674 for a clear title (Shomette 1985:16).

In 1682, Cadwallader Jones established a trading post on the point of land which would come to be called Jones Point (Shomette 1985:17). Indian trading soon gave way to the growth of plantation society as large areas of land were settled on both sides of the Potomac. Tobacco and other cash crops raised by these plantations was collected and inspected for shipment at a port designated by the Virginia Assembly in 1724. The site of this port was above the confluence of Great Hunting Creek and the Potomac, where John Alexander, his brother Phillip, and Hugh West had established a settlement. Phillip Alexander's "quarters" were located west of the project area, on the bluffs above the river (Figure 3). In 1732 Hugh West's property became the site for the tobacco warehouse. West's Point was at the foot of modern Oronoco Street, and the location of the warehouse at West's Point was particularly amenable to the growing tobacco trade. The anchorage was the last major one before the fall line of the Potomac, 16 miles upriver, and roads from the west and northwest converged here. The combination of access to the productive interior as well as deep water navigation proved to be important to the future of Alexandria (Shomette 1985, Miller n.d.).

In 1749 the Virginia Assembly passed an "Act for Erecting a Town at Hunting Creek Warehouse in the County of Fairfax." Sixty acres of land were surveyed by John West, with the assistance of his aide, the young George Washington. Like many new towns in the colonies, Alexandria was laid out on a grid pattern, eight streets running east-west intersected by three north-south streets. Point Lumley, now the foot of Duke

Street, formed the southern edge of the town. As Alexandria grew, land was annexed to the north, south, and west. To the east the arc of open water or shoals between Duke and Oronoco Streets was infilled to create more land for wharves and warehouses. Tobacco, and later wheat, formed the economic base for the expansion of Alexandria (Shomette 1985:24).

During the Revolutionary War, Alexandria was spared the destruction of many other cities, and it was a logistical supply center for the continental armies. Alexandria continued to prosper as a seaport after the Revolution, becoming a part of the District of Columbia from 1801 to 1849. Several factors contributed to a period of decline after 1820, including "the 1803-1810 yellow fever epidemics, the Jeffersonian Embargo, a fire in 1810, and the effect of pirates preying on the shipping trade" (Miller n.d.:12).

The town again became a supply center during the Civil War for the Union army. A shipping boom developed after the Civil War, and shipbuilding and shipping goods and supplies continued to grow until after World War I.

3.2.2 Development of the Alexandria Waterfront

As noted earlier, the Alexandria waterfront began as a cluster of warehouses on West's Point, at the foot of the present Oronoco Street. This settlement was referred to as Belhaven, in honor of John Hamilton, the second baron of Belhaven, Scotland (Shomette 1985:23). The first change to the waterfront landscape was the gradual infilling of the area

between West's Point and Point Lumley with additional wharves and warehouses. Infilling also occurred from south of Duke Street to the southernmost point of the waterfront, at the foot of Franklin Street.

Development of the waterfront was undertaken both by private lot owners and the Trustees of the City of Alexandria. Owners of waterfront lots claimed the right to fill in the river and build warehouses. This right was protected by an act of the Trustees of Alexandria:

Every purchaser of riverside lotts [sic] by the terms of the sale was to have the benefit of extending said lotts into the river as far as they shall think proper without any obstruction from Water Street (Miller n.d.:6).

The town agreed to improve the public wharf at West's Point in 1761 and appointed a local builder to keep it in good repair. In 1771 the trustees took over the wharf and began imposing docking fees on ships not doing business at the public warehouse. Most of the cargo at this time was lumber, shingles, and oyster shells (Miller n.d.:7).

In the 1780s Alexandria became a major port in the Middle Atlantic area for the exportation of flour and hemp, and in 1784 it was the only port on the Potomac designated as a port of entry for foreign vessels. During this growth period of 1780-1800 Water (now Lee) and Union Streets were gridded and laid out. The bluffs above the river were cut down and the earth used as fill to create Union Street in the cove between Duke and Oronoco Streets (Miller n.d.:9).

One of the problems facing Alexandria was the increasing sedimentation of its port. The outer part of the bay contained shoals or mud flats, as shown on various early maps of the town (Shomette 1985). The inner harbor began to silt up, and shoaling continued to be a problem into the nineteenth century. Wharves were extended and dredging was attempted, but by 1908 only a few wharves could maintain access to deep water (Shomette 1985:290).

The last major episode of infilling along the Alexandria waterfront occurred during the years 1910-1912, when the Army Corps of Engineers filled in Battery Cove for a shipbuilding site. Battery Cove is located from the foot of Franklin Street south to Jones Point.

The development of the Alexandria waterfront seems to have been typical of most seaports colonized by the English. Infilling and extending substantial wharves into the river as long as there was available room was the pattern of growth at other cities such as Newport, Boston, Norfolk, Philadelphia, and others (Huey 1984:27). New York, with its Dutch influence, began by constructing an ordered series of slips and canals. In the late eighteenth century New York began to conform to the style of waterfront development of other east coast seaports by using projecting piers and wharves.

A distinction should be made between piers, docks, and wharves. The terms are used interchangeably today, but traditionally wharves were solid structures built of wood and filled in with earth and stone.

Piers or docks referred to open structures or platforms on piles (Wilson and Moran 1980:5-6). This difference is indicated in a legislative petition in 1785 by reference to construction of piers and docks in front of the wharf (Keith et al. 1785:4).

Alexandria was typical of other Middle Atlantic and northeastern seaports in its patterns of waterfront expansion as well (Artemel et al. 1985). The waterfront was created during the initial period of growth (1749-1810), after which it stabilized until the period of industrial expansion in the nineteenth century. Alexandria emerged as a major port in the Middle Atlantic area during the eighteenth and early nineteenth centuries, but was eclipsed by larger and more complex seaports after 1830. A revival of shipbuilding after the Civil War brought new life to the waterfront, but it never regained its original importance (Miller n.d.; Cressey et al. 1982).

3.2.3 History of the Project Area

The land on which the project area is situated was created between 1782 and 1785 by riverside lot owners infilling the area to the east of the intersection of South Union and Franklin Streets. The precise location of the original shoreline in the project area is unknown, but early maps (e.g. Figure 3) indicate that it could have projected beyond the present location of Union Street. A petition sent in 1785 to the House of Delegates in Richmond by the property owners describes how James Keith, John Harper, Charles Simms, and Level Powell began to extend Franklin Street four hundred feet into the river, creating a wharf, which came to

be called Keith's Wharf, and their intention to construct "commodious piers and docks in front of their wharf for the reception of shipping" (Keith et al. 1785:4). Apparently, the town of Alexandria had complained to the legislature that the extension of Franklin Street was only 50 feet wide, whereas it was 100 feet wide west of Union Street. The petition cited above is in response to these complaints.

Figure 4, a map published in 1804, shows the town of Alexandria and the names of the wharfs. The reclaimed area at the foot of Franklin Street can be clearly seen. The configuration of this extension is questionable, however, since all subsequent maps in the nineteenth century show a more irregular outline, with less land area than that shown in the 1804 map. Although the reclaimed area could have eroded away in the nineteenth century, it is more likely that the 1804 map depicts an idealized version of the area.

In an 1845 map published by Maskell C. Ewing (Figure 5), the Franklin Street extension onto the wharf is intersected by a cross street, originally called Madison Street in some deeds, but later changed to Strand. The "made land" seen here is contained entirely within the project area. As can be seen from the series of maps in Figures 6 through 8, the outline of the project area remained almost unchanged from the 1840s until the construction of the Ford Plant in 1932. Two piers, however, were extended into the river during the occupation of the site by the Alexandria Marine Railway and Ship Building Works (Figure 8), and extended almost to the eastern edge of the project area.

The area south of the boundary of the original landfill appears to have been created by the 1910-1912 Battery Cove landfill (Figure 9). A 1943 aerial photograph in the City of Alexandria Transportation and Environmental Services Office clearly shows the dividing line between the original wharf fill and the fill deposited in the early twentieth century. In 1932 the Ford Motor Company extended a concrete wharf 300 feet beyond the shoreline into the river, and constructed an automobile shipping and assembly center.

Land use in the project area has been primarily commercial or industrial in nature. However, Phillip Alexander's settlement on the bluffs above the project area shows early residential activity in the vicinity. The first references to the project area document the wharf building in 1785. The Alexandria Gazette reported on September 15, 1785, "a laborer on Messrs. Harper and Keith's wharf lost his life by the falling of the bank". This apparently refers to the bluffs above the river that were being cut down to provide fill for the wharves. A map presented to the Circuit Court of the District of Columbia for the County of Alexandria on March 4, 1804 identifies the wharf at the foot of Franklin Street as Keith's Wharf (Figure 4). In Figure 7, Keith's Wharf is still identified as such in 1841. The only commodity documented as being sold from Keith's Wharf is fish. On March 30, 1804 the Alexandria Gazette reported that the superintendent of police "assign as a place for the sale of fresh shad and herrings, from and after the first day of April next, the wharf of Mr. James Keith, a little to the south of the present harbour of this town..."

A survey of the Alexandria Gazette for three years following this announcement reveals no other advertisements for Keith's wharf. Keith did apply, however, for a license in 1804 "to keep a public ferry from the lower point of his wharf to the opposite shore" (Alexandria Deeds, Liber G, p. 399). All evidence available concerning the activities on Keith's Wharf indicate that it was not as prominent (geographically or economically) as the wharves located on the central waterfront.

The next major period of activity involved the Alexandria Marine Railway Company, incorporated on January 13, 1849, the sixth shipyard in Alexandria. A Marine railway is a

ramp with ties and rails for either launching or hauling a vessel out of the water. A boat is cradled on a carriage that runs on the rails laid on the ramp. The carriage also runs into the water under a boat, and the boat is positioned over it to be lifted by the carriage and pulled from the water (Wilson and Moran 1980:5).

The purpose of the Alexandria Marine Railway was the repair and refitting of all types of vessels. This yard continued to build ships, particularly Potomac longboats, punyboats, and schooners for more than seventy-five years (Tilp 1978:82). All these vessels were primarily local commercial craft.

During the Civil War, the wharf was used as a supply depot for the Union Army Quartermaster Corps (Tilp 1978:181). A shipbuilding slump in the early 1870s predicated the reorganization of the yard. Robert Portner

of Maine became president of the Alexandria Marine Railway and Shipbuilding Company (Figure 8). This company was primarily concerned with the repair of the large coal, ice and stone schooners operating out of Alexandria and Georgetown, but continued to build ships as well (Tilp 1978:82).

In 1880, John Parke Custis Agnew, a coal dealer from Alexandria purchased the yard. The largest ship built at this yard, and the only four-masted schooner built on the river, was the William I. Hart. The Hart was launched in July of 1883 with a carrying capacity of 1500 tons. The cabins were fitted out in oak and red plush, at a total cost of over \$45,000. The first cargo carried by the Hart was a load of coal bound for Providence, Rhode Island (Alexandria Gazette July 13, 1883). In 1883, Agnew and Company advertised in a business directory of Alexandria as "retail and wholesale dealers of coal, with shipping yards at Georgetown, Alexandria and Baltimore" (Brockett and Rock 1883:118). The address in Alexandria was listed as the corner of Franklin and South Union Streets (Figure 10).

The last ship launched from this yard was a 50-foot longboat built in 1917. The company became known as Grover's Railway and prospered during World War I. It survived until 1923, when it was sold to the George Washington Stone Company, who in turn sold the property to the Ford Motor Company (Tilp 1978:83; Alexandria Deeds, Liber 109, p. 70; 195, p. 241).

The Ford occupation of the property, with the construction of an automobile shipping terminal and factory, began the next major phase of activity. In 1942, Ford sold the property comprising the project area to the U.S. Government. The extension to the west end of the Ford plant was built in 1943 by the government, and the complex was used as an annex to the Torpedo Factory. Since World War II, the property has served various government functions, the most recent being as a surplus equipment and records storage facility.

The specific methods by which wharves were constructed in the eighteenth and nineteenth centuries are better known for other east coast cities than for Alexandria. One of the few references to wharf construction in this city is found in the legislative petition of Keith and others, stating that:

...your Petitioners...began to construct a frame to include the street...and are now engaged in filling it in with earth at a very heavy expense (Keith et al. 1785:2)

An advertisement in the Alexandria Gazette for July 12, 1785 by a wharf builder, David Shaon:

...professes also the capability of building a complete pile driver, one being sufficient for the whole place, and recommends the driving of large piles on the outside walls of every wharf, which is the custom in Baltimore even in the Bason [sic]; but is peculiarly suitable here from the steepness with which the channel of Potomack is formed.

The only wharf in Alexandria to be examined archaeologically is the Carlyle-Dalton wharf, which exhibited the crib type of construction documented in many other eastern ports (Cressey, personal communication 1986). This wharf is located at Cameron and Union Streets, in the center of the waterfront.

Two types of construction seem to have been in use in the eighteenth century: cribbing, which consisted of a "rectangular frame of logs or squared timbers notched together horizontally" (Wilson and Moran 1980:4), and a bulkhead system. This is probably the method used by the wharf builder advertising in the Alexandria Gazette. A bulkhead would be constructed using a pile driver to sink vertical timbers, creating a retaining wall for the stone and earth fill (Wilson and Moran 1980:4). It is not known which type of construction was used at Keith's Wharf.

Upriver at Georgetown, the Commissioners of the city specified in a contract for the construction of a wharf in 1762 that:

The outsides...to be hewed logs [sic] 12 inches thick...braced or girded with hewed logs 10 inches thick of 15 feet long and dovetailed into the outsides (Artemel and Mackie 1985:5).

This wharf would have been a crib type.

The substructure of wharves excavated in Newburyport, Massachusetts illustrate both construction techniques. Retaining walls of pilings or boards held fill of earth and ballast stones at the City Wharf, while a

breakwater constructed in 1831 used a wooden crib, floated into place and loaded with stones until it sank (Faulkner et al. 1978:36, 39-40). Crib construction was also used in Baltimore, as documented by the excavations at the Cheapside Wharf (Norman, personal communication 1986).

References to the use of crib construction continue into the early twentieth century, with little change in technology. This method was used in Boston, New York and Salem, as well as in the southern colonies. An early reference to wharf construction comes from William Byrd in 1728, describing a wharf in Norfolk, Virginia:

The Method of building Wharffs [sic] here is after the following Manner: They lay down long Pine Logs, that reach from the Shore to the Edge of the Channel. These are bound fast together by Cross-Pieces notcht [sic] into them, according to the Architecture of the Log-Houses in North Carolina (Wilson and Moran 1980:20).

The practice of using cord wood as fill has been documented in the southern colonies, and seems to be the major difference between the wharves of New England and the south. Stone was more readily available in the north, and consequently was used there more frequently as fill (Wilson and Moran 1980:21).

3.2.4 Historic Land Use Patterns

The primary patterns of land use in the project area were industrial and commercial, with minor amounts of domestic use as well. The initial

land use may have been a possible boat landing, serving at least the domestic needs of Phillip Alexander's "Quarters," pictured in Figure 3. Most of the land contained in the Old Ford Plant project area was originally created about 1785 as a wharf owned and operated by James Keith. Land use at this time was primarily commercial. Use of the site shifted to industrial after 1849, with occupation by the Alexandria Marine Railway and Ship Building Company. A break in its industrial use occurred during the Civil War, when the wharf served as a supply depot for the Union Army Quartermaster Corps. After the Civil War, the property was owned by a series of industrial and marine-related proprietors. The Ford Motor Company ownership from 1931 to 1942 and the subsequent ownership by the U.S Government continued the industrial use of the property.

For convenience, and in the discussion that follows, the historic resources at the wharf can be assigned to the following periods of use: 1) Pre-Wharf (pre-1780s); 2) Keith's Wharf (1780s-1849); 3) Marine Railway and Ship Building I (MRSB I) (1849-1860); 4) Civil War (1860-1865); 5) Marine Railway and Ship Building II (1865-1932); 6) Ford Plant (1932-1942); 7) Federal (1942-present).

The original shoreline in the project area is depicted in Figure 3. The first landfill activity in this location occurred with the construction of the wharf in the late 1780s. The approximate location of the shoreline after the wharf construction is indicated in Figure 9. The next major physical change to the project area took place during the

1910 infilling of Battery Cove, adjacent to the project area. Fill dating to this time period can be seen in Figure 9. The last fill deposited in the project area is connected with the construction of the Ford Plant, and the extension of the wharf under the Ford building.

Although some of the plans relating to the construction of the Ford Plant were found at the Division of Engineering and Design in Alexandria, they did not include information on whether the surface of the property had been either graded, infilled or both. Similarly, no other evidence of land alteration activity on the surface of the wharf was recovered. No maps except one recent city map provided elevation data at a scale sufficient to determine the elevation of the wharf, preventing an analysis of whether the elevation of the surface had changed over time.

4.0 EVALUATION OF POTENTIAL FOR SIGNIFICANT ARCHAEOLOGICAL RESOURCES

4.1 Archaeological Potential

Analysis of the data on prehistoric site location concluded that the probability of a prehistoric site in the project area is low. The identification of potential historic archaeological resources was derived from the documentary and map research. In the paragraphs that follow, the potential resources are reviewed by time period. To more readily accommodate a planning viewpoint, potential historic archaeological resources will be presented in terms of whether they were originally below the surface of the wharf (subsurface resources) or whether they were originally on the surface of the wharf (surface resources).

The first potential subsurface resource to consider is any evidence of activity associated with the pre-1780 period. Evidence from this period could be contained in the fill of the wharf. It is known that the fill of the Carlyle-Dalton Wharf on the central waterfront of Alexandria included artifacts from the earliest period of occupation in Alexandria, and it is possible that a similar situation exists at this wharf.

The source of early period artifacts in the fill of Keith's Wharf could be the occupants of the structures identified as "Phillip Alexander Quarters", possibly situated on the bluff overlooking the wharf (Figure 3). As detailed by Miller (n.d.:9), the bluffs on which the town was built, with their attendant trash deposits, were a major source of fill

for the central wharf area. The same is at least partially true for the southern waterfront. A similar process of cutting down the bluff for use as the fill of Keith's Wharf was documented by the Alexandria Gazette notice, referred to earlier, of a bank falling on a worker during the construction of Keith's Wharf. Such archaeological deposits from the pre-1780 period are very rare in Alexandria (Cressey 1986: personal communication), perhaps because they became part of the fill used to create waterfront land.

Generally, it is more effective and efficient to study a particular period through deposits which have not been removed from their original context. However, in a case such as this, where other data are very scarce, fill deposits can provide important information on the economy of the city that can be compared with material from other periods.

The subsurface resource most likely to exist at the site is the framework of the wharf itself. Evidence for the technique of its construction may be found in several places if a crib technique was used. If the bulkhead system was used, evidence would only be found along the edge of the wharf. The reason for the angled, rather than the square, configuration of the south edge of Keith's Wharf is unknown. Since the crib system would have been installed in rectangular units, such an angle may imply the use of the bulkhead system.

The last type of potential subsurface resource includes the artifacts that may have been deposited in the silt along the edge of the wharf.

If present, the artifacts from such deposits could potentially reveal information about activities on the wharf and about trade patterns during the Keith's Wharf period, and possibly during the MRSB and Civil War periods as well. It is a common phenomena to find material in the silt on river bottoms, including ballast and artifacts from ships, as well as artifacts relating to activities that took place on the wharf (Huey 1984). Such artifacts from the late 1700s and early 1800s have been found in Potomac River silt across the river from Alexandria in Maryland (Shomette 1986: personal communication). However, certain events occurred in the 1880s which may have resulted in the removal of these deposits in the project area through dredging.

The wreck of a barge in 1889 contributed to a permanent change in the hydrology of the Potomac River (Shomette 1985:280) by diverting the current. The Alexandria waterfront began to silt considerably faster than previously. This change may have begun earlier since private wharf owners were dredging the areas next to their wharves as early as 1875 (Shomette 1985:282). Shomette (1986: personal communication) has suggested that the east side of the Old Ford Plant Wharf, and probably the south side as well, would certainly have been dredged. Thus, most artifacts in the silt may have been removed before the south side of the wharf was covered by the filling of Battery Cove.

Potential surface resources would date to the Keith's Wharf (Figure 6) and to the MRSB II (Figures 8 and 10) periods. It is possible that the

configuration of structures and features in MRSB II are the same as in MRSB I, but no maps from that period contain structural information.

A structure located on an 1836 map produced by the Topographical Engineering Department of the U.S. Army (Figure 6) is the only building documented during the Keith's Wharf period (1780s-1849). The location of this building was at the eastern end of the wharf, approximately under the western end of the 1932 Ford building. Depending on the extent of disturbance from construction of the Ford building, evidence of this structure may still be extant. However, since the proposed development does not include removal of the Ford building and would not affect evidence of the structure, it is not considered further.

Although various deeds suggest Keith's Wharf was divided by streets and alleys, additional structures dating from the wharf period have not been documented. No information has been found which suggests that such structures existed. The deeds concerning the lots in the project area do not describe any building situated there. A nineteenth century directory for Alexandria (Boyd 1934) does not contain listings for either residences or businesses in the project area or the surrounding blocks, suggesting that the area was not developed to any extent until later in the nineteenth century.

Military resources might also be present on the property, dating from the use of the wharf during the Civil War. No structures erected during

this period are documented, although very little information exists for this time period of use.

Potential resources dating from after the Keith's Wharf period may include those related to shipbuilding after 1849. There is no map for this time period, but the arrangement of wharf features may have been similar to those noted on the 1877 Hopkins' map (Figure 8). On this map several shipways are visible on the northeast and southeast portions of the wharf. Several other structures also existed during this period, including a rectangular building along the north edge of the wharf, two small structures along the western edge of the property at Union Street, a rectangular building between the shipways at the northeastern end of the wharf, and a rectangular building with an addition in line with Franklin Street to the east of Union Street. Of these, the three structures and shipways on the north half of the wharf (Figures 8 and 10) are completely under the Ford Plant. These will not be affected by the project and will not be considered further.

Shipbuilding activity in the last decades of the nineteenth century included railroad tracks extending out onto one of the piers, marine railways, and several small service buildings (Figure 10). The small service buildings and sheds are aligned along the eastern edge of Union Street.

In summary, potential subsurface resources include: 1) artifacts in the fill of the wharf from the pre-wharf period and 2) the structure of

Keith's Wharf itself which is located either on the south side of the wharf or throughout all areas of the wharf, depending of the wharf construction techniques.

Potential surface resources include several structures from the Marine Railway and Ship Building II period. These resources are located in two areas. Although the marine railway does not appear on the 1877 map (Figure 8), there can be little doubt, since the firm at that time used the words "Marine Railway" in its name, that it existed then as well. First, one or two buildings were located on the south side of the wharf in 1891 with a marine railway and a shipway (Figure 10). The major structure in this case can be identified as the engine room which housed both the engine and the capstan which pulled the ships out of the water, along the marine railway, and onto the shipway. Second, a series of structures along Union Street are depicted in 1891 (Figure 10). These are identified as an office and storage sheds for shipbuilding supplies. Only one structure, in a similar location but of unidentified function, appears on the 1877 map (Figure 8).

4.2 Evidence of Previous Disturbance

The most obvious evidence of previous disturbance of potential historic archaeological resources is the Ford Plant and the Federal building. As indicated previously, those structures under the Ford Plant are outside of the potential impact area. However, if the Federal building is removed, that area would be included in the potential impact area.

Of the potential resources on the south portion of the wharf, the shipway and most if not all of the Marine Railway have probably been destroyed by, from east to west, the boiler building, quonset huts, subsurface tanks noted on the 1941 Sanborn map, and modern subsurface tanks. The historic engine room structure has not been affected by any known major disturbances. A railroad siding constructed through that area (Sanborn 1941) passed just to the southeast of the structure. It is possible that the row of structures along Union Street was disturbed by the construction of the 1943 Federal building.

Subsurface resources would also have been affected by the construction of the Federal building. Drawings in the Engineering and Design office of the City of Alexandria show that it was on piles; these piles would have penetrated into the fill, possibly destroying sections of the wharf structure. The construction of the boiler building would have had similar effects on the subsurface resources. An additional source of disturbance may have been the placement of the underground tanks which would have impacted the fill, and possibly the structure, of the wharf.

Potentially important resources most likely to be preserved are those in the fill of the wharf, and in sections of the wharf's internal structure. On the surface, the historic engine room structure, the office, and the storage sheds have a medium probability of being preserved. The area in which these latter potential resources may be located is depicted in Figure 9. Their degree of preservation depends on the amount of surface alteration that was undertaken when the Ford

Plant and the Federal building were built. These activities were not recorded.

4.3 Potential for Significant Archaeological Resources

According to the criteria established for the evaluation of significance pursuant to a determination of eligibility for the National Register of Historic Places (36 CFR 60):

The quality of significance in American history, architecture, archeology, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:

A. that are associated with events that have made a significant contribution to the broad patterns of our history; or

B. that are associated with the lives of persons significant in our past; or

C. that embody the distinctive characteristics of a type, period of method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

D. that have yielded, or may be likely to yield, information important in prehistory or history.

Archaeological sites in the urban environment are most frequently considered significant in accordance with Criterion D of the National Register because their further study may address current research questions and provide information not readily obtainable elsewhere. Less frequently, urban sites may also be considered significant because

of their historical or cultural associations as defined by Criteria A, B, or C of the National Register.

The determination of scientific significance, Criterion D, with regard to archaeological resources involves both a theoretically-oriented evaluation of current research questions as they apply to the study area in question and a substantive evaluation of the degree to which predicted resources can provide viable analytical data from which the desired results can be obtained. A series of important research questions have been established by Alexandria Archaeology, Office of Historic Alexandria, through a model for the archaeological investigation of changes in urban stratification (Cressey 1983). The model focuses on the causes of change as expressed in the manifestation of settlement and consumer behavioral patterns.

In a survey of Alexandria's politico-economic sectors from 1770 to 1890, three major analytical periods emerged. These are: Mercantile Capitalism (mid-eighteenth century), Indigenous Commercial Capitalism (late eighteenth to mid-nineteenth century), and Industrial Capitalism (mid-late nineteenth century to early twentieth century) (Cressey *et al.* 1982:147).

The research problems of urban stratification and differentiation, and the subsequent differentiation of artifact patterns, has been addressed in Alexandria for the second and third periods defined above. The first period, Mercantile Capitalism, might possibly be represented in the

project area through artifacts in the original wharf fill. Since the initial infilling activity in the project area was restricted to the end of the first period of Capitalism, artifacts predating the wharf construction could allow comparisons among all three of the above economic periods. It should be noted that such fill is frequently not considered a significant resource, since its contents are not in their original context. However, fill deposits, especially those associated with waterfront areas, have recently become a center of research interest as witnessed by the May, 1986 conference, "Archaeological Investigations of Landmaking in New York City". Information obtained from such fill deposits have been used to study land engineering methods, including dating and rates of infilling, the economic arrangements necessary for extending land into the water, and comparative studies of European/American wharf-making procedures (Geismar 1983; Huey 1984; Rockman et al. 1983).

Additional information on activities associated with the city itself may be identified from artifacts in the fill. Such studies have focused on waterfront activities and trade patterns (Geismar 1983; Huey 1984). The effectiveness of this kind of study depends on the location from which the fill was taken, the contents of the fill, and the research problem identified. Such a study is aided when fill deposits are from a restricted period, as is probably the case here.

Part of the Alexandria urban archaeological model addresses the sectoralization and differentiation processes. As industrialization and

capitalism led to increasing differences in wealth and power between groups, such groups became separated from each other physically (sectoralization) to prevent conflict, and consumer behavior began to diverge (differentiation) as the gulf between groups became larger (Cressey 1983:10). Another factor in sectoralization is the increasing separation of industrial, residential, and commercial activities. The process of sectoralization is described using a Core-Periphery Schematic, showing a central core where wealth and power are concentrated, ringed by semi-periphery and periphery areas. Groups in urban areas can be placed within this model, and viewed on the basis of "distance-from-center" as well as "distance-from-power" (Cressey 1983:11).

The project area has continually been located in the periphery, with a brief inclusion in the semi-periphery around 1850 (Cressey et al. 1982). Even when the wharf was first constructed in the 1780s, it was considered to be outside the central harbor of the town. The only other Alexandria wharf to be examined archaeologically is the Carlyle-Dalton wharf, located at the center of the waterfront. A comparison of wharf construction and fill techniques between the central waterfront and the periphery would provide important information on the similarities and differences between the two wharves. Such a comparison could inform our understanding of the development of the waterfront in both the center and the periphery of Alexandria. Potential remains of Keith's Wharf within the project area may provide such an opportunity.

In Alexandria the change from Commercial Capitalism to Industrial Capitalism occurred around the mid-nineteenth century (Cressey 1983:10). This coincided with the change in use of the project area in 1849, with the beginning of the Marine Railway period. Although the use of the project area remained the same through the Industrial Period, information on changing technologies used in shipbuilding may be extant in the archaeological record. Such evidence would contribute to an understanding of an important Alexandria industry in the last half of the nineteenth century, this being the industry that produced the ships that were the mainstay of commercial transportation on the river.

In summary, if archaeological resources are present in the project area, they have the potential to provide information on a number of important research questions including, but not necessarily limited to, the following:

- What information do artifacts from the Mercantile Capitalism period which may be in the wharf fill provide about differences between that period and the two succeeding ones?
- What specific technologies were used to create the eighteenth century wharf, in terms of both structural and infilling techniques?
- How do these techniques compare with those used at the Carlyle-Dalton wharf, located in the center of the waterfront, and what do they reveal about the economic differences between the central waterfront and its periphery?

- What do the shipbuilding remains reveal about changing technologies and land use during the industrial period?

5.0 EVALUATION OF POTENTIAL EFFECTS OF PROPOSED DEVELOPMENT

5.1 Anticipated Construction Activities

The precise types and locations of construction activity cannot be discussed because specific plans for the project have not been finalized. However, information from the developer's agent (Artemel 1986) suggests that certain kinds of ground disturbing activities may be likely or necessary. For example, it is likely that the wharf surface will be prepared for construction through the removal of the current surfacing material and possibly, since it is not level, through grading. Currently, it is anticipated that new structures will have pile foundations and that ditches will be excavated for the underground utilities. Additionally, a marina may be constructed in the area of the extant boiler building. During this activity, a rectangular area will be removed from the original wharf and the fill placed at the southeast corner of the property to create a more regular shoreline.

5.2 Potential Effects

A potential direct effect may result from the sealing of any significant cultural resources below the new construction (Larson 1986), such as occurred on the north half of the wharf when the twentieth century buildings were constructed. Additionally, surface resources (Figure 9) may be disturbed through the preparation of the surface of the site for construction and possibly through the excavation of utility trenches.

Predicted subsurface resources may also be disturbed by the placement of piles, the construction of a marina, and the excavation of utility trenches. In light of current knowledge of the proposed development, it can be predicted that the piles may impact only small areas in the wharf fill. The effect of the piles on evidence of wharf construction technology will depend on whether the crib or bulkhead method was used. If a bulkhead had been placed around the perimeter of the wharf, the only part that may be affected would be where the proposed pile system intersected the bulkhead. If the cribbing system were used, it is likely that a larger number of piles would intersect and affect the wooden framework. Obviously, the extent of disturbance would also depend on the number and size of piles. Current plans for the construction of a marina in the area of the boiler building will also result in the disturbance of the wharf structure and the fill of the wharf.

Utility trenches are likely to disturb the fill of the wharf. Depending on their depth, they may mix distinct fill layers, thereby destroying the stratigraphy of the site. Depending on the nature of wharf construction, the utility trenches may disturb substantial sections of that particular resource, or may have little effect upon it.

This discussion of potential effects is based on currently available information on proposed construction. The actual effects will depend on the presence or absence of significant resources and the design and kinds of construction techniques ultimately implemented.

6.0 SUMMARY AND RECOMMENDATIONS

6.1 Summary

A review of existing literature and the preparation of models of historic and prehistoric site locations have demonstrated that potentially significant cultural resources may exist in the project area. These may include both surface and subsurface historic archaeological resources. No prehistoric resources are known for the area and the probability that any exist is low. Any surface historic resources are probably restricted to the Marine Railway and Ship Building II period (possibly MRSB I as well), and are limited to specific locations on the surface of the wharf. The subsurface resources are not as localized, and probably date from the Pre-Wharf, Keith's Wharf, and MRSB I and II periods.

6.2 Recommendations and Planning Considerations

Since the preceding analysis has indicated that the project area has the potential to contain significant archaeological resources, it is recommended that the first priority, before the project design is finalized, is to conduct a Phase II evaluation in consultation with the State Historic Preservation Officer (SHPO). The purpose of the evaluation would be to confirm or refute the existence of significant resources and to determine their eligibility or ineligibility to the National Register of Historic Places. In conducting such an evaluation, it would be necessary to establish three points: 1) the integrity of extant archaeological resources, 2) the boundaries of the resources,

and 3) the significance of such resources in light of the National Register criteria. The resultant data would provide a basis for the SHPO to determine the National Register eligibility of archaeological resources within the project area.

If it is found that no significant archaeological resources are present in the project area, or that they do not possess integrity, then no additional consideration of archaeological resources would be necessary. If significant cultural resources eligible for the National Register do exist, a determination of effect would be made in consultation with the SHPO. The effects a proposed undertaking will have upon a cultural resource are determined by both the distinguishing elements of the resource and the design and consequence of the undertaking. Effects to cultural resources are evaluated with regard to Criteria of Effect and Criteria of Adverse Effect established by the Advisory Council on Historic Preservation (36 CFR 800.3). An undertaking is considered to have an effect if it "causes or may cause any change...in the quality of the...characteristics that qualify the property to meet the criteria of the National Register" (36 CFR 800.3[a]). Since effects are based upon characteristics which contribute to the significance and National Register eligibility of a property, effects occur only to properties which are eligible for the Register.

Effects may include positive or negative changes and may be direct or indirect. Direct effects are often construction related and occur at the same time and place as the undertaking. Indirect effects are

normally long term or further removed from the project in time and space. Adverse effects occur when the project results in detrimental changes, either direct or indirect, to a Register-eligible property's significant historical, architectural, archaeological, or cultural characteristics.

One option for obtaining a determination of "No Adverse Effect" is to design the project so that there are no, or minimal, direct or indirect effects. If this is not feasible, a "No Adverse Effect" determination can be achieved through the implementation of a professionally adequate research design which would recover information from the resources to mitigate the effect of the undertaking.

The approach recommended above is routinely applied in situations such as the current one and is in keeping with regulations of the Advisory Council on Historic Preservation (ACHP) (36 CFR 800.4). This approach allows it to be known before construction what level of effort will be sufficient to meet applicable responsibilities under the cultural resources legislation and regulations. Furthermore, the information gathered by the Phase II operation will allow effective planning so that construction schedules are not impacted.

Another option for obtaining a determination of "No Adverse Effect" may be through a Memorandum of Agreement (MOA) between the developer, usually a Federal Agency, but occasionally a private corporation or individual, the SHPO, and the ACHP. Such an agreement would allow the

project to proceed directly from Phase I (location and identification) to Phase III (data recovery). However, in Virginia this usually only occurs if a site is obviously eligible to the National Register of Historic Places and does not require additional work to document its boundaries, depth, integrity and ability to contribute information on important problems in history or prehistory (Larson 1986). A "No Adverse Effect" determination is awarded in such a case when the developer commits the resources to produce and implement a professionally adequate research design.

In summary, the first approach, the Phase II testing and evaluation of the potential archaeological resources, is recommended. Federal regulations (36 CFR 800.4(3)) require that each site be evaluated for eligibility to the National Register. Phase II evaluative testing is necessary to determine eligibility, to identify more precisely the effect of the development, and to more appropriately determine, if necessary, efficient mitigation strategies and techniques.

The reasons for the recommendation are two fold: 1) A Phase II operation will provide sufficient information to plan for avoidance, preservation, or mitigation of extant and eligible archaeological resources, if any are indeed present within the project area. Such a plan can be integrated into the development and construction schedule to avoid or minimize any impact on the schedule. 2) Since no subsurface testing has been undertaken to determine the presence or extent of possible archaeological resources, the data necessary for a consensus

determination of eligibility or an adequate data recovery program are not available. Without this information, it seems unlikely that a Memorandum of Agreement would be negotiated.

6.3 Recommended Phase II Testing and Evaluation Program

One of the goals specified in the Scope of Work was to provide an "acceptable field research design" for possible Phase II evaluative testing. The Phase II significance evaluation should address the following potential resources through both site-specific historical research and archaeological field testing: 1) the two areas with surface structures, now below ground, 2) the wharf structure, and 3) artifacts in the fill of the wharf. The general policy of the State Historic Preservation Office is to evaluate the significance of resources that may be sealed by modern construction in order that the effects of the project can better be determined (Larson 1986).

Since the current asphalt parking lot effectively masks any evidence of earlier structures, it is recommended that placement of test excavations to evaluate the specified resources adequately should be based upon information from the existing map research. Test units should be trenches of variable length and width depending both on scientific and safety considerations. The initial step in the excavation process should be the removal of the asphalt parking lot in the trench locations with a backhoe. Machine excavation should proceed until features or deposits requiring hand excavation are encountered. The engine house area should be tested with a trench oriented north-south through the

structure. The row of structures along Union Street should be tested with one excavation through the office and one through the shed area, north of the office.

Two loci should be the focus of the testing of subsurface resources. Both could provide information on wharf construction and artifact content of the fill. Two trenches should be located perpendicular and adjacent to Union Street in an attempt to determine the presence of deposits from the pre-1780 period. The area closest to the shore would have been filled in first and may contain fill from the bluffs. The second area should also have two trenches, these located perpendicular to the southern edge of the wharf in order to locate and define its nature. This fill should also be examined for artifactual evidence from the early period of Alexandria's history.

It is not practical to recover all artifacts from the large volume of earth which should be excavated in these operations. However, samples of artifacts should be collected from each stratum to identify its date and composition. Wet sediments should be water screened to enhance the recovery of artifacts. All artifacts recovered should be properly provenienced as to horizontal location and natural or cultural strata and features. The stratigraphic profile of each trench should be recorded and the texture and color of the soils described according to standard textural class names (e.g. Olson 1976), and Munsell soil color chart designations.

Artifacts should be cleaned according to their nature and their state of preservation. Stone, ceramic, glass, bone and shell artifacts whose surfaces are stable should be gently washed in warm water. Items of the above material classes whose surfaces are not stable, as well as metal items, should be dry brushed. Organic artifacts that are water logged, such as leather, bone, wood, and shell should be kept damp or field stabilized until preservation measures can be implemented in the laboratory. All materials should be classified by time period, material, and function, where possible.

An appropriate repository for the artifacts is the Alexandria Archaeology Office of Historic Alexandria. The AAO is a recognized repository which conforms to state and federal curation standards. The artifacts should be prepared for curation in a format compatible with that used by the AAO, and a state site form should be completed and registered with the AAO and the Virginia Research Center for Archaeology.

It is anticipated that the report of the Phase II investigations would be approximately 50 pages in length and would fully document the purpose, theoretical framework, previous research, methods, and results of the investigation. It is further anticipated that the final report would include, but not necessarily be limited to, the following elements:

- an executive summary or abstract including specific identifications of significant areas and recommendations
- a statement of the theoretical framework of the investigation
- a summary of the historical research and comparative information to provide a context for evaluating significance
- a review of research questions which may be addressed by the resources.
- a detailed description of the field and background research methods and their applicability
- a discussion of the results, including a review of the stratigraphy of each test area, construction details of the wharf, and artifact analysis
- an evaluation of the significance of the resources
- recommendations concerning resources requiring further investigation, preservation or mitigation
- a complete list of references and individuals consulted
- photographs of important features and artifacts
- maps of excavation units and artifact locations
- measured profiles of excavation units and features, as appropriate

In conclusion, the historical research undertaken for this investigation has indicated that the developmental history of the Old Ford Plant property both parallels and contrasts with the land use patterns of other wharves in the center of Alexandria. The research also suggests the presence of potentially significant archaeological resources which may reflect this development. Accordingly, it is recommended that Phase

II testing and significance evaluation be undertaken to determine the existence and extent of the predicted archaeological resources and to determine their eligibility or ineligibility to the National Register of Historic Places.

7.0 REFERENCES CITED

Alexandria Gazette

July 12, 1785
September 15, 1785
March 30, 1804
July 13, 1883

Anonymous

- 1746 Plat in Fairfax County Book of Surveys, Fairfax County Courthouse. Scale unknown.
- 1804 Plan of Alexandria in the Territory of Columbia, State of Virginia. Alexandria Deeds, Liber E/2, p. 269.
- 1841 Chart of the Head of Navigation of the Potomac River (detail). In: Cartography of Northern Virginia, by Richard Stephenson, 1981. Office of Comprehensive Planning, Fairfax County, VA.

Artemel, Engin

- 1986 Personal communication. Representative, Cook Inlet Region, Inc.

Artemel, Janice, Andrea Heintzelman-Muego, Margaret Orelup, and Barbara Cumberland

- 1984 Bank Street Waterfront: New London, Connecticut. Report prepared for the U.S. Department of Transportation, Federal Railroad Administration. Engineering-Science, Inc., Washington, D.C.

Artemel, Janice and Norman Mackie

- 1985 Georgetown Waterfront Park: Archeological Overview and Assessment, Phase I. Report prepared for National Park Service, National Capitol Region and Washington Harbour Association. Engineering-Science, Inc., Washington, D.C.

Boyd, William

- 1834 Boyd's Directory for 1834: A Full Directory for Washington City, Georgetown, and Alexandria. E.A. Cohen and Co., Washington.

Brockett, F. L. and George W. Rock

- 1883 A Concise History of the City of Alexandria, Virginia from 1669 to 1883, with a Directory of Reliable Business Houses. Alexandria Gazette, Alexandria.

Carbone, Victor A.

- 1976 Environment and Prehistory in the Shenandoah Valley. Ph.D. Dissertation, Catholic University of America, Washington, D.C.

Cheek, Charles D., Amy Friedlander, and Cheryl A. Holt

- 1983 A Phase II Investigation of the Prehistory and History of Five Sites in St. Mary's County, Maryland. Prepared for Southern Maryland Electric Cooperative, Inc. Soil Systems, Inc., Alexandria.

Cheek, Charles D., Amy Friedlander, and Robert A. Warnock

- 1983 Phase I Archaeological Investigation of National Park Service Lands in the Vicinity of Chain Bridge, District of Columbia and Virginia. Prepared for Arlington County, Virginia, Department of Public Works. Soil Systems, Inc., Alexandria.

Cheek, Charles, Richard Meyer, and Karyn Zatz

- 1986 A Phase I Cultural Resources Investigation of the Proposed Widening of Route 236, Duke Street, City of Alexandria, Virginia. Report prepared for Tibbets-Abbett-McCarthy-Stratton. John Milner Associates, Inc., Alexandria, VA.

Cressey, Pamela J.

- 1983 Sharing the Ivory Tower. In Approaches to Preserving a City's Past. Alexandria Urban Archaeology Program, City of Alexandria, VA.

- 1986 Personal communication. City of Alexandria Archeologist.

Cressey, Pamela J., John Stephens, Steven J. Shepard, and Barbara H. Magid

- 1982 The Core-Periphery Relationship and the Archaeological Record in Alexandria, Virginia. In Archaeology of Urban America: The Search for Pattern and Process, edited by Roy S. Dickens, Jr., pp. 143-173. Academic Press, New York.

Custer, Jay F.

- 1984 Delaware Prehistoric Archaeology: An Ecological Approach. Associated University Presses, Cranbury, New Jersey.

Egloff, Keith T. and Stephen R. Potter

- 1982 Indian Ceramics from Coastal Plain Virginia. Archaeology of Eastern North America 10:95-117.

Ewing, Maskell C.

- 1845 Plan of the Town of Alexandria, District of Columbia with the Environs. Library of Congress, Geography and Map Division. Scale: 1":300'.

Faulkner, Alaric, Kim Mark Peters, David P. Sell, and Edwin S. Dethlefsen

- 1978 Port and Market: Archeology of the Central Waterfront, Newburyport, Massachusetts. Report prepared for the National Park Service, Interagency Archeology Services, Atlanta.

Feest, Christian F.

- 1978 Virginia Algonquians. In Handbook of North American Indians: Volume 15 Northeast, edited by Bruce G. Trigger, pp. 253-270. Smithsonian Institution, Washington, D.C.

Gardner, William M.

- 1980 Subsistence-Settlement Strategies in the Middle and South Atlantic Portions of the United States During the Late Pleistocene and Early Holocene. Paper read at the American Anthropological Association Meetings, Washington, D.C.
- 1982 Early and Middle Woodland in the Middle Atlantic: An Overview. In Practicing Environmental Archaeology, edited by R. W. Moeller, pp. 53-86. American Indian Archaeological Institute, Occasional Papers, No. 3.

Geismar, Joan H.

- 1983 Landfill. In The Archaeological Investigation of the 175 Water Street Block, New York City. Joan H. Geismar, Principal Investigator, Tower 56, 126 East 56th Street, New York. Professional Services Industries, Inc. Soil Systems Division. MS on file, New York City Landmarks Preservation Commission.

Henry, Susan L.

- 1983 An Integrative Survey for Research and Preservation. In Approaches to Preserving a City's Past, pp. 21-32. Alexandria Urban Archeology Program, City of Alexandria.

Hopkins, G. M.

- 1877 Alexandria, Virginia. Hopkins Map Co., Philadelphia.

Huey, Paul R.

- 1984 Old Ship and Cruger's Wharf at New York: An Archeological Perspective of the Colonial American Waterfront. Historical Archaeology 18(1):15-37.

Humphrey, Robert L. and Mary Elizabeth Chambers

- 1975 Ancient Washington: American Indian Cultures of the Potomac Valley. George Washington Studies, No. 6. Washington, D.C.

Inashima, Paul Y.

- 1985 Archeological Survey Report: An Archeological Investigation of Selected Construction Locales Along the Mount Vernon Memorial Highway. Denver Service Center, Northeast Team, National Park Service, Seneca, Maryland.

Johnson, Michael F.

- 1981 A Cultural Resource Management Model for Fairfax County, Virginia, Prehistory. Paper on file at the Fairfax County Archaeological Survey, Office of Comprehensive Planning, Fairfax, VA.

Keith, James, Charles Simms, John Harper, and Level Powell

- 1785 Legislative Petition filed with the House of Delegates, Richmond, November 15, 1785. On file at the Alexandria Library Lloyd House.

Larson, Bruce

- 1986 Personal communication. Senior Review and Compliance Coordinator. Virginia Division of Historic Landmarks, Virginia Research Center for Archaeology.

LeeDecker, Charles H. and Amy Friedlander

- 1984 Archeological Survey of a Proposed Bike Path, Foot Path and Soccer Fields at Jones Point Park, Alexandria, VA. Prepared for the City of Alexandria. The Cultural Resource Group, Louis Berger and Associates, Inc., Washington, D.C.

Miller, T. Michael

- n.d. A Brief History of the Alexandria Waterfront. Manuscript on file at the Alexandria Library Lloyd House.

Mooney, James

- 1889 Indian Tribes of the District of Columbia. American Anthropologist 2(O.S.):259-266.

Norman, Gary

- 1986 Personal communication. Archeologist, Baltimore Center for Urban Archaeology.

Olson, Gerald W. (compiler)

- 1976 Criteria for Making and Interpreting Soil Profile Descriptions: A Compilation of the Official USDA Procedure and Nomenclature for Describing Soils. Kansas Geological Survey, Bulletin 212. University of Kansas Publications, Lawrence.

Potter, Stephen R.

- 1980 A Review of the Archaeological Resources in Piscataway Park, Maryland. National Park Service, National Capital Region, Washington, D.C.

Powell, Benjamin B.

- 1963 Archeological Base Map, Part of the Master Plan, National Capital Region, National Park Service, National Capital Region, Washington, D.C.

Proudfit, Samuel V.

- 1889 Ancient Village Sites and Aboriginal Workshops in the District of Columbia. American Anthropologist 2(O.S.):241-246.

Rockman, Diana, Wendy Harris, and Jed Levin

- 1983 The Archaeological Investigation of the Telco Block, South Street Historic District, New York, New York. Soil Systems, Inc. MS on file, New York City Landmarks Commission.

Sanborn Map Company

- 1891 Alexandria, Virginia, Alexandria County. Sanborn Perris Map Co., Ltd., New York.
- 1941 Alexandria, Virginia. Sanborn Map Co., New York.

Shomette, Donald

- 1985 Maritime Alexandria. Report prepared for Alexandria Archaeology Research Center.

1986 Personal communication. Private consultant and Marine Archeologist.

Stoessel, John

1969 The Port of Alexandria, Virginia in the 18th Century, Dissertation submitted to Catholic University Graduate School, Washington, D.C.

Tilp, Frederick

1978 This Was Potomac River. Privately published, Alexandria, VA.

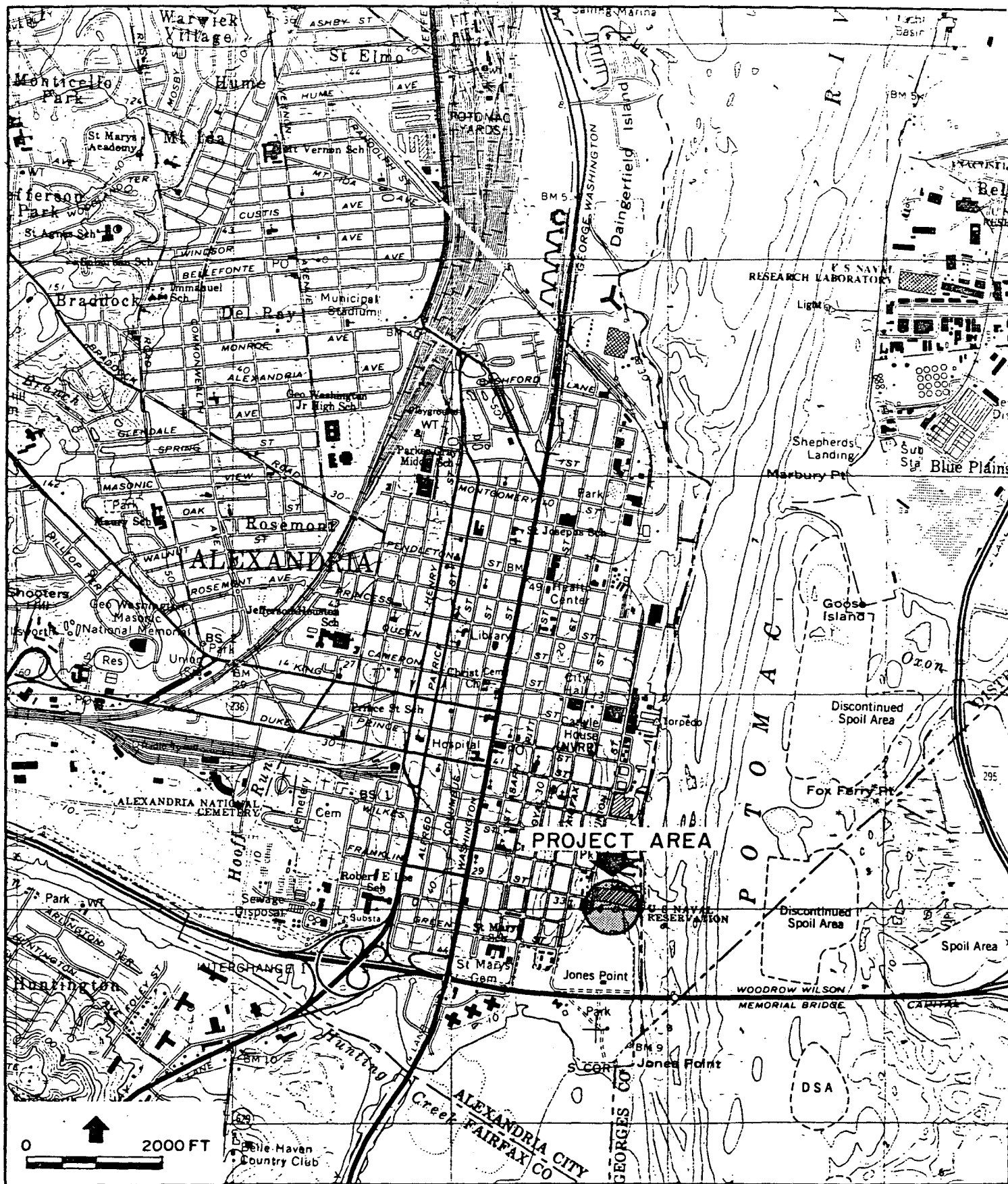
U.S. Army, Topographical Engineer Department

1836 Map of the Potomac and Anacostia Rivers Between Washington, D.C. and Alexandria, VA (detail). In Shomette, 1985.

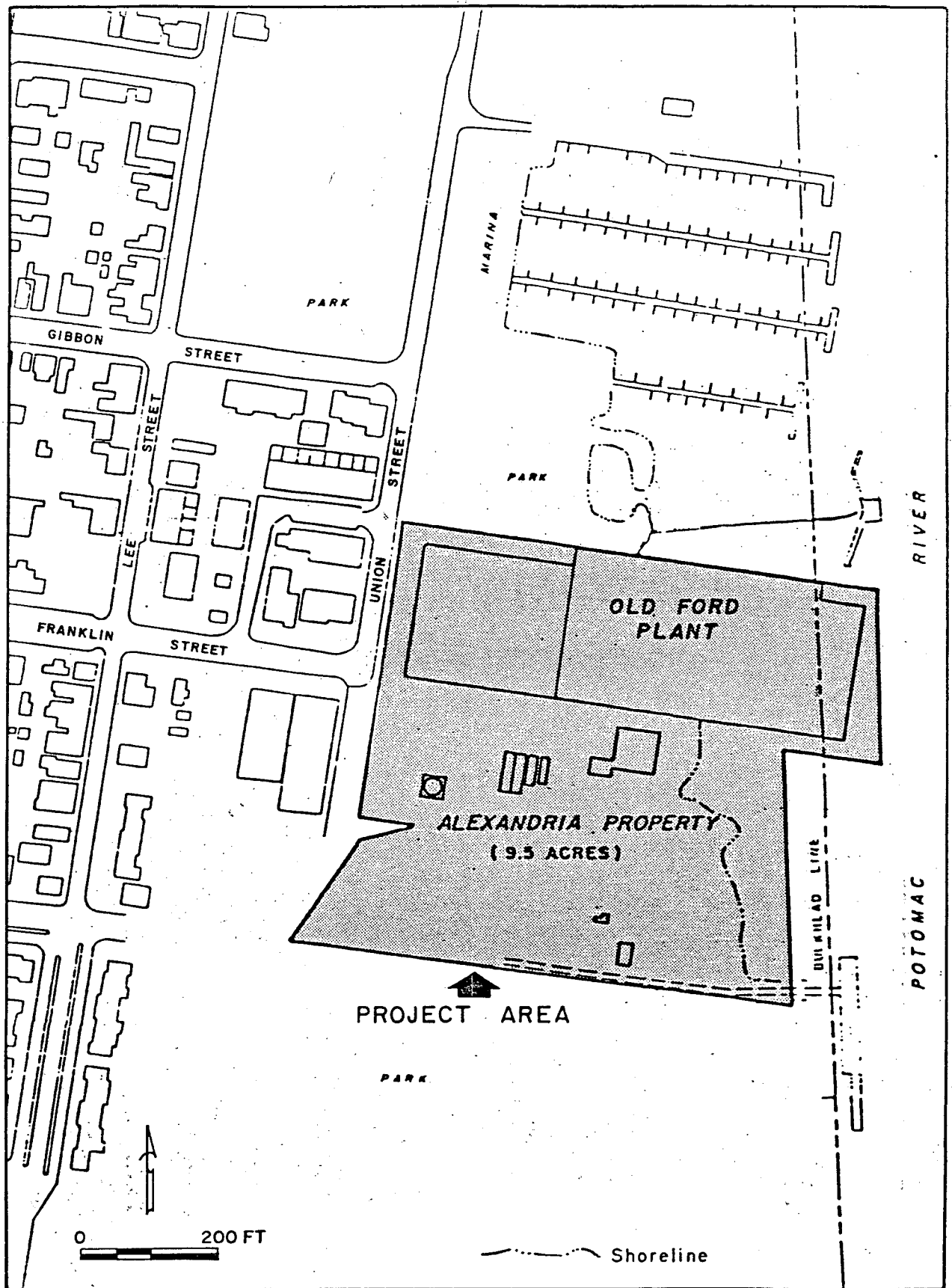
Wilson, Merrill Ann and Geoffrey P. Moran

1980 Historic Structure Report: Central Wharf, Salem Maritime National Historic Site. Report prepared for the National Park Service, Denver Service Center, Denver, Colorado.

FIGURES



Project Location
U.S.G.S. 7.5 Minute Series
Alexandria, VA-DC-MD Quadrangle
1983 Photorevised Edition

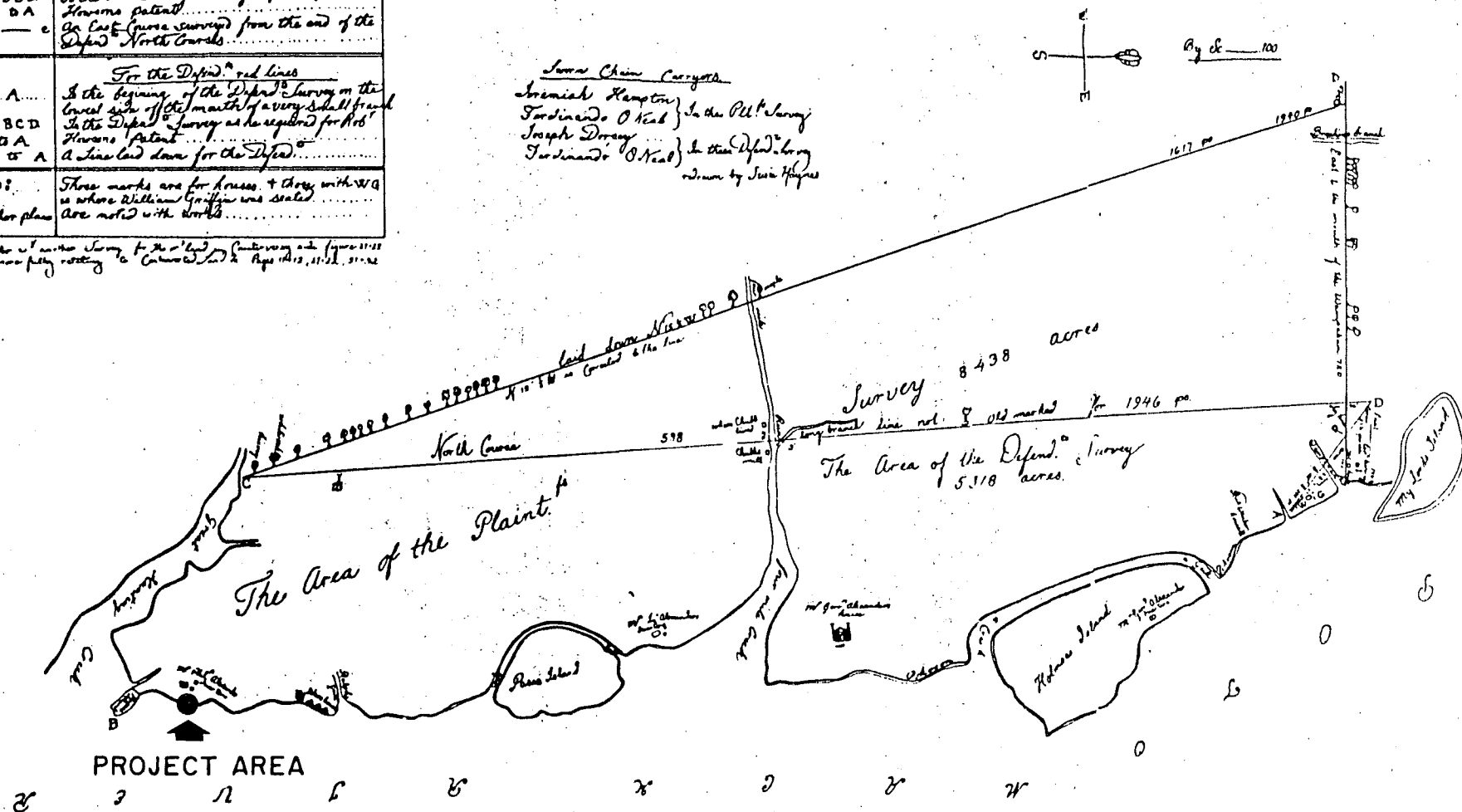


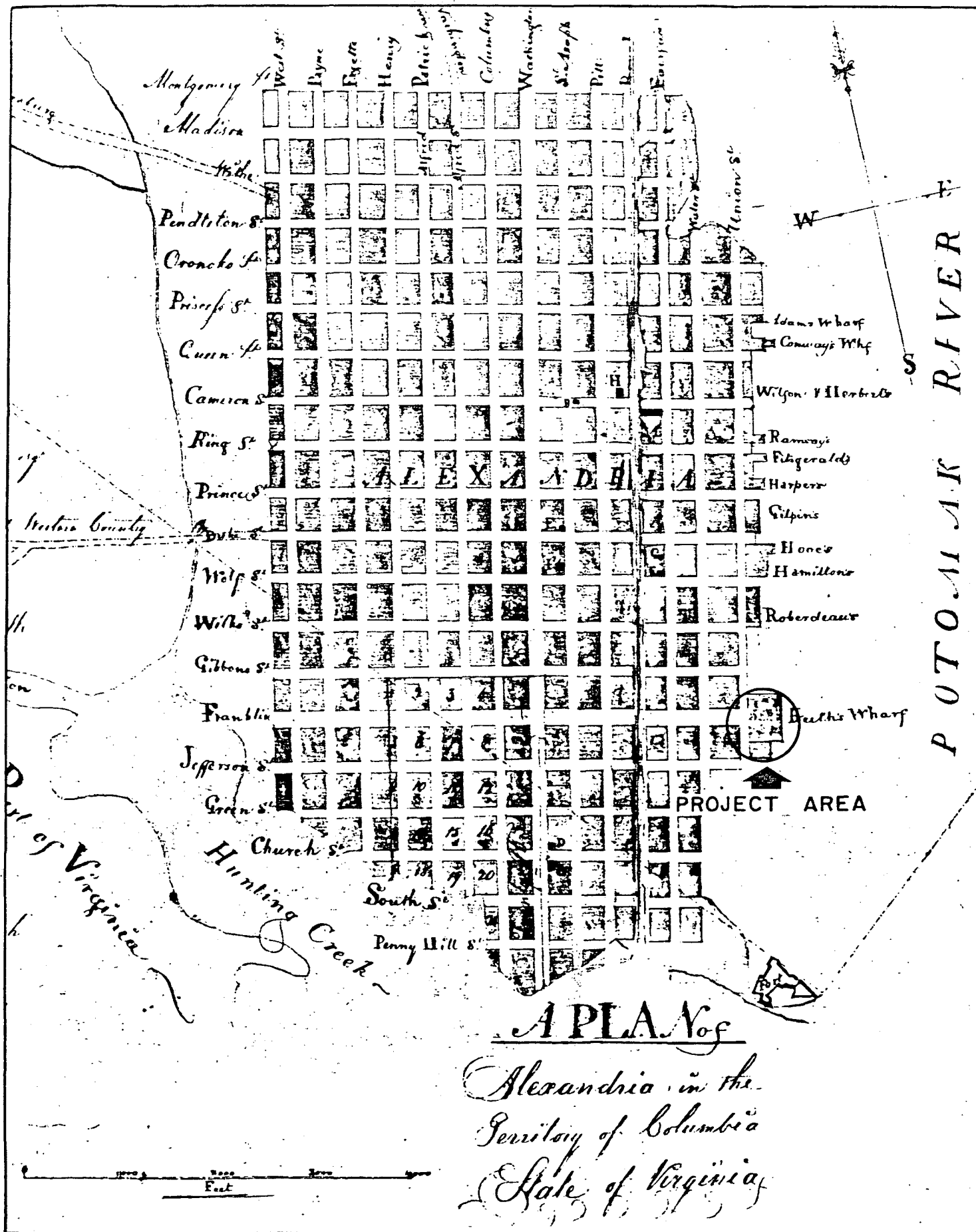
Cook Inlet Region Property Boundary Map

<p>For the <u>Red</u> survey of this Plate</p>	
<p>A ABCD DA D—C</p>	<p>For the <u>Red</u> survey lines</p> <p>Is the beginning of the Red survey in the upper side of the mouth of the Wapahank branch of the Red survey as they required for Red survey patent</p> <p>A line led down from the end of the Red North branch</p>
<p>A ABCD GA D & A</p>	<p>For the <u>Dip</u> red lines</p> <p>Is the beginning of the Dip survey on the lower side of the mouth of a very small branch of the Dip survey as he required for Red survey patent</p> <p>A line led down for the Dip</p>
<p>Q:</p> <p>other place</p>	<p>Three marks are for houses + three with W & W as where William Griffin was sealed</p> <p>are noted with marks</p>

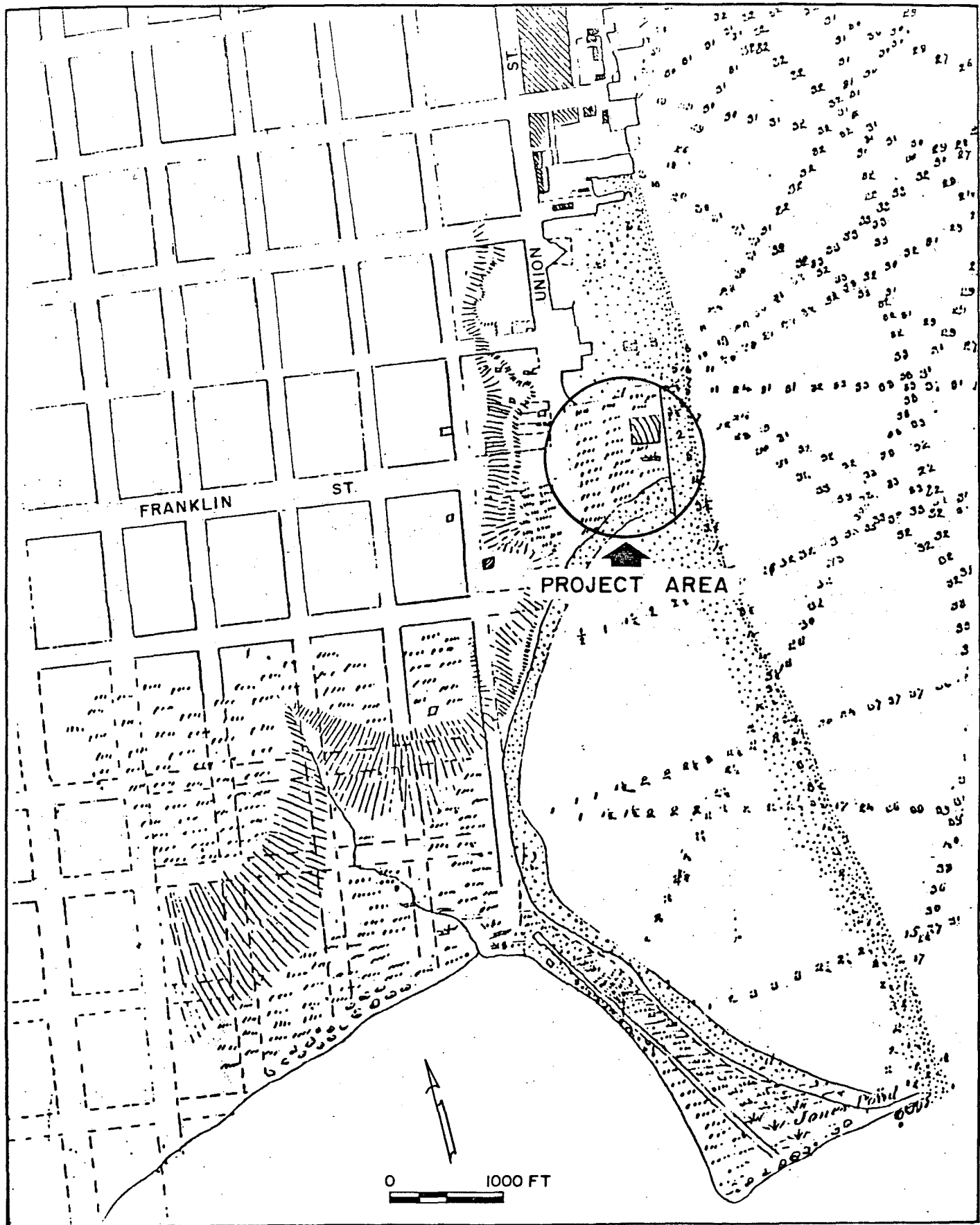
N.B. after a further survey of the island from the survey and figure 11-21 and have fully verified the Contour of the Ridge 11-22, 11-23, 11-24.

Lower Chain Carriers
 Jeremiah Hampton } In the Old^{er} Survey
 Ferdinando O'Neal }
 Joseph Dray } In the New^{er} Survey
 Ferdinando O'Neal }
 owned by John Haynes

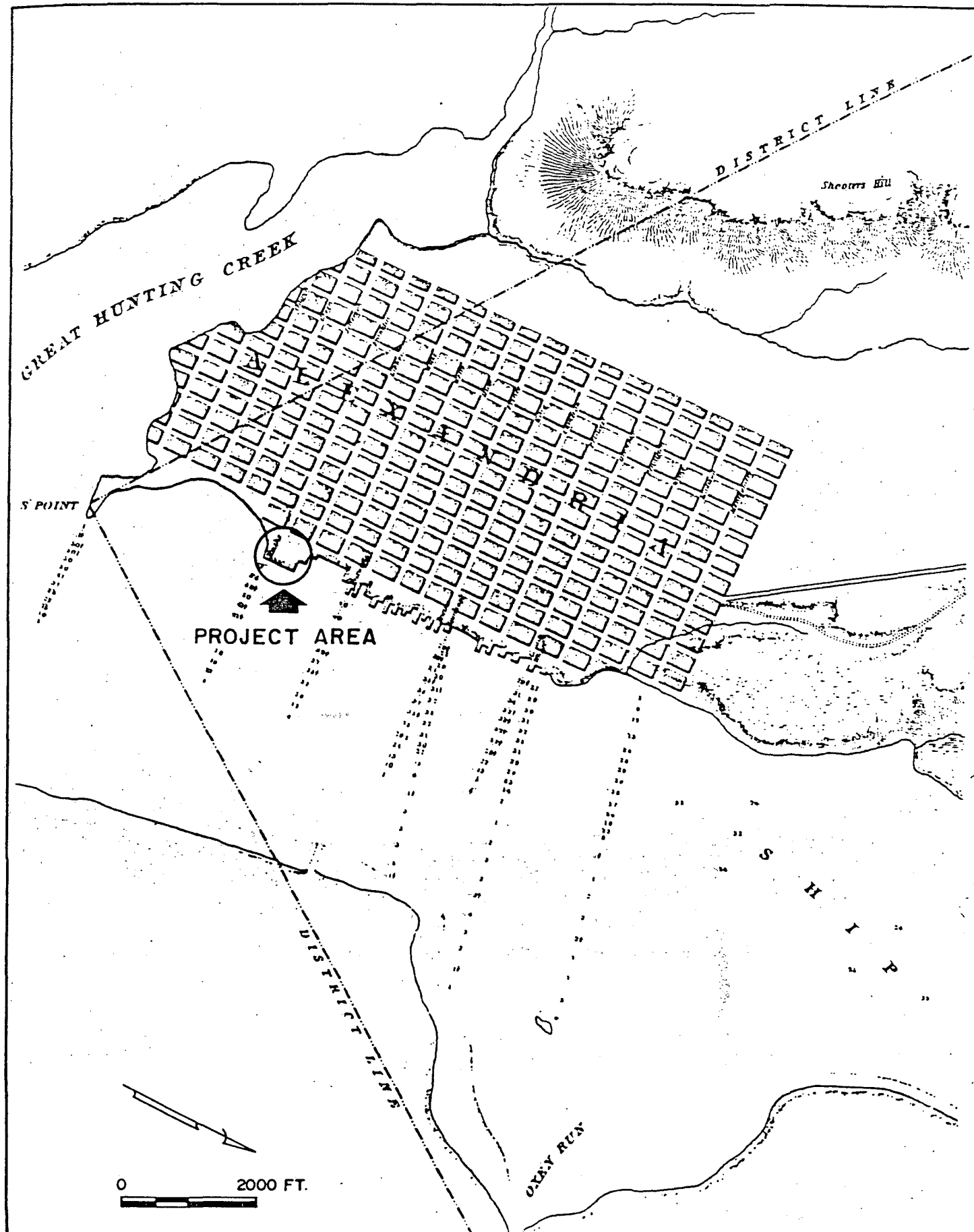




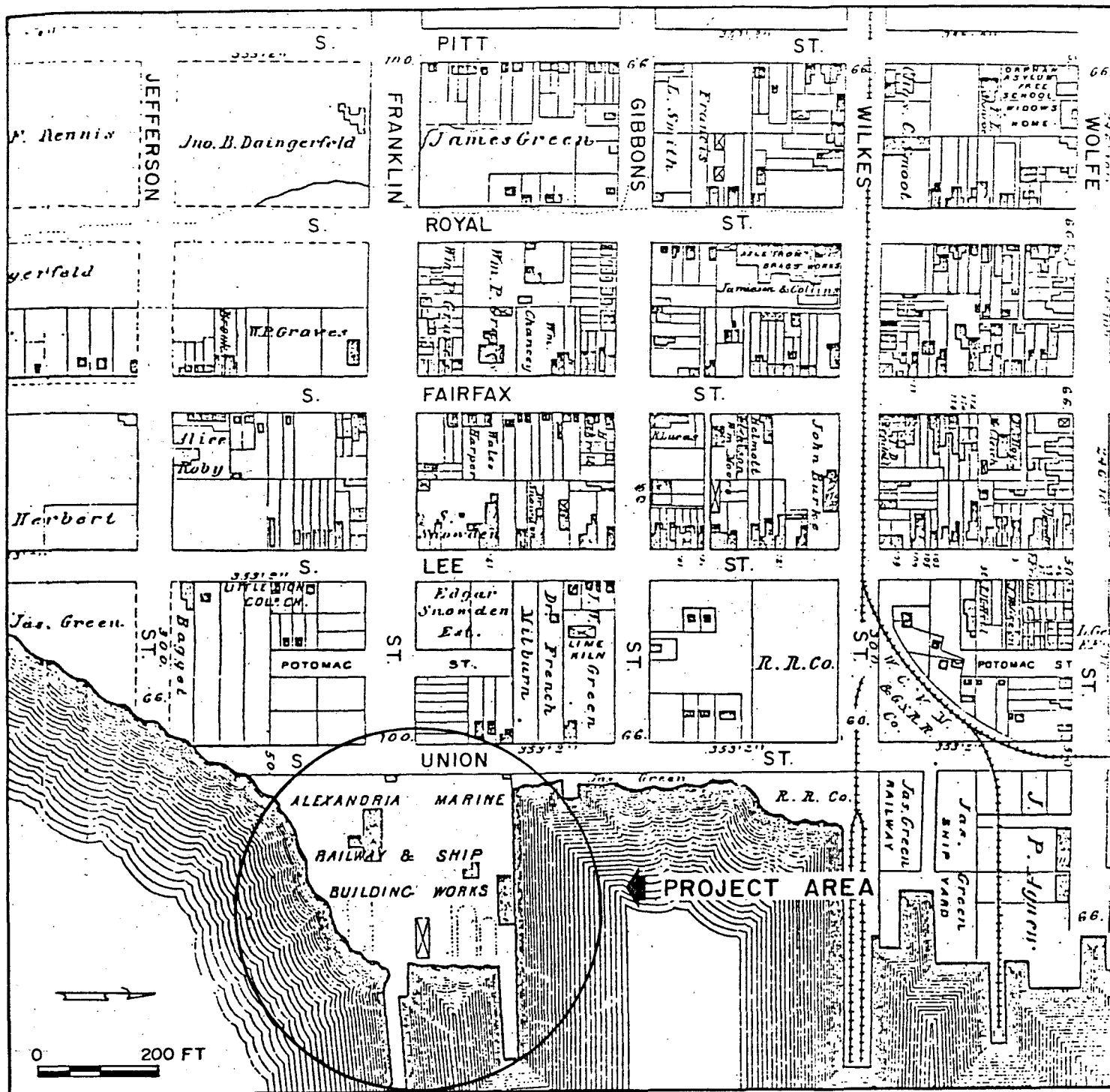
1804 Plan of Alexandria



1836 U. S. Army Map of the Potomac and Anacostia Rivers



1841 Chart of the Head of Navigation of the Potomac River (detail)



1877 Hopkins Map of Alexandria, Virginia










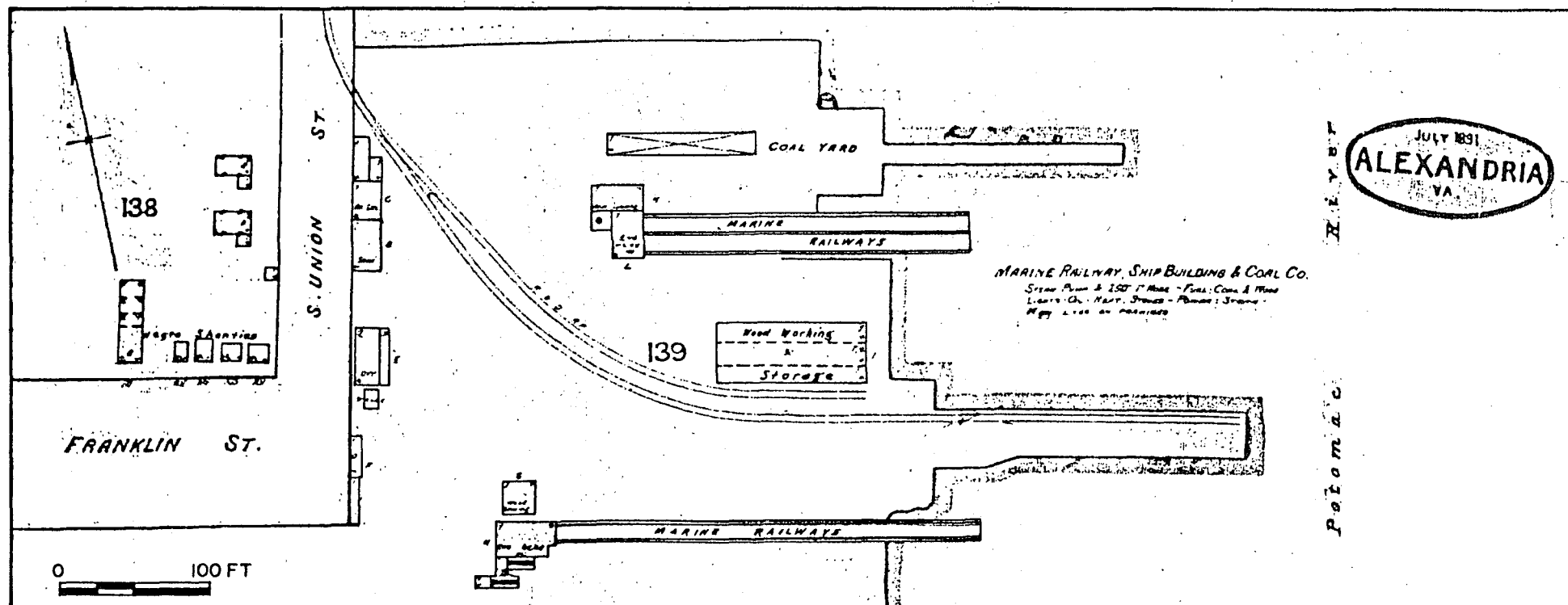
- | | | |
|---|---|---|
|  Ford Plant |  Area of Potential Resources |  Boundary of Original Fill |
|  1943 Addition to Ford Plant |  Boundary of Project Area | Base Map Showing Various
Periods of Fill and
Construction |
|  1910-1912 Fill |  Piers, 1877 or Earlier | |

Figure 9



1891 Sanborn Insurance Map of Alexandria (detail)

APPENDIX I: PUBLIC RECORDS CONSULTED

PUBLIC RECORDS

Alexandria Deeds:

- Liber D, p. 4, 18, 24, 47, 54. Alexander to Harper, 1789.
- Liber I, p. 329. Keith to Richardson, 1797.
- Liber L, p. 117. Harper to Keith, 1798.
- Liber L, p. 121. Agreement between Harper and Keith re:
additional streets, 1798.
 - p. 145. Alexander to Keith, 1797.
 - p. 155. Alexander to Keith, 1797.
 - p. 219. Harper to Vowell & Vowell, 1798.
- Liber B, p. 364. Harper to Harper, 1802.
- Liber I, p. 179. Harper to Ladd, 1803.
- Liber G, p. 241. Plat of Alexandria, 1804.
- Liber G, p. 399. Application of Keith and Potts for Ferry License,
1804.
- Liber T, p. 1. Keith to Janney, 1810.
- Liber W, p. 1. Vowell to Vowell, 1812.
- Liber K, p. 575. Harper to Harper, et al., 1798.
- Liber L, p. 164. Alexander to Keith, 1798.
- Liber F, p. 131. Harper to Harper, 1803.
- Liber K/3, p. 441. Vowell to Alexandria Marine Railroad Company,
1849.
- Liber S/3, p. 420. Keith, estate division, 1857.
- Liber 14, p. 89. Alexandria Marine Railroad and Shipbuilding Co.
to Agnew, 1880.
- Liber 77, p. 123. Livingstone to Aquia Creek Quarries (G.W. Stone
Co.), 1923.
- Liber 109, p. 70. G.W. Stone Co. to Ford Motor Co., 1931.
- Liber 195, p. 241. Ford Motor Co. to U.S. Government, 1942.
- Liber 1153, p. 298. U.S. Government to Cook Inlet Region, Inc.,
1985.