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1992

**PHASE IA
HISTORICAL AND ARCHAEOLOGICAL SURVEY
LIBERTY PIPELINE PROJECT
QUEENS AND NASSAU COUNTIES
NEW YORK**

Prepared for:

**LIBERTY PIPELINE COMPANY
Houston, Texas**

Prepared by:

**THE CULTURAL RESOURCE GROUP
LOUIS BERGER & ASSOCIATES, INC.
East Orange, New Jersey**

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ABSTRACT

A Phase IA survey for historical and archaeological resources was conducted by the Cultural Resource Group of Louis Berger & Associates, Inc. (LBA) on that portion of the Liberty Pipeline project in Queens and Nassau counties, New York. This segment of the Liberty Pipeline extends across western Long Island for a distance of 8.5 miles.

This study consisted of background research oriented toward the definition of archaeologically sensitive areas within and adjacent to the project corridor. A number of areas potentially sensitive for prehistoric and historic archaeological resources were identified along the corridor. Much of the alignment lies within existing streets and recent landfill, however, and these areas are not considered archaeologically sensitive. Based on the results of this Phase IA study, LBA recommends that walkover and subsurface survey be conducted along those portions of the project corridor that intersect relatively undisturbed landscapes where background research indicates a high potential for prehistoric or historic archaeological resources.

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I. INTRODUCTION

This report presents the results of a Phase IA archaeological survey for the proposed Liberty Pipeline project in Queens and Nassau counties, New York. The survey was conducted by the Cultural Resource Group of Louis Berger & Associates, Inc. (LBA) for the Liberty Pipeline Company (LPC). Because the Liberty Pipeline project will require certification by the Federal Energy Regulatory Commission (FERC), LPC undertook this investigation to comply with federal cultural resource management policies that require consideration of the effects of construction on significant historic or prehistoric resources. These policies are set forth in Section 106 of the National Historic Preservation Act of 1966, Section 101 of the National Environmental Policy Act of 1969, "Protection and Enhancement of the Cultural Environment" (Executive Order 11593), and the Procedures for the Protection of Historic and Cultural Properties, as amended (36 CFR 800). This study was conducted in accordance with the aforementioned federal regulations as well as the recommendations and guidelines of the New York State Office of Parks, Recreation and Historic Preservation (OPRHP).

The proposed Liberty Pipeline project will involve construction of a 30-inch natural gas pipeline and associated facilities between Woodbridge and Morgan, New Jersey, and Staten Island and Long Island, New York. The portion of the pipeline on Long Island includes a total of approximately 8.5 miles of right-of-way (ROW). Figures 1 and 2 illustrate the pipeline alignment. After coming ashore on Rockaway Beach at 38th Street, the corridor proceeds through Far Rockaway, following 38th Street, Beach Channel Drive, Bay (32nd) Street, Healy Avenue, and Dickens Street. North of the intersection of Dickens Street and Mott Avenue, the corridor turns west from Dickens Street and proceeds through a large property where the Long Island Light Company (LILCO) operates the Long Island Power Station facility. The corridor proceeds northeast from the LILCO property across Motts Basin and goes through Inwood, following Craft and Elm avenues to the Inwood Country Club. The alignment passes through the Inwood Country Club golf course and then crosses Head of Bay to the John F. Kennedy Airport. It then proceeds to the northwest, following the shoreline and aircraft runways within the airport. At the western end of the airport, the pipeline alignment crosses Bergen Basin and then proceeds north along Lefferts Boulevard to a junction with the existing Brooklyn Union pipeline, near Shore Parkway.

The majority of the Liberty Pipeline project area consists simply of a 75-foot construction ROW; the remainder includes a staging area at Atlantic Ocean shoreline in Far Rockaway as well as temporary work areas located at stream and road crossings. During pipeline construction on land-based portions of the Liberty project, impacts to archaeological resources within the ROW may result from the specific steps involved in the construction process. The initial preparation of the ROW will involve removal of vegetation and other large obstacles by heavy equipment. This will be followed by grading of the ROW to provide a level working surface for pipeline

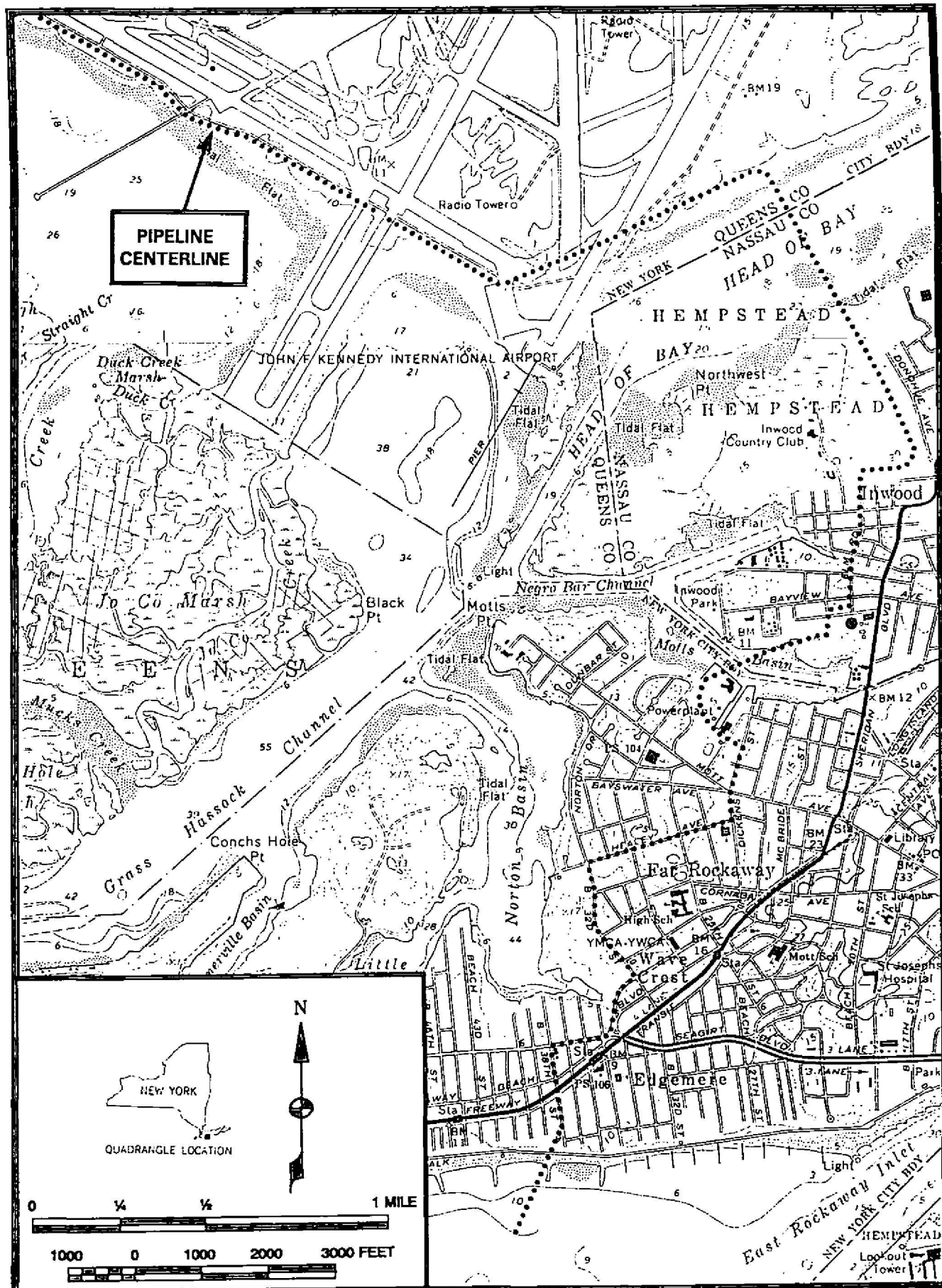


FIGURE 1: Project Location, Eastern Section

SOURCE: USGS Far Rockaway, N.Y. 1969 and Jamaica, N.Y. 1966 (Photorevised 1979) Quadrangles

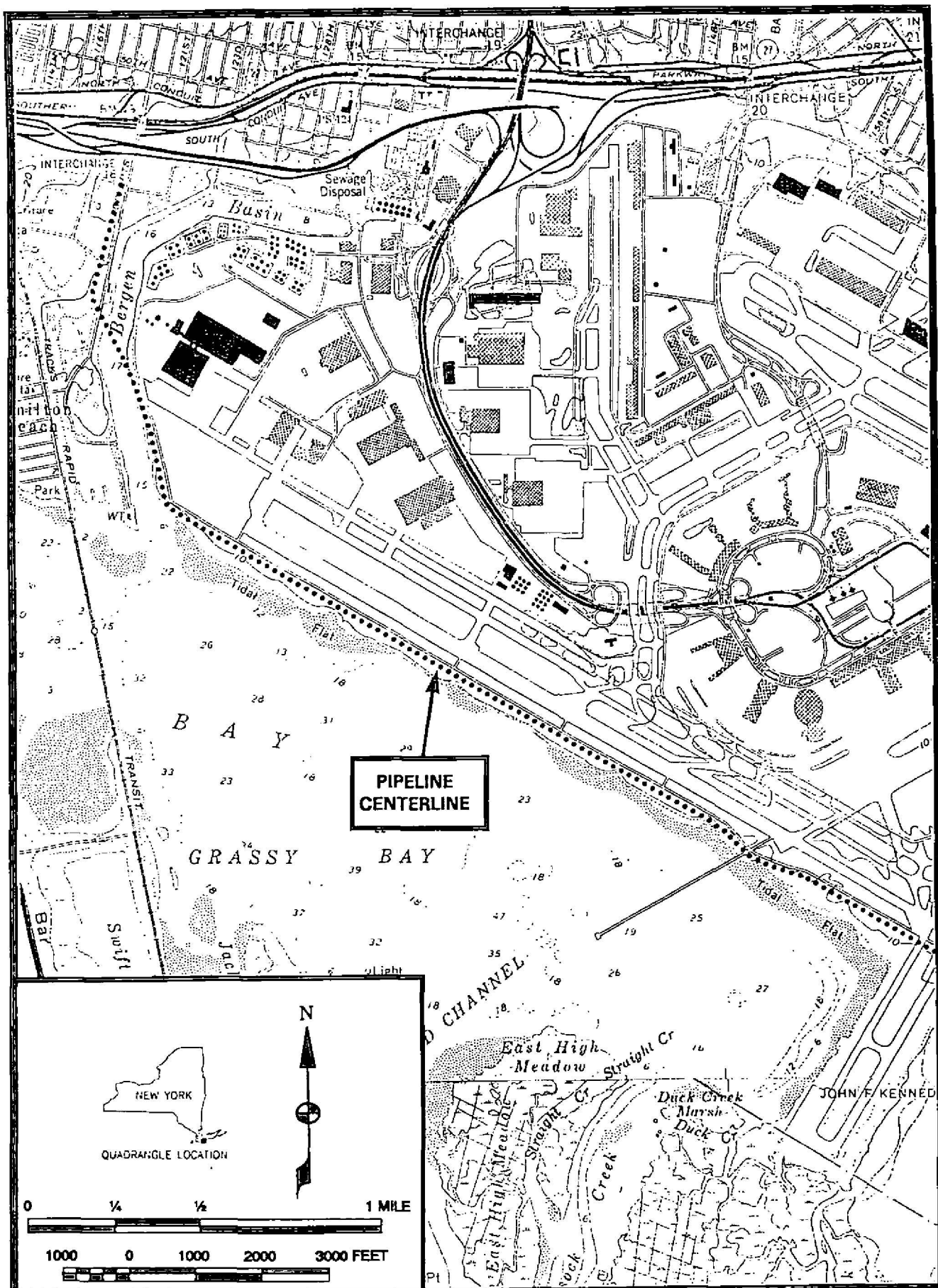


FIGURE 2: Project Location, Western Section

SOURCE: USGS Far Rockaway, N.Y. 1969 and Jamaica, N.Y. 1966 (Photorevised 1979) Quadrangles

installation, during which any displaced topsoil will be conserved in a temporary pile or berm for replacement during final cleanup. Following initial clearing and grading, a ditch will be excavated for the pipeline along the proposed centerline. The dimensions of this ditch will be 24 inches wider and 36 inches deeper than the diameter of the pipeline to be installed. Installation of the proposed 30-inch pipeline will therefore require excavation of a ditch 5.5 feet (66 inches) deep. During the actual installation of the pipeline, stringing (delivery of sections of pipe by truck to the work area), welding, and lowering of completed sections of pipeline into the ditch using side-boom tractors will be conducted within the ROW. Soil displaced during this operation will be stored on the opposite side of the proposed pipeline trench, also in the ROW. After the pipeline has been laid in place, the ditch will be backfilled using the previously excavated soil. The ROW will then be regraded to its approximate preconstruction contour, with a slight crown of soil placed over the ditch to compensate for subsidence of the backfill. During construction, temporary workspace areas of limited extent will be utilized at specific locations along the project corridor. These workspaces will be employed primarily for the storage of construction-related material and equipment. Thus, impacts to archaeological resources can result from traffic from tracked and wheeled vehicles in and out of these workspaces.

In Far Rockaway and Inwood, much of the alignment will be limited to existing streets or areas of recent landfill. Where the corridor falls within existing streets, the pipeline will be installed by excavation of a narrow trench through the pavement. In this situation, the construction impact area will be limited to the pipeline trench.

The present study focuses exclusively on the Long Island portion of the Liberty Pipeline project. LPC has sponsored separate studies of the Morgan (New Jersey), Woodbridge (New Jersey), and Staten Island portions of the project. The objectives of these studies have been to identify areas along the corridor that might contain significant archaeological sites, based on background research and a visual examination of the proposed project area. These studies have been limited to a consideration of terrestrial sites, as LPC has sponsored a separate study to consider potential impacts to submerged archaeological resources. The background research included examination of survey reports and historic and archaeological site files at the New York State Office of Parks, Recreation and Historic Preservation.

Dr. Jonathan Lothrop served as Project Manager for this study and Charles LeeDecker served as Principal Investigator. The background research was completed by Ingrid Wuebber and Kathy Fobes. Lee Nicoletti supervised production of the report, with the assistance of Suzanne Szanto (editing) and Jacqueline Horsford (graphics).

II. ENVIRONMENTAL SETTING

The current land-use patterns in the vicinity of the Liberty project in Queens and Nassau counties exhibit extensive urban, commercial, and industrial development, and much of the corridor follows existing streets or lies within areas of landfill. The project area falls within the Inner Coastal Plain physiographic province, which is generally characterized by nearly level topography and gradual changes in elevation. The surficial geology of the Coastal Plain consists of various sands, gravels, and clays, most of which are of Late Cretaceous or Tertiary age (Widmer 1964; Wolfe 1977). Surface elevations along the corridor generally range up to 20 feet above mean sea level.

Given the potential for human occupation of the project area vicinity as early as the Late Pleistocene, a reconstruction of the area's environmental history should consider at least the last 12,000 to 15,000 years. The primary factors to be considered in a local paleoenvironmental reconstruction are changing climatic conditions and sea levels, which, in turn, influenced the local distribution of floral and faunal resources.

During the late Pleistocene, a series of massive continental glaciers advanced and retreated over much of North America. Because vast amounts of water were incorporated into these ice sheets, the sea levels were much lower than at present. The late Pleistocene environment was not only slightly cooler than the present but was also characterized by higher levels of precipitation.

The terminal moraine which marks the extent of the Wisconsin glaciation extends as far south as Perth Amboy, New Jersey, and cuts across Long Island within a few miles of the Liberty Pipeline project area (Sirkin 1977). The lowered sea levels during the glacial maxima exposed a large area of the continental shelf, and many of the islands in New York Harbor would have been connected to the mainland.

Glaciers in the New York City region began to retreat no later than 17,000 years ago. While data indicate that the sea level has been rising continuously during the past 12,000 to 14,000 years, the rate of marine transgression over the Coastal Plain has varied considerably. In the millennia immediately following the glacial maximum, sea levels rose relatively rapidly, while in the most recent millennia, sea levels have been rising at a rate of somewhat less than one foot per century (Edwards and Merrill 1977).

Human populations first inhabited the region no earlier than 11,500 years BP, when sea levels may have been 300 feet lower than at present and when the Atlantic shoreline had regressed approximately 60 to 90 miles east of its present position (J. Kraft 1977). River and stream systems then exhibited different configurations, as did the plant and animal communities within these environments (Edwards and Merrill 1977). By 5000 BP, the sea level had risen to approximately 30 feet below its present level. The sea continued to rise, reaching a point some 14 feet below the present level by 2000 BP.

As climatic conditions ameliorated during the Holocene, the regional vegetation changed from open spruce forest to mixed hardwood vegetation in the uplands and grasses and wetland forests in the lowlands (Sirkin 1977). Changes in faunal communities accompanied the shifts in climate and vegetation. Large cold-adapted species, such as mammoth, mastodon, and caribou, were replaced by more characteristically temperate-environment species, such as white-tailed deer.

These Holocene climatic changes would have had a profound effect on the potential for population movements and resource exploitation. Upland terrain would support mixed hardwood forests while lowlands would support a variety of wetland and lowland forest vegetation. Expanding wetlands and waterways in the project area would have provided environments for numerous migratory birds, waterfowl, fish, and mollusks.

III. BACKGROUND STUDIES

A. REGIONAL PREHISTORIC CULTURAL SEQUENCE

Ritchie (1980) has observed that the prehistoric development of southeastern New York, which includes Staten Island and Long Island, is most similar to that of northern New Jersey and eastern Pennsylvania. The major divisions of the prehistoric cultural sequence for the region, with their approximate beginning and ending dates, are as follows:

<u>Cultural Period</u>	<u>Approximate Dates</u>
Paleoindian	9500 - 8000 BC
Early Archaic	8000 - 6000 BC
Middle Archaic	6000 - 4000 BC
Late Archaic	4000 - 1000 BC
Early Woodland	1000 - 500 BC
Middle Woodland	500 BC - AD 800
Late Woodland	AD 800 - 1600
Contact	AD 1600 - 1700

The Paleoindian period (circa 9500 BC to 8000 BC) was characterized by a hunting and gathering subsistence pattern followed by small, highly mobile nomadic bands. Large, fluted lanceolate projectile points, usually made of high-quality cryptocrystalline lithic material, are the distinctive artifacts of this period, although the Paleoindian toolkit also includes scrapers, graters, wedges, and bifacially flaked tools. The Paleoindian populations in the region appear to have based their subsistence economy on the hunting of various game species, supplemented by fishing and by foraging vegetal foods available in the boreal forest environments that characterized this period (Dent 1981; Gardner 1974, 1981, 1989; Kauffman and Dent 1982; Marshall 1982; Ritchie 1980).

Based on extensive research in the Virginia Valley and Ridge province and neighboring areas, Gardner (1981, 1989) has suggested that the Paleoindian settlement pattern in the region was oriented primarily toward high-quality cryptocrystalline lithic source areas. There are no comparable lithic source areas in the coastal areas of New York, although secondary cobble deposits were widely available. Ritchie (1980) has noted a high frequency of Pennsylvania jasper in New York Paleoindian assemblages, and there are a number of possible chert sources in New Jersey that may also have been used during the Paleoindian period (Marshall 1982). There have been scattered finds of fluted points throughout the Hudson and Connecticut River valleys, and a few sites have been excavated. The distribution of sites and isolated point finds has led Ritchie to point out the importance of well-elevated settings and margins of low-lying swamps formerly occupied by lakes. In general, research of this period in the coastal areas has

been limited by the lack of deeply stratified or buried sites and by the fact that rising sea levels have submerged early Holocene river valleys.

The Port Mobil Site, located on Staten Island along the Arthur Kill, is the nearest well-known Paleoindian site. Excavations at this site have yielded an assemblage of fluted points, backed knives, endscrapers, drills, perforators, and other implements. The fluted points from the Port Mobil area appear to have been heavily reworked, and the assemblage exhibits overall similarity to that of the Plenge Site in the Upper Delaware Valley (H. Kraft 1977).

Archaic period (circa 8000 BC to 1000 BC) lifeways were characterized by a hunting and gathering subsistence economy that included a variety of different food resources, and a settlement pattern based on scheduled seasonal movements throughout various resource zones. Whereas Paleoindian lifeways were tightly focused on hunting and the procurement of high-quality lithic material, the Archaic economy was more diffuse, with a reliance on a broad array of resources (Cleland 1976). During the ensuing Woodland period, the generalized Archaic hunting and gathering pattern was eventually replaced by a more sedentary settlement pattern and a subsistence economy based on food production.

The Archaic period is poorly known because most intensive site excavations have focused on the Paleoindian and Woodland periods. Hallmarks of the Archaic period include artifact assemblages that contain tools for the processing of plant foods, a decreased emphasis on the use of high-quality cryptocrystalline lithic materials, and an increase in the importance of riverine and estuarine food resources. The Archaic period is commonly divided into Early, Middle, and Late subperiods, although various terminal dates have been used for these subperiods by different investigators. Some investigators also recognize a Terminal Archaic or Transitional stage at the close of the Archaic period.

The Early Archaic period (circa 8000 BC to 6000 BC) showed a strong continuity with the preceding Paleoindian period, evident in the settlement pattern and a preference for high-quality cryptocrystalline lithic material (Gardner 1974, 1989). Gardner (1974) has argued that the Early Archaic economy had a primary emphasis on hunting, although other investigators (Dent 1981; Kauffman and Dent 1982) argue that vegetal foods, particularly nuts and seeds, were also an important subsistence resource during this period. On Long Island, the earliest Archaic sites are represented by bifurcate-based points (Wyatt 1977), which generally date to the period from circa 7000 to 5300 BC.

The Middle Archaic period (circa 6000 BC to 4000 BC) was marked by the use of distinctive projectile points and by the appearance of groundstone tools and a wider variety of lithic materials. The types of groundstone tools found in Middle Archaic assemblages (axes, nuttingstones, mortars) suggest an increasing adaptation to the modern hardwood forest biome that characterized this period. The Middle Archaic is perhaps the least well known of the Archaic subperiods for the region, but a generalized hunting and gathering economy is postulated for this period.

The Late Archaic (circa 4000 BC to 1000 BC) is marked by the appearance of more diverse artifact forms and sites in an increased variety of environmental settings. A generalized hunting and gathering subsistence strategy was followed throughout this period. Exploitation of riverine and estuarine resources became more important at the end of the Archaic, judging from the presence of fishing implements in the artifact assemblages and the abundance of sites in estuarine and riverine environments. Intensive shellfish gathering appears to have become important during the Late Archaic, not only in the coastal areas but in other interior riverine zones as well.

Late Archaic sites are more numerous and larger than sites of earlier periods, suggesting increased population levels. The principal diagnostic artifacts associated with the Late Archaic are a variety of stemmed points, such as the Lackawaxen, Bare Island, Poplar Island, Rossville, and Lamoka types; other items in the Late Archaic toolkit include axes, choppers, mortars, pestles, netsinkers, and other implements that appear to have been used for woodworking, fishing, and the processing of plant foods (Kraft and Mounier 1982). Ritchie (1980) has observed that the Late Archaic cultures of southern New York are closely related to those of the lower Susquehanna Valley and the Middle Atlantic Region.

The Terminal Archaic or Transitional stage is marked by the appearance of broad-bladed projectile points, such as the Perkiomen, Susquehanna, and Orient Fishtail types, and carved steatite vessels. The core area of the Transitional cultural complex is located in southeastern Pennsylvania, but the Orient phase represents a well-developed expression of this complex in southern New York.

Ritchie (1980) has noted that Orient phase burial sites are most concentrated on the eastern end of Long Island, but that the diagnostic points and soapstone vessels are widely distributed over southeastern New York. Burial ceremonialism was apparently an important feature of the Orient phase, and the burial sites include some large communal pits containing the remains of numerous individuals and ritually broken vessels. Occupation sites associated with the Orient phase show a heavy reliance of shellfish (clam, oyster, scallop, periwinkle, whelk, and ark), which were plentiful in mud flats, shallow bays, and estuaries all around Long Island (Ritchie 1980:164-178).

The Woodland period (circa 1000 BC to European contact, circa AD 1600) is better known in the region than the preceding Paleoindian and Archaic periods. The Woodland period is typically subdivided into Early (circa 1000 BC to 500 BC), Middle (circa 500 BC to AD 800) and Late (circa AD 800 to 1600) subperiods. The principal cultural traits of the Woodland period include larger populations, increased complexity of social organization, the introduction of ceramics, a settlement pattern characterized by increased sedentism, and a subsistence pattern that includes horticulture. A generalized pattern of seasonal hunting and gathering persisted from the Late Archaic into the Early and Middle Woodland subperiods; however, during the Late Woodland, when horticulture assumed greater importance, seasonal population movements gave way to more sedentary village life. Woodland sites in southeastern New York, which includes western Long Island, show a strong subsistence focus on riverine and marine resources,

especially shellfish. The larger habitation sites are located along tidal streams and inlets, and the village sites include numerous pit features and large shell middens (Ritchie 1980).

During the Early and Middle Woodland periods, a pattern of seasonal hunting and gathering continued, with emphasis on the exploitation of aquatic resources. There are numerous Early Woodland sites in the adjacent Coastal Plain region, but few sites have been subject to intensive excavation. The major habitation sites show a riverine/estuarine focus, where seasonally abundant anadromous fish and shellfish were exploited. Incipient agriculture may have been practiced during the Early Woodland, but it is not until the Late Woodland that a significant settlement pattern shift is visible that is suggestive of a shift to subsistence agriculture. During the Late Woodland, villages became larger and more permanent, and they tended to be located adjacent to areas with easily worked floodplain soils. In addition to major village sites, the Late Woodland settlement system included smaller outlying hamlets and special-use sites such as hunting camps and fishing and shellfish-gathering stations, although the importance of these secondary sites may have diminished as agricultural technology developed. Ceci has challenged the idea that the aboriginal populations in coastal New York had developed into fully sedentary horticultural groups prior to contact with European traders, arguing instead that a transhumant subsistence/settlement pattern persisted in coastal New York until contact (Ceci 1982).

Adena and Hopewell cultures flourished in the midwest riverine region during the Early and Middle Woodland periods, and these cultures were characterized by an elaborate burial ceremonialism, including the construction of burial mounds, and the interregional exchange of raw materials, such as shell, copper, and high-quality lithics. These cultural developments appear to have had little influence on the development of indigenous groups in southern New York, but there are some Middlesex phase sites that appear to exhibit some characteristics of the Adena culture of the Ohio River Valley.

Regular contact between European and Native American groups along the Eastern Seaboard began early in the sixteenth century, and the Late Woodland groups experienced regular contact with Euro-American populations during the early seventeenth century. At the time of European contact, southern New York was occupied by Algonquin-speaking groups that existed in loosely structured, autonomous bands residing in small dispersed settlements (Ceci 1982; Goddard 1978; Kraft 1981). Regular contact with European traders and settlers resulted in the breakdown of traditions and increased reliance on European goods in exchange for land and furs. Warfare, disease, and alcoholism rapidly decimated the native population, and most surviving Native American groups were forced to migrate west.

B. HISTORICAL DEVELOPMENT

This section presents a historical overview of the settlement and economic development of the Borough of Queens, New York City, and Nassau County, with particular emphasis on the Far Rockaway and Jamaica Bay areas. A check of the files at the State Office of Parks, Recreation and Historic Preservation in Albany indicated that no standing structures or archaeological sites eligible for inclusion in the State or National Register of Historic Places were present in the

project area. Maps and local histories were consulted at the Long Island Division of the Queens Borough Library, Jamaica, Queens.

The County of Queens was organized in 1683 and eventually comprised six towns: Newtown, Flushing, Oyster Bay, North Hempstead, Hempstead, and Jamaica. The proposed pipeline corridor passes through the towns of Hempstead and Jamaica.

In 1640, the Dutch government had cleared the way for Long Island's settlement by purchasing land from the Native American inhabitants. Queens County's first land transaction took place in Hempstead in 1643, when settlers bought a tract about 66 square miles in area from the Native American inhabitants, the Rockaways (Thompson 1918:30). The village of Hempstead was established by English colonists in 1643 (Thompson 1918:467). In 1644, the Rockaway Indians, upset with their treatment by the colonists, attacked the settlement. Governor Kieft subsequently sent an armed force which destroyed the Rockaways' villages, reportedly killing 120 Indians (Pettit 1901:6).

Individuals from Hempstead began to settle in Jamaica by 1656 (Thompson 1918:583). The Town of Jamaica was 57 square miles in area, about a third of which was covered by Jamaica Bay. Jamaica Bay's marine resources were zealously guarded by the town. It was reported, for example, that in 1704 neighboring townsmen were arrested for "trespassing in Jamaica Bay by fishing with nets without consent of the freeholders" (Munsell 1882:199).

Far Rockaway, named for the Rockaway Indians who originally inhabited the area, was included within the Town of Hempstead. The earliest recorded land transaction involving the project area occurred in 1685, when Captain John Palmer bought nearly all the territory comprising Far Rockaway, Edgemere, Arverne, and Rockaway Beach from the native inhabitants (Pettit 1901:8).

In 1687 Palmer sold the entire property to Richard Cornell (also written "Cornwell" and "Cornwall"), a Flushing ironmaster. Cornell had also purchased "all the land called Flushing" from the Rockaway Indians three years previously (Bellot 1918:11). Cornell's descendants retained a substantial portion of the Rockaway tract until 1809. The Cornell homestead was built circa 1690 in a part of Far Rockaway formerly known as Wave Crest (Pettit 1901:8). After Richard Cornell's death in 1693, the Rockaway tract was subdivided and sold or leased to settlers. By the early eighteenth century, the Mott, Hicks, Brower, Smith, and Hewlett families had established homesteads in the Rockaways (Bellot 1918:14-15).

In 1809, a suit arose in the Queens Court of Common Pleas concerning ownership disputes and property divisions of a 2,000-acre tract which included Far Rockaway and Rockaway Beach. The property, consisting of a "tract of beach or hill covered with cedars" and marshland, was divided by the court-appointed commissioners into eastern and western sections, each of which was in turn subdivided into lots of equal value. A section of the proposed pipeline corridor is included within the eastern division of the tract. Land allotments were made to families such as the Cornells, Motts, Cornagas, Martins, and Bannisters who were associated with the area's

early settlement. The centerline from which all lots were to be surveyed was not firmly fixed, however, resulting in continued land disputes, which were not resolved until the late nineteenth century (Bellot 1918:20).

Benjamin Cornell (1750 to ca. 1820) was the first person to promote Far Rockaway as a fashionable bathing resort. John Leake Norton also recognized the Rockaway peninsula's potential. Beginning in 1830, he accumulated most of the eastern section of the 1809 division, including present-day Edgemere and Far Rockaway. Norton built an octagonal house known as "The Castle" near Far Rockaway's Beach (indicated as "H.F. Clark" on the Conner map of 1852).

Norton induced a group of New York investors to form the Rockaway Association, which built the Marine Pavilion in 1834 at a cost of \$43,000. This grand, 160-room hotel stood on the site of the old Cornell homestead, about 18 blocks east of the proposed pipeline corridor (Bellot 1918:83; Conner 1852). The Marine Pavilion was destroyed by fire in 1864 (Bellot 1918:85; Pettit 1901:10).

With the success of the Marine Pavilion and completion of the Jamaica and Rockaway Turnpike in 1834, Far Rockaway became "a village of hotels catering to the needs of summer visitors" (Bellot 1918:85). The Rockaway peninsula's development into a major resort area was directly attributed to the establishment of increasingly efficient transportation systems (Figure 3). In 1832, the Long Island Railroad Company was chartered to run from Brooklyn to Jamaica. From this point, passengers were transported along the rest of the route by coach (Pettit 1901:10-11). Stagecoaches also operated directly from Brooklyn to the Marine Pavilion (Bellot 1918:34). Sailing across Jamaica Bay was an alternate route to the resort area.

Following the Civil War, railroads established routes directly to the Rockaways. In 1866, service began on the Brooklyn and Rockaway Beach line from East New York to Canarsie, from which point a ferry carried passengers the remaining distance to Rockaway Beach. In 1869, the Far Rockaway Branch Railroad was completed from Valley Stream to Far Rockaway. Three years later the "Rockaway Railway" was extended four miles along the ocean front from Wave Crest to Rockaway Beach. A railroad connecting Rockaway Beach with Brooklyn across Jamaica Bay was begun in 1880, at which time the railway trestle was built. This route, known as "the air line," was chartered as the New York, Woodhaven and Rockaway Railroad Company and operated trains from Brooklyn, Bushwick, and Long Island City terminals. The line was later operated by the Long Island Railroad Company, which ran elevated trains of the Brooklyn Rapid Transit in the summer season. With the opening of the Steinway tunnel under the East River in 1910, Rockaway residents could travel to Pennsylvania Station in Manhattan in 30 minutes (Bellot 1918:35). Today, this line is part of the New York Subway system.

The Rockaway Village Railroad Company was incorporated in 1886. It operated horse-drawn cars between the Long Island Railroad station and the beach at Far Rockaway. This railroad company was succeeded by the Ocean Electric Railway Company, which operated a trolley service over the Long Island Railroad tracks through Edgemere, Arverne, and Hammels,

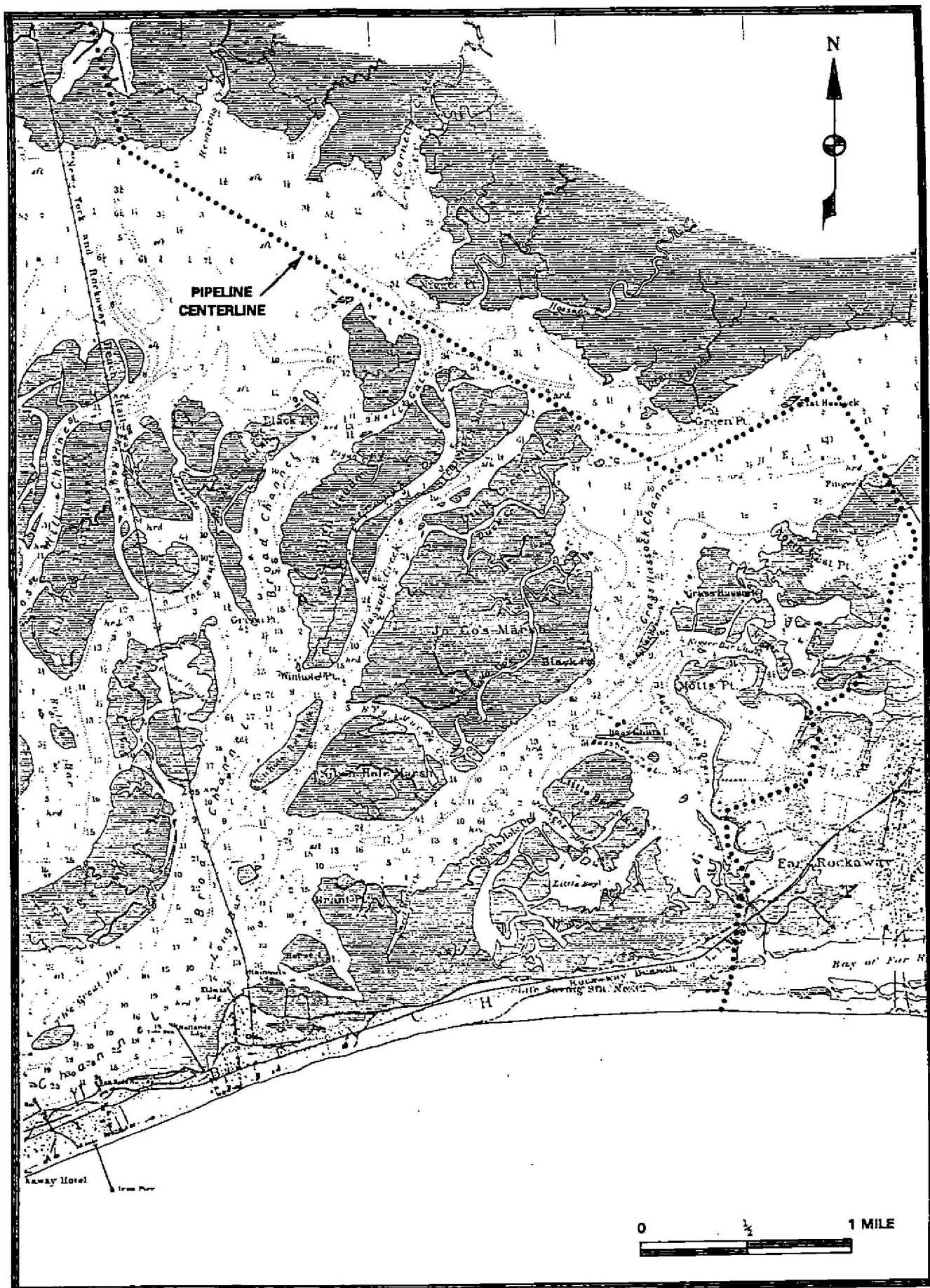


FIGURE 3: Project Area in 1889

continuing westward to Neponsit. Another trolley line was operated by the Long Island Electric Railroad Company, which eventually attained ownership of all of the above-mentioned lines. The trolley, begun circa 1898, serviced Cedarhurst, Lawrence, and Inwood (Bellot 1918:35).

Twenty years after John L. Norton's death in 1848, his heirs subdivided the estate and began selling off parcels to real estate developers. During this period, the area became known as Far Rockaway to distinguish it from Near Rockaway (now East Rockaway, Nassau County) (Bellot 1918:86). Wave Crest was Far Rockaway's first planned subdivision. An exclusive community, Wave Crest was located east of Norton's Creek. Up to the late nineteenth century, its grounds were enclosed within a private park (Pettit 1901:14).

Edgemere, through which the proposed pipeline corridor passes, was established by developer Frederick J. Lancaster in 1892. The area west of Norton's Creek, between Far Rockaway and Arverne, contained few houses besides the Half Way House hotel and was described as a "sandy waste." Lancaster filled marshlands, laid roads, and then in 1894 opened the Edgemere Hotel on the ocean between Beach 35th and 36th streets (Ullitz 1919). Like other Far Rockaway developers, Lancaster built substantial cottages to attract wealthy New Yorkers. Building lots were sold with restrictions as to the character and size of the residences (no more than one house could be constructed on every four lots; houses were to be located no less than 20 feet from existing streets; and residences had to be sold at a minimum price of \$3,000 (Souvenir Album ca. 1902:n.p.; Bellot 1918:21). Circa 1908, in order to provide additional building lots, Lancaster filled in Wave Crest Lake below Rockaway Boulevard, which formed part of the connection between Jamaica Bay and the ocean (Bellot 1918:95). By 1918, building activity at Edgemere was booming, with "a large number of houses, a few stores and several high-class summer hotels" already present (Bellot 1918:96).

The northwestern section of Far Rockaway, through which the proposed pipeline corridor passes, was formerly known as Bayswater (Wolverton 1891). It was laid out by William Trist Bailey in 1878, having been purchased from the Cornell family. During the 1880s, Bailey advertised his new subdivision in a florid pamphlet subtitled "New York City's future suburban select residential watering place, pre-eminently superior, locally, topographically, accessibly, restrictively and otherwise" (Bailey ca. 1880:title page).

By 1918, the Rockaway peninsula offered a variety of attractions, including ocean and bay bathing, boating, fishing, tennis, golfing, horse racing and "several country clubs with large memberships" (Bellot 1918:7). Far Rockaway, incorporated in 1888, had developed into the commercial nexus of the area. The resort-based economy encouraged the cultivation of vegetables, and the Jamaica Bay fishing industry was also important (Bellot 1918:8).

The area's water supply depended upon private wells until residents, fearful that the expanding population and concomitant use of cesspools would eventually contaminate the ground water, lobbied successfully for a public water supply. The Queens County Water Company completed a pumping station and well system at Far Rockaway in 1885. The system proved to be insufficient, however, and after 1893 the Rockaway peninsula's water was supplied by wells and

a pumping station at Valley Stream, with an auxiliary pumping station at Rockaway Park for the summer months (Bellot 1918:37). Far Rockaway's sewer system was built in 1897 (Bellot 1918:88).

Far Rockaway was included within the 5th Ward of the Borough of Queens when the city was consolidated in 1898. The area of the peninsula to the east of Far Rockaway, including the villages of Inwood, Lawrence, Cedarhurst, Woodsburgh, Woodmere, and Hewlett, became part of Nassau County (Bellot 1918:8).

Following consolidation, the number of Far Rockaway's permanent residents, some of whom were Brooklyn and Manhattan commuters, as well as the number of summer visitors increased rapidly. In 1918, the peninsula's estimated resident population was 36,000 (Far Rockaway and Edgemere alone had a population of 11,000); during the summer, the population of the peninsula swelled to 250,000 (Bellot 1918:8).

The natural processes of beach erosion and formation, as well as the filling of inlets, streams, and marshes which fostered dense settlement in the Far Rockaway area, have resulted in major changes to the project area (New York City, Queens Borough Topographical Bureau 1918:map accompanying report). Edgemere and the area to its west were marshland, intersected by streams which real estate developers filled with sand (Conner 1852). The area east of Edgemere required smaller amounts of landfill prior to development (Bellot 1918:8, 83).

Far Rockaway's beach, which stretched out a great distance at low tide, was known as the Strand (Pettit 1901:11). Between 1860 and 1879, a sandbar gradually formed about 1,000 feet from shore between Arverne and Hicks Beach (also known as Lawrence Beach) in Nassau County. This outer bathing beach, called Hog Island, became the site of numerous bathhouses and two or three restaurants. During a storm in the fall of 1893, Hog Island was completely submerged (Bellot 1918:94-95). Recurring storms and the large number of small, privately held parcels along the shoreline made any concerted effort to prevent beach erosion difficult (New York City, Queens Borough Topographical Bureau 1918:10-11).

Inwood was settled in the early nineteenth century by fishermen (Figure 4). The area was then known as North West Point, a name derived from its relationship to Far Rockaway. Inwood's boatmen transported supplies from New York and Brooklyn across the Bay before the initiation of railroad service. The Far Rockaway Branch Railroad was completed through Inwood in 1869. The area, which became known as Westville, experienced rapid population growth; most of the new residents were Italian. When the post office was established in 1889, the village became known as Inwood. In 1918, Inwood contained about 4,000 inhabitants (Bellot 1918:80-81).

The Inwood Country Club occupied approximately 300 acres at the northwest point of the Rockaway peninsula on property formerly belonging to Charles Donohue (Wolverton 1891). The country club, incorporated in 1901, initially built a small clubhouse on the grounds. However, by 1914 the increasing membership warranted construction of a larger clubhouse

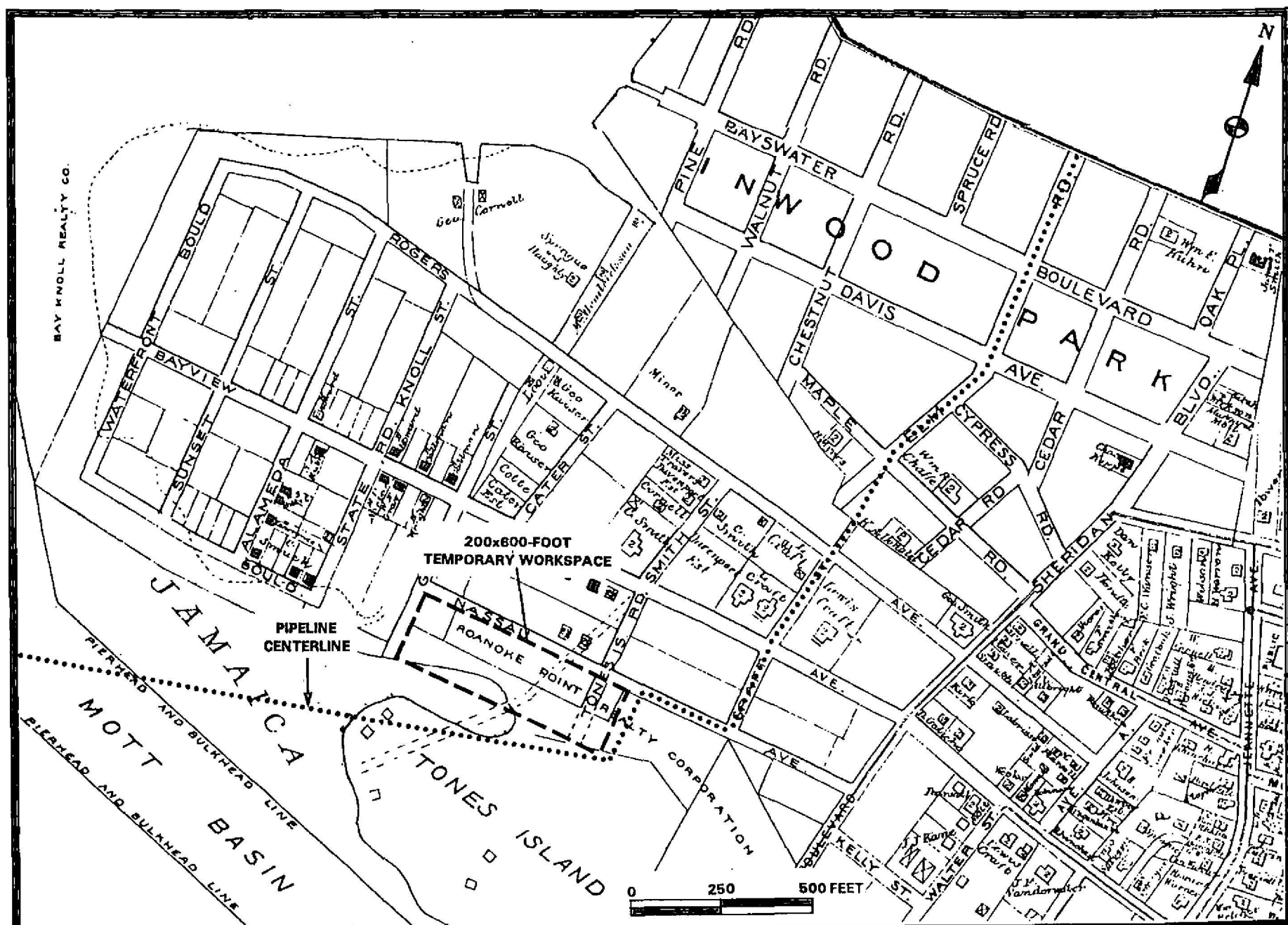


FIGURE 4: Inwood, Nassau County, in 1914

SOURCE: Hyde 1914

facility. The Inwood Country Club, still in use today, at that time included an 18-hole golf course, tennis courts, and a gun club (Bellot 1918:81).

Jamaica Bay has been greatly altered during the twentieth century. The draining and filling of its marshy periphery with solid refuse or sand dredged from the bottom of the bay created land dedicated primarily to residential use (see Figure 3). Jamaica Bay presently encompasses about 13,000 acres, roughly half its size at the time of European colonization. During the nineteenth century, the bay sustained major commercial oyster and clam fisheries as well as sport fishing (Jamaica Bay Environmental Study Group 1971, II:44). Once acclaimed for its purity, Jamaica Bay served as an outlet for raw sewage during the nineteenth and early twentieth centuries. In 1921, bathing and shellfishing were banned in Jamaica Bay (Jamaica Bay Environmental Study Group 1971, I:5, 13).

Kennedy Airport, along the northeastern shore of Jamaica Bay, presently covers an area of approximately 4,930 acres. During the 1940s, Mayor Fiorello LaGuardia, the driving force behind the development of LaGuardia Airport in the previous decade, recognized the need for a much larger airport to meet the growing demands of commercial aviation. The predecessor to the Kennedy Airport, the Municipal Airport at Idlewild, was completed in 1948 on 1,200 acres. Prior to the period of the airport's construction (1942-1948), the area was characterized as

a huge marshland . . . home for . . . hundreds of squatters whose sagging sea-bleached homes rested uneasily on pilings that shifted with the tides. On one part of the marsh sat the Idlewild Golf Club, and just across a couple of sand dunes were some shacks and a landing strip called the Jamaica Sea Airport [Arend ca. 1981:32].

The deep dredging of the Grassy Bay area of Jamaica Bay to supply landfill for the original airport facility and during its subsequent expansion heavily impacted marine life. The filling of 4,500 acres of marshland, coupled with the dredging of Grassy Bay, destroyed one-sixth of the original area of Jamaica Bay (Jamaica Bay Environmental Study Group 1971, I:8,17). In 1963, the airport facility was rededicated as the John F. Kennedy International Airport (Parsons Brinckerhoff Quade & Douglas, Inc. [1987]:I-1, I-3).

C. PREVIOUS INVESTIGATIONS

Archaeological investigations of the metropolitan New York area have a long history, although the region's modern development has obliterated much evidence of prehistoric and early historic occupation. There have been very few cultural resource management studies in the vicinity of the project area, and there are no formally recorded archaeological sites along the project corridor.

Parker's statewide survey of New York indicates that the margins of Jamaica Bay contained a number of prehistoric sites, variously described as campsites or traces of occupation (Parker 1922). In Nassau County, Parker indicated that there were several large villages and shell heaps

near Rockaway. His map shows a campsite on the southern bank of Head of Bay, near or within the present Inwood Country Club property, where the pipeline corridor crosses Head of Bay. In Queens County, Parker mapped an area of occupation along the original shoreline of Jamaica Bay, near the western terminus of the project at Bergen Basin (Parker 1922).

Aside from early archaeological reports, ethnographic information and historical accounts provide additional information regarding the archaeological sensitivity of the project area. Circa 1900, seven Native American burials were discovered in the Bayswater section of Far Rockaway near the former Bayswater Hotel (now the intersection of Westbourne Avenue and Waterloo Place) (Pettit 1901:5).

Numerous shell mounds were visible around the Rockaway peninsula until the turn of the century. Local historian Alfred H. Bellot noted, "the Far Rockaway shell bank was enormous and must have contained many thousand tons of clam shells. It was located at Bayswater on Judge Healy's property, but was carted away and used for filling in purposes and road making" (Bellot 1918:90). Healy's homestead in the former Bayswater section of Far Rockaway was located near the present intersection of Beach 30th Street and Bessemond Avenue (Wolverton 1891). Shell mounds also were reported on the marshy banks along Inwood, Barnum Island (now called Island Park), and Woodmere Bay (located in the vicinity of Island Park) (Bellot 1918:90).

The name Rockaway is derived from the Indian name "Reckouwacky," meaning "the place of our own people" which the Canarsie Indians chose when they occupied the Rockaway area. At the time of the sale of Far Rockaway to Palmer in 1685, the Rockaways' main village was located at Barnum Island, presently Island Park, located about five miles east of the proposed pipeline alignment (Bellot 1918:9). A group of Rockaways reportedly lived in Cedarhurst, Nassau County, remaining until the death of their sachem, Culluloo Telawana, in 1818. Afterward, this group joined other Rockaways on Barnum Island (Pettit 1901:5, 14; United States Geological Survey 1905).

IV. ARCHAEOLOGICAL RESOURCE SENSITIVITY

A review of primary and secondary sources relevant to prehistoric and historic settlement in the region indicates that the Liberty Pipeline corridor passes through areas that should be considered sensitive for prehistoric and historic resources.

Prior to the modern metropolitan development of the project area vicinity, prehistoric sites were noted along the Jamaica Bay shoreline and the various creeks and inlets associated with the bay (Parker 1922). In general, prehistoric sites on Long Island are most often located along tidal streams (Ritchie 1980). Based on this general information, areas that should be considered sensitive for prehistoric sites include the following: (1) the crossing of Norton Basin, located along present Rockaway Beach Boulevard; (2) the crossing of Motts Basin; (3) the south bank of Head of Bay, specifically the Inwood Country Club property; and (4) the crossing of Bergen Basin at the northwestern terminus of the corridor. There is also specific historical information that a large shell mound existed on the Healy homestead, located between Norton Basin and Motts Basin.

A review of historical maps indicates the potential for historic archaeological resources in parts of the project area. These locations, all of which are in Far Rockaway, include the following: (1) that portion of the pipeline corridor immediately west of Beach 38th Street; (2) the 400x700-foot workspace south of Edgemere Avenue; (3) the 50x100-foot workspace south of Edgemere Avenue; (4) the 25x100-foot workspace north of Rockaway Beach Boulevard; (5) the 50x100-foot workspace between Rockaway Boulevard and Beach 35th Street; (6) Beach Channel Drive west of Beach 32nd Street; (7) the pipeline corridor west of Dickens Street; and (8) the workspace near the LILCO plant. These numbered locations are discussed in detail below.

(1) That portion of the pipeline corridor immediately west of Beach 38th Street was historically part of the Edgemere development, begun in 1892. The first detailed map available for this area was made by the Sanborn Map Company in 1912 (Figure 5). It indicates that three cottages of similar design were present on Beach 38th Street (Neptune Avenue). These cottages were probably built in the period between 1892 and 1912. The pipeline corridor directly crosses the site of the southernmost cottage (Sanborn 1912).

In the period between World War I and the Depression, a building boom in Far Rockaway resulted in the construction of numerous small bungalows. A number of these bungalows were built on the block between Beach 38th and Beach 39th streets (Sanborn 1933, 1951) (Figure 6). Several of these bungalows are intersected by the pipeline corridor in the area between the southernmost cottage mentioned above and the boardwalk to the south (see Figure 6).

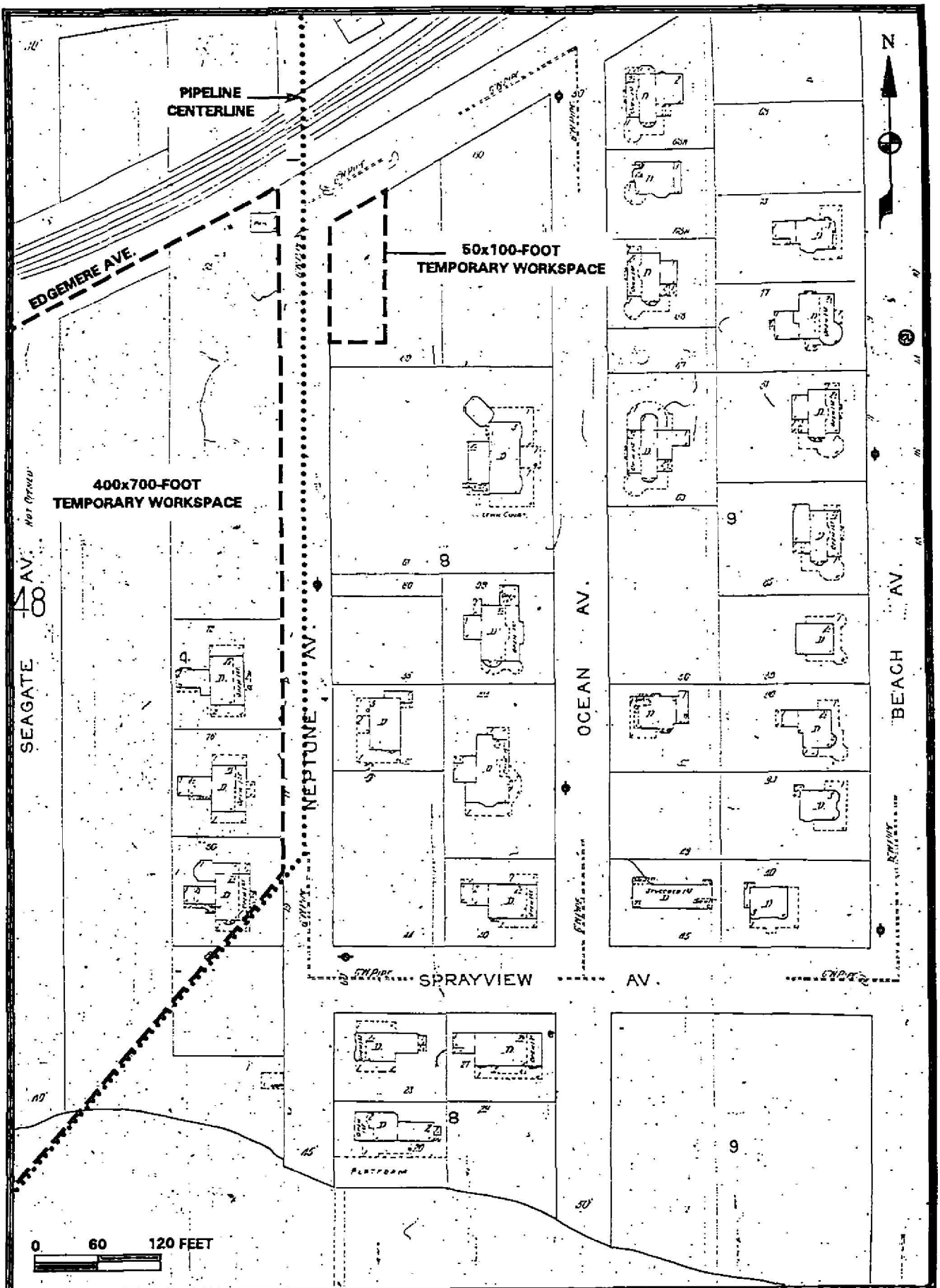


FIGURE 5: Portion of Edgemere, Far Rockaway, in 1912

SOURCE: Sanborn 1912

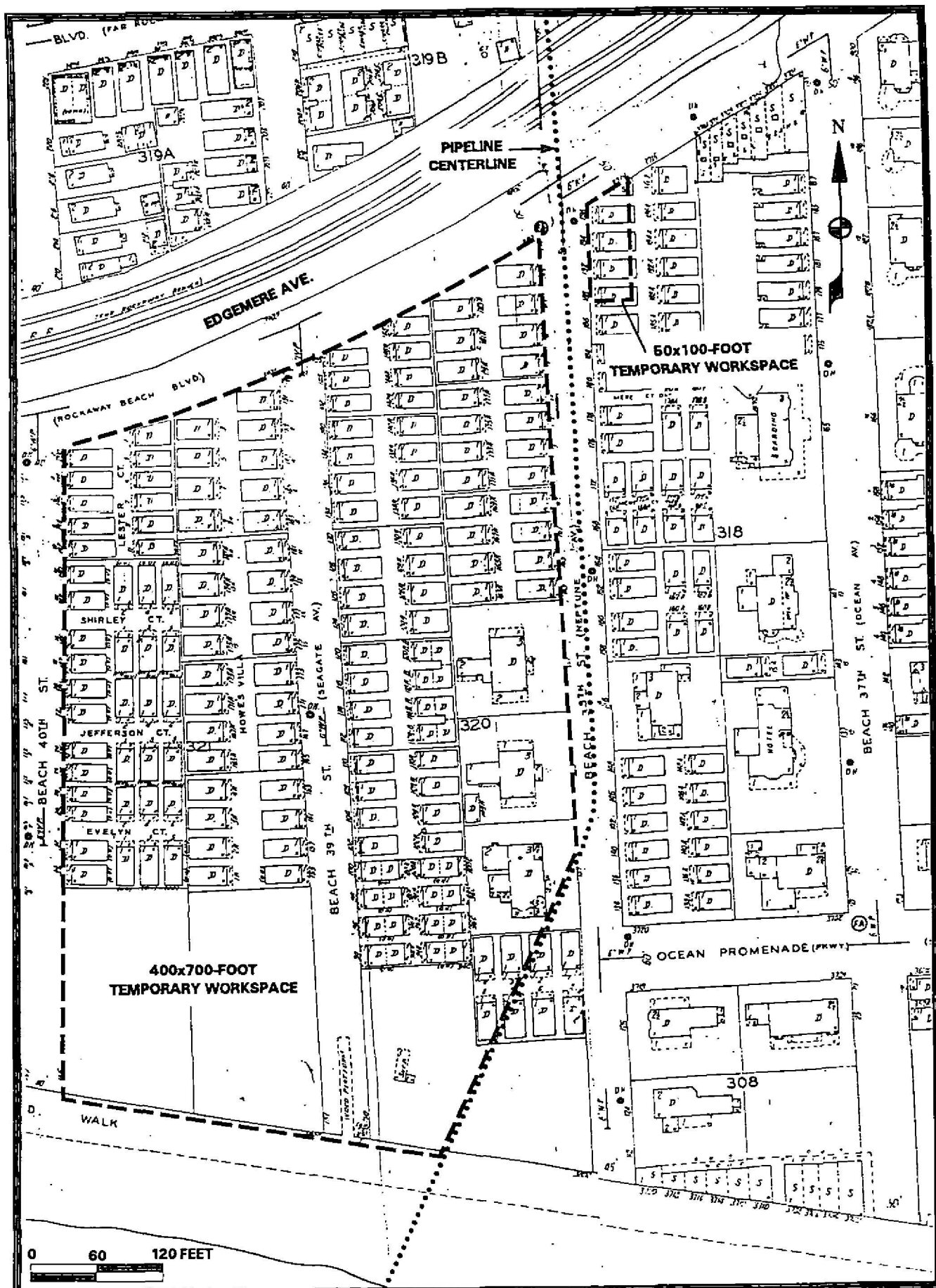


FIGURE 6: Portion of Edgemere, Far Rockaway, in 1933

SOURCE: Sanborn 1933

(2) The 400x700-foot workspace south of Edgemere Avenue encompasses areas of historic archaeological potential discussed above immediately west of the pipeline. This includes the three cottages mentioned above that were part of the Edgemere development as well as an area west of Beach 39th Street called the "Half Way House" section (see Figure 5). A summer tent colony was established in the Half Way House section in the early twentieth century. Circa 1913, the tents were replaced by small frame summer bungalows in the project area between Beach 39th and Beach 40th streets (Bellot 1918:96; Ullitz 1919) (see Figure 6).

In the period between World War I and the Depression, numerous small bungalows were built in the project area between Beach 38th and Beach 40th streets (see Figure 6). To increase the number of building lots on the east side of Beach 40th Street, 15-foot-wide access roads were cut into the block. The two rows of bungalows on the west side of Beach 39th Street were known as Howe's Villas (Sanborn 1933). The three Edgemere development cottages noted above that were surrounded by numerous small bungalows all persisted through 1951 (Sanborn 1951).

(3) The 50x100-foot workspace south of Edgemere Avenue includes an area that was historically part of the Edgemere development. This area was vacant until bungalows at 188, 192, 194, and 196 Beach 38th Street and a shop at 3719 Edgemere Boulevard were built in the period between World War I and the Depression (Sanborn 1933, 1951) (see Figures 5 and 6).

(4) The 25x100-foot workspace north of Rockaway Beach Boulevard includes an area that was historically part of the Edgemere development, begun in 1892. The project area is adjacent to the site of a two-and-one-half-story dwelling that was probably built between 1892 and 1912 (Sanborn 1912) (Figure 7). An outbuilding was located on Beach 35th Street adjacent to the project area between 1912 and 1919 (Ullitz 1919).

In the period from World War I to the Depression, the section of Rockaway Beach Boulevard between Beach 35th and Beach 38th streets changed from primarily residential to commercial occupation. The two-and-one-half-story dwelling which had formerly stood adjacent to the location of this temporary workspace was replaced by a gas station (Sanborn 1933, 1951) (Figure 8).

(5) The 50x100-foot workspace between Far Rockaway Boulevard and Beach 35th Street includes an area historically part of the Edgemere development. By 1912, this location was the site of a 15-foot-square one-story office building surrounded by a veranda (Sanborn 1912) (see Figure 7). Between World War I and the Depression, the office building was replaced by a dwelling at 412 Beach 35th Street (Sanborn 1933, 1951) (Figure 9).

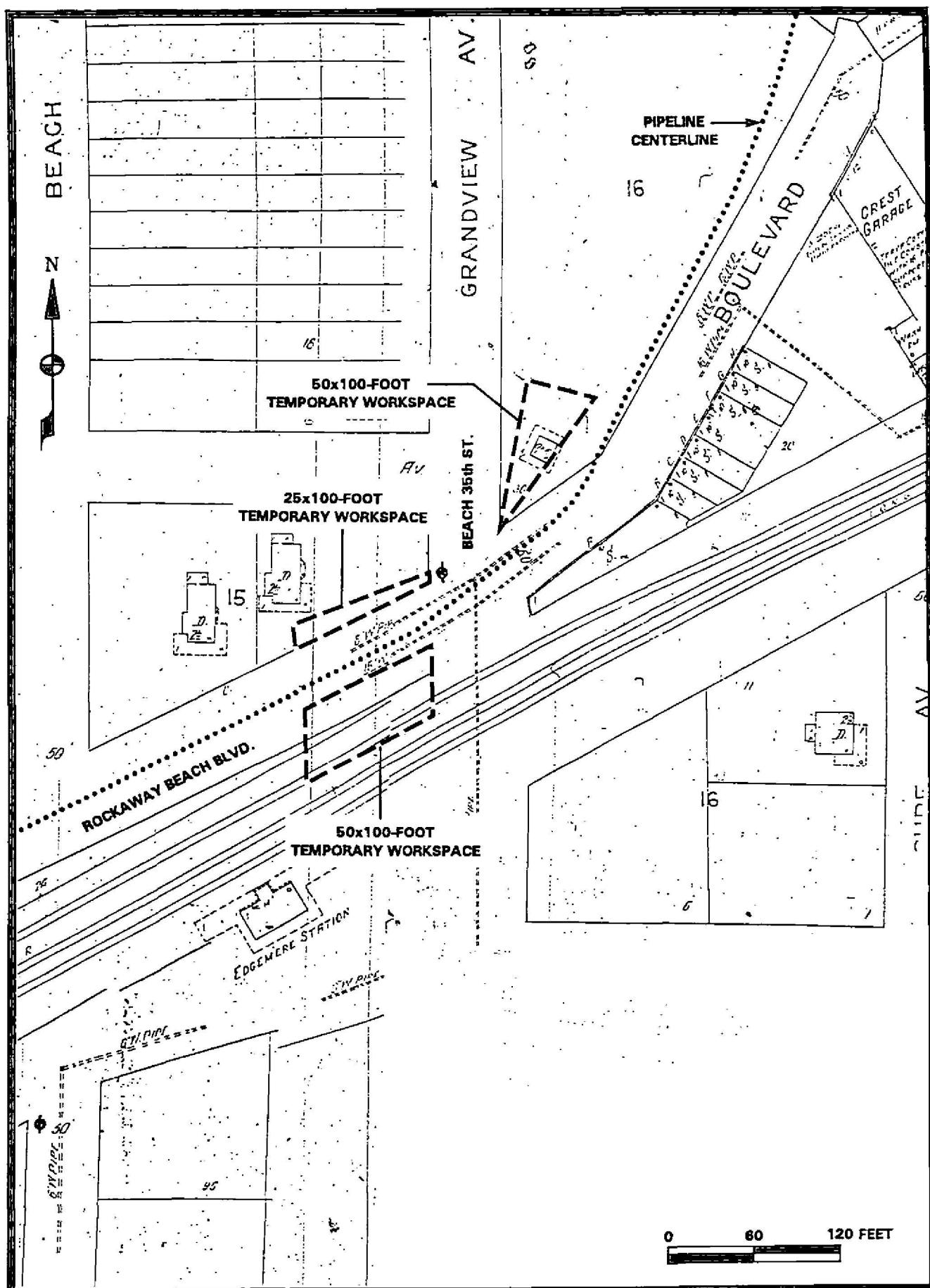


FIGURE 7: Portion of Edgemere, Far Rockaway, in 1912

SOURCE: Sanborn 1912

(6) Beach Channel Drive west of Beach 32nd Street includes an area historically part of the "Samuel L.B. Norton" estate (Conner 1852). Samuel L.B. Norton was most likely the heir of John L. Norton, the original developer of Far Rockaway. His is one of the few houses indicated in Far Rockaway on Conner's (1852) atlas. The pipeline corridor appears to pass slightly north of the Norton house, intersecting an outbuilding associated with the residence (Wolverton 1891) (Figure 10). Between 1891 and 1901, the Norton residence was replaced by a large hotel and a dwelling on Beach 32nd Street (Sanborn-Perris 1901). "The Ashton" was a hotel that also included various outbuildings, such as a boathouse on Norton Creek, a barn, and a wagon shed (Sanborn 1912) (Figure 11). Under present design plans, the pipeline corridor will pass near several of these outbuildings. Between World War I and the Depression, the Ashton hotel was torn down and Far Rockaway Boulevard was extended through the property to Beach 32nd Street (Sanborn 1933).

(7) West of Dickens Street, the pipeline corridor passes through the area of Bayswater, an 1878 development. In 1891, the project area fronting Dickens Street was owned by "J.L. O'Brien," but no structures were present on the tract (Wolverton 1891). During the period between 1891 and 1912, three similarly designed dwellings were built at 343 Union Avenue (Dickens Street) (Sanborn 1912) (Figure 12). Under present design plans, the pipeline centerline intersects one of these dwellings and an associated outbuilding immediately to the northwest. The 1919 residence intersected by the pipeline centerline (see Figure 12) was no longer present in 1951 (Sanborn 1951) (Figure 13).

In the period between 1891 and 1919, lots on either side of Bayswater Channel, which extended nearly to Mott Avenue, were occupied with dwellings. The Queens Borough Gas and Electric Company maintained facilities near the mouth of the channel. The pipeline corridor passes near the site of structures on either side of the channel (Ullitz 1919). Between World War I and the Depression, the Queens Borough Gas and Electric Company, had expanded its facilities on the east bank of the Bayswater Channel. The pipeline alignment runs past, but does not intersect, structures associated with the plant (Sanborn 1933) (see Figure 13). Dwellings on the west bank of the Bayswater Channel were still present in 1951 (Sanborn 1951).

(8) The workspace near the LILCO plant was also a part of the Bayswater development. The portion of Bayswater encompassed by this workspace was formerly traversed by Beach 25th Street and Imlay Place (Ullitz 1919) (see Figure 12). Two outbuildings adjoining the western margin of the workspace were built sometime between 1919 and 1951 (Sanborn 1951) (see Figure 13). These two structures are associated with residences that had been constructed prior to 1919 (Ullitz 1919) (see Figure 12).

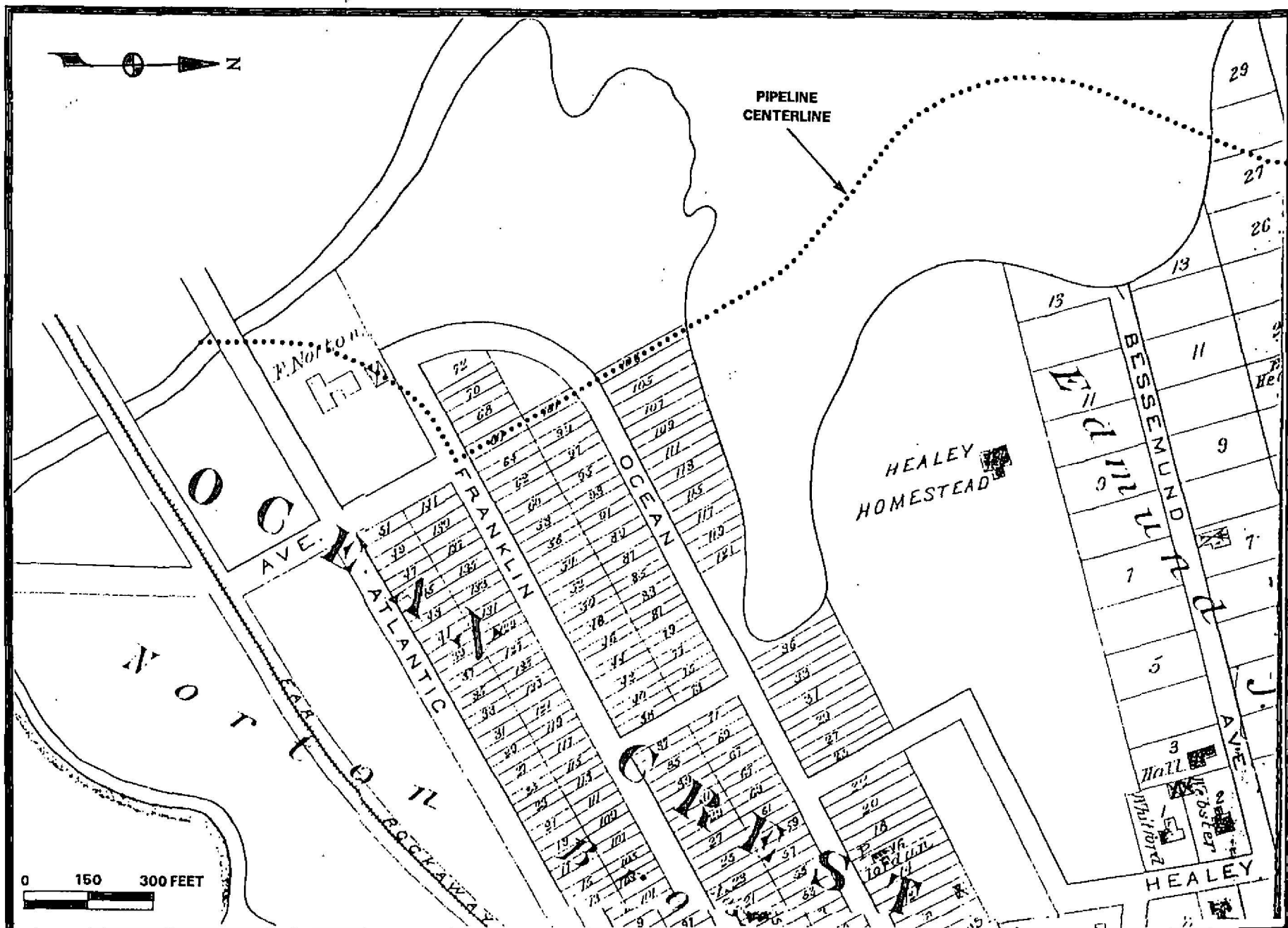


FIGURE 10: Norton Estate in 1891

SOURCE: Wolverton 1891

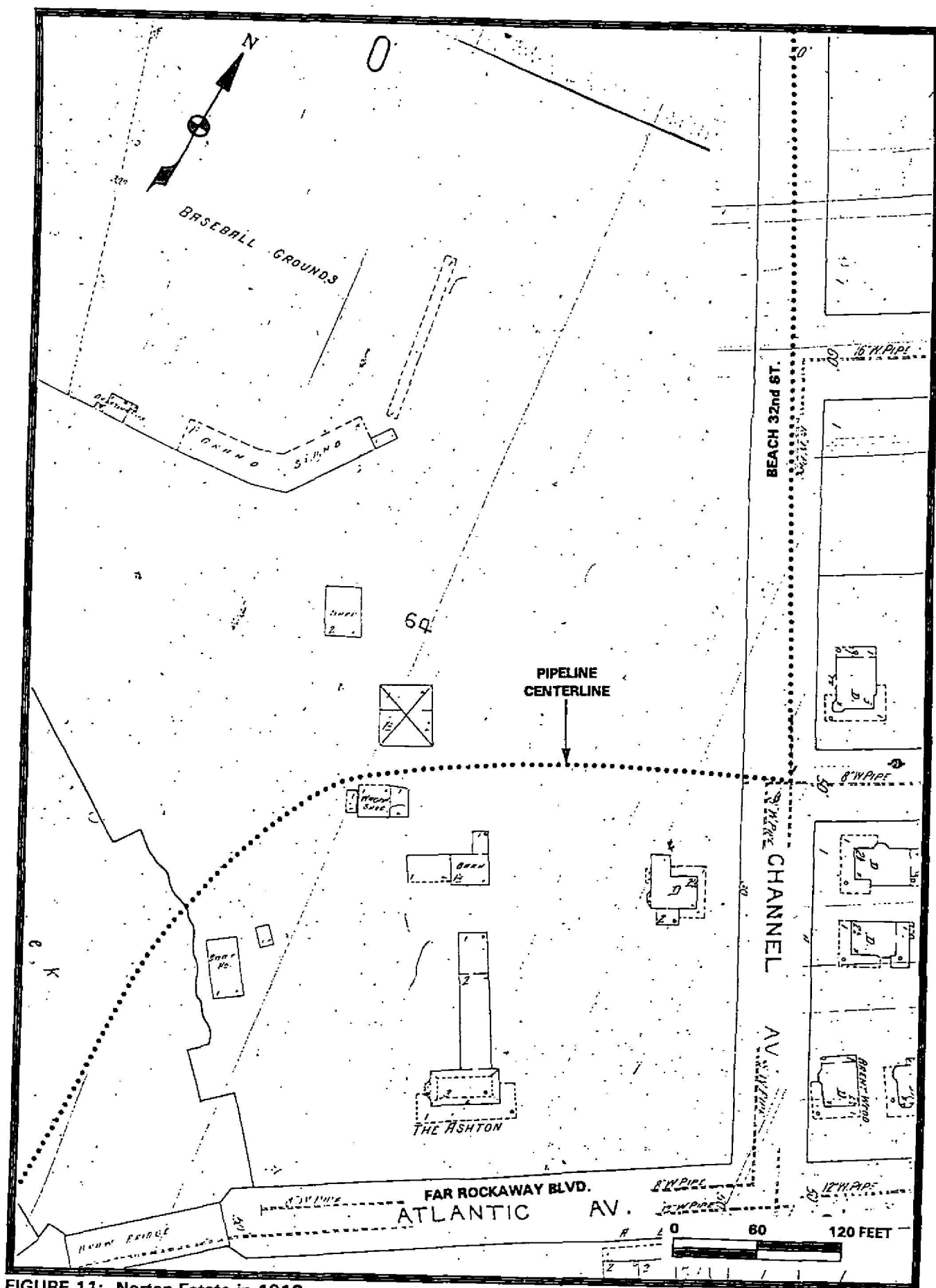
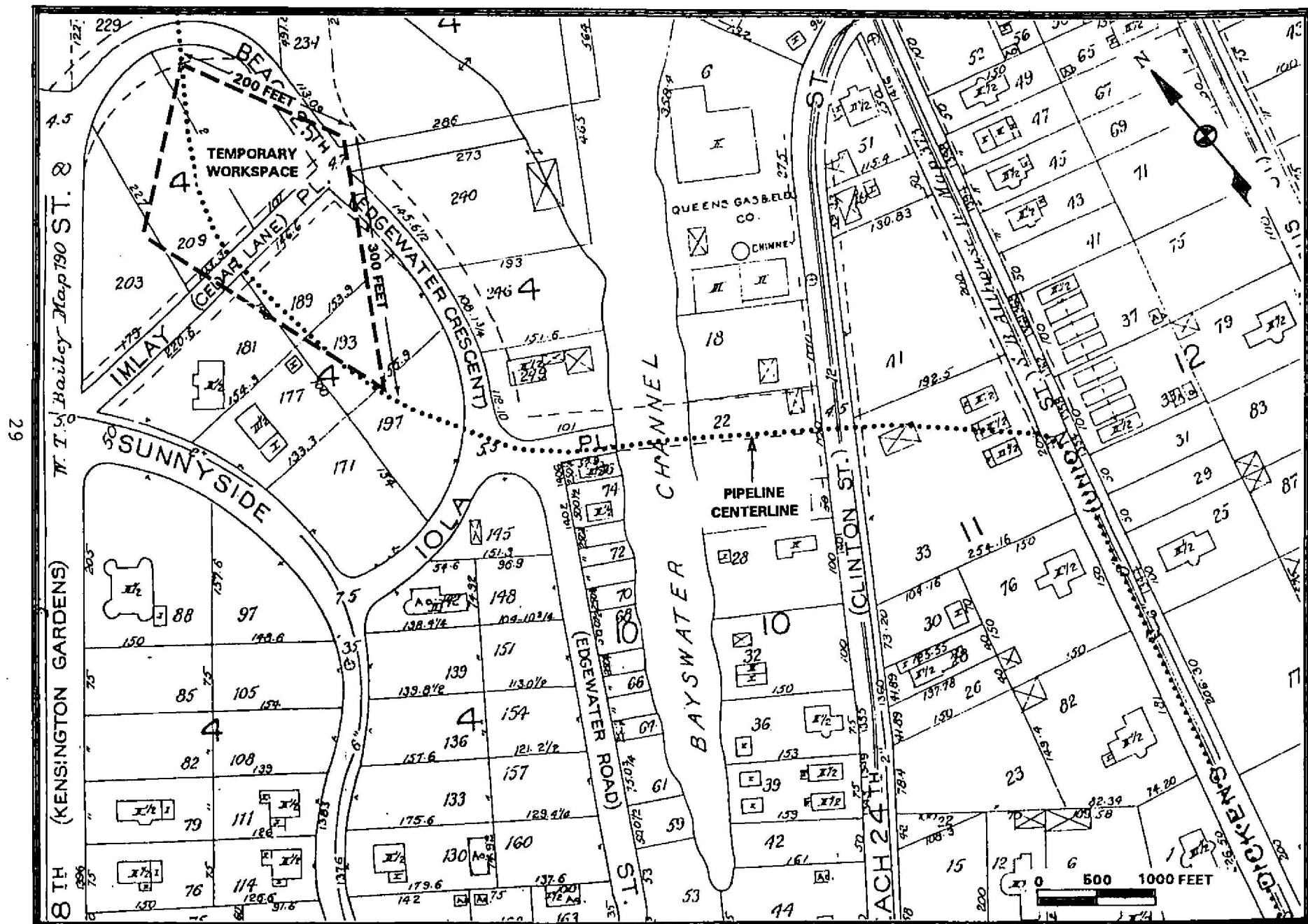


FIGURE 11: Norton Estate in 1912



V. CONCLUSIONS AND RECOMMENDATIONS

LBA recommends that a Phase IB archaeological survey be undertaken to determine the presence or absence of significant archaeological resources in the Queens and Nassau counties section of the Liberty Pipeline project corridor. This work should include pedestrian reconnaissance and subsurface survey in locations of archaeological potential or sensitivity. Phase II studies may then be appropriate if any sites are identified within the project impact area.

Much of the alignment in Far Rockaway and Inwood lies within existing streets where the construction impact area will be limited to a narrow trench cut through the pavement surface to lay the pipeline. It is assumed that archaeological resources in these areas have been severely disturbed by prior road construction and installation of subsurface utilities; therefore, such areas should be eliminated from further archaeological investigation. Some portions of the corridor pass through areas of recent landfill and may therefore also be eliminated from further archaeological investigation. Specifically, those portions of the Kennedy International Airport that encompass the pipeline route consist of landfill, and this area should be excluded from further archaeological investigation.

In general, the background research indicates that the 8.5-mile pipeline corridor and associated workspace areas intersect a limited number of locations with archaeological potential. With regard to prehistoric resources, Jamaica Bay and its tributary streams would have been an attractive area for prehistoric groups, and archaeological and historical sources indicate that this area was intensively used by prehistoric and ethnohistoric groups. However, the area's metropolitan development has no doubt destroyed much of the physical remains associated with prehistoric and early historic activity. Historical development in most of the project area did not occur prior to the 1890s. Locations of historic archaeological potential are limited to the eight areas described in the previous chapter.

LBA will conduct a pedestrian reconnaissance of the locations of archaeological potential discussed in Chapter IV of this report. This reconnaissance will provide a basis for assessing the likelihood of the presence of archaeological deposits at these locations. Following this reconnaissance, Phase I subsurface survey will be conducted in any areas of archaeological potential where historic or prehistoric resources may still be present.

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APPENDIX A

RESUMES OF KEY PROJECT PERSONNEL

Project Manager: Jonathan C. Lothrop
Principal Investigator: Charles H. LeeDecker

RESUME

NAME: Jonathan C. Lothrop

EDUCATION: Ph.D., Anthropology, State University of New York at Binghamton, 1988.

M.A., Anthropology, State University of New York at Binghamton, 1982.

B.A., Anthropology, Franklin & Marshall College, Lancaster, Pennsylvania, 1979.

PROFESSIONAL
AFFILIATIONS:

American Anthropological Association
Society for American Archaeology
Eastern States Archaeology Federation
Northeastern Anthropological Association
Mid-Atlantic Archaeological Conference

ARCHAEOLOGICAL EXPERIENCE:

1988 to * Archaeologist, Louis Berger & Associates, Inc.
Present

Project Manager, Two-year indefinite quantity contract for cultural resource services in Pennsylvania and New Jersey, for Transcontinental Gas Pipe Line Corporation.

Principal Investigator, Phase IA Historical and Archaeological Survey of the Pierce Mills, Arnold Falls, Gage, Passumpsic, Taftsville, and Cavendish Hydroelectric Impoundments, Caledonia and Windsor Counties, Vermont, for Central Vermont Public Service Corporation.

Project Manager, Jernees Mill Road 16-Inch Gas Pipeline, Phase I Cultural Resource Survey, Borough of Sayreville, New Jersey, for New Jersey Natural Gas Company.

Co-Principal Investigator, Phase I Historical and Archaeological Survey of the Schepperle Subdivision, Patterson, New York, for Francis A. and Cassandra Schepperle.

Co-Principal Investigator, Phase I Cultural Resource Survey, Sewaren Measuring and Regulating Station and 10-Inch Lateral Loop, Woodbridge Township, New Jersey, for Transcontinental Gas Pipe Line Corporation.

Principal Investigator, Phase I Historical and Archaeological Survey of the Fairfax, Milton, Clark Falls, and Peterson Hydroelectric Impoundments, Lamoille River, Chittenden, Franklin, and Lamoille Counties, Vermont, for Central Vermont Public Service Corporation.

Principal Investigator, Phase II and Phase III Archaeological Investigations of the Proposed Suffield Correctional Facility, Suffield, Connecticut, for Frederic R. Harris, Inc.

Principal Investigator, Phase IA Historical and Archaeological Survey of the Stillwater Farm Property, Carmel, New York, for Saccardi and Schiff, Inc.

Principal Investigator, Phase IA Historical and Archaeological Survey of the Heath Brook Plaza, Tewksbury, Massachusetts, for Bradford Saivetz & Associates, Inc.

Principal Investigator, Phase IA Historical and Archaeological Survey of the Fairfax Falls Plant, Lamoille River Project, Fairfax, Vermont, for Central Vermont Public Service Corporation.

Principal Investigator, Phase I Historical and Archaeological Survey of the Carmel Club Property, Carmel, New York, for John Meyer Consulting.

Principal Investigator, Phase II and Phase III Archaeological Investigations of the Rosebud Property, Patterson, New York, for Hartz Associates, Inc.

Principal Investigator, Phase I historical and archaeological survey and Phase II archaeological investigations of the Meadowbrook Farms Property, Patterson, New York, for JZG Resources, Inc.

1985 to 1986 * Project Director, Phase I and II archaeological investigations for the Delaware Department of Transportation, Center for Archaeological Research, University of Delaware.

1980 to 1984 * Archaeological Technician, cultural resource survey and testing, Chugach National Forest, Kenai Peninsula and Prince William Sound, Alaska.

- * Crew Chief, Phase I historical and archaeological survey, Big Flats, Chemung County, New York, Public Archaeology Facility, SUNY-Binghamton.
- * Co-Principal Investigator, Excavation of the Potts Site, Oswego County, New York, Buffalo Museum of Science.
- * Field Director, Phase I and II archaeological investigations, Ithaca and New Field, New York, Public Archaeology Facility, SUNY-Binghamton.
- * Crewmember, Phase III archaeological investigations, Kidder Point and Sears Island Sites, Searsport, Maine, Maine Historic Preservation Commission.
- * Research Assistant, Utqiagvik Archaeology Project, Binghamton, New York, Public Archaeology Facility, SUNY-Binghamton.
- * Crewmember, Public Archaeology Facility, SUNY-Binghamton.

Crewmember, Utqiagvik Archaeology Project: Phase III archaeological investigations of the Utqiagvik Site, Birnirk and Proto-historic Components, Barrow, Alaska.

Crewmember, Phase I historical and archaeological survey, Kanona-Prattsburgh Project, Prattsburgh, New York.

Crewmember, Phase I and II archaeological investigations, Broome County, New York.

- * Crewmember, Excavation of the Vail Site, Oxford County, Maine, Maine State Museum.

1977 to 1979 * Crewmember, Franklin & Marshall College, Lancaster, Pennsylvania.

Crewmember, Phase II Testing of Sites 18-An-29A, 29B, and 367, Anne Arundel County, Maryland.

Crewmember, Phase I Archaeological Survey Projects, West Hempstead and Lancaster, Pennsylvania.

- * Museum Volunteer, Curation of Archaeological Collections, North Museum, Franklin & Marshall College, Lancaster, Pennsylvania.

- * Crewmember, Field School, University of Sheffield & University of London. Excavation of Cnoc Coig Site, Oronsay Island, Inner Hebrides, Scotland.

PUBLICATIONS:

- 1989 Eastern Paleoindian Lithic Resource Use, edited with C. Ellis. Westview Press, Boulder.
- 1989 The Organization of Paleoindian Lithic Technology at The Potts Site. In: Eastern Paleoindian Lithic Resource Use, C. Ellis and J. Lothrop, eds. Westview Press, Boulder.
- 1984 Archaeological Investigations of the Potts Site, Oswego County, New York, 1982 and 1983 (With R.M. Gramly). Archaeology of Eastern North America 12:122-158.
- 1982 Pieces Esquillees from the Vail Site (With R.M. Gramly). Archaeology of Eastern North America 10:1-22.

TECHNICAL REPORTS:

- n.d. Phase I, II, and III Archaeological Investigations of the Proposed Suffield Correctional Facility, Suffield, Hartford County, Connecticut. In Preparation for Frederic R. Harris, Inc.
- Phase II and III Archaeological Investigations of the Rosebud Property, Patterson, Putnam County, New York. In preparation for Hartz Associates, Inc.
- Phase IA Historical and Archaeological Survey of the Pierce Mills, Arnold Falls, Gage, Passumpsic, Taftsville, and Cavendish Hydroelectric Impoundments, Caledonia and Windsor Counties, Vermont. In preparation for Central Vermont Public Service Corporation.
- 1990 Phase I Cultural Resource Survey of Jernees Mill Road 16-Inch Gas Pipeline, Borough of Sayreville, Middlesex County, New Jersey (with F. Pickin). Prepared for New Jersey Natural Gas Company.
- Phase I Cultural Resource Investigations of the Camden Lateral Pipeline Lowering, Big Timber Creek, Camden and Gloucester Counties, New Jersey (with F. Pickin). Prepared for Transcontinental Gas Pipe Line Corporation.

- 1986 Phase I & II Archaeological Investigations of the Route 896 Corridor, Route 4-West Chestnut Hill Road to Summit Bridge Approach, New Castle County, Delaware (with Jay F. Custer and Colleen DeSantis). DelDOT Archaeology Series No. 52.
- A Management Summary for Phase I & II Archaeological Investigations of the Route 896 Corridor, Route 4-West Chestnut Hill Road to Summit Bridge Approach, New Castle County, Delaware (With Jay F. Custer). DelDOT Archaeology Series No. 49.
- 1983 PIN 3057.19: Routes 13, 34, 96 and Decker Road, Towns of Ithaca and Newfield, Tompkins County, New York. Public Archaeology Facility 1983 Highway Program Report (With contributions by Christine Kula). Submitted to the New York State Museum and Science Service, State Education Department, Albany, New York.
- Preliminary Analysis of Artifactual Materials from the Potts Site. Prepared for: The Richard J. Lounsberry Fund for Research in Anthropology, American Museum of Natural History, New York, New York.
- 1982 The Mound 37 Excavations. In: The 1981 Excavations at the Utqiagvik Archaeological Site, Barrow, Alaska, edited by Albert A. Dekin, Jr., Chapter 8. Public Archaeology Facility, Department of Anthropology, State University of New York at Binghamton. Submitted to the Bureau of Indian Affairs and the National Park Service, Anchorage, Alaska.
- Bolas Weights. In: The 1981 Excavations at the Utqiagvik Archaeological Site, Barrow, Alaska, edited by Albert A. Dekin, Jr., Chapter 16. Public Archaeology Facility, Department of Anthropology, State University of New York at Binghamton. Submitted to the Bureau of Indian Affairs and the National Park Service, Anchorage, Alaska.

PAPERS & PRESENTATIONS:

New Perspectives on Prehistoric Site Types in the Connecticut Lowlands: Recent Investigations at the Carolyn Site. Paper presented in the Symposium "Native Americans, Archaeologists, and the Last 1000 Years," Archaeological Society of Connecticut Meetings, Washington, Connecticut, 20 April 1989.

Phase I Historical and Archaeological Survey of the Proposed Schepperle Subdivision, Town of Patterson, Putnam County, New York (with F. Pickin). Prepared for Francis A. and Cassandra Schepperle.

Phase I Cultural Resource Survey of the Sewaren Measuring and Regulating Station and 10-Inch Lateral Loop, Woodbridge Township, Middlesex County, New Jersey. Prepared for Transcontinental Gas Pipe Line Corporation.

Phase IA Historical and Archaeological Survey of the Fairfax, Clark Falls, Milton, and Peterson Hydroelectric Impoundments, Chittenden, Franklin, and Lamoille Counties, Vermont (with M. Grant and A. Harrison). Prepared for Central Vermont Public Service Corporation.

1989 Phase I and II Archaeological Investigations of the Meadowbrook Farms Property, Patterson, Putnam County, New York. Prepared for JZG Resources, Inc.

Phase I Historical and Archaeological Survey of the Carmel Club Property, Mahopac, Putnam County, New York. Prepared for John Meyer Consulting.

Phase IA Historical and Archaeological Survey of the Stillwater Farm Property, Carmel, Putnam County, New York. Prepared for Saccardi and Schiff, Inc.

1988 Phase IA Cultural Resources Investigation of Fairfax Falls, Town of Fairfax, Franklin County, Vermont. Prepared for Central Vermont Public Service Corporation.

Management Summary, Phase I Archaeological Survey of the Carmel Club Property, Mahopac, Putnam County, New York. Prepared for John Meyer Consulting.

Management Summary, Phase II Archaeological Investigations of the Meadowbrook Farms Property, Patterson, Putnam County, New York. Prepared for JZG Resources, Inc.

Management Summary, Phase I Archaeological Survey of the Meadowbrook Farms Property, Patterson, Putnam County, New York. Prepared for JZG Resources, Inc.

Preliminary Case Report: Development of the Rosebud Property, Patterson, Putnam County, New York (with R. M. Stewart and M. Bowers).

Prehistoric Settlement in the Hudson Highlands: Investigations at the Meadowbrook Farms Site 2. Paper presented at the Northeastern Anthropological Association Meetings, Montreal, 18 March 1989.

Paleoindian Lithic Raw Material Management in the Northeast. Paper presented in the Symposium "Eastern Paleoindian Lithic Raw Material Utilization," Society for American Archaeology Meetings, Toronto, Ontario, 9 May 1987.

Activity Structure on Northeastern Paleoindian Habitation Sites. Paper presented at the Society for American Archaeology Meetings, New Orleans, Louisiana, 24 April 1986.

Spatial Analysis of Paleoindian Habitation Loci at the Potts Site. Paper presented at the Northeastern Anthropological Association Meetings, Lake Placid, New York, 25 April 1985.

Archaeological Excavations at the Potts Paleo-Indian Site, Oswego County, New York, 1982-1983 (With R.M. Gramly). Paper presented in the Symposium, "New Experiments Upon the Record of Eastern Paleo-Indian Culture," Eastern States Archaeological Federation Meetings, Salem, Massachusetts, 5 November 1983.

Archaeological Investigations at the Potts Paleo-Indian Site, Oswego County, New York (With R.M. Gramly). Paper presented at the Northeastern Anthropological Association Meetings, Syracuse, New York, 12 March 1983.

Pieces Esquillees From the Vail Site: Techno-functional Implications for Paleo-Indian Studies. Paper presented in the Symposium "Lithic Technology in The Late Pleistocene," Society for American Archaeology Meetings, Minneapolis, Minnesota, 16 April 1982.

RESUME

NAME: Charles H. LeeDecker

EDUCATION: M.A., Anthropology, The George Washington University, 1978.
B.A., Anthropology, Cornell University, 1970.

PROFESSIONAL REGISTRATION: Accredited by the Society of Professional Archaeologists in Field Research and Cultural Resource Management

PROFESSIONAL AFFILIATIONS: Society of Professional Archaeologists
Society for American Archaeology
Society for Historical Archaeology
Southeastern Archaeological Conference
Eastern States Archaeological Federation
Middle Atlantic Archaeological Conference

EXPERIENCE:

1984 to Present Senior Archaeologist, Louis Berger & Associates, Inc.

Principal Investigator for data recovery at the Delaware, Lackawanna & Western Railroad Roundhouse, Steamtown National Historic Site, Scranton, Pennsylvania.

Principal Investigator for Phase II testing of two sites in the Estill, South Carolina, Federal Prison Facility.

Principal Investigator for Phase I surveys of proposed improvements to Routes 28 and 68, Maryland.

Principal Investigator for Phase I cultural resource survey of the U.S. Route 113 improvements, Georgetown to Milford, Delaware.

Principal Investigator for Phase IB cultural resource assessment of the Clermont Avenue Interchange, Interstate 95, City of Alexandria and Fairfax County, Virginia.

Principal Investigator for preliminary archaeological evaluation of the Washington Metropolitan Area Transit Authority E-Route, Mid-City Segment, District of Columbia.

EXPERIENCE:
(Continued)

Principal Investigator for excavation and recordation of the Raleigh & Gaston Railroad Roundhouse, Raleigh, North Carolina.

Project Archaeologist for archaeological excavations at the Allegheny Portage Railroad National Historic Site.

Principal Investigator for archaeological data recovery at the Indian Creek IV Site, Greenbelt Storage Yard, Beltsville, Maryland.

Principal Investigator for archaeological testing at the Dobson Mills Site, Philadelphia, Pennsylvania.

Principal Investigator for archaeological testing and data recovery at the Bennett Street and 7th & Church Street projects, Wilmington, Delaware.

Principal Investigator for archaeological survey of Texoma Distribution Enhancement Project, Cameron and Calcasieu Parishes, Louisiana, for Fluor Engineers, Inc.

Principal Investigator for archaeological data recovery at Block 1184, Wilmington, Delaware, for the Christina Gateway Corporation.

Principal Investigator for analysis of collections and report preparation for the Assay Office Site, Block 35, New York City, New York, for the Howard Ronson Organization, New York.

Principal Investigator for archaeological survey and site evaluation at the Washington Metropolitan Area Transit Authority, Greenbelt Storage Yard, Greenbelt, Maryland.

Project Archaeologist for re-evaluation of rural historic context for the Fort Drum, New York, vicinity, for the National Park Service, Mid-Atlantic Region.

Principal Investigator for testing of eight historic sites at Fort Drum, New York, for the National Park Service, Mid-Atlantic Region.

EXPERIENCE:
(Continued)

Co-Principal Investigator for testing and data recovery at the Christina Gateway Project, Block 1101, Wilmington, Delaware, for the City of Wilmington.

Principal Investigator for archaeological testing and data recovery at the Howard Road Historic District, Washington, D.C., for the Washington Metropolitan Area Transit Authority.

Principal Investigator for archaeological survey of 14 District of Columbia Department of Recreation Properties.

Principal Investigator for archaeological testing of three sites at Marine Corps Base, Camp Lejeune, North Carolina, for the Naval Facilities Engineering Command, Atlantic Division.

Principal Investigator for archaeological survey of Jones Point Park, Alexandria, Virginia.
Project Archaeologist for preliminary archaeological assessment of a proposed parking facility at Squares 803 and 804, District of Columbia.

Project Archaeologist for archaeological resource management plan for Quantico Marine Corps Base, Virginia.

Principal Investigator for archaeological assessment of the Langston Terrace Project, Washington D.C., for the District of Columbia Department of Housing and Community Development.

1981 to 1984

Senior Archaeologist and Branch Manager, Soil Systems Division, Alexandria, Virginia.

Responsible for administration, long-term planning and business development in the MiddleAtlantic region... Directed archaeological studiesfor East Tennessee Natural Gas Transmission Corp. pipeline expansion in southwest Virginia; National Photographic Interpretation Center building addition, Washington, D.C.; Philadelphia's Fairmount Park; Felsenthal National Wildlife Refuge, Arkansas; Fort Belvoir, Virginia; Raritan Township Municipal Authority 201 Plan, New Jersey; etc.

EXPERIENCE:
(Continued)

- 1980 to 1981 President, LeeDecker & Associates. Springfield, Virginia. Directed cultural resource projects for the Caruthersville Harbor, Missouri; four dredge disposal sites in Dorchester County, Maryland; Helena and Vicinity, Arkansas; and La Grue Bayou, Arkansas.
- 1976 to 1980 Archaeologist, Iroquois Research Institute, Fairfax, Virginia.
- Established and managed the Institute's Branch office in Memphis, Tennessee. Responsible for preparation of research proposals and direction of more than 30 archaeological projects throughout midwestern and southeastern states. Major projects include intensive survey and testing of 200 miles of drainage ditch improvements in the St. Francis River Basin, Arkansas and Missouri; archaeological survey and testing of 7,400-acre Gathright Lake, Virginia; preparation of cultural resource management guidelines for the Federal Power Commission; survey of 14,000 acre Taylorsville Lake, Kentucky; archaeological resource management plan for Perry Lake, Kansas; archaeological reconnaissance and predictive model for 110,000-acre flood easement lands at Truman Dam, Missouri.
- 1975 Archaeological excavations and laboratory processing at the Shawnee-Minisink Site, a multi-component stratified site in the Upper Delaware River Valley, Pennsylvania.
- 1974 to 1975 Student Intern, Smithsonian Institution, Museum of Natural History, Conservation Laboratory. Conservation and restoration of archaeological and ethnographic collections.

PUBLICATIONS AND PAPERS PRESENTED:

- 1984 "U.S. Environmental Protection Agency - Region II Stage IB Surveys in New Jersey: An Assessment of Archaeological Sampling Techniques". In Historic Preservation Planning in New Jersey: Selected Papers on the Identification, Evaluation, and Protection of Cultural Resources. Office of New Jersey Heritage, Trenton.

PUBLICATIONS AND PAPERS PRESENTED:
(Continued)

- 1985 "From House to Outhouse: A Study of Nineteenth Century Households in Wilmington, Delaware." With Terry Klein, Amy Friedlander and Cheryl Holt. Presented at the Society for Historical Archaeology Annual Meeting, Boston and at the Middle Atlantic Archaeological Conference, Rehoboth Beach.
- 1985 "Filling the Middle-Range Theory Gap in Urban Archaeology: A Household Paradigm." With Amy Friedlander. Presented at the 84th Annual Meeting of the American Anthropological Association, Washington, D.C.
- 1987 "Nineteenth Century Households and Consumer Behavior in Wilmington, Delaware." With Terry Klein, Amy Friedlander and Cheryl Holt. In Socio-Economic Status and Consumer Choices: Perspectives in Historical Archaeology. Suzanne Spencer-Wood, editor. Plenum Press.
- 1989 "Consumer Behavior Studies: An Historical Perspective on Consumer Research." Presented at the Annual Meeting of the Society for Historical Archaeology, Baltimore.
- 1990 Archaeological and Historical Investigation of Block 1184, Wilmington, New Castle County, Delaware. Delaware Department of Transportation Archaeology Series No. 78.
- 1990 "The Bifurcate Component at the Indian Creek Site, Prince Georges County, Maryland." Presented at the Middle Atlantic Archaeological Conference, Ocean City, Maryland.
- Forthcoming "Historical Dimensions of Consumer Research." To be published in Historical Archaeology in a special volume of papers edited with Terry Klein.

SELECTED TECHNICAL REPORTS:

- 1977 Co-author and Project Coordinator of Archaeological and Historical Investigations for Energy Facilities: A State of the Art Report. Submitted to the Office of Energy Systems, Federal Power Commission.

SELECTED TECHNICAL REPORTS:
(Continued)

- 1978 Contributing author of Cultural Resources Management Plan for New Melones Project Area, California. Submitted to the U.S. Army Corps of Engineers, Sacramento District.
- 1983 Principal Investigator for Managing Archaeological Resources in Fairmont Park.
- 1984 Project Archaeologist for Archaeological Testing of Twelve Sites in the Felsenthal Navigation Pool and National Wildlife Refuge, Arkansas. Submitted to the U.S. Army Corps of Engineers, Vicksburg District.
- 1984 Project Manager and Co-principal Investigator for Cultural Resource Survey and Evaluation at Fort Belvoir, Virginia. Submitted to the National Park Service, Mid-Atlantic Region.
- 1984 Principal Investigator for Phase II Archaeological Investigation of the Eisenhower Avenue Earthwork Site, City of Alexandria, Virginia. Submitted to Wallace, Roberts and Todd and the Washington Metropolitan Area Transit Authority.
- 1985 Co-principal Investigator for Nineteenth Century Wilmington Households: The Christina Gateway Project Submitted to the Department of Commerce, City of Wilmington.
- 1985 Principal Investigator for Historical and Archaeological Assessment of Two Proposed Satellite Parking Lots, Squares 702 and 703, Washington, D.C. Submitted to the Washington Metropolitan Area Transit Authority.
- 1985 Co-Principal Investigator for Nineteenth-century Wilmington Households: The Christina Gateway Project. Submitted to the Department of Commerce, City of Wilmington, Delaware.
- 1985 Principal Investigator for Archaeological, Architectural, and Historical Investigations at the Howard Road Historic District, Washington, D.C. Submitted to Wallace, Roberts & Todd and the Washington Metropolitan Area Transit Authority.

SELECTED TECHNICAL REPORTS:
(Continued)

- 1986 Co-author of Re-Evaluation of Rural Historic Contexts for the Fort Drum, NY Vicinity. Submitted to the National Park Service, Mid-Atlantic Region.
- 1986 Principal Investigator for Archaeological and Historical Investigation of State-Owned Lands on Block 1184, Wilmington, Delaware: Interim Report. Prepared for the Christina Gateway Corporation, Wilmington, Delaware.
- 1987 Principal Investigator for Archaeological and Historical Investigations at the Assay Office Site, Block 35, New York, New York: Interim Report. Prepared for HRO International, New York, New York.
- 1987 Principal Investigator for Level II Cultural Resource Investigation for the Texoma Distribution Enhancements Project. Cameron and Calcasieu Parishes, Louisiana. Prepared for Fluor Engineers, Inc., Houston, Texas.
- 1988 Principal Investigator for Archaeological Evaluation of the Greenbelt Storage Yard, Prince Georges County, Maryland. Prepared for Wallace, Roberts & Todd and the Washington Metropolitan Area Transit Authority.
- 1989 Principal Investigator for Archaeological Testing of the Dobson Mills, East Falls, Philadelphia, Pennsylvania. Prepared for Rouse Urban Housing, Inc., Philadelphia.
- 1989 Principal Investigator for Preliminary Archaeological Evaluation of the WMATA E-Route (Green Line), Mid-City Segment, Alternatives ARS, C, C-2, C-MOD, District of Columbia. Prepared for Wallace Roberts & Todd.
- 1990 Principal Investigator for Excavation of the Raleigh & Gaston Railroad Roundhouse, Raleigh, North Carolina. Prepared for the North Carolina Department of Administration.

SELECTED TECHNICAL REPORTS:
(Continued)

- 1990 Principal Investigator for The East Side Neighborhood: Archaeological and Historical Investigation of the Seventh and Church Street Project and the Bennett Street Project, Wilmington, Delaware. Prepared for the Department of Real Estate and Housing, City of Wilmington, Delaware.
- 1990 Principal Investigator for Archaeological Evaluation of Sites 38HA146 and 38HA147 at the Proposed Federal Correctional Institution, Estill, Hampton County, South Carolina. Prepared for the U.S. Department of Justice.
- 1990 Co-Principal Investigator for Lemon House Archeological Testing, Allegheny Portage Railroad National Historic Site, Cresson, Pennsylvania. Prepared for the National Park Service.