PROJECT NOTIFICATION FORM

950 CMR: OFFICE OF THE SECRETARY OF THE COMMONWEALTH

SOUTH TERMINAL CONFINED DISPOSAL FACILITY NEW BEDFORD, MA

Submitted To:
Massachusetts Historical Commission
220 Morrissey Boulevard
Boston, MA 02125

Submitted For:
New Bedford Harbor Development Commission
52 Fishman's Wharf
New Bedford, MA 02740

Submitted By:
Apex Companies, LLC
184 High Street, Suite 502
Boston, MA 02110
&
1 Wamsutta Street, Suite 8
New Bedford, MA 02740

June 17, 2010

Apex Companies, LLC
"Where Excellence Meets Value"

184 High Street, Suite 502
Boston, MA 02110
and
1 Wamsutta Street, Suite 8
New Bedford, MA 02740
Telephone 617-728-0070
Facsimile 617-728-0080

June 17, 2010

Mr. Edward Bell, Senior Archaeologist
Massachusetts Historical Commission
220 Morrissey Boulevard
Boston, MA 02125

Re: Project Notification Form
Project Name: ***South Terminal Confined Disposal Facility, New Bedford, Massachusetts***
Proponent: City of New Bedford, MA - New Bedford Harbor Development Commission
52 Fisherman's Wharf
New Bedford, Massachusetts 02740

Dear Mr. Bell:

On the advice of the Massachusetts Board of Underwater Archaeological Resources (BUAR), and at the request of the Commonwealth of Massachusetts Executive Office of Energy and Environmental Affairs (EOEEA), in consultation with the United States Environmental Protection Agency (USEPA), we are submitting the enclosed ***Project Notification Form (PNF)*** for the above referenced Project.

Please find enclosed the PNF and the following additional supporting information:

Attachment A: Project Description;
Attachment B: Project Site Plans;
Attachment C: Project Land Acreage;
Attachment D: USGS Quadrangle Map;
Attachment E: Site Photographs;
Attachment F: Upland Area: *Cultural Resources Background Study & Archeological Sensitivity Assessment (JMA Report)*;
Attachment G: Underwater Area: *Provisional Special Use Permit*, and the *Executive Summary - Phase I Underwater Archaeological Survey* and the *Work Plan – Phase IB Underwater Archaeological Investigations (Dolan Research).*

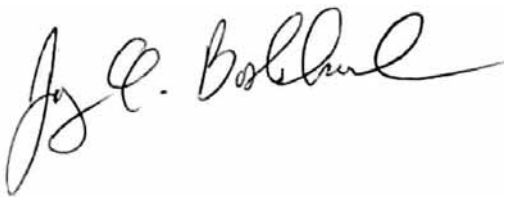
Planned Future Activities:

Upland Area: The *JMA Report* (attached) presents the results of a *Cultural Resources Background Study & Archeological Sensitivity Assessment.* In the Conclusions and Recommendations section of that Report, JMA indicates that, 'In the opinion of JMA, no additional background research or archeological sub-surface investigation is necessary in the upland portions of the Project Area'. In keeping with that assessment, additional archaeological/historical assessment of the upland portions of the Project Area is currently not planned.

Underwater Area: Remote sensing data gathering of the marine portions of the Project Area has been undertaken in support of both engineering and historical review activities. A review of this background information by *Dolan Research* (see attached Executive Summary) suggests that at least one target may be of interest and should be evaluated by direct methods. A Work Plan for Phase IB Underwater Archaeological Investigations from *Dolan Research* is enclosed. At present, the Project plans to conduct the direct investigation activities outlined in the *Dolan* Work Plan as expeditiously as possible.

In the interest of accommodating the needs of this fast-track Project, we welcome the opportunity to discuss this Project with you directly, and are available to meet with you at your earliest convenience. If additional information would be useful in review of the Project Notification Form, or if you have questions regarding this correspondence, please do not hesitate to contact the undersigned at (617) 728-0070.

Sincerely,
Apex Companies, LLC.



Chet Myers, Senior Engineer

Jay Borkland, Program Manager

cc: K. Decas (NBHDC)
M. Morrissey (NBEDC)
K. Kimmell (EOEEA)
D. Babb-Brott (EOEEA)
A. Miranda (Apex file)

APPENDIX A

MASSACHUSETTS HISTORICAL COMMISSION 220 MORRISSEY BOULEVARD
BOSTON, MASS. 02125 617-727-8470, FAX: 617-727-5128

PROJECT NOTIFICATION FORM

Project Name: South Terminal Confined Disposal Facility (CDF)

Location / Address: 4 Wright Street and Adjacent Properties

City / Town: New Bedford

Project Proponent Name: New Bedford Harbor Development Commission

Address: 52 Fisherman's Wharf

City/Town/Zip/Telephone: New Bedford, Massachusetts 02740 (508) 961-3000

Agency license or funding for the project (list all licenses, permits, approvals, grants or other entitlements being sought from state and federal agencies).

Agency Name	**Type of License or funding (specify)**
Harbor Development Commission (Project Owner)	Dredge Account Funding
Mass DEP	Seeking SER Regulatory Status
USEPA	Reviewing Mass DEP request for SER Status
Massachusetts Clean Energy Council	Grant Funding

Additional Funding that may be required may come from: Harbor Development Commission Massachusetts Clean Energy Council, Seaport Council, Environmental Bond Bill and other sources.

Project Description (narrative):
Please see **Attachment A**

Does the project include demolition? If so, specify nature of demolition and describe the building(s) which are proposed for demolition.
The project does not include demolition.

Does the project include rehabilitation of any existing buildings? If so, specify nature of rehabilitation and describe the building(s) which are proposed for rehabilitation.
The project conceptual plan calls for minor modifications to an existing on-site building (originally constructed in 1978) at 4 Wright Street in New Bedford.

APPENDIX A (continued)

Does the project include new construction? If so, describe (attach plans and elevations if necessary).
Yes, the new construction within the Project Area will include: New Bulkhead Extension Construction and Filling and Grading behind the new Bulkhead. Please see **Attachments A & B**.

To the best of your knowledge, are any historic or archaeological properties known to exist within the project's area of potential impact? If so, specify. See attached JMA Report.

What is the total acreage of the project area?

Woodland _____ acres	Productive Resources:
Wetland_____ acres	Agriculture _____ acres
Floodplain_____ acres	Forestry _____ acres
Open space_____6.6_____acres	Mining/Extraction _____ acres
Developed _____13.4_____acres	

Notes: Open space includes 6.6 acres of Land Under Water and associated Resource Area, and Developed Land includes 2.94 acres of currently developed Marine Terminal and 10.46 acres of formerly developed industrial property.

Total Project Acreage 20 acres, please see **Attachment C**

What is the acreage of the proposed new construction?
20 acres, please see **Attachment C**.

What is the present land use of the project area?
The project area is currently an existing Marine Terminal and adjacent abandoned land (formerly an industrial facility [Potomska Mills]).

Please attach a copy of the section of the USGS quadrangle map which clearly marks this project location.
Please see Attachment D.

This Project Notification Form has been submitted to the MHC in compliance with 950 CMR 71.00.

Signature of Person submitting this form: Mary Bruno Date: June 21, 2010

Name: Mary Bruno

Address: 184 High Street, Suite 502

City/Town/Zip: Boston, Massachusetts 02110

Telephone: (617) 728-0070 office (781) 820-1349 cell (617) 728-0080 fax

REGULATORY AUTHORITY 950 CMR 71.00: M.G.L. c. 9, §§ 26-27C as amended by St. 1988, c. 254.

7/1/93 950 CMR - 276

ATTACHMENT A

Project Description

Attachment A – Project Summary

The South Terminal Marine Industrial Park Development involves the creation of a multi-purpose Marine Terminal with the capacity to support container, break-bulk, and roll-on/roll-off shipping, and offshore renewable energy development, and includes creation of a lay-down and assembly area, and a functional berthing area.

This alternative involves the extension of the existing South Terminal bulkhead to the south for approximately 800 linear feet, which would create a 19.95 acre Marine Industrial Park facility with 1,000 linear feet of bulkhead space that could support vessels drafting up to 30 feet. Once built-out, the total estimated area of the combined properties (plus the new land created via the bulkhead extension) would total approximately 19.95 acres.

A map showing the proposed project footprint is included in **Attachment B**. The existing footprint incorporates the existing southern-most property parcel at South Terminal, located at 4 Wright Street. The assessor's information for this property is (map 31, lot 263). The build-out scenario also includes the property, (map 31, lot 288), located immediately to the south of the 4 Wright Street property. Another property, located along the coastline of New Bedford Harbor immediately to the south (map 25A, lot 48) and two properties immediately inland (map 25A, lot 53 and map 25A lot 49) would also be included in the new facility. Finally, a portion of another existing property could be added (map 31, lot 234). Once built-out, the total estimated area of the combined properties (plus the new land created via the bulkhead extension) would total approximately 19.95 acres

The following steps will be required in order to complete the extension as envisioned:

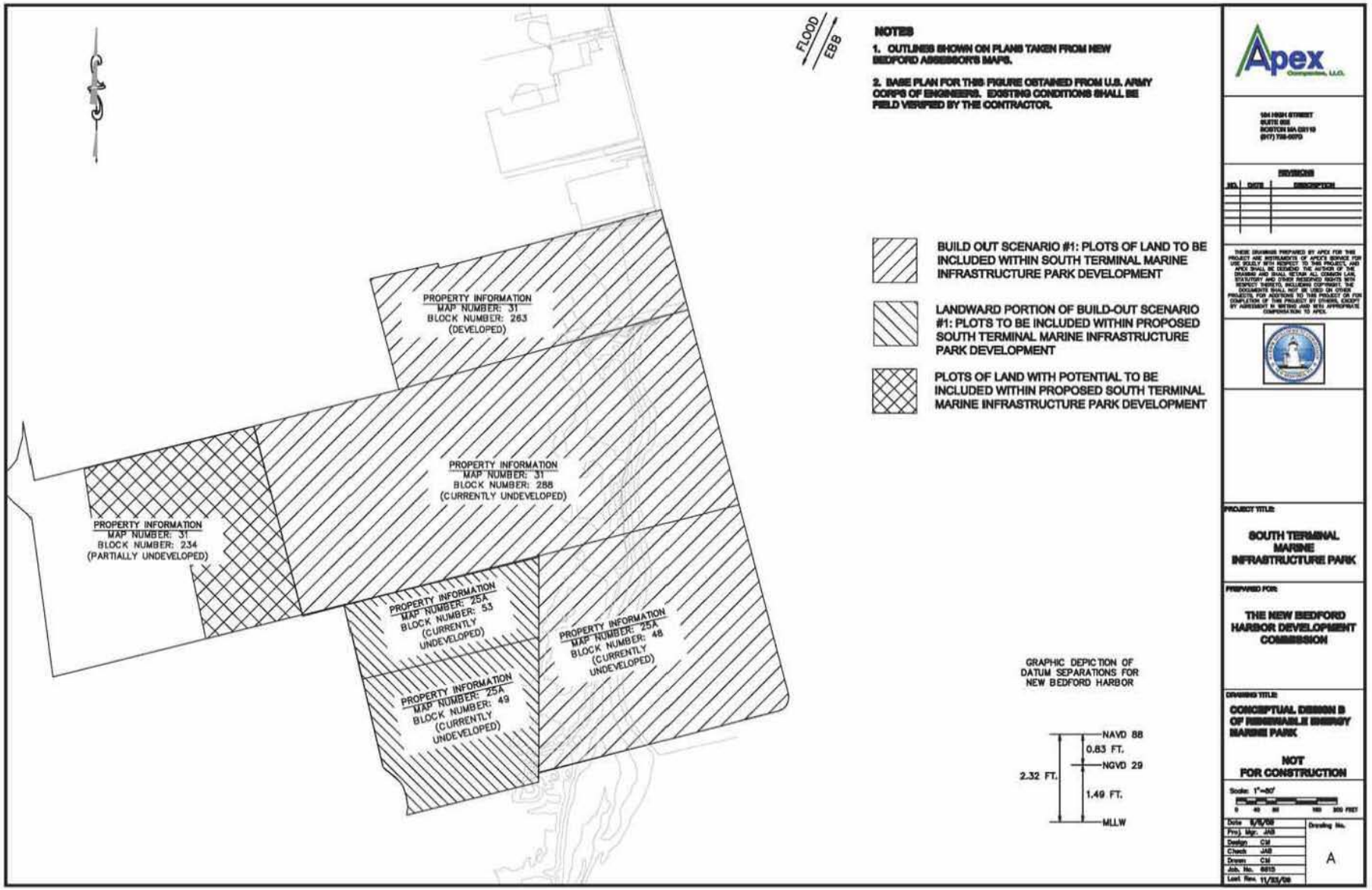
- A bulkhead extension will need to be installed along the existing bulkhead line of South Terminal for approximately 800 linear feet.
- The bulkhead will turn 90 degrees and head to shore along the extension of the property line.
- The area in front of the bulkhead would be dredged to -30 MLLW. A channel from the new bulkhead area would be installed, extending to the existing federal channel.
- Material generated from dredging from creation of a CAD Cell (or from depending on timing and suitability) would be placed behind the bulkhead to fill the area to grade.
- The material behind the bulkhead would be allowed to drain and settle in order to create a surface with sufficient support.
- Tiebacks and whales, if necessary, would be installed to support the new bulkhead wall.
- Currently forested area on the remainder of the facility would be cleared and graded to meet the top of the bulkhead grade to create a relatively flat facility.
- The surface of the new facility of crushed stone would be installed.

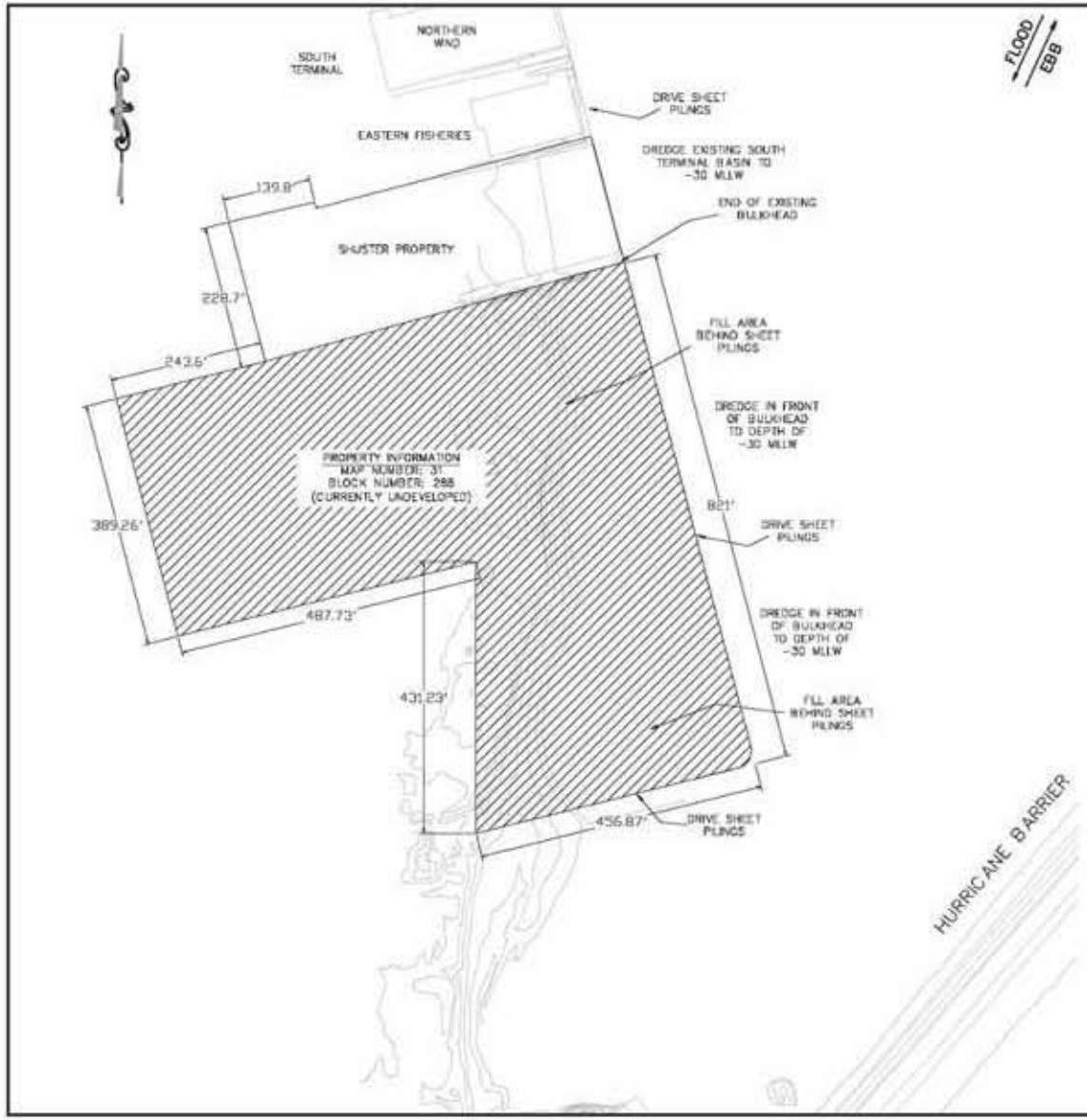
For figures showing the proposed installation, please see **Attachment B**.

ATTACHMENT B

Project Site Plans

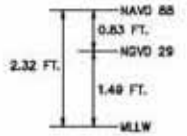
Attachment B





NOTES

GRAPHIC DEPICTION OF DATUM SEPARATIONS FOR NEW BEDFORD HARBOR



Apex

184 HIGH STREET
SUITE 402
BOSTON MA 02110
(617) 728-5375

REVISIONS

NO.	DATE	DESCRIPTION

THESE DRAWINGS PREPARED BY APEX FOR THIS PROJECT ARE INSTRUMENTS OF WHICH ARRANGE THE USE SOLELY WITH RESPECT TO THIS PROJECT, AND APEX SHALL BE DEEMED THE AUTHOR OF THE DRAWINGS AND SHALL RETAIN ALL COMMON LAW, STATUTORY AND OTHER RESERVED RIGHTS WITH RESPECT THERETO, INCLUDING COPYRIGHT. THE DRAWINGS SHALL NOT BE USED BY OTHER PERSONS FOR EXTENSIONS OF THE PROJECT OR FOR COMPLETION OF THE PROJECT BY OTHERS, EXCEPT BY AGREEMENT IN WRITING AND WITH APPROPRIATE COMPENSATION TO APEX

PROJECT TITLE:

RENEWABLE ENERGY MARINE PARK

PREPARED FOR:

THE NEW BEDFORD HARBOR DEVELOPMENT COMMISSION

DRAWING TITLE:

CONCEPTUAL DESIGN A OF RENEWABLE ENERGY MARINE PARK

NOT FOR CONSTRUCTION

Scale: 1"=80'

0 40 80 160 SCALE FEET

Date	8/8/08
Proj. Mgr.	JPD
Design	CM
Check	JPD
Drawn	CM
Job. No.	6018
Last Rev.	11/03/08

Drawing No. 1

Apex Companies, LLC.

184 HIGH STREET
SUITE 502
BOSTON MA 02110
(617) 728-0070

REVISIONS

PROJECT TITLE:

SOUTH TERMINAL MARINE INFRASTRUCTURE PARK

PREPARED FOR:

THE NEW BEDFORD HARBOR DEVELOPMENT COMMISSION AND THE TOWN OF FAIRHAVEN, MASSACHUSETTS

DRAWING TITLE:

SOUTH TERMINAL EXTENSION ORIGINAL CONFIGURATION

SCALE: 1"=200'

0 100 200 400

Date 9/5/08	Drawing No.
Proj. Mgr. JAB	
Design CWM	
Check GCD	
Drawn CWM	
Job. No. 6690	
Last Rev. 3/24/10	

Apex Companies, LLC

ATTACHMENT C

Project Land Acreage

Attachment C

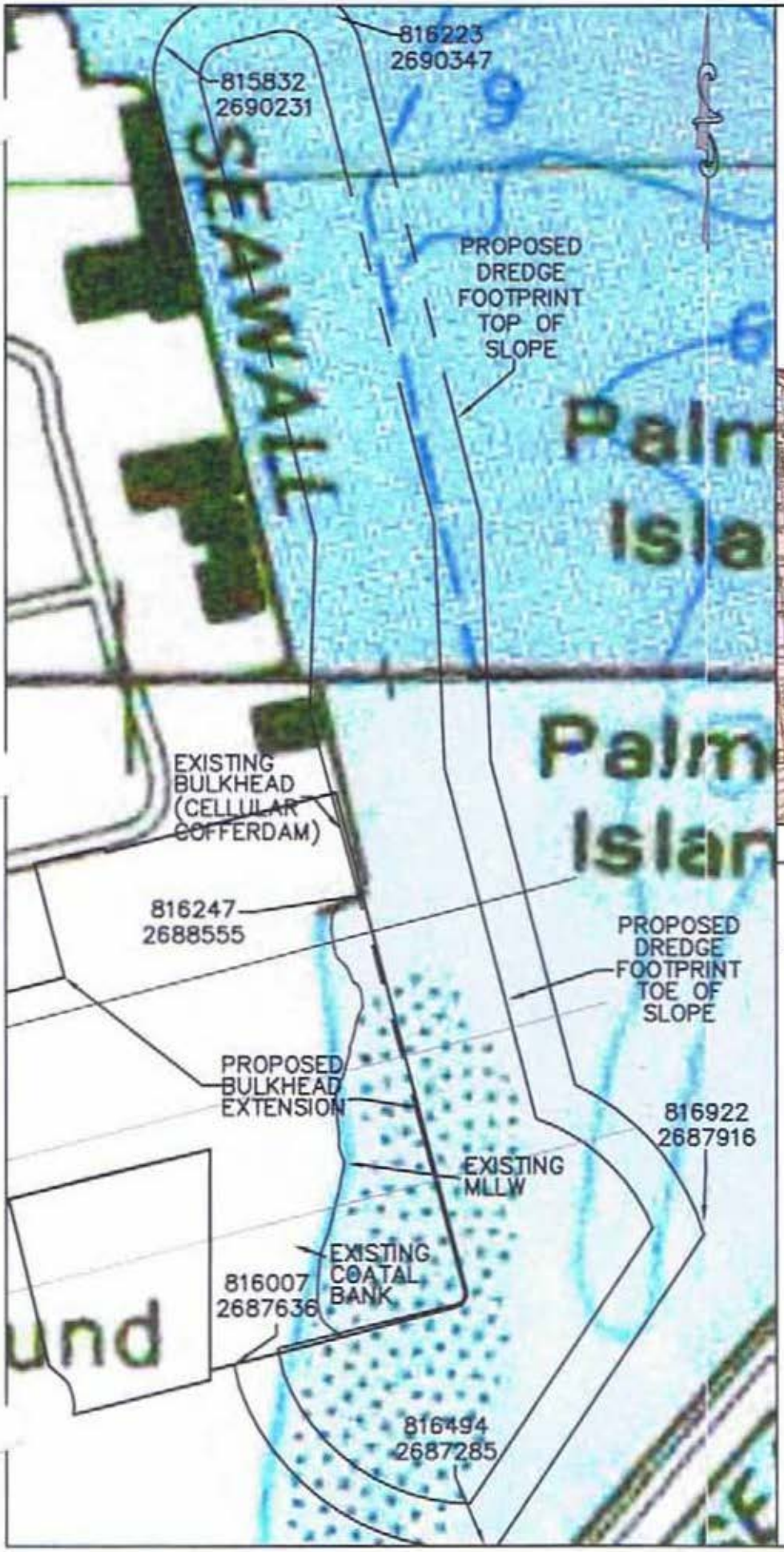
The existing footprint includes the utilization of the existing "Shuster Corporation" property (the southern-most property at South Terminal), located at 4 Wright Street. The assessor's information for this property is (map 31, lot 263). The build-out scenario also includes the property, (map 31, lot 288), located immediately to the south of the Shuster Corporation property. Another property, located along the coastline of New Bedford Harbor immediately to the south (map 25A, lot 48) and two properties immediately inland (map 25A, lot 53 and map 25A lot 49) would also be included in the new facility. Finally, a portion of another existing property could be added (map 31, lot 234). Once built-out, the total estimated area of the combined properties (plus the new land created via the bulkhead extension) would total approximately 19.95 acres.

The following is a list of resource areas within the proposed project area as defined within 310 CMR 10.00 (The Massachusetts Wetlands Protection Act):

- 2.99 acres of Land Under the Ocean/Land Containing Shellfish.
- 1.27 acres of Coastal Beach/Land Containing Shellfish/Horseshoe Crab Habitat.
- 0.34 acres of Coastal Beach/Land Subject to Flooding.
- 0.26 acres of Coastal Bank/Land Subject to Flooding.
- 1.03 acres of Land Subject to Flooding.
- 0.71 acres of Isolated Wetlands.

ATTACHMENT D

USGS Quadrangle Map



Apex Companies, LLC.

184 HIGH STREET
SUITE 502
BOSTON MA 02110
(617) 728-0070

LOCUS

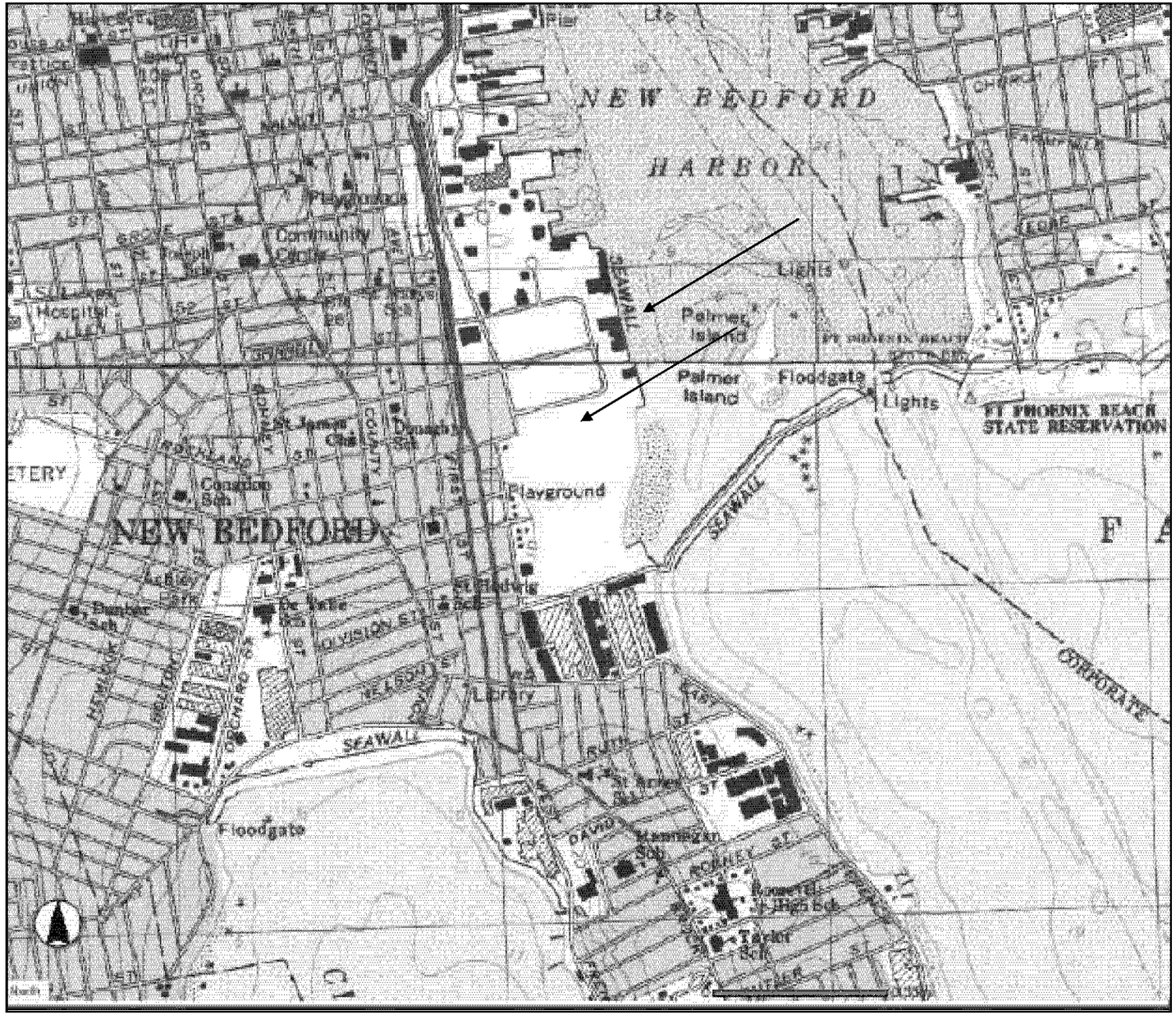
DRAWING TITLE:

SOUTH TERMINAL MARINE INFRASTRUCTURE PARK PROPOSED ARCHAEOLOGICAL CLEARANCE SURVEY LIMITS

Scale: 1"=300'

0 150 300 600
FEET

USGS Topographic Quadrangle Map
Attachment D



ATTACHMENT E

Site Photographs


2010 3 17


2010 3 17


2010 3 17


2010 3 17

Apex Companies, LLC

ATTACHMENT F

Upland Area:

Cultural Resources Background Study
&
Archaeology Sensitivity Assessment

CULTURAL RESOURCES BACKGROUND STUDY AND ARCHEOLOGICAL SENSITIVITY ASSESSMENT

SOUTH TERMINAL MARINE INFRASTRUCTURE PARK (UPLAND PORTION)

CITY OF NEW BEDFORD, BRISTOL COUNTY, MASSACHUSETTS

PREPARED FOR

APEX COMPANIES, LLC
184 HIGH STREET
BOSTON, MASSACHUSETTS 02110

BY

JOEL I. KLEIN, PH.D., RPA

T. ARRON KOTLENSKY, RPA

JOHN MILNER ASSOCIATES, INC.
1 CROTON POINT AVENUE
CROTON-ON-HUDSON, NEW YORK 10520

JUNE 2010

MANAGEMENT SUMMARY

John Milner Associates, Inc. (JMA) conducted cultural resources background research and prepared an archeological sensitivity assessment of the proposed approximately 12-acre upland portion of the South Terminal Marine Infrastructure Park property (the Project Area) fronting along the Acushnet River estuary in the City of New Bedford, Bristol County, Massachusetts. The investigation was conducted on behalf of Apex Companies, LLC, engineering consultant to the New Bedford Harbor Development Commission. The purpose of this research is to identify any previously recorded archeological or historic sites that are in the Project Area, and assess if any previously unrecorded and potentially significant archeological or historic sites, which could be affected by Project construction and/or operation, are likely to exist within the upland portions of the Project area. The results of this study are intended to support the environmental impact analyses which may be required as part of Federal, State, or municipal permitting and approval processes.

One previously recorded historic archeological site (MHC No. NBE-HA-08) is located within the Project Area, while three additional historic sites are located within one kilometer of the Project Area; no prehistoric archeological sites have been recorded within one kilometer of the Project Area. Historic cartography indicates that a textile mill (the Potomska Mills) dating from the late nineteenth into the mid-twentieth centuries existed within the Project Area. No above ground remnants of the mill structures are extant. There are no previously identified State/National Register of Historic Places (S/NRHP)-listed/eligible properties located within or immediately adjacent to the Project Area.

In the opinion of JMA, no additional cultural resources background research or archeological sub-surface investigation is necessary in the upland portions of the Project Area. Although archeological remnants of the Potomska Mills may exist in the Project Area (the MHPC site form was prepared on the basis of documentary research only) the demolition of the mill buildings removed any critical data associated with the former textile mill that may have qualified the site for eligibility for listing on the National Register of Historic Places (NRHP). Any archeological remains would provide little in the way of important information relating to the history of the Potomska Mills, or cotton textile manufacturing that cannot be better obtained from non-archeological sources. The extensive layout and building activities related to the original construction of the Potomska Mills probably disturbed if not entirely disturbed/removed any archeological deposits and features related to previous land use, including any Native American occupation. Even if present, any archeological remains are presently beneath a layer of demolition rubble and fill of undetermined depth. Project-related construction activities include the placement of crushed stone and additional fill and will not disturb any intact structural foundation footprints and deposits associated with the former mill site or earlier archeological sites.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

1.0 INTRODUCTION

1.1 PURPOSE AND GOALS OF THE INVESTIGATION

John Milner Associates, Inc. (JMA) conducted cultural resources background research relevant to the proposed approximately 12-acre upland portions of the South Terminal Marine Infrastructure Park property (the Project Area) fronting along the Acushnet River estuary in the City of New Bedford, Bristol County, Massachusetts. The investigation was conducted on behalf of Apex Industries, LLC, engineering consultant to the New Bedford Harbor Development Commission. The purpose of this research is to identify any previously recorded archeological or historic sites that are in the Project Area, and assess if any previously unrecorded and potentially significant archeological or historic sites, which could be affected by Project construction and/or operation, are likely to exist within the upland portions of the Project area. The results of this study are intended to support the environmental impact analyses which may be required as part of Federal, State, or municipal permitting and approval processes.

1.2 PROJECT AREA LOCATION

The Project Area encompasses an approximately 12-acre property fronting along the Acushnet River estuary in the City of New Bedford, Bristol County, Massachusetts (Figures 1-2). The Project Area is bound to the east by the Acushnet River estuary and nearby Palmer Island; to the north, west, and south by commercial warehouses and large paved areas, with Blackmer Street to the south, South Front Street to the west, and Potomska and Wright Streets to the north. Currently there is one standing multi-storied structure near the northern margin of the Project Area, listed as a property of the Shuster Corporation; no additional substantial standing structures are located within the Project Area. This structure has not been evaluated in terms of its potential eligibility for listing on the S/NRHP.

1.3 PROJECT DESCRIPTION

The Project includes construction of a Confined Disposal Facility (CDF) in support of the disposal of contaminated sediments associated with environmental remediation activities, and navigational dredging activities. The completed Project will include the extension of the existing South Terminal bulkhead to the south for approximately 800 linear feet, which would create a 19.95 acre Marine Industrial Park facility with 1,000 linear feet of bulkhead space that could support vessels drafting up to 30 feet. Once built-out, the total estimated area of the combined properties (present upland parcels plus the new land created via the bulkhead extension) would total approximately 19.95 acres.

The following steps will be required in order to complete the extension as envisioned:

- A bulkhead extension will need to be installed along the existing bulkhead line of South Terminal for approximately 800 linear feet.
- The bulkhead will turn 90 degrees and head to shore along the extension of the property line.
- The area in front of the bulkhead would be dredged to -30 MLLW. A channel from the new bulkhead area would be installed, extending to the existing federal channel.

- Material generated from dredging from creation of a Confined Aquatic Disposal (CAD) Cell (depending on timing and suitability) would be placed behind the bulkhead to fill the area to grade.
- The material behind the bulkhead would be allowed to drain and settle in order to create a surface with sufficient support.
- Tiebacks and whales, if necessary, would be installed to support the new bulkhead wall.
- Currently forested area on the remainder of the facility would be cleared and graded to meet the top of the bulkhead grade to create a relatively flat facility.
- The surface of the new facility of crushed stone would be installed.

2.0 BACKGROUND RESEARCH

2.1 GEOLOGY, SOILS, AND EXISTING CONDITIONS

The Project Area is located in the southern portion of Bristol County, along an estuary of the Acushnet River, which empties into Buzzards Bay (Figure 1). The Project Area lies within the Seaboard Lowland Section of the New England Province, which is within the greater Appalachian Highlands physiographic division. The Project Area contains graded previously developed land that borders on the Acushnet River estuary to the east. Two soil map units denote the soil types within the Project Area, which are composed of filled or heavily graded deposits, with standing structures or not, related to intensive previous land use (Appendix I). Table 1 provides a summary of soil units within the Project Area (USDA 1981).

Table 1. Commonly occurring soils within the Project Area.

Name	Soil Horizon Depth in(cm)	Color	Texture, inclusions	Slope %	Drainage	Landform
Udorthents, smoothed (Ud)	Variable; site specific; typically excavated or filled land	Variable; site specific	Variable; site specific	< 15	Typically well-drained	Adjacent to developed areas
Urban land (Ur)	Variable; site specific; typically paved or covered with structures	Variable; site specific	Variable; site specific	< 15	Typically well-drained	Developed areas

The upland portion of the Project Area is located on approximately 12 acres of a largely undeveloped brownfield site. The Project Area is bound to the east by the Acushnet River estuary and nearby Palmer Island; to the north, west, and south by commercial warehouses and large paved areas, with Blackmer Street to the south, South Front Street to the west, and Potomska and Wright Streets to the north. Currently there is one standing multi-storied structure near the northern margin of the Project Area, listed as a property of the Shuster Corporation and a radio tower assembly is sited along the western margin of the Project Area. A recent field study of soils within the Project Area notes:

> The entire site had been impacted by filling with construction waste and other material over a long period of time, and sufficiently long ago to permit growth of extensive opportunistic vegetation. In general, progressing from the west to the east, the property was more finished (i.e., level and maintained) around the radio station transitioning to the roughest part nearest to the beach, and groundwater fluctuations appeared to become closer to the surface. At two thirds of the distance to the beach, waste piles were more evident, the land surface became more hummocky, and the vegetation turned to an unkempt, scrub forest of low lying trees and shrubs . . . The area qualifies as urban fill, reflecting its historic use as a construction debris landfill area and previous filling of what was long ago coastal wetlands (Pickering 2010).

2.2 PREVIOUSLY RECORDED CULTURAL RESOURCES

JMA reviewed the archeological site files of the Massachusetts Historical Commission to identify previously recorded archeological sites located within one kilometer of the Project Area. JMA identified four previously recorded historic period archeological sites within one kilometer of the Project Area and no prehistoric sites within one kilometer of the Project Area (Table 2). One of the four historic sites lies within the Project Area boundaries (Potomska Mills/Howland Factory; see *Section 2.3* for further discussion of this property).

Table 2. Archeological sites located within one kilometer of the Project Area.

MHC Site Identifier	Site Name	Time Period	Description	Distance from Project Area
NBE-HA-08	Potomska Mills/Howland Factory	19th-20th centuries	Cotton textile factory	Within Project Area
NBE-HA-09	Acushnet Mills/worker housing	1882-1931	Mill complex and 22 houses	.5km S of Project Area
NBE-HA-07	Palmer Island lighthouse	1849-1941	Lighthouse and keeper's house	.5km E of Project Area
NBE-HA-12	Nathan and Polly Johnson House	1826-present	Domestic structures	1km NW of Project Area

There are no previously identified properties in, or determined eligible for/eligible for listing in, the National Register of Historic Places within or immediately adjacent to the Project Area.

2.3 HISTORY OF THE PROJECT AREA[1]

Prehistoric and Contact Period Overview

Eastern North American prehistory is usually discussed in terms of three major cultural/temporal periods. These periods are referred to as the Paleoindian, Archaic, and Woodland. Within each of these periods, differing cultural configurations can be described in terms of adaptations to the natural and social environments. This tripartite construct constitutes the taxonomic mainstay of Northeastern archeology, and is the basic framework in which any treatment of New England prehistory must be discussed. It is recognized, however, that the concepts upon which the divisions are based may be inadequate for understanding the dynamics of cultural change that occurred through time in different regions of the Northeast (Hoffman 1985; Nicholas 1987; Snow 1980; Starna 1979). This section outlines the major cultural/temporal periods as they apply to greater southeastern New England.

The penetration and settlement of Eastern North America was initiated during the Paleoindian Period (*circa* 12,500-10,000 radiocarbon years before present [yrs BP]). Colonization of the region followed final deglaciation and the establishment of vegetation capable of supporting grazing and browsing animals. Initial settlement is believed to have proceeded from the south and Paleoindian groups may have moved into southern New England as a consequence of expanding hunting territories (Kelly and Todd 1988). The demographic pattern that characterizes the initial use of new territories emphasizes small groups, high

[1] This section is adapted from a background research and sensitivity analysis prepared by JMA (2000) for the New Bedford Superfund Site. The study area for that investigation included the present Project Area.

mobility, and considerable population in- and out-flow (Lerner 1984:64). These trends, and an overall low population density during the Paleoindian Period, likely account for the paucity of sites and even stray artifact finds for this period in comparison to later periods.

The demise of the Pleistocene megafauna and the major environmental changes that occurred in the early Holocene (*circa* 10,000 yrs BP) forced readjustments on the part of Paleoindian groups in New England. In New England, new tools and new projectile point forms make their appearance. The inferred changes in subsistence and settlement systems, along with these new tool forms, are the hallmarks of a new tradition. The adaptive changes are not well understood, although essential cultural continuity has been suggested (Snow 1980:171).

The concept of the Archaic Period, developed for Eastern North America by Ritchie (1932), is used to describe this new adaptation. The Archaic Period is customarily divided into three segments, Early, Middle, and Late, that together date to between *circa* 10,000 and 2,700 yrs BP. The construct was developed by Ritchie to describe the occupations of the Lamoka Lake site in New York State, and over time has undergone many changes (Starna 1979).

As introduced, the term denoted an early cultural level in which subsistence was oriented around a broad spectrum economy based on hunting, fishing, and gathering. Although the shift to this economy had its roots in the previous period, these trends became more evident and fully developed through time. Evidence of the changes in technology and subsistence was manifest in the appearance of specialized tool types not previously recorded. Manos, mortars, and pitted stones indicate a more intensive exploitation of plant foods in the Archaic than during the preceding period. Netsinkers, fishhooks, and harpoons are evidence for greater reliance on fishing. Expansion of the Archaic subsistence base is also represented in food remains which demonstrate the hunting of deer, elk, raccoon, and many smaller mammals. Birds, turtles, fish, and shellfish were also procured. In addition to subsistence changes, the introduction of axes, adzes, and celts suggest the beginning of heavy woodworking and the construction of substantial structures.

Throughout the period there is an increase in the diversity of site types and the number of microenvironments exploited by Archaic peoples. Over time, the principal camps from this period became larger, more numerous, more complex, and contained increased quantities of occupational debris. Larger, denser populations and the tendency toward more permanent residential settlements increase through time. The size of the territory regularly exploited by each social group probably decreased as well, given an observed tendency to rely upon local raw materials to meet everyday needs. In the northeast, these band level hunter-gatherers exploited their territories with a pattern of seasonal movements. Because food resources vary spatially and temporally, efficient exploitation was accomplished through different technologies and social organizations. These varying adaptations to local environmental conditions are reflected in the diversity in material assemblages from area to area.

The final Archaic sub-period is the Terminal Archaic, also referred to as the Transitional Period and the Susquehanna Tradition. As first described by Witthoft (1953), this complex is recognized by distinct changes in material culture. Primary among the technological changes identified by Witthoft and later, by others (e.g., Kinsey 1972), was the rapid adoption of a tool complex based on large, broad-bladed stemmed points. Containers in the form of steatite bowls also begin to appear. The changes recognized in the archeological record are usually presented as evidence for the intrusion into the region of a new cultural

tradition (Snow 1980:244-249). The new projectile point forms are believed to be cognates of types found to the southwest, "where there was a major center of development from a Savannah River-like predecessor" (Dincauze 1975:27). The intrusive groups are believed to have been small and are not thought to have been assimilated into resident populations (Dincauze 1975:27). At least one researcher believes that there is little evidence that permits a differentiation between Late and Terminal Archaic cultures, and that subsistence strategies, choice of lithic materials, technology, and population distribution seem to have been continual throughout the two periods (Hoffman 1985:66). It has further been suggested that Terminal Archaic materials in northern New England indicate a population in-movement, while such materials in southern New England represent diffusion and culture contact between groups (Snow 1980:247-248).

Despite the occurrence of pottery at certain sites, this complex remains assigned to the Archaic Period as suggested by Snow (1980). Terminal Archaic sites are fairly numerous in New England and projectile points representative of the complex have been recovered at many sites. Within two miles of the project area, the Blue Feather site in Acushnet produced a large, broad-bladed Susquehanna Tradition projectile point (Simon et al. 1980:32).

The Woodland Period (*circa* 2,700–400 yrs BP [AD 1600]) in the Northeast represents the culmination of the economic and social trends of the preceding periods. The period is defined in terms of its material culture by the consistent use of pottery. Ceramic technology becomes increasingly sophisticated and artifact styles show interaction with peoples from within and between territories, allowing for a more precise definition of social groupings. Archaic hunting and gathering bands evolved into semi-sedentary village dwellers who intensively exploited the resources around them, while maintaining strong economic and social ties with groups well outside their own territory. By the end of the Woodland Period, sedentary lifestyles based on corn agriculture were the rule throughout the region. Kin-based, “tribal” level socio-political organizations were the basic fabric of society.

Although the Woodland Period is typically subdivided into Early, Middle, and Late sub-periods on the basis of ceramics in the Eastern United States, a tight ceramic classification and chronology is lacking for the southeastern New England area. Consequently, artifact comparisons and interpretations still rely heavily upon earlier data and analyses from New York (Smith 1950), Connecticut (Rouse 1947), Rhode Island (Fowler 1956), and Ritchie's work on Martha's Vineyard (1969b).

Snow (1980), who combines the Early and Middle Woodland sub-periods into an Early Horticultural Period (*circa* 2,700–1,000 yrs BP), suggests that a rather diffuse subsistence adaptation predominated during this time. An important addition to the diet of Woodland peoples was shellfish, which became increasingly available *circa* 2,500 yrs BP with the stabilization of post-glacial sea-level rise and the establishment of coastal mud flat and salt marsh environments. Indeed, an increasing orientation toward coastal environs and resources is documented throughout the long Woodland Period (Dincauze 1974; Thorbahn et al. 1980; Mulholland 1988; Edens and Kingsley 1994). One outcome of this process is the occurrence of numerous shell midden sites all along the New England coastal zone (e.g., Shaw 1989; Cross and Shaw 1991; Edens and Kingsley 1994).

More profound changes occurred during the Late Woodland sub-period (*circa* 1,000–400 yrs BP). Corn was grown by at least 1,160 yrs BP (based on an uncalibrated radiocarbon date) on Martha's Vineyard (Ritchie 1969b:32) and full acceptance of an agricultural lifeway quickly developed in the region with

beans, squash, and other cultigens playing an integral part. A settlement pattern of villages on main streams at the heads of estuaries, associated with a variety of subsidiary sites, is suggested by Snow (1980:332). During the summer, the population was probably dispersed with small farmsteads serving as the basic settlement unit. As noted, shellfishing in coastal environments increased through the Middle to Late Woodland Period, with increasing numbers of shell midden sites occurring (e.g., Edens and Kingsley 1994).

Woodland Period sites are known in the vicinity of the project area. The Swift site (Thorbahn 1983) lies just north of the project area boundary, and produced Middle and Late Woodland components. According to the MHC site forms, the Burt School site is located just east of the boundary; here, amateur archeologists recovered numerous untyped pottery sherds. Talmage (1982:27) notes several Woodland Period sites north of the project area. On the south coast of Cape Cod, the Willowbend site (Shaw 1989) is a shell and earth midden site dating to the Early through Late Woodland; the nearby Baxter Neck site (Cross and Shaw 1991) was not a shell midden, but demonstrated exploitation of coastal resources from the Late Archaic through Late Woodland Periods. Further afield, at least 10 Woodland Period sites are known on Conanicut Island in Narragansett Bay (Kingsley and Roulette 1990). Numerous Woodland sites are also known on the Rhode Island mainland (e.g., Morenon et al. 1986).

During the early part of the Contact Period, *circa* AD1600, Native Americans known as the Wampanoag (also referred to as the Pokanoket) were documented as inhabiting southeastern Massachusetts, including Cape Cod, Martha's Vineyard, and Nantucket, as well as eastern Rhode Island (i.e. east side of Narragansett Bay). The Wampanoag were longstanding allies of the Massachusetts to the north, and traditional enemies of the Narragansett to the west (Gookin 1972 in Salwen 1978:171). The exact date of first contact with Europeans is uncertain, though one source puts it as early as Verrazano's AD 1524 visit to Narragansett Bay (Wroth 1970 in Salwen 1978:171). Later contacts included Gosnold (AD 1602), Pring (AD 1603), Champlain (AD 1605-1606), and Hudson (AD 1609) (Salwen 1978:171). Bragdon (1996:xi) characterizes southern New England as "Ninnimissinouk," an indigenous term used to refer to the people of the region. Included among the Ninnimissinouk were groups known as the Pawtucket, Massachusett, Narragansett, Peqout, and the Wampanoag. The term "Wampanoag" designates the descendants of the Pokanokets, or the people associated with the sachem Massasoit and the village of Pakanokick noted by John Smith in 1614 (Bragdon 1996:20-25; Grumet 1990:134).

There is little primary documentation pertaining to Wampanoag lifeways; however, Bragdon (1996) recently reviewed all available accounts for a reconstruction of Ninnimissinouk culture at the time of European contact (*circa* AD 1500-1650). Along the coastal zone, a form of "conditional" sedentism with restricted seasonal shifts in subsistence and settlement prevailed (Bragdon 1996:57-59). A more extensive settlement pattern with seasonal movements between the coastal zone and the interior is envisioned by other authors (e.g., DePaoli and Farkas 1982:33-34). Coastal areas were occupied to exploit fertile agricultural soils and estuarine and marine resources such as seals, fish, and shellfish (Speck 1948). Fish were often taken through the use of weirs. Cultivated plants may have included maize, kidney bean, squash, Jerusalem artichoke, and tobacco (Salwen 1978:160-162). The archeological evidence for corn agriculture in southern New England is rather tenuous leading Ceci (1990) to conclude that maize horticulture intensified in response to European contact and the development of the wampum trade (Bragdon 1996:37-38). In the coastal region, populations resided in series of small dispersed villages or hamlets.

Certainly the single most devastating event resulting from European/Native American contact was the introduction of foreign diseases to the latter. The epidemic of AD 1616-1619 decimated the Ninnimissinouk populations by as much as 90 percent, especially in interior locations; groups residing on the offshore islands fared better (Salwen 1978:171). Subsequent to the epidemics, the weakened Wampanoag suffered persistent attacks by the Narragansett to the west. With the arrival of the colonists at Plymouth, the Wampanoag sachem Massasoit and his brother Quadenquina offered a formal friendship treaty, into which the colonists and Native Americans entered. Massasoit had hoped to form an alliance with the colonists, principally to help fend off the Narragansetts (Salwen 1978:171-172).

In any event, King Philip's War in AD 1675-1676 effectively wiped out large portions of the Wampanoag population. Groups living on Cape Cod and the offshore islands did not join Philip in his efforts and thus were able to maintain their villages there (Salwen 1978:172). Nevertheless, the Wampanoag and all other New England Native American societies never recovered from the decimation and disenfranchisement resulting from their loss of the war, and the post-war era witnessed the continual decline and marginalization of the Native American groups in New England. The Wampanoag Tribe of Gay Head (Martha's Vineyard, Massachusetts) is recognized by the Federal Government, as are the Mashantucket Peqout and Mohegan Tribes in Connecticut, and the Narragansett Tribe in Rhode Island.

Historic Period Overview

The land that comprises the city of New Bedford, as well as Acushnet, Fairhaven, Dartmouth, and Westport, was purchased from Massasoit, Grand Sachem of the Wampanoag and his son, Wamsutta in 1652 by 36 European settlers. The tract was named Dartmouth and was incorporated in 1654. The town's early settlement was sparse and consisted of scattered farmsteads and garrisons. During King Philip's War (1675-1676), the Indians overran the settlement and burnt most of the homes (Ricketson 1858:34). After the war, the settlers returned and rebuilt. Following a pattern common throughout Southeastern New England after the war, the settlers chose to establish a village at the head of the Acushnet River rather than disperse into scattered farmsteads. Throughout the first half of the eighteenth century, the Village of Acushnet remained the region's center; however, members of the Russell family began purchasing land along the Acushnet River and the overlooking heights within the present city of New Bedford. In 1765, Nantucket whaling merchant Joseph Rotch purchased ten acres of land from Joseph Russell II and moved his business to New Bedford (Leary 1999). Rotch brought experience, capital and technological innovation, and he and his sons began to develop the future New Bedford as a whaling port (Leary 1999). The Town of New Bedford developed rapidly and by 1771 321 dwellings, 119 shops and warehouses stood in New Bedford and Fairhaven (Vanasse Hangen Brustlin, Inc. 1996:16).

On September 5th, 1778, British troops occupied New Bedford. During their brief stay, they burnt eleven dwellings, twenty shops, a ropewalk, and 34 vessels anchored in the harbor (Ricketson 1858:75; 289). After the end of the Revolutionary War, a number of Nantucket merchants relocated to New Bedford and promptly developed a complex network of finance, shipbuilding, ship supply, and marketing (Georgianna and Aaronson 1993:12). In recognition of the growth of the village established by the Russell family, Bedford Village was designated as the town of New Bedford in 1787 (Leary 1999).

During the decades prior to the Civil War, New Bedford became the leading whaling port in the world (Georgianna and Aaronson 1993:12). By 1857, the city was home to 329 whaling outfits and ships, 10,000

men were engaged in whaling, and $12,000,000 in local capital was invested in these enterprises (Burgy 1932:34).

Because of the prominence of whaling, New Bedford had few other industries in the early nineteenth century. In 1815, a rope walk was located along the Acushnet riverfront in the south part of the city, and a furnace was located on the riverfront near the foot of Madison Street. The northern waterfront was lightly developed with several piers extending into the river. J. Congdon's 1834 map of New Bedford shows a grist mill in the north and west-central portions of the city, while two salt works were in operation in the south peninsula area. Several small cotton factories had been established in the city, the earliest dating from 1811 (Burgy 1932:34).

By the second half of the nineteenth century, the American whaling industry faced severe trouble. During the Civil War, a number of New Bedford whaling vessels were sold to form a major portion of the "Stone fleet," sunk off the harbors of Charleston and Savannah to enforce a naval blockade (Hicks 1907:41). In 1871, the entire Arctic whaling fleet, including 32 ships from New Bedford, was lost when ice floes returned earlier than normal. The total monetary loss to New Bedford was over $1 million (Georgianna and Aaronson 1993: 13; Hicks 1907:41). In 1876, the ice took 12 additional ships from New Bedford's fleet (Georgianna and Aaronson 1993:13). Similar losses occurred in 1888 and 1897.

Improving technology greatly reduced the demand for whale oil. Kerosene largely replaced whale oil for lighting. With the discovery of petroleum in Pennsylvania in 1859, an economical substitute for whale oil lubricant became available (Clayton and Whitley 1975:24). The whaling industry continued in New Bedford until the early twentieth century but became a progressively less important part of the city's economy. The last whaling voyage from the city was made in 1925 by the schooner *John R. Manta* (Leary 1999).

Even during the heyday of whaling, farsighted New Bedford businessmen saw the advantages of enlarging the economic base of the city. Cotton mills had proved profitable in other parts of New England. By 1833, thirteen cotton mills were in operation in nearby Fall River (ODHS 1975:204). U.S. cotton production doubled between 1840 and 1860. By the start of the Civil War, 600 cotton mills were in operation throughout New England (Georgianna and Aaronson 1993:19).

One New Bedford businessman, Samuel Rodman, Jr., a major investor in the Pocasset Mill in Fall River, sought to bring the cotton manufacturing industry to New Bedford by organizing the New Bedford Steam Company in 1846. This attempt was unsuccessful (ODHS 1975:204).

Despite this failure, some New Bedford capitalists saw potential for the cotton milling industry in the city. The city's damp climate minimized static electricity and maximized the fragile cotton fiber's elasticity and break strength (Dunwell 1978:112). The Acushnet River allowed relatively inexpensive shipping of coal and cotton. Sufficient manpower was available, as was investment capital.

The first New Bedford successful cotton mill owners studied the milling business before setting up their own factories. Their initial problem was to decide what goods to produce. Calculations were made to determine which type of goods would produce the maximum profit. The conclusion was that fine sheeting could be made a cost of 12 cents per yard and sold for 14 cents. They decided to concentrate on this product and to produce it by the mule spinning method (Ware 1931:107-108).

Howland and Hussey candle factory/Potomska Mills

From the early nineteenth century until the 1930s, a succession of proprietors undertook two significant manufacturing enterprises within what is now the vicinity of the Project Area. James H. Howland and George Hussey began operating a factory for making candles from whale oil sometime prior to 1836 in the vicinity of the Project Area (Office of Public Archaeology 1988: 26). In 1871, a joint-stock company established the Potomska Mills, a textile manufacturing enterprise that they expanded to include two mills by 1877 on the same site (Sayer 1889: 154; Ellis 1892) (Figures 3-4). The footprint of the former Potomska Mills largely falls within the boundaries of the current Project Area (Figures 5-6). A municipal history of New Bedford outlined the Potomska Mills in the late 1880s:

> The Potomska mills are two in number, located on South Water street, and manufacture fine lawns, sateens, print cloths, cretonnes, jeans, etc. Potomska mill No. 1 was erected in 1871 and went into operation with a capital of $600,000. This mill is four hundred twenty-seven by ninety-two feet in area and four stories high, with a weaving shed one hundred eight by ninety-seven feet, one story high. It is provided with forty-eight thousand spindles and one thousand six looms.
>
> Potomska mill No. 2 was built in 1877, when the capital stock was increased to $1,200,000. The main building is three hundred forty-eight by ninety-two feet in area, four stories high, with an ell one hundred eighty-four by ninety-two feet, two stories high, a weaving shed one hundred eighty-four by ninety-two feet, one story high, and a picker house seventy-one by forty-seven feet, two stories high, all of brick. This mill has fifty-eight thousand three hundred twenty-eight spindles and one thousand four hundred twenty-eight looms. The total number of spindles in both mills is therefore one hundred six thousand three hundred twenty-eight and the total number of looms two thousand four hundred twenty-four. Both mills are driven by Corliss double twenty-eight inch cylinder, five-foot stroke engines, of eight hundred horse power each. The two mills employ about eleven hundred operatives. The company owns twenty-six four-tenement houses, which are rented to help (Sayer et al. 1889: 154).

A c.1911 photograph of the mill shows its appearance at that time (Figure 7).

Ownership operated the Potomska Mills into the twentieth century, expanding the site with the addition of a third mill in 1924 (Figure 8)(Sanborn 1924) but closed the entire site during the 1930s due to the ongoing economic depression. The Works Progress Administration razed the mill buildings and other site elements in 1935 and 1936 (Taber 1937). Following demolition of the Potomska Mills in the 1930s, no private or public entities intensively redeveloped the overall site in ways that compared with previous uses, leaving much of the property to be reclaimed by open field vegetation. The 1950 Sanborn map (Figure 9) indicates that no structures remained standing within the Project Area at that time. A 1995 aerial photograph shows the condition of the Project Area at that time (Figure 10).

3.0 ARCHEOLOGICAL SENSITIVITY ASSESSMENT

3.1 PREHISTORIC-PERIOD ARCHEOLOGICAL SENSITIVITY

There are no previously recorded prehistoric archeological sites or resources located within the Project Area or within one kilometer of the Project Area. Previous studies have identified several prehistoric sites within the Acushnet and Paskamanset River drainages, which suggest that any intact soils within the Project Area could contain unidentified prehistoric archeological resources (Office of Public Archaeology 1988; JMA 2000). In addition, contact and historic period accounts identify a potential prehistoric site known as "Smoking Rocks" near the northern margin of the Project Area that served as a meeting site for local native groups (Office of Public Archaeology 1988:26). However, the location of this site is highly conjectural given the imprecise nature of the accounts. At the same time, given the documented degree of disturbance of soils within the Project Area, there is a low probability that previously unrecorded and undisturbed prehistoric sites exist within the boundaries of the Project Area.

3.2 HISTORIC-PERIOD ARCHEOLOGICAL SENSITIVITY

As discussed above, various property owners have utilized land within the Project Area for industrial purposes since the mid-nineteenth century. Although structures related to these industries have been demolished, the overall footprints of any substantial masonry or even frame structures may remain buried within the Project Area. However, given the general nature of the documented industries (candle-making, textile manufacture) and their overall above-ground vertical orientation (especially with regards to the Potomska Mills site, which included multi-storied buildings), the most useful site elements for documentation and interpretation were removed during demolition episodes. As a result, sub-surface excavation of remaining structural footprints has a low potential for yielding data irretrievable through background research study. Review of current aerial photography demonstrates that no substantial above ground structures related to previous industrial activities remain within the Project Area (Figure 2).

Architectural surveys of New Bedford have identified historic mill sites and neighborhoods in the vicinity of the Project Area (MHC 1981; Office of Public Archaeology 1988; Heath 2005; New Bedford Economic Development Council 2008). More specifically, these studies identified standing historic mill structures throughout the city of New Bedford and neighborhoods that contain distinct three-decker style detached dwellings that are commonly associated with historic textile mill communities in Massachusetts. Several examples of worker housing associated with the Potomska Mills are depicted on maps southwest of the Project Area (see Figures 3, 5, 7-9). Again, these studies did not identify extant historic structures within the Project Area, but noted the presence of standing mill and domestic structures in the vicinity of the Project Area.

3.3 PRIOR GROUND DISTURBANCE

As discussed above, most areas within the Project Area have been subjected to some degree of disturbance through nineteenth and twentieth century activities that included grading and the construction of large industrial buildings. In addition to disturbance from these activities, much of the area bordering the shore has been filled to create land at grade to the current shoreline. As a result, the Project Area does

not contain intact soil stratigraphy.

4.0 CONCLUSIONS AND RECOMMENDATIONS

One previously recorded historic archeological site (MHC No. NBE-HA-08) is located within the Project Area, while three additional historic sites are located within one kilometer of the Project Area; no prehistoric archeological sites have been recorded within one kilometer of the Project Area. Period maps depict a textile mill site (the Potomska Mills) dating from the late nineteenth into the mid-twentieth centuries within or immediately adjacent to the Project Area. There are no previously identified National Register of Historic Places (NRHP)-listed/properties located within or immediately adjacent to the Project Area.

In the opinion of JMA, no additional cultural resources background research or archeological sub-surface investigation is necessary in the upland portions of the Project Area. Although archeological remnants of the Potomska Mills may exist in the Project Area (the MHPC site form was prepared on the basis of documentary research only) the demolition of the mill buildings removed any critical data associated with the former textile mill that may have qualified the site for eligibility for listing on the National Register of Historic Places (NRHP). Any archeological remains would provide little in the way of important information relating to the history of the Potomska Mills, or cotton textile manufacturing that cannot be better obtained from non-archeological sources. The extensive layout and building activities related to the original construction of the Potomska Mills probably disturbed if not entirely disturbed/removed any archeological deposits and features related to previous land use, including any Native American occupation. Even if present, any archeological remains are presently beneath a layer of demolition rubble and fill of undetermined depth. Project-related construction activities include and the placement of crushed stone and additional fill and will not disturb any intact structural foundation footprints and deposits associated with the former mill site or earlier archeological sites (Figure 11).

5.0 REFERENCES CITED

Bragdon, Kathleen J.
1996 *Native People of Southern New England 1500–1650*. University of Oklahoma, Norman.

Burgy, J. Herbert
1932 *The New England Cotton Textile Industry: A Study in Industrial Geography*. Waverly Press, Baltimore, Maryland.

Ceci, Lynn
1990 Radiocarbon Dating "Village" Sites in Coastal New York: Settlement Pattern Changes in the Middle to Late Woodland. *Man in the Northeast* 39:1-28.

Clayton, Barbara, and Kathleen Whitley
1975 *Guide to New Bedford*. Capital City Press, Montpelier, Vermont.

Congdon, J.
1834 *Map of New-Bedford*. Pendleton, Boston, Massachusetts.

Cross, John R. and Leslie E. Shaw
1991 *A Long-Term Record of Short-Term Use: Archaeological Data Recovery of the Baxter Neck Site (19-BN-642), Barnstable, Massachusetts.* Report submitted to Oxbow Realty. Inc. U. Mass Archaeological Services, University of Massachusetts, Amherst.

DePaoli, Neill, and Maxine Farkas
1982 Patterns of Settlement and Land Use. In *Historic and Archaeological Resources of Southeast Massachusetts: A Framework for Design Decisions,* by N. DePaoli, M. Farkas, P. Stott, and S. Zimmerman. Massachusetts Historical Commission. Boston, Massachusetts.

Dincauze, Dena F.
1974 An Introduction to the Archaeology in the Greater Boston Area.*Archaeology of Eastern North America* 2:39-67.

1975 The Late Archaic Period in Southern New England.*Arctic Anthropology* 12(2):23-34.

Dunwell, Steve
1978 *The Run of the Mill*. David R. Godine, Boston, Massachusetts.

Edens, Christopher S., and Robert G. Kingsley
1994 *The Spectacle Island Site: Middle to Late Woodland Adaptations in Boston Harbor, Suffolk County, Massachusetts. Central Artery/Tunnel Project, Boston, Massachusetts.* Report submitted to the Massachusetts Highway Department. Timelines, Inc. in association with John Milner Associates, Inc. Littleton, Massachusetts.

Ellis, Leonard Bolles
1892 *History of New Bedford and its Vicinity, 1602-1892*. D. Mason & Co., Syracuse, New York.

Everts and Richards
1895 *New Topographical Atlas of Surveys, Bristol County, Massachusetts*. Everts and Richards, Philadelphia, Pennsylvania.

Fowler, William S.
1956 Sweet Meadow Brook: A Pottery Site in Rhode Island. *Report of the Narragansett Archaeological Society of Rhode Island*.

Georgianna, Daniel, and Roberta Hazen Aaronson
1993 *The Strike of 1928*. Spinner Publications, Inc., New Bedford, Massachusetts.

Grumet, Robert S.
1990 *National Historic Landmark Theme Study. Historic Contact: Indians and Colonists in Northeastern North America, 1497-1783*. (Distribution Draft I) Cultural Resources Planning Branch, Mid-Atlantic Region, National Park Service, Philadelphia, Pennsylvania

Heath, Kingston W.
2005 Housing the Worker: the Anatomy of the New Bedford, Massachusetts, Three-Decker. *Perspectives in Vernacular Architecture* 10:47-59.

Hicks, Edward H.
1907 The Reigning Industry. In *New Bedford Mercury One Hundredth Anniversary Supplement, 1807-1907*. New Bedford Mercury, New Bedford, Massachusetts.

Hoffman, Curtiss
1985 Revising the Late Archaic Period in Southern New England. *Archaeology of Eastern North America* 13:58-78.

John Milner Associates, Inc. [JMA]
2000 New Bedford Harbor Superfund Site, New Bedford, Massachusetts, Archeological Background Study and Sensitivity Analysis. Ms on file, Massachusetts Historical Commission, Boston.

Kelly, Robert L., and Lawrence C. Todd
1988 Coming into the Country: Early Paleoindian Hunting and Mobility. *American Antiquity* 53:231-244.

Kingsley, Robert G., and Billy R. Roulette, Jr.
1990 *The Joyner Site: Late Archaic-Early Woodland Adaptations and Cultural Dynamics on Conanicut Island, Rhode Island.* Report submitted to Wilbur Smith Associates for the Rhode Island Department of Transportation. John Milner Associates, Inc., West Chester, Pennsylvania.

Kinsey, W. Fred
1972 *Archeology of the Upper Delaware Valley: A Study of the Cultural Chronology of the Tocks Island Reservoir*. Anthropological Series of the Pennsylvania Historical and Museum Commission No. 2, Harrisburg, Pennsylvania.

Leary, Richard G.
1999 A Chronological History of New Bedford. Website: http://www.newbedford.com/chrono.html

Lerner, Sheeren
1984 Defining Prehistoric Frontiers: A Methodological Approach. In *Exploring the Limits: Frontiers and Boundaries*, edited by Suzanne P. DeAtley and Frank J. Findlow, pp. 67-88. B.A.R. International Series, No. 223, Oxford, U.K.

Massachusetts Historical Commission [MHC]
1981 MHC Reconnaissance Survey Town Report, New Bedfrord. Ms. on file, Massachusetts Historical Commission.

Morenon, E. Pierre, P. Pearson, and P. McDowell
1986 *Archaeological Sites at an Ecotone: Route 4 Extension, East Greenwich and North Kingstown, Rhode Island*. Occasional Papers in Archaeology No. 14, Rhode Island College, Providence, Rhode Island.

Mulholland, Mitchell T.
1988 Territoriality and Horticulture: A Perspective for Prehistoric Southern New England. In *Holocene Human Ecology in Northeastern North America*, edited by George P. Nicholas, pp. 137-166. Plenum Press, New York.

New Bedford Economic Development Council
2008 *City of New Bedford Historic Mill Inventory*. New Bedford Economic Development Council.

Nicholas, George P.
1987 Rethinking the Early Archaic. *Archaeology of Eastern North America* 15:99-124.

Office of Public Archaeology
1988 Final Report of an Archaeological and Architectural Reconnaissance Survey of Six Proposed Sites for a Secondary Wastewater Treatment Plant and Solids Disposal Facilities in New Bedford, Massachusetts. Ms. on file, Massachusetts Historical Commission.

Old Dartmouth Historical Society [ODHS]
1975 *New Bedford and Old Dartmouth: A Portrait of a Region's Past*. Old Dartmouth Historical Society, New Bedford, Massachusetts.

Pickering, Edward, P.E., CPSSc.
2010 New Bedford Harbor Development Commission South Terminal CDF, Field Study of Soils. Ms. on file, Apex Industries, LLC, Boston.

Ricketson, Daniel
1858 *The History of New Bedford*. Daniel Ricketson, New Bedford, Massachusetts.

Ritchie, William A.
1932 The Lamoka Site, the Type Station of the Archaic Algonkin Period in New York. Researches and Transactions of the New York State Archaeological Association 7(4):79-134.

1969 *The Archaeology of Martha's Vineyard: A Framework for the Prehistory of Southern New England*. Natural History Press, Garden City, New York.

Rouse, Irving
1947 Ceramic Traditions and Sequences in Connecticut *Archaeological Society of Connecticut Bulletin* 21:10-25.

Salwen, Burt
1978 Indians of Southern New England and Long Island: Early Period. In*Handbook of North American Indians, Volume 15, Northeast* edited by B.G. Trigger. Smithsonian Institution, Washington, D.C.

Sanborn Map Company [Sanborn]
1924 *Insurance Maps of New Bedford and Fairhaven, Massachusetts*. Sanborn Map Company, New York.

1950 *Insurance Maps of New Bedford and Fairhaven, Massachusetts*. Sanborn Map Company, New York.

Sayer, William L., ed.
1889 *New Bedford, Massachusetts, its History, Industries, Institutions, and Attractions*. New Bedford Board of Trade.

Shaw, Leslie
1989 *The Fox 3 (Willowbend) Site: Woodland Period Adaptations on Cape Cod.* Report submitted to ACM Associates, Inc. UMass Archaeological Services, University of Massachusetts, Amherst.

Simon, Brona G., Peter F. Thorbahn, Nain E. Anderson, and Leonard W. Loparto
1980 Acushnet Wastewater Facilities Project: Archaeological Reconnaissance Survey. Ms. on file, Massachusetts Historical Commission, Boston.

Smith, Carlyle S.
1950 The Archaeology of Coastal New York. *American Museum of Natural History Anthropology Papers* 43:2.

Snow, Dean R.
1980 *The Archeology of New England*. Academic Press, New York.

Speck, Frank G.
1948 Utilization of Marine Life by the Wampanoag Indians of Massachusetts.*Journal of the Washington Academy of Sciences* 38(8):257-205.

Starna, William A.
1979 The Archaic Concept: Its Development in North American Prehistory. *The New York State Archeological Association Bulletin* 75:67-77.

Taber, Edgar F.
1937 Condensed Data Relating to New Bedford Cotton Mills. *Old Dartmouth Historical Sketches* 67.

Talmage, Valerie
1982 Prehistoric Overview. In *Historic and Archaeological Resources of Southeast Massachusetts: A Framework for Design Decisions,* by N. DePaoli, M. Farkas, P. Stott, and S. Zimmerman. Massachusetts Historical Commission, Boston.

Thorbahn, P.F.
1983 *Archaeological Examination of the Swift Sites, Acushnet, Massachusetts*. The Public Archaeology Laboratory, Inc. Prepared for Camp, Dresser, McKee Inc., Boston, Massachusetts.

Thorbahn, Peter, Leonard Leparto, Deborah Cox, and Brona Simon
1980 *Prehistoric Settlement Processes in Southern New England: Archaeological Research.* Public Archaeology Laboratory, Brown University, Providence, Rhode Island.

United States Department of Agriculture [USDA]
1981 *Soil Survey of Bristol County, Massachusetts, Southern Part.*

Vanasse Hangen Brustlin, Inc.
1996 *New Bedford Harbor: Historic Overview Natural Resources Uses Status Report*. Prepared for New Bedford Harbor Trustee Council, Gloucester, Massachusetts.

Ware, Caroline F.
1931 *The Early New England Cotton Manufacture: A Study in Industrial Beginnings*. Houghton Mifflin Company, Boston, Massachusetts

Witthoft, John
1953 Broad Spearpoints and the Transitional Period Cultures. *Pennsylvania Archaeologist* 23(1):4-31.

FIGURES

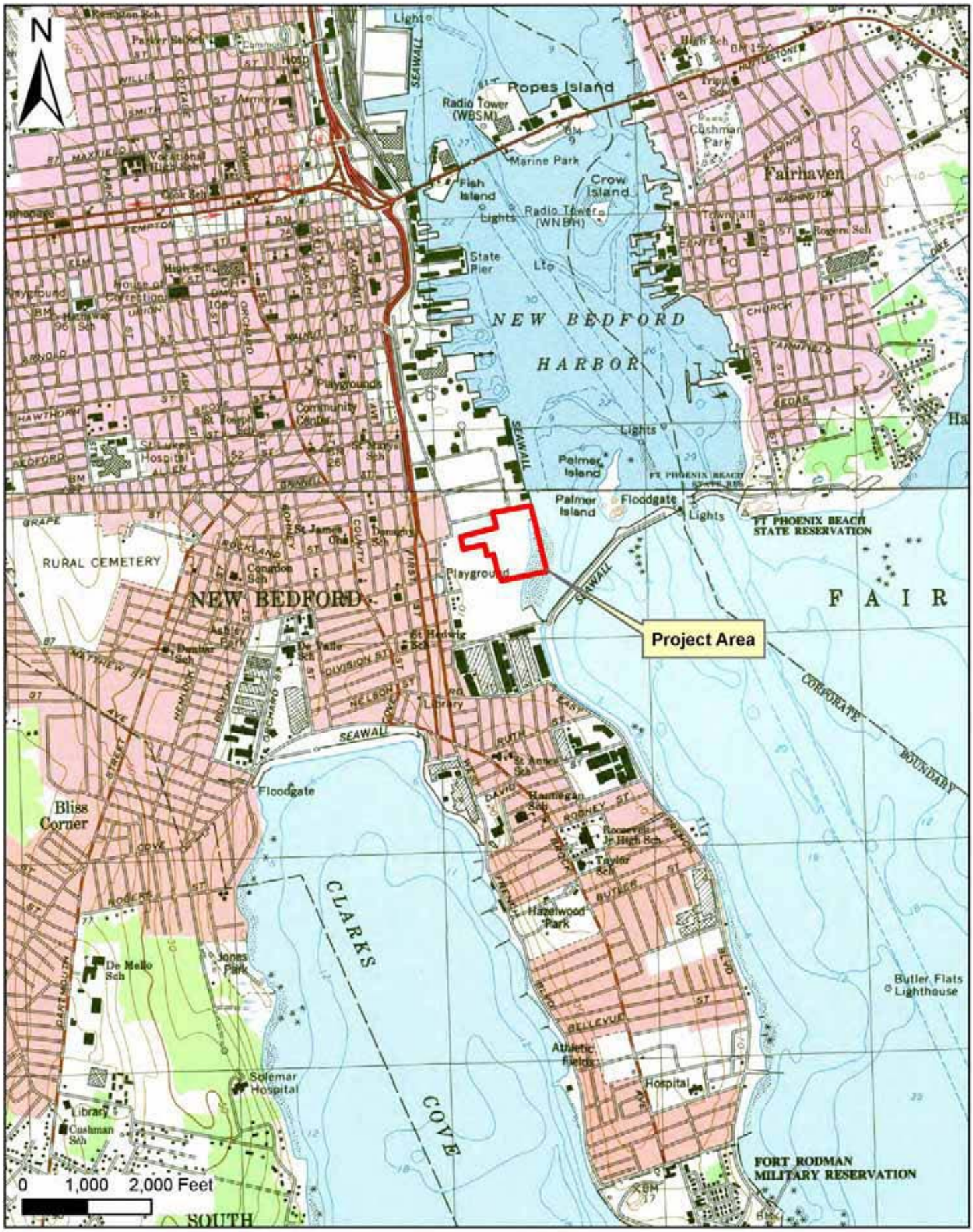


Figure 1. Detail of the New Bedford North, M.A. and New Bedford South, M.A. (USGS) 7.5-minute topographic quadrangles depicting the location of the Project Area.

Figure 2. Aerial photography view (2009) depicting the location of the Project Area within the current built landscape.

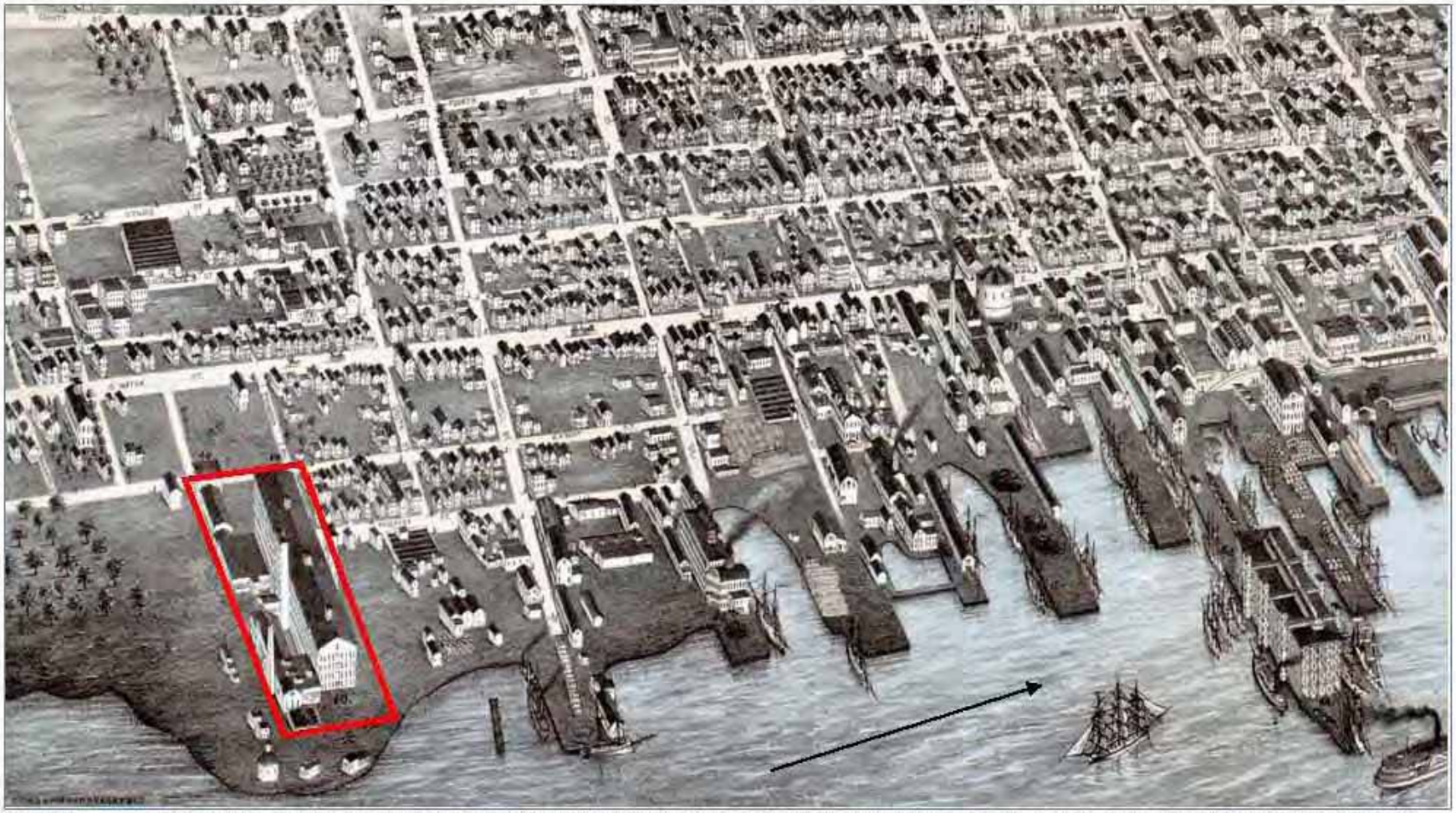


Figure 3. Detail from an illustrated aerial view of New Bedford, Massachusetts, 1876, depicting the location of the Potomska Mills within the Project Area. From *View of the City of New Bedford, Mass.* Drawn and published by D. H. Bailey and Company. North arrow (approximate) and annotation added by JMA 2010.

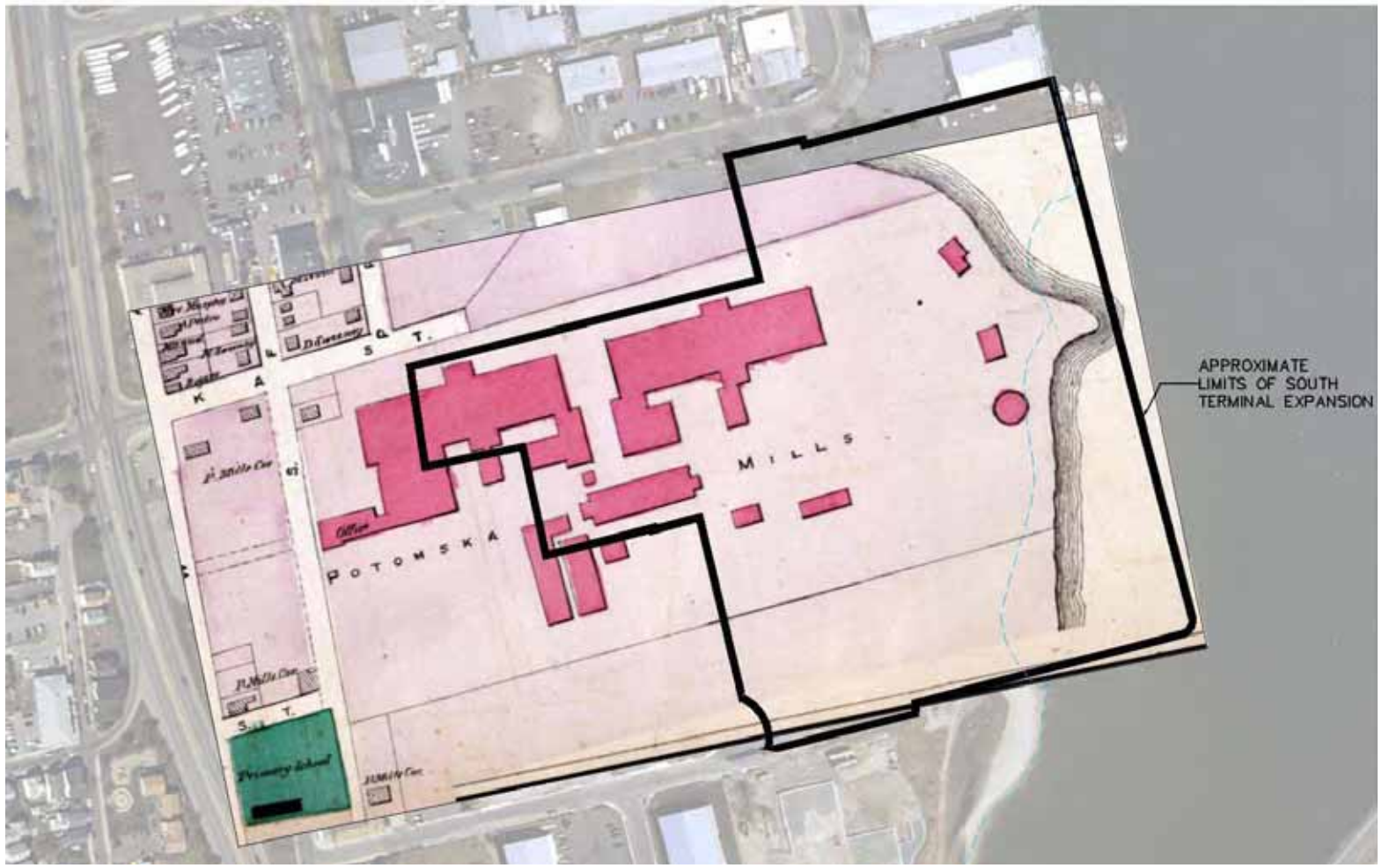
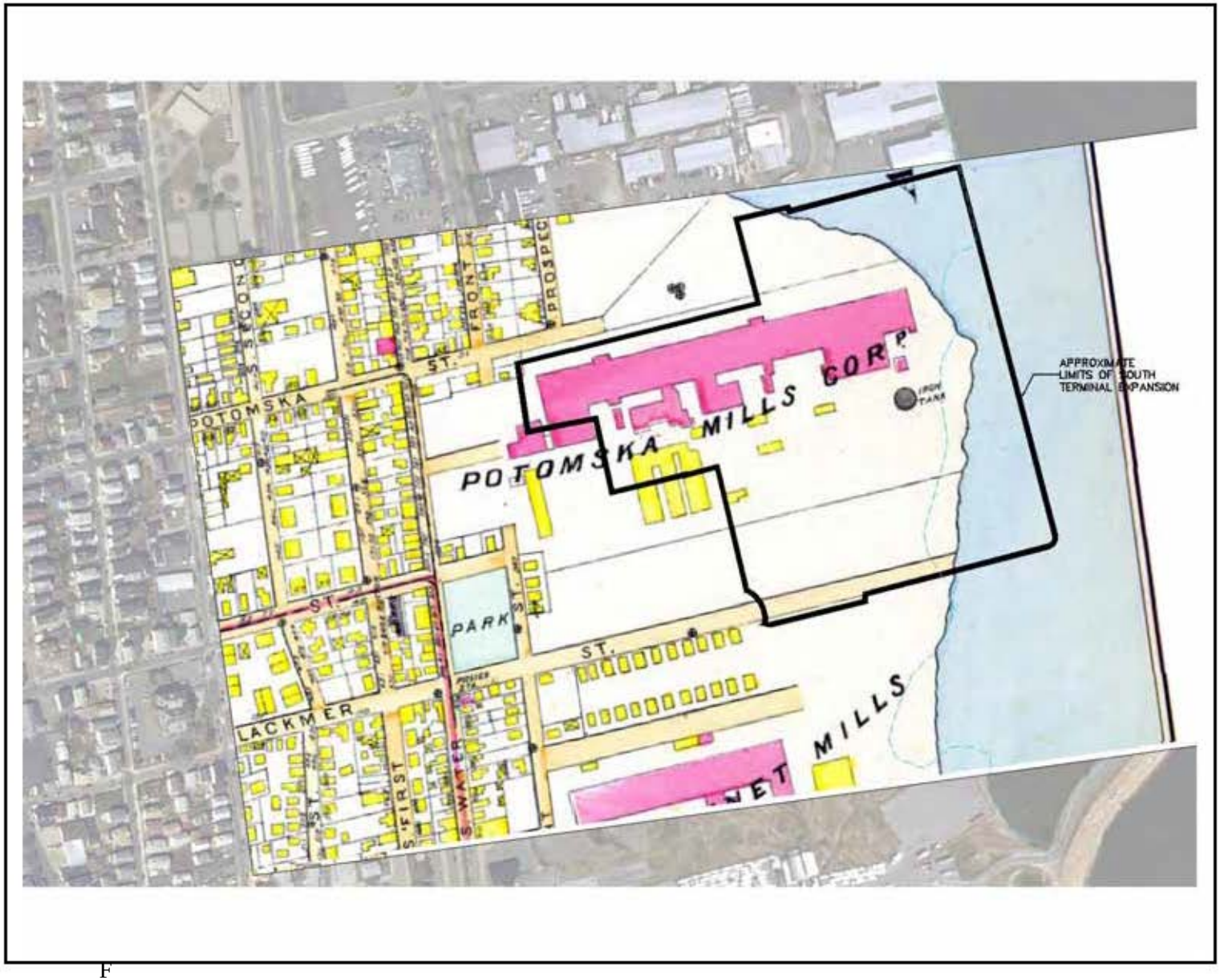


Figure 4. Detail of Potomska Mills within the Project Area, from *Atlas of New Bedford City, Massachusetts, 1881*. North arrow (approximate) and annotation added by JMA2010.



F

Figure 5. Details of Potomska Mills within the Project Area, from *New Topographical Atlas of Survey, Bristol County, Massachusetts, 1895*. North Arrow (approximate) and annotation added by JMA 2010.

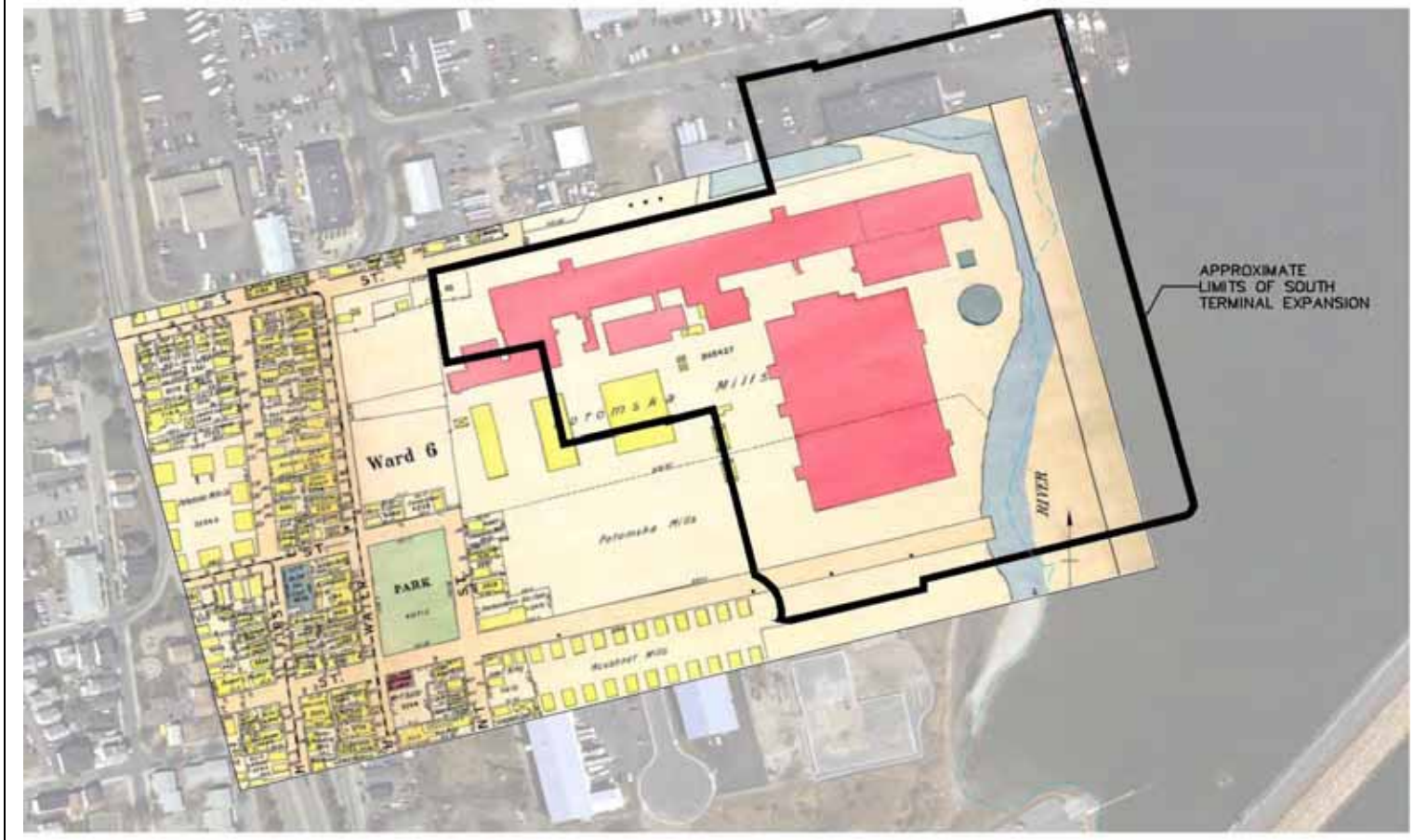


Figure 6. Details of Potomska Mills within the Project Area, from *Atlas of the City of New Bedford Massachusetts, 1911*. North arrow (approximate) and annotation added by JMA 2010.

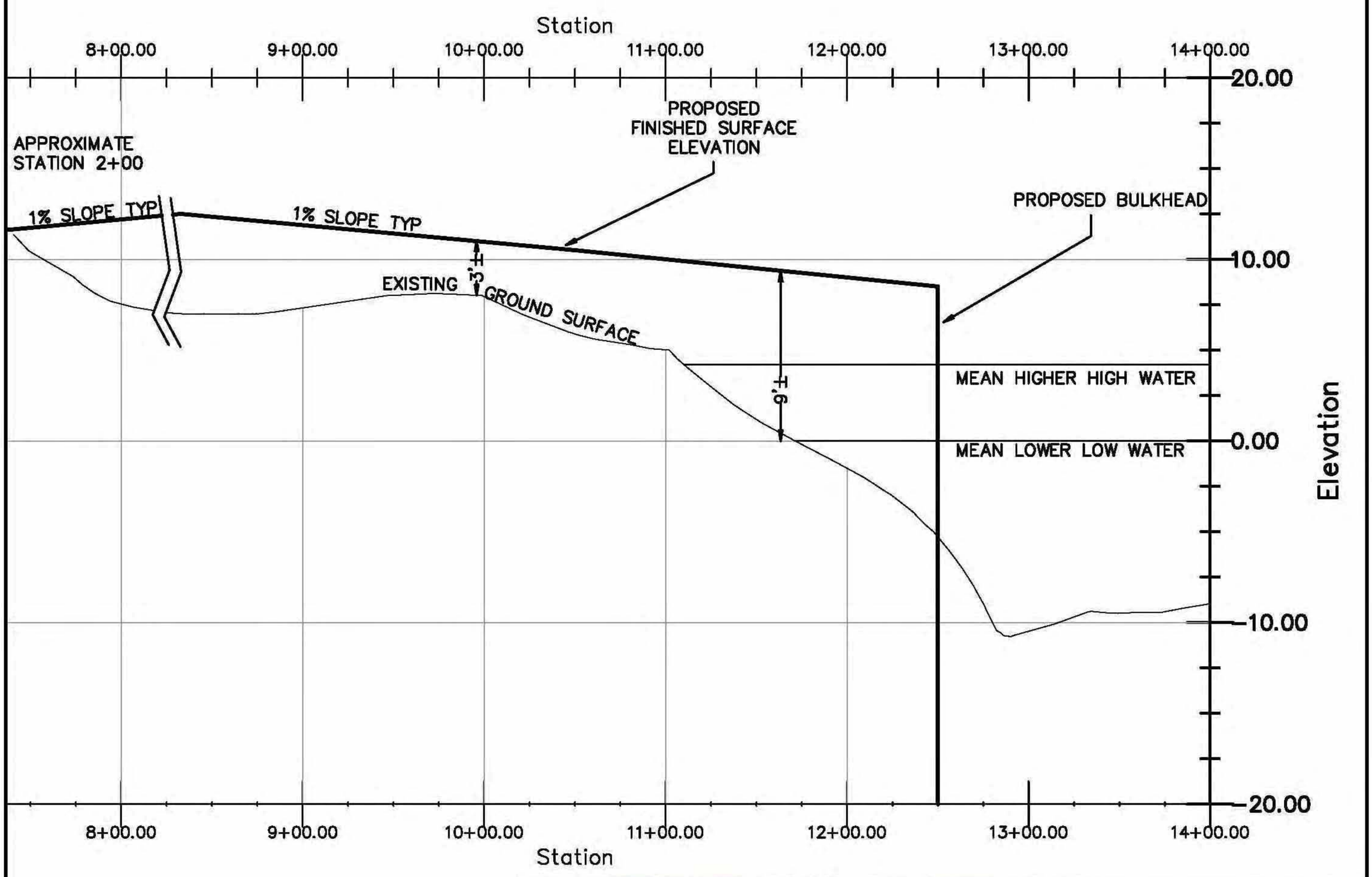
Figure 7. Views of Potomska Mills from a photograph (top) and postcard (bottom), both produced circa 1911.

Figure 8. Details of Potomska Mills within the Project Area, from *Insurance Maps of New Bedford and Fairhaven, Massachusetts*. Sanborn Map Company, 1924. North arrow (approximate) and annotation added by JMA 2010.

Figure 9. Detail of Potomska Mills site within the Project Area, from *Insurance Maps of New Bedford and Fairhaven, Massachusetts*. Sanborn Map Company, 1950. North arrow (approximate) and annotation added by JMA 2010.

Figure 10. Aerial photograph of the Project Area in 1995. North arrow (approximate) and annotation added by JMA 2010. (Scale: 1 inch = 450 feet)

PROFILE VIEW OF Alignment – A–A'

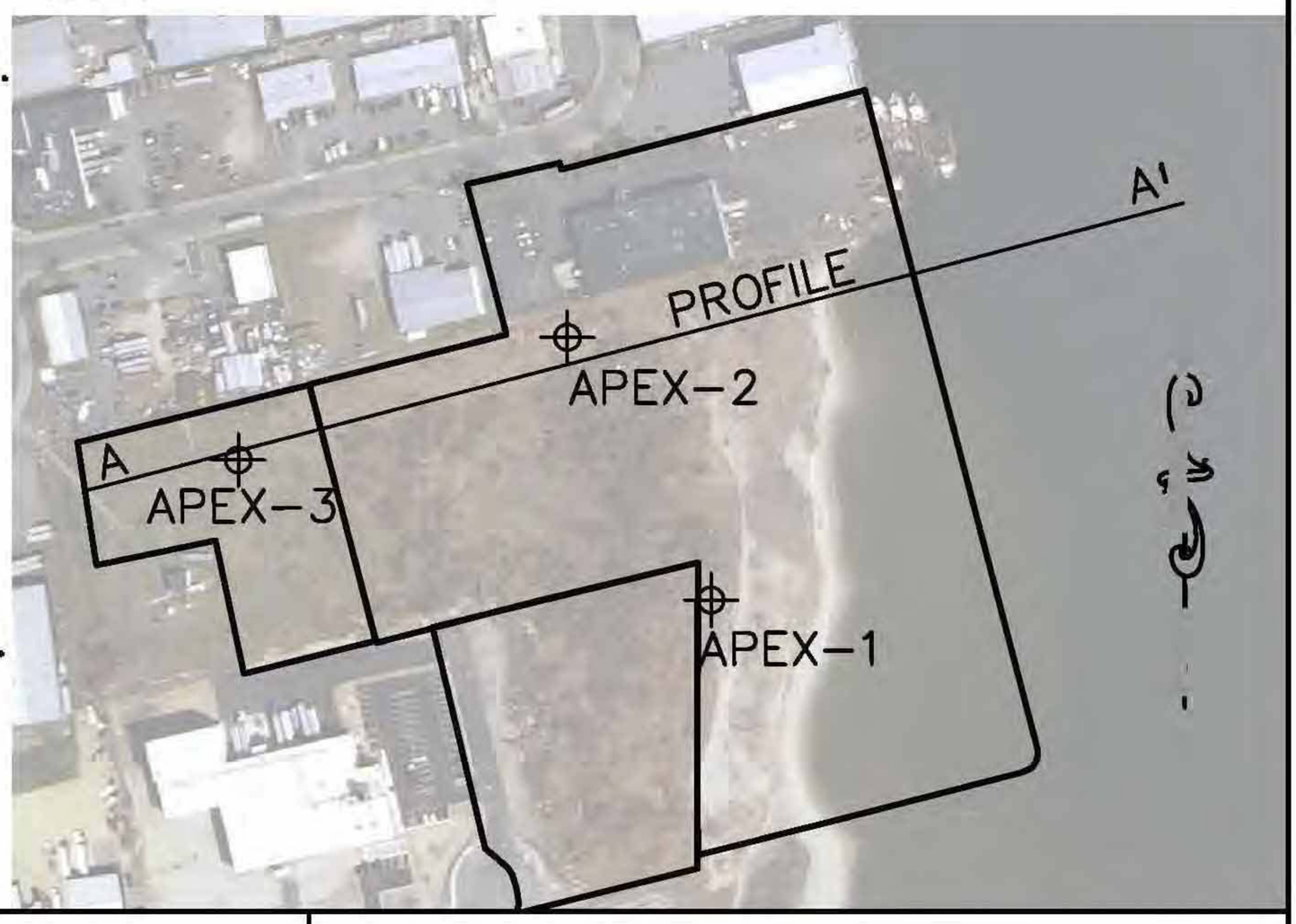


PROFILE SCALE 1"=100' HOR.
1"=10' VER.

0 50 100 200H
0 5 10 20V
FEET

PLAN SCALE 1"=400' HOR.

0 200 400 800H
FEET



Apex Companies, LLC.

Figure 11.

DRAWING TITLE:
SOUTH TERMINAL MARINE INFRASTRUCTURE PARK
EXISTING AND PROPOSED SURFACE GRADES

APPENDIX I:

NRCS Soil Report for the Project Area

Custom Soil Resource Report
Soil Map

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Units

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other

Special Line Features
- Gully
- Short Steep Slope
- Other

Political Features
- Cities

Water Features
- Oceans
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

MAP INFORMATION

Map Scale: 1:3,070 if printed on A size (8.5" × 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:20,000.

Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 19N NAD83

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Bristol County, Massachusetts, Southern Part
Survey Area Data: Version 5, May 5, 2008

Date(s) aerial images were photographed: 7/25/2003

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

ATTACHMENT G

Underwater Area:

Provisional Special Use Permit,* and the *Executive Summary - Phase I Underwater Archaeological Survey* and the *Work Plan – Phase IB Underwater Archaeological Investigations (Dolan Research).

The COMMONWEALTH OF MASSACHUSETTS
BOARD OF UNDERWATER ARCHAEOLOGICAL RESOURCES
EXECUTIVE OFFICE OF ENERGY AND ENVIRONMENTAL AFFAIRS
251 Causeway Street, Suite 800, Boston, MA 02114-2136
Tel. (617) 626-1200 Fax (617) 626-1240 Web Site: www.mass.gov/czm/buar/index.htm

June 7, 2010

J. Lee Cox, Jr.
Dolan Research, Inc.
30 Paper Mill Road
Newtown Square, PA 19073

RE: New Bedford South Terminal Dredging Project, New Bedford
Provisional Special Use Permit 10-004

Dear Mr. Cox:

This letter confirms the acceptance and provisional approval of Dolan Research, Inc.'s Special Use Permit application by the Massachusetts Board of Underwater Archaeological Resources. This permit (10-004) is for the marine archaeological survey and documentation related to the New Bedford South Terminal Dredging Project, New Bedford, for the project area as detailed on the chart accompanying the application. The duration of this permit is one year from the date of issuance with its expiration date as 7 June 2011.

This permit is herein granted dependent upon Dolan Research, Inc.'s compliance with the Board's Regulations (312 CMR 2.00). All work must be conducted in accordance with Board directives, standard conditions and the Scope of Services included in the application. Activities allowed under this permit include remote sensing, archaeological site examination and recovery to determine the presence or absence of potential submerged archaeological resources and undertake necessary recovery and documentation of these resources in the permit area. For projects subject to Section 106 of the National Historic Preservation Act of 1966, as amended (36 CFR 800), permittees are directed to consult with and provide their proposed research design and methodology to the State Historic Preservation Office/Massachusetts Historical Commission and the lead federal agency in accordance with 36 CFR 800.4, prior to conducting the field investigation. This permit does not relieve the permittee or any other person of the necessity of complying with all other federal, state and local statutes, regulations, by-laws and ordinances.

Review by the full Board of your provisional permit has been scheduled for Thursday, September 30, 2010 at 1:30 PM in the CZM Conference Room located on the 8th floor of 251 Causeway Street in Boston.

If you should have any questions or need further assistance, do not hesitate to contact the Board at the address above or by telephone at (617) 626-1141.

Sincerely,

Victor T. Mastone
Director

/vtm

Cc: Brona Simon, MHC
Kate Atwood, ACOE (via email)
Robert Boeri, MCZM (via email)
David Janik, MCZM (via email)
Mary Bruno, Apex Companies LLC (via email)

Dolan Research, Inc.

30 Paper Mill Road, Newtown Square, PA 19073
610 971 1073 www.dolanresearch.com

June 17, 2010

Victor Mastone
Director
Massachusetts Board of Underwater Archaeological Resources (MBUAR)
251 Causeway Street, Suite 800
Boston, MA 02114

Electronic Transmission

Re: Executive Summary
Phase I Underwater Archaeological Survey for South Terminal Marine Infrastructure Park
New Bedford Harbor,
New Bedford, Massachusetts

Dear Mr. Mastone:

This letter is to provide a summary of fieldwork activities for the referenced project. Underwater archaeological fieldwork activities associated with the project were successfully completed by June 11, 2010. Magnetic, acoustic, and seismic remote sensing survey data were collected across the approximately 1,350 feet long and 850 feet wide project area (31 acres) by staff from Apex Companies.

These investigations were conducted in accordance with the instructions and intents of various applicable Federal and State legislation and guidelines governing the evaluation of project impacts on archaeological resources, notably: Section 5 of the Abandoned Shipwreck Act of 1987; Section 106 of the National Historic Preservation Act; 23 CFR 771, as amended October 30, 1980; and the amended Procedures for the Protection of Historic and Cultural Properties as set forth in 36 CFR Part 800 (October 1, 1986).

Summary of Field Operations

Fieldwork operations were conducted from a 21-foot fiberglass workboat. Magnetic, acoustic and seismic data were collected during the remote sensing investigation. All geophysical instruments were integrated with a DGPS for accurate location referencing information.

Magnetic data were collected with a Geometrics G-882 cesium-vapor marine magnetometer system consisting of a high-sensitivity in-water marine magnetic sensor coupled to a digital data processing computer system running Geometrics MagSea processing software. The MagSea software was utilized to calibrate the system and to record and display the raw digital magnetic data. The G-882 system was designed for shallow water applications (<50m) and is easily deployed from a small survey vessel. The magnetic sensor was deployed from the stern of the survey vessel far enough behind the vessel (50 feet) to be beyond the effects of the magnetic field generated by the boat's engines and electronics. In shallow water the depth of the sensor was controlled by attaching the cable leader to a floatation device such that the swim depth of the sensor remained constant, approximately one to two feet below the water surface. This allowed

for the survey to be conducted in both shallow and deep-water conditions without the risk of hitting the bottom of the harbor with the sensor. The system was set up to output the raw digital magnetic signature values to a computer screen for on-board real-time initial interpretation and to the project positioning system computer (running HYPACK software) for permanent data storage and later post-processing and interpretation. The HYPACK system logged the raw magnetic data, time stamping each reading and tagging it with DGPS navigation positions obtained from the survey positioning system. Readings were collected at a rate of once per second. The sensor tow fish "layback" was entered into the HYPACK system and the correct position of the sensor was calculated and logged.

Acoustic data were collected with an Edgetech dual frequency Side Scan Sonar tow-fish matched with an Edgetech Digital Control Interface (DCI). The Side Scan tow fish was towed off a stern davit in the Channel Inner Area to allow flying depths of approximately eight feet. The DCI board was connected to a computerized Side Scan Sonar data acquisition and processing system for shipboard data collection and processing. Chesapeake Technologies SonarWiz software was used for digital data recording from the tow fish and integrated the data with navigation inputs for real-time viewing of the Side Scan image in pseudo-map format. The data was stored digitally for future post-processing and interpretation using Chesapeake's Technologies SonarWeb. The data were recorded and displayed as digital location-corrected pseudo-maps of the acoustic response of the harbor bottom.

Sub-bottom data were gathered with an EdgeTech SubBottom SB-424 4-24 kHz with 3100 topside unit. The Sub Bottom tow fish was towed off a stern davit in the Channel Inner Area to allow flying depths of approximately six feet. Chesapeake Technologies SonarWiz software was used for digital data recording from the tow fish and integrated the data with navigation inputs for real-time viewing of the images. The data were stored digitally for future post-processing and interpretation using Chesapeake's Technologies SonarWeb.

Track-line spacing for the survey was established at 50-feet offsets for the collection of all remote sensing data. The survey direction was primarily north to south, along the length of the harbor.

Preliminary Findings

Although analysis of remote sensing field data is ongoing, preliminary examination of the magnetic, acoustic, and seismic remote sensing records confirms the presence of 14 magnetic targets and 16 sonar contacts. However, most of these targets appear to be associated with shoreline-related and other debris, natural rock outcroppings, or utility crossings. Only one of these 30 targets, M4/S5, is considered suggestive of a submerged cultural resource. The potentially significant target (M4/S5) had both a magnetic component and was identified above the bottom surface on the sonar data. Magnetic contouring revealed a target with an 18 gamma, multi-component signature that extended for almost 100 feet. Corresponding sonar data at the location confirmed the presence of a shipwreck-like structure that extended for approximately 85 feet and was partially buried in the bottom surface. One end of the structure is at least partially visible above the bottom surface. Sonar records also indicate a collection of debris along the perimeter of the site (Figure 1).

Additional Phase IB-level (ground truthing) underwater archaeological investigations are recommended at the target site to identify the nature of the target source and to determine if the site is potentially historically significant. A Work Plan for conducting Phase IB investigations at the target site will be submitted under separate cover.

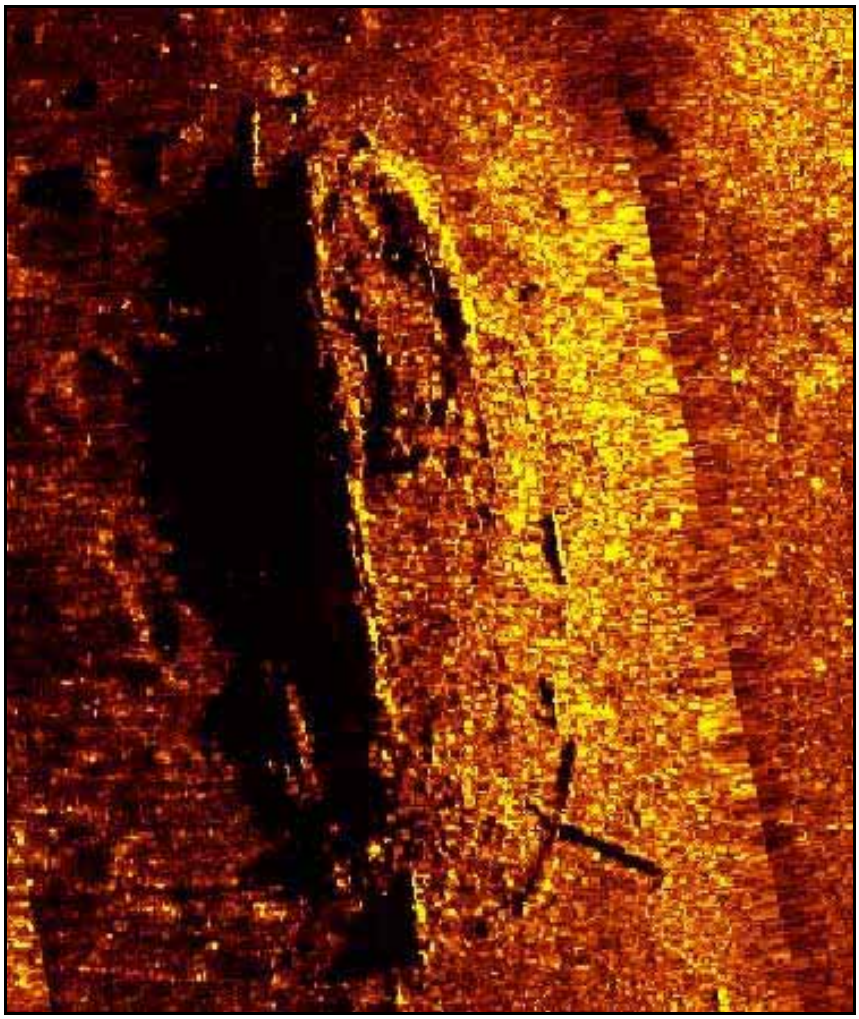


Figure 1. Sonar Image of Target M4/S5.

Complete findings for the project will be included in the Draft Report which will be submitted to MBUAR within the next four weeks. It is anticipated that results from the Phase IB investigations will also be included in the Draft Report.

Sincerely,

J. Lee Cox, Jr.
Director

WORK PLAN

Phase IB Underwater Archeological Investigations
Remote Sensing Target M4/S5
New Bedford South Terminal Marine Infrastructure Park Project

Submitted to:
Apex Companies, LLC
184 High Street, Suite 502
Boston, MA 02110

Submitted by:
J. Lee Cox, Jr.

Dolan Research, Inc.
30 Paper Mill Road
Newtown Square, PA 19073

June, 2010

Signature characteristics of remote sensing target M4/S5 are considered suggestive of a submerged cultural resource. Additional underwater archaeological investigations have been recommended to identify to source of the remote sensing anomaly. A Phase IB-level (ground truthing) investigation is proposed to determine the nature of the material(s) responsible for generating the remote sensing anomalies at Target M4/S5 and to evaluate the potential historic properties of the target source.

Remote sensing data confirms that the target is centered at (MA State Plane, NAD 83, feet):

E 816,404
N 2,688,482

Prior to diving activities, more detailed, high frequency (1200 kHz) sonar data will be gathered at the site to determine the overall extent of the target source. After identifying the limits and center of the target source, diving activities will be conducted to identify the target source. Divers equipped with SCUBA equipment will examine the exposed structure at the site and probe the exterior of the site to identify buried structural components of the site. However, no excavations will be conducted during this investigation. Conditions permitting, photographs of significant features of the hull structure will be captured. All diagnostic features at the site, including fastener types and general hull construction techniques will be recorded and divers will gather sufficient data to render a general site plan of the site.

The goal of the investigation will be to determine National Register-eligibility status of the submerged site. Based upon conclusions derived from the investigation, more detailed Phase II-level investigations may be recommended. If the site is found to lack the minimum standards for National Register eligibility, no additional underwater work will be the recommended action.

The goals of the a potential Phase II underwater investigation would to determine if the site satisfies National Register of Historic Places (NRHP) eligibility criteria and evaluate the need for, and type of, future additional underwater archeological investigations that might be required. In order to fully evaluate the site's historical and archaeological significance, or to establish its' lack of significance, a Phase II-level underwater archaeological investigation would be designed to collect more detailed information on the integrity, condition, boundaries and size, structural components, function and context of the target sources. Field data documenting each site's respective integrity, qualities, associations, and characteristics, was used to confirm or refute National Register eligibility requirements.