







Cultural Landscape Report for Fort Tilden

GATEWAY NATIONAL RECREATION AREA Rockaway Beach, New York



CULTURAL LANDSCAPE REPORT FOR FORT TILDEN

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SITE HISTORY

EXISTING CONDITIONS

ANALYSIS AND EVALUATION

TREATMENT GUIDELINES.

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Cover Image: Aerial photograph looking south across Fort Tilden during firing of Battery Harris, ca. 1941. At left are World War II barracks, and the wharf area, and below Fort Tilden along Rockaway Inlet is the community of Roxbury. Gateway National Recreation Area archives, GATE 15001.

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This report was substantially completed in 2005, but was not finalized due to difference of opinion between the NPS Northeast Regional Office and the New York State Historic Preservation Officer over the eligibility of the post and wharf area for listing in the National Register of Historic Places. The revisions made in 2013 include updates to the Analysis and Evaluation chapter to reflect the findings of the Keeper of the National Register in 2009 that the entire Fort Tilden property under NPS jurisdiction is eligible for listing in the National Register during a period of significance from 1916 to 1967. Existing conditions documentation was not updated.

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INTRODUCTION

Fort Tilden, located along the south shore of western Long Island, is a historic Army base commissioned in 1917 as part of the harbor defenses of New York, and transferred in 1974 to the National Park Service (NPS) as part of Gateway National Recreation Area. The 309-acre military reservation, located on a narrow barrier beach framed by the great expanse of the Atlantic Ocean, includes a fortification area with defensive works, and a post and wharf (Quartermaster) area with support facilities such as barracks, warehouses, drill grounds, and a parade ground. Today, Fort Tilden illustrates changes in management that, over the course of four decades, have altered and concealed its historic military character. From a largely open landscape with inconspicuous military works and a dense cluster of support buildings, the landscape today has converted to a natural maritime woodland and recreational area that retain many traces of Fort Tilden's historic strategic role in the New York harbor defenses.

Fort Tilden is located on the eastern end of the Rockaway Peninsula barrier beach within the New York City borough of Queens, approximately six miles east of the mouth of New York Harbor (fig. 0.1). Encompassing all of the former Fort Tilden Military Reservation except for a small parcel retained by the military as an Army Reserve Center, the park is bounded by the Atlantic Ocean on the south, Rockaway Beach Boulevard on the north, Beach 169th Street to the east, and Beach 193rd Street to west (fig. 0.2). A small northern extension of the fort fronts on the Rockaway Inlet (Jamaica Bay) north of Rockaway Beach Boulevard between the former US Coast Guard Rockaway Station and the community of Roxbury.¹

PURPOSE, SCOPE, AND METHODS

A Cultural Landscape Report (CLR) is the primary document used by the National Park Service for management of its historically significant cultural landscapes. A CLR provides park managers with a comprehensive site history, documents existing conditions, evaluates the historic significance and character of the landscape, and provides treatment recommendations to guide short and long-term management. This report for Fort Tilden has been developed according to the *Guide to Cultural Landscape Reports: Contents, Process, and Techniques* (1998). It consists of Part I of a CLR (Site History, Existing Conditions, and Analysis and Evaluation), along with preliminary treatment recommendations (but not a full treatment plan which comprises Part II of a CLR). The Site History and Existing Conditions sections document in narrative and graphic form the physical evolution of the landscape through to the present. The Analysis and Evaluation addresses the historic significance of the property according to the National Register criteria, and evaluates the historic character of the cultural landscape by addressing changes since the end of the historic period.

As outlined in the project agreement, the primary purposes of this CLR are: I. To determine how the landscape of the existing National Register district (fortification area) contributes to the listed property; 2. To determine whether the portion of the fort outside of the National Register district (post and wharf areas) appears eligible for listing in the National Register; 3. To provide treatment guidelines to inform line item construction project "Replace Water Distribution System at Fort Tilden," PMIS 91049; and 4. To provide general guidance on preserving and enhancing the historic character of the landscape.

Overall, research for this CLR has been undertaken at a "limited" level of investigation, as outlined in the project scope. As defined in the NPS Cultural Resource Management Guideline (NPS 28, 1998), "limited" means research in available published sources and easily accessible documentary sources, nondestructive field investigation, and brief interviews (in this case, with park staff).² Research focused on the fortification area (Fort Tilden Historic District), being the area currently identified as an historic property, and secondarily on the post and wharf areas where substantial physical changes have altered the landscape since the fort was transferred to the NPS in 1974. Due to the limited level of research and purpose of this report, documentation focuses on the broad-scale characteristics and character-defining features of the landscape, rather on minor features. Therefore, the report does not document in detail the history of features such as signs, shrubs, or building details, but rather focuses on the property history and general character and dates of construction for such things as the batteries, post buildings, and roads. In addition, the CLR focuses on the initial development of Fort Tilden through the World War II era, the period of significance currently documented in the National Register for the Fort Tilden Historic District and from which most of the remaining resources date.

2013 REVISION

Since initial completion of this report in 2005, the Keeper of the National Register determined in 2009 that the entire Fort Tilden Military Reservation, except for the Army Reserve Center, is eligible for listing in the National Register of Historic Places during a period of significance from 1917 through 1967. The original findings of the CLR, that the post and wharf areas do not appear eligible for listing in the National Register due to loss of integrity, have been removed from the National Register evaluation within the Analysis and Evaluation chapter. The cultural landscape evaluation retains the original finding that the cultural landscape of the post and wharf areas overall does not retain historic character. The treatment recommendations have also been revised to remove specific recommendations for the completed line-item construction project from which this project was originally funded. Existing conditions documentation and the general treatment recommendations were not revised to address changes made since 2005, or the impact of Hurricane Sandy in 2012.

REPORT ORGANIZATION

Following the general format of a CLR, this report for Fort Tilden is organized into four chapters: Site History, Existing Conditions, Analysis and Evaluation, and General Treatment Recommendations.

Chapter 1. Site History

This chapter documents the history of the landscape from the late nineteenth century to present. The chapter is broken down into five period representing five historical periods defined by changes in land-use, development, and ownership: Barrier Island and Early Development, Pre-History to 1916; Establishment of Fort Tilden and the World War I Era, 1916 to 1937; World War II Era, 1937 to 1945; The Cold War Era, 1945 to 1974; and Gateway National Recreation Area, 1974 to 2005.

Each period begins with a brief narrative overview that addresses the general history of the site within historic contexts related to military history and regional development. This narrative is followed by a detailed chronology of the physical development of the landscape. Historic map and photographs supplement the narrative and chronology, along with period plans that document the landscape at the end of each of the five historic periods.

Chapter 2: Existing Conditions

This chapter provides a concise overview of the landscape and its physical context as it currently exists (2005) based on both site research and surveys, including on-the-ground observations and documentation of significant features. The chapter is organized within three landscape character areas (fortification, post, wharf). Photographs and an existing conditions plan are included at the end of the narrative.

Chapter 3: Analysis and Evaluation

This chapter consists of two sections: an overview of existing National Register documentation and evaluation of landscape integrity; and a cultural landscape evaluation that addresses changes in the landscape's historic character since the end of the historic period in 1967. This evaluation is organized by landscape

characteristics and associated features, and focuses on the fortification area (National Register-listed Fort Tilden Historic District) through an evaluation of historic and existing conditions to determine historic integrity. Photographs and a plan supplement the narrative. Due to lack of historic character as a whole, the landscape of the post and wharf areas is addressed more cursorily, with evaluation limited to landscape characteristics accompanied by a listing of associated features.

Chapter 4: Treatment Recommendations

This chapter outlines general recommendations for preserving and enhancing the historic character of the landscape, based on the findings of chapter 3, with a focus on the fortification area (National Register-listed Fort Tilden Historic District).³

TERMINOLOGY

Since the Army established Fort Tilden in 1917, landscape features (including buildings) have acquired numerous names and reference numbers over time. According to historical plans and maps of the installation, the names and numbers of buildings and structures were changed during both the World War II era and the Cold War era. To reduce confusion, contemporary names and building numbers are generally used to identify the extant landscape features, with historic names and numbers referenced when known. Example: Administration Building (Building 219, earlier known as the Ordnance, Building 20) For non-extant landscape features, the names and numbers will be based on the latest numbering system used by the Army. A glossary of military terms is included in Appendix A.

SUMMARY OF FINDINGS

SITE HISTORY

The site history is based in large part on the synthesis of existing NPS reports and studies, along with primary materials including maps, plans, and photographs from the Gateway National Recreation Area Museum Collection and "History of Fort Tilden 1917-1974" geocities.com website (mainly from the National Archives). Due to the limited scope of research for this project, Army records housed in the National Archives were not consulted, nor were materials in local repositories, although materials from both appear in consulted secondary sources.

Until the late nineteenth century, the site of Fort Tilden was open water south and west of shifting barrier beaches that separated Jamaica Bay from the Atlantic Ocean. The largest of the barrier beaches was known by the native Canarsie people as *Reckowacky*, from which Europeans derived the later name, Rockaway. By the early 20th century, the barrier beach had extended westward beyond the future site of Fort Tilden.

On February 19, 1917 the U.S. Army commissioned the Rockaway Point Military Reservation, designed to defend the eastern channel entrance to New York Harbor. In August of that year, the reservation was officially dedicated and named Fort Tilden, after the former New York Governor Samuel J. Tilden. In its initial development during World War I, the fort was laid out in two areas: the fortification area along the Atlantic beachfront, and the post area including a wharf (Quartermaster area) on Rockaway Inlet at the northeast corner of the fort, adjoining the Rockaway Naval Air Station, which was being developed at the same time. The fortification area consisted of an elaborate system of fire control stations, searchlights, submarine mine defenses, and two 6-inch gun batteries at the eastern and western ends of the fort (later known as Batteries Ferguson and Kessler). A four-gun 12-inch mortar battery was located in the Rockaway Naval Air Station. The main area of the post was laid out along Beach 169th Street at the northeastern corner of the fort, adjoining the Rockaway Naval Air Station. It served as the housing and administrative center of Fort Tilden. The initial World War I construction consisted mostly of wood-frame, Series 600 temporary buildings that included barracks, mess halls, stables, warehouses, and recreational facilities. North of the main post, across the state road (Rockaway Beach Boulevard), a complex of Quartermaster warehouses and maintenance facilities were built at the wharf on Rockaway Inlet, providing the fort with access to a major shipping lane. Rail lines were laid out from the wharf to the main post and fortification areas. .

Following World War I, Army installations generally suffered from neglect and lack of funds for routine maintenance. By the early 1920s, however, the Army initiated a number of construction projects at Fort Tilden to improve the living conditions for enlisted men and to augment the armament within the fortification area. At this time, the Army installed two 16-inch guns, three ammunition magazines, three power plants and a fire control and plotting station, together comprising Battery Harris. After this through the mid-1930s, the Army made few improvements to Fort Tilden.

Beginning in 1937 on the eve of World War II, however, the Army began a longawaited program of improvements. The entire post was rebuilt and many upgrades were made to the fortification area. A new installation plan called for new roads to the fortifications, a parade ground, and permanent masonry buildings including officer housing and administrative and office space. On the eve of US entry into World War II, the Army built a large complex of Series 700 temporary buildings, including barracks, recreational buildings, mess halls, and a chapel to accommodate wartime mobilization. Within the fortification area, a network of concrete roadways and entrance gates was also added to provide vehicular access to the batteries and support structures, supplementing the earlier rail system. At this time, Batteries Harris and Kessler were casemated and covered with earth for additional protection and concealment from aerial attack. By 1944, a mining casemate and Harbor Entrance Command Post was also constructed and varying types of mobile guns were stationed throughout the fort.

At the close of World War II, as soldiers returned home, many of the cantonment barracks at Fort Tilden were converted into veteran housing apartments. The fort at this time was taken off active duty and was managed by a small care-taking staff. Seacoast guns were removed from the batteries by 1949. With nation-wide Cold War fortification efforts, the fort resumed active duty in 1951. By 1955, Fort Tilden was outfitted with a Nike missile launch pad and two tracking stations that were armed and ready through 1967.

Fort Tilden continued as an active military installation until 1974 when it was decommissioned and transferred to the National Park Service (NPS) as part of Gateway National Recreation Area. The US Army Reserve Center on Rockaway Beach Boulevard was historically part of the fortification area, but after 1974 became a separate property retained by the military. Although some buildings were removed by the Army during the 1960s and early 1970s, the majority of demolition, primarily of wood-frame buildings in the post area, was undertaken by NPS after 1974 as Fort Tilden was retrofitted for non-military use with little need for so much infrastructure. In the fortification area, the military structures were largely abandoned and the landscape became wooded through natural succession.

EXISTING CONDITIONS

Fort Tilden is one of several sites within the Jamaica Bay Unit of Gateway National Recreation Area.⁴ Those nearby include Jacob Riis Park on the east side of the fort; Floyd Bennett Field, located to the north across Rockaway Inlet; and Breezy Point, a natural area at the western end of the Rockaway Peninsula. Other NPS property in the vicinity includes an undeveloped parcel north of Fort Tilden along the Rockaway Inlet, and the Silver Gull Beach Club property on the west side of Fort Tilden. The landscape of Fort Tilden consists of three landscape character areas, which reflect the historic use and development of the property, as well as current park operations (see fig. 0.2). These areas—the fortification, post and wharf areas—are consistent in large part with the organization used in previous planning efforts, which identified the fortification area as "Fort Tilden/West" and the post and wharf areas as "Fort Tilden/East."⁵

Fortification Area

This is the western two-thirds of the park containing Fort Tilden's abandoned gun batteries and defensive support structures, the most prominent being Battery Harris with it two enormous concrete and earthen casemates. Also known today as the "back fort," the fortification area is bounded by Rockaway Beach Boulevard to the north; Beach 193rd Street to the west, Hero Road/Building 13 (post area) to the east, and the Atlantic Ocean to the south, encompassing approximately 200 acres. NPS manages the fortification area primarily as a natural area, and the formerly open landscape has become wooded. It has limited public access and is used primarily for bird watching and nature education purposes. Public interest in the history of the fortification area is reflected in occasional interpretive tours, and the ongoing private development of the extensive website, "History of Fort Tilden 1917-1974," containing historic maps, photographs, primary documents, and reminiscences from veterans.⁶

Post Area

This is the eastern third of the park that forms the primary public entrance to Fort Tilden. The post area is bounded by Rockaway Beach Boulevard to the north, Beach 169th Street to the east, the Atlantic Ocean to the south, and Hero Road/Building 13 (fortification area) to the west, containing approximately one hundred acres. Within the post area is the one-time ceremonial center of Fort Tilden, the parade ground, around which there was once a dense complex of barracks, officer's quarters, administration buildings, and a chapel. At its height during World War II, the post area contained over one hundred buildings, but today there remain just thirty. The most prominent is Building 1, the former administration building built in 1937-1938 that today houses the park visitor center and offices. Other buildings have been leased to community groups, and most of the open fields, where buildings once stood or which served as the parade and drill grounds, are used as ball fields.

Wharf Area

This is the small 10-acre portion of Fort Tilden north of Rockaway Beach Boulevard that fronts on the Rockaway Inlet. It is bounded by the former US Coast Guard Station Rockaway to the east and the community of Roxbury to the west. Historically used by the Army Quartermaster and later the Post Engineer, the wharf area contained the main dock, warehouses, maintenance facilities, and administration buildings, with rail lines connecting from the main dock through the post area to the fortifications. At its height during World War II, the wharf area contained nineteen buildings, but today it retains eight and only the pilings remain from the main dock. A large parking lot and new ferry dock were constructed here in 2003 as part of the transportation-related redevelopment, Riis Landing, named after adjoining Jacob Riis Park. The Riis Landing development includes the adjoining complex of buildings that once formed the US Coast Guard Station Rockaway, which has since moved to other facilities.

ANALYSIS AND EVALUATION

The following is a summary of the main findings of this CLR regarding the historic significance of the Fort Tilden landscape and treatment recommendations, organized by the fortification area and the post-wharf areas.

Most of the fortification area was listed in the National Register of Historic Places in 1984 as the Fort Tilden Historic District. The property was listed for its significance related to the coastal defenses of New York Harbor and as an example of improvements in military technology from World War I through World War II. The period of significance of the property extends from 1917 through 1945, excluding the latter Cold War Era that witnessed the installation of a Nike Missile System. The existing boundaries of the Fort Tilden Historic District do not align with the historic fortification area, incorporate a portion of the Army Reserve Center, and exclude the contributing Harbor Entrance Command Post (Building 13).

In 2009, the Keeper of the Register issued a Determination of Eligibility (DOE) that the entire Fort Tilden Military Reservation, except for the Army Reserve Center, is eligible for listing in the National Register of Historic Places under Criterion A. This DOE expanded the boundaries of the listed district, and extended the period of significance to 1967, when the Nike missile site was disarmed.

The cultural landscape of Fort Tilden has lost much of its historic character since the NPS took over the site in 1975. In the fortification area, the loss of character is due primarily to successional vegetation that has altered the historic open space and concealed most of the military structures, most of which remain intact. This change in character is potentially reversible. In the post and wharf areas, the loss of historic character is due primarily to the extensive building demolition, and also to some new construction. These changes are not easily reversible. Despite the loss of historic character, the post and wharf areas do retain a number of historic landscape features, including buildings, roads, a flagpole, entrance gates, and a parade ground, that contribute to the historic significance of the property as determined through the DOE.

TREATMENT GUIDELINES

Based on the findings of this CLR and past NPS planning documents, it is the recommendation of this CLR that rehabilitation (as defined by the Secretary of the Interior's Standards) be adopted as the appropriate treatment for Fort Tilden to allow of the continued adaptive reuse of the historic landscape. This treatment approach is compatible with the park's Development Concept Plan, completed in 1986 and its most recent planning document for Fort Tilden

Within the fortification area, general treatment recommendations including clearing successional woods from select areas, in a manner compatible with natural resource protection. Such limited clearing would enhance the historic character of primary structures and make visible key defensive and operational relationships in the landscape, particularly sight lines to the Atlantic Ocean, and road and rail corridors. Historic structures should be repaired and protected.

Within the post and wharf areas, surviving features from the military use and development of the property, including streets, trees, flagpole, entrance gates, perimeter fences, and buildings, should be retained to enhance the historic military character of the landscape and retain a sense of place. Existing historic materials should be retained and repaired, rather than replaced with incompatible materials, such as vinyl windows and siding. New construction should be designed in keeping with the overall style of extant World War II-era red brick and frame structures, and be sited to enhance historic spatial organization, especially at the parade ground.

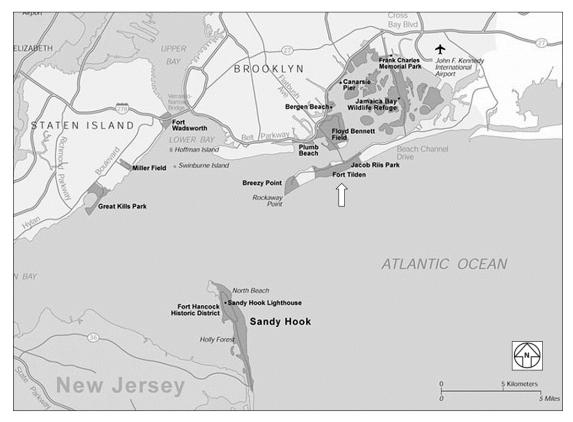


Figure 0.1. Map of lower New York Harbor showing the location of Fort Tilden and its relationship to other components of Gateway National Recreation Area, shaded in gray. (Detail, National Parks of New York Harbor brochure, 2004, annotated by SUNY ESF).

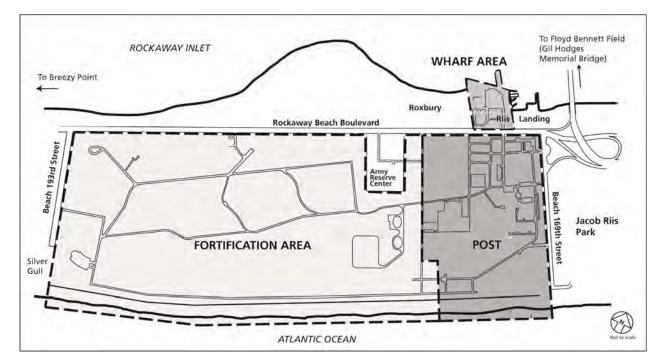


Figure 0.2. Diagram of Fort Tilden illustrating local setting and boundaries, and three character areas: fortification area, post area, and wharf area (part of Riis Landing). The outer dashed lines represent NPS property boundaries. (SUNY ESF)

ENDNOTES

¹ The former US Coast Guard Station Rockaway (formerly Rockaway Point) is currently under the jurisdiction of the Department of Homeland Security and in use by the National Park Service. The main building at the station is a large, Colonial Revival-style brick structure built by the WPA in c.1938-42.

² National Park Service. Cultural Resource Management Guideline, NPS-28, Web edition, 11 June 1998, <u>http://www.cr.nps.gov/history/online_books/nps28/28contents.htm</u>, 17-19.

³ More specific recommendations that addressed the line-item construction project "Replace Water Distribution System" (PMIS 91049), which is primarily in the post and wharf areas, were shared with park planners in a draft entitled "Preliminary Report for the Fort Tilden Landscape" (Olmsted Center/SUNY ESF, April 2005). Since this project has been completed, the recommendations have been deleted from the final report.

⁴ Fort Tilden was originally within the Breezy Point Unit of Gateway National Recreation Area. Breezy Point, including Fort Tilden, Breezy Point, and Jacob Riis Park, were later absorbed into the Jamaica Bay Unit.

⁵ See "Development Concept Plan/Environmental Assessment Jacob Riis/Fort Tilden" (National Park Service, February 1986).

⁶ Geocities, "History of Fort Tilden, 1917-1974," <u>http://www.geocities.com/fort_tilden/</u>. This website also addresses the history of the post and wharf areas.

1. SITE HISTORY

Since the late 19th century, the landscape of Fort Tilden has undergone a dramatic transformation, from open water and emerging barrier island along the Atlantic shoreline of Long Island, to highly developed military installation, and finally, to a naturalized multi-purpose recreation area that is a compelling remnant of its historic use.

ROCKAWAY BEACH, PRE HISTORY TO 1916

Until the late nineteenth century, the site of Fort Tilden was open water south and west of shifting barrier beaches that characterized the south shore of Long Island and separated Jamaica Bay from the Atlantic Ocean. The barrier beaches naturally drifted westward due to sand deposition from the ocean currents, with significant shifts often occurring during major storms. The largest of the barrier beaches near the site of Fort Tilden was known by the native Canarsie people as Recko/u/wacky, translated as meaning "neck of land," "lonely place," and "place of waters bright."' From this, Europeans derived the name Rockaway, with the barrier beach known both as Rockaway Peninsula and Rockaway Beach. At the west end of the peninsula was the Rockaway Inlet, the channel where Jamaica Bay opened into the Atlantic Ocean. Between 1888 and 1911, concurrent with increased development on Rockaway Peninsula and efforts to improve Jamaica Bay into a major port, the barrier beach was engineered to stabilize its ocean shore through the construction of stone and wood groins.² This effort resulted in accelerated westward drifting of the barrier beach, resulting in the extension of Rockaway Peninsula by more than two miles after 1866 (fig. 1.1).³

In 1609, Henry Hudson visited the Rockaway Peninsula and cast anchor in the Rockaway Inlet to study maps and compass readings while searching for a northwest passage to China. Within a short time after Hudson had laid anchor, the Dutch established settlements on Manhattan Island and Brooklyn. By the latter seventeenth century, Dutch and later English immigrants settled over much of the region surrounding Jamaica Bay in southern Brooklyn and Queens counties, which had been the homeland of the Canarsie people. In 1685, Captain Palmer, an English settler, purchased the Rockaway Peninsula for a little more than thirty-one sterling pounds. In 1687, after ownership disputes, Captain Palmer sold the land to Richard Cornell, who built a house on the peninsula.⁴ The Cornell family continued to own the peninsula through the eighteenth century, a period when the barrier beach extended only across the eastern two-thirds of Jamaica Bay (fig. I.2). Despite Cornell's settlement, the Rockaway Peninsula remained a remote and undeveloped place well into the nineteenth century. After the Revolutionary War, the new United States realized the importance of proper coastal defenses, and President Washington urged Congress to provide defenses for its seaports.⁵ On February 28, 1794, a special committee of the House of Representatives submitted recommendations concerning the kind of proposed fortifications that should be erected.⁶ Although work on the new fortification system was slow to begin, by 1808 an extensive plan for the fortification of New York Harbor had been prepared. The harbor defense system consisted of six new fortifications and two magazines. In addition to the earthen fortifications and major steward batteries, blockhouses were constructed to guard the landward sides.⁷ The war with England from 1812-1815 continued to stimulate the construction of fortifications.

In 1812, the United States government acquired land on the western end of the Rockaway Peninsula from Nathaniel Ryder, a descendent of Richard Cornell, to construct a blockhouse. The *Report of the Commissioners of Fortifications to New York Governor Tompkins* stated:

The entrance to Jamaica Bay, [Rockaway Inlet] on the south side of Long Island, affording to the enemy a safe landing for boats of small burthen to within a few miles of the (Brooklyn) Navy Yard, it was judged prudent to fortify that passage, as well as to guard that landing, as to afford protection to our coasters, who frequently take shelter in that bay from the enemy's cruisers. This according with your Excellency's sentiments, we caused a strong block house [Fort Decatur], mounting a 24-pounder in the top, to be erected on the west end of Rockaway Beach, at the entrance of that bay. This has been taken charge of by the United States and an adequate force is stationed there-at...⁸

The blockhouse, located east of present-day Fort Tilden, was demolished a short time afterward, in 1818.⁹ Title to the land, however, would remain with the United States government through the nineteenth and twentieth centuries. It may have been on this same government property that the US Life-Saving Service, a predecessor of the US Coast Guard, built a Life-Saving Station in 1856 at the western extremity of Rockaway Peninsula, probably within the area now occupied by Jacob Riis Park. This station, which helped distressed mariners, remained in service at various locations on the shifting barrier beach through the 1960s.¹⁰

The future site of Fort Tilden remained in open water into the 1880s.By the turn of the century, however, the point of the Rockaway Peninsula had drifted westward over the future site of Fort Tilden, creating the upland needed for the military fortification.

LANDSCAPE CHRONOLOGY, PRE-HISTORY TO 1916

- >1890 Site of Fort Tilden is open water in Atlantic Ocean near inlet to Jamaica Bay. Waters were part of the homeland of the Canarsie people prior to European colonization of the area in the 17th century. Barrier beaches may have existed on the site of Fort Tilden prior to the 18th century.
- 1885 Map of New York City, Brooklyn, and Vicinity (Colton, 1885) showsRockaway Peninsula east of future site of Fort Tilden (fig. 1.3).
- 1898 USGS map shows the westward drift of the barrier beach over much of future site of Fort Tilden (fig. 1.4).
- 1915 By this time, the westward drift of the Rockaway Peninsula barrier beach extends beyond future site of Fort Tilden. .

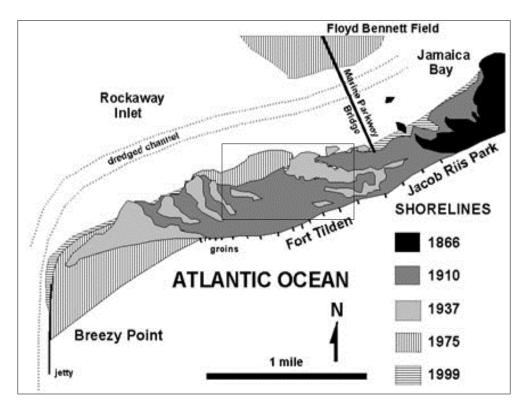


Figure 1.1. Diagram of westward drift of the Rockaway Peninsula (Rockaway Beach), 1866-1999, with location of Fort Tilden indicated by the rectangle. (US Geological Survey, New York City Regional Geology, "Breezy Point, ca.2000, annotated by SUNY ESF)

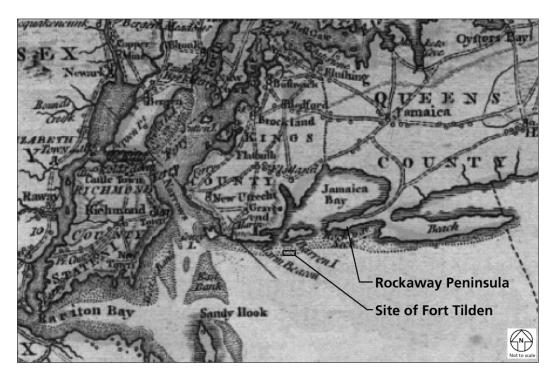


Figure 1.2. Detail, circa 1776 map of New York Harbor illustrating much shorter Rockaway Peninsula and water in future site of Fort Tilden. (Library of Congress American Memory Collection, annotated by SUNY ESF)

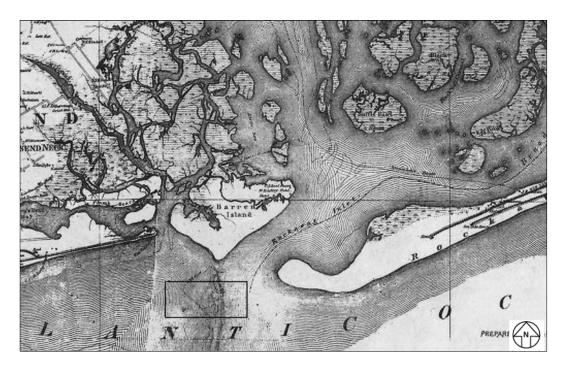


Figure 1.3. An 1885 map illustrating extent of Rockaway Peninsula, with future site of Fort Tilden (represented by rectangle) in open water. (G. W. & C.B. Colton & Co, "Map of New York City, Brooklyn, and Vicinity...," Library of Congress, American Memory Collection, annotated by SUNY ESF)

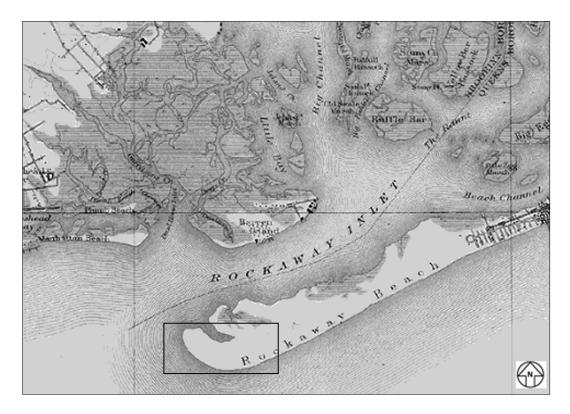


Figure 1.4. An 1898 map illustrating westward drift of Rockaway Beach (Peninsula) over much of future site of Fort Tilden (represented by rectangle). (US Geological Survey, Brooklyn Quadrangle, 15 Minute Series Map, 1898, annotated by SUNY ESF)

ESTABLISHMENT OF FORT TILDEN AND THE WORLD WAR I ERA, 1916–37

In the late nineteenth century, the United States realized the vulnerability of its coastal cities and fortifications. It was during this time that Secretary of War William Endicott recommended that the National Coast Artillery defense system be constructed. Between the late 1880s and 1910, harbor defenses were constructed at major ports along the East Coast and West Coasts. New York City's harbor was identified as a high priority and it received six harbor defense installations.

The origins of Fort Tilden date to the Taft period of harbor defenses, and the increase in range of naval guns that occurred between 1910 and 1915. The Taft period began with the recommendations issued in 1905 by the so-called Taft Board, headed by Secretary of War William Taft, for upgrading the nation's harbor defenses, particularly fire-control systems. This program made particular use of advances in electrical motors, lights, and communications." In response to these developments, the US War Department Board of Review recommended increasing the size of the Coast Artillery Corps by some fifty percent and identified the need for a new installation to protect the eastern approach to New York harbor along the south shore of Long Island.¹² After a six-month survey conducted by the Army Corps of Engineers, a site was selected in latter 1916: a large parcel of barrier beach at the western end of Rockaway Beach. Some filling in this area may have occurred as early as 1911, but much of its was unimproved.¹³ At the same time, the US Navy began development of its Rockaway Naval Air Station immediately east of the Army's new reservation. The ninety-six acre naval installation contained over eighty buildings and structures.¹⁴

The new military reservation was organized and established on February 19, 1917. It was initially called the Rockaway Point Military Reservation, and was unofficially dedicated as Fort Funston in recognition of General Funston who led the punitive expedition into Mexico during the Spanish-American War.¹⁵ Apparently because of another Fort Funston in the Harbor Defenses of San Francisco that was established in 1917, the new reservation was officially dedicated on August 1, 1917 as Fort Tilden in honor of Samuel J. Tilden, the 25th Governor of New York State (1875-1876) and winner of the popular vote for US President in 1876.

At this time, most of the Atlantic frontage was reserved for gun batteries and other armament. Clustered along the public road at the northeast corner of the fort was the post (Main Post of Fort Tilden), with a wharf (Quartermaster area) on the Rockaway Inlet side of the barrier beach adjacent to the Rockaway Naval Air Station. By February of 1917, a garrison of 130 enlisted men and four officers initiated construction of barracks, mess halls, and other living quarters and service facilities within the post.¹⁶ Beginning in the spring, seacoast gun batteries were emplaced along the Atlantic shoreline, and a 12-inch mortar battery was constructed east of the post on land within the Rockaway Naval Air Station. To aid the delivery of supplies, concrete roads and walks connecting the buildings were also under construction by late 1917.¹⁷

Plans drawn by the War Department for Fort Tilden in 1918 display that as many as four 16-inch guns, eight 6-inch guns and four mortar pits were to be constructed (only two of the 16-inch guns, four of the 6-inch guns and one of the four mortar pits would ever be constructed).¹⁸ Plans also called for two searchlights and two 25 KW power plants located at each 6-inch gun battery. Another 1918 map of Fort Tilden reveals that construction of the post began along Marginal Street (now Beach 169th Street) in the northeast corner of the fort and stretched from the Atlantic Ocean to Jamaica Bay. Additional temporary wood frame buildings constructed included a row of officer's quarters, a hospital, mess halls, stable, latrine, storage sheds, Post Exchange, ordnance office, guardhouse, and a Y.M.C.A. ¹⁹ North of State Road (now Rockaway Beach Boulevard) in the northeastern end of the post, a dock was constructed extending into Rockaway Inlet, with rail lines to receive supply shipments. At this time, the rail lines extended southward into the post and terminated at a pair of warehouses along the western edge of the post.

With the close of World War I, construction at Fort Tilden slowed. At this time, the wharf area consisted of six large coal pockets, an engine house, an office, and other support buildings. The rail lines had been expanded southward from the post warehouses and veered westward along what is now Shore Road.²⁰ While the Army faced little need to enlarge or improve its post facilities, the defenses were another issue, because World War I had demonstrated that the nation's harbors faced a new threat of attack by air. In response, the Army developed plans for construction of an anti-aircraft battery at Fort Tilden, outfitted with 3-inch anti-aircraft guns on open platforms. The Army also developed a balloon field along the northern side of Fort Tilden, to accommodate zeppelin-like air ships used as part of an expanded fire-control system for the batteries.²¹

In 1922 administration of Fort Tilden was withdrawn from the Coastal Defenses of Southern New York and reassigned to the Harbor Defenses of Sandy Hook, New Jersey. During this time new installation plans were approved for the addition of two 16-inch gun batteries on open platforms, named Battery No. 1 and No.2 (later renamed Battery Harris East and West), designed against attack from both sea and air.²² The two batteries were completed by 1924 and located approximately 850 feet apart, centralized within the fortification area. Rail lines were extended during this period to connect the dock on Jamaica Bay to the 16-inch gun batteries and their three separate magazines and three power plants constructed from 1922-1923.

After completion of Battery Harris, Fort Tilden became subject to serious criticism as the condition of the temporary wood-frame structures in the post and wharf area deteriorated. After an investigation into the condition of the fort in 1927, many structures were found to be in a poor state of repair and a number of them never utilized for their intended purpose.²³ Contributing to the deterioration of the structures was the blowing and shifting sands over the post and fortification areas. Although an effort was made in 1925 and 1926 to plant beach-tolerant vegetation in the vicinity of the batteries, the general appearance of the post and battery areas remained rundown. By the end of the 1920s, the US Army was looking towards augmenting Fort Tilden's role in New York City's coastal defenses. At this time, the Army acquired thirteen acres of land previously owned by the US Coast Guard within the post to construct new cantonment buildings.²⁴ However, few improvements were made to the fort through the mid-1930s.

During this period of relative quiet at Fort Tilden, there was a large amount of development occurring in the surrounding area. To the north across the state road, a large bungalow colony known as Roxbury was developed, and an even larger colony known as Breezy Point was developed on 500 acres to the west. In 1931, Floyd Bennett Field, New York City's first municipal airport, opened on Barren Island across Rockaway Inlet from Fort Tilden. As part of this development, the Navy relocated its Rockaway Naval Air Station to the new airfield in 1931, and the old station adjoining Fort Tilden was demolished. Soon after, a system of parks and parkways, planned under New York City Parks Commissioner Robert Moses, was advanced in the area. On the remaining air station property, a new ocean-front park was developed during the 1930s. It was named after the noted photographer, writer and social advocate, Jacob Riis, who died in 1914 and is best known for his book, *How the Other Half Lives*.²⁵ The park system also included construction of Shore (Belt) Parkway in southern Brooklyn and Queens, and a connecting bridge via Flatbush Avenue to Rockaway Peninsula. Completed in 1937, the new bridge, named the Marine Parkway Bridge (later renamed Gil Hodges Memorial Bridge), was located off the northeastern edge of Fort Tilden, with a traffic circle built on part of the old Naval Air Station property.

LANDSCAPE CHRONOLOGY, 1916-37

- 1916 In July, the War Department allocates \$1,400,000 for the purchase of the site on Rockaway Point, initially known as the Rockaway Military Reservation.²⁶ By the fall, Colonel Frederic V. Abbott, Army Corps of Engineers ordered a comprehensive survey of the selected site.²⁷
- 1917 Congress votes on February 1st to appropriate \$51,000,000 for coastal defenses, of which \$2,000,000 is appropriated for establishing Fort Tilden.²⁸ Contracts were let to the firm of William D. Cederhurst of Long Island to provide an artificial layer of bedrock at the battery sites.²⁹ On February 8th, eleven carloads of cut bluestone arrive and forty horse-drawn and motor trucks with 150 workmen cart the stone to the fort to build foundations and platforms to hold the six-inch gun emplacements (fig. 1.5).³⁰

The 82nd Coastal Artillery Company from Fort Totten, Queens arrives on February 19th and begins building several makeshift structures to serve as temporary barracks in the post at the northeast corner of the site, adjoining the Rockaway Naval Air Station (figs 1.6, 1.7).³¹ A portion of the post is built on land belonging to the Coast Guard, which granted the Army permission to erect temporary structures on the narrow strip of land that extended from the Atlantic Ocean to Jamaica Bay along the west side of Marginal Ave (Beach 169th Street) between the two Rockaway Life Saving Stations.³²

- March On March 3^{rd,} the Army completes construction of the first temporary six-inch gun battery, while the second was completed only days later. Each battery is armed with two M1900 6-inch guns on M1900 pedestal mounts. The eastern battery is located 250 feet west of the Rockaway Beach Lifesaving Station. The other battery is built about 800 feet from the western boundary of the fort. Both are situated 300 feet from the Atlantic Ocean. The two batteries become known as East and West Batteries. Each battery has a separate magazine, also of temporary construction, built of corrugated iron; and coincidence rangefinders provide fire control. Two 60-inch seacoast searchlights are also installed at opposite ends of the reservation along with their 25 KW power plants.³³
- April Construction begins in April on a temporary twelve-inch mortar battery consisting of M1890M1 twelve-inch mortars mounted on M1896M1 carriages that are located in the Rockaway Naval Air Station east of the post. A temporary magazine is also built between the mortar platforms, and a battery plotting room is constructed about 100 feet northwest from the battery (see fig. 1.6).³⁴ Around this same time, the dock (formerly Dock No. 70, later Building 209) is built in the wharf area on the

Rockaway Inlet. The dock served as the primary transportation link to Fort Tilden.³⁵

- May In May, Rockaway Beach citizens donate and present a flag and flagpole to Major H. J. Hatch.³⁶
- Oct. By the end of October, the Army completes construction of seven officer's quarters, two enlisted men's barracks, seven non-commissioned officers' quarters, one headquarters building, one hospital, one commissary, two mess halls, one lavatory, one stable and wagon shed, and a number of roadways (fig. 1.8).³⁷
- Nov. A contract is awarded in November to James Steward and Company of New York City to build a temporary cantonment that included two sixty-six man barracks, an officer's quarters, mess hall, and latrine. These temporary structures are built in an area separate from the permanent garrison structures and were located in the northeast corner of the post. In addition to the structures, the Steward Company also lays out over 3,000 feet of concrete slab roadways in the post.³⁸

During the month of November, the Army builds a guardhouse, ordnance building, post exchange, oil house, firehouse, stable, forage barn, storehouses, and hospital annex, and also improves the original quarters. Coal pockets and an incinerator are also constructed, probably on the Coast Guard property near the wharf area. For mortar ammunition storage, a storage shed, connected to the twelve-inch mortar battery by platforms, is built. Additional storage space is provided with the construction of two large 20 by 196-foot warehouses located along the western edge of the post. Under the direction of the Army Corps of Engineers, a small standard gauge railroad is constructed, connecting the dock on Jamaica Bay, coal pockets and the two warehouses. For recreation, the Young Men's Christian Association (Y.M.C.A.) and Knights of Columbus erect buildings in the post (fig. 1.9).³⁹

- 1918-19 The Army completes construction of the Double Non-Commissioned Officers (NCO) Quarters (Building 6oA and 6oB) (fig. 1.10).⁴⁰ The Army also constructs an Engineer's Office (formerly Building 49, now Building 201) in the wharf area, which would also serve as a headquarters building (fig. 1.11).⁴¹ Beginning in June 1918, the Army emplaces two M1917 3-inch anti-aircraft guns on M1917 fixed anti-aircraft mounts within the northeast section of the fortification area.⁴²
- ¹⁹¹⁹ The initial phase of construction at Fort Tilden is completed in February of this year.⁴³ In November, the Army authorizes the removal of the 12inch mortar battery from within the Rockaway Naval Air Station, and the following year, dismantled it for transfer to Battery Bagley at Fort Caswell, North Carolina.⁴⁴

- 1920 By this time, the Army had installed a balloon hanger and generator house within the fortification area along Rockaway Beach Boulevard (State Road). Bulkheads and jetties along the Atlantic shoreline are strengthened at a cost of \$5,644. The east six-inch gun battery receives high beam lights, and two powerhouses are modified with the conversion to gas motors.⁴⁵ In December, an allotment of \$70,000 is approved for building emplacements of two sixteen-inch guns, later known as Battery Harris.⁴⁶
- The Army begins construction of two new batteries (formerly Battery No. 1 and No. 2, now Buildings 406 and 410), located between the old Battery East and Battery West. The two 16-inch gun batteries are located 850 feet apart and include two M1919 sixteen-inch guns mounted on a M1919M2 barbette carriage and two gun platforms. Gun emplacement No. 1 is assembled in June 1923 and gun emplacement No. 2 is assembled the following year. This battery is named Battery Harris in honor of Colonel Henry Leavenworth Harris (figs. 1.12, 1.13).⁴⁷ During this year, a letter from the Secretary of the Navy states that Fort Tilden is comprised of 303.5 acres (current acreage for Fort Tilden is 309).⁴⁸
- 1922-23A building contract is awarded to the Concord Construction Company
for the construction of three concrete-and-tile ammunition magazines to
supply Battery Harris. Each magazine is a single story rectangular
building 53' long by 32'-6" wide, built over a spur of the narrow gauge
post railroad. At the end of each magazine are corrugated steel rolling lift
overhead doors. The magazines are located adjacent to Battery Harris
and approximately 1000 feet from one another.49
- By the end of the year, the Army completes construction of three power plants servicing Battery Harris. Power plant No. 1 and No. 2 supply electricity to Battery Harris East and West and are located some 500 feet north of the batteries. Power plant No. 3 is a reserve plant situated between the other two power plants and about 250 feet to the north. Each power plant is 39 feet long and 20 feet wide, constructed on concrete foundations with eight- inch hollow tile and low gabled roofs of reinforced concrete.⁵⁰ In conjunction with the construction of Battery Harris, the magazines, and the power plants, the standard gauge rail line is rerouted to connect to the dock in the wharf area and to the two 16-inch gun batteries. Spurs of narrow gauge rails are built to service the three ammunition magazines and three power plants. The tracks run parallel to present day Range Road.⁵¹
- To protect the four, six-inch guns from blowing and drifting sand,
 wooden penthouses are constructed over the East and West Batteries.⁵²
 The Engineer Storehouse (formerly Building 44, now Building 204) is
 also constructed.. The Army also completes construction of the

bombproof fire control and plotting room (now Building 413) for Battery Harris. The plot room is sited 600 yards northwest of battery No. 1 emplacement and constructed of reinforced concrete.⁵³

- ¹⁹²⁴ During this year, telephone and fire control instruments are installed in the fire control and plotting room, magazines and related structures. In addition, four lights mounted on pipe frames are installed at Battery Harris.⁵⁴
- 1925-26 The Army plants beach-type grasses in critical areas of the fort to reduce drifting sand. Species included American Marram (American beachgrass), which was noted for its ability to stabilize sand dunes.⁵⁵
- 1928 On November 2nd, by executive order, thirteen acres of Coast Guard land located along the eastern edge of Fort Tilden's post are transferred to the Army.⁵⁶
- ¹⁹²⁹ During the month of June, eight concrete platforms for three-inch antiaircraft guns are constructed.⁵⁷
- The Army constructs a fourth ammunition magazine serving Battery Harris, located approximately 800 feet east of the Number Three Magazine. Each of the original three magazines is enlarged to hold additional powder and ammunition rounds.⁵⁸ The Rockaway Naval Air Station is relocated to the east side of Floyd Bennett Field, and the old complex adjoining Fort Tilden is demolished.
- 1935 An Army survey of the post shows little change since 1920, with the exception of removal of several buildings in the central area (present parade ground) (fig. 1.14).

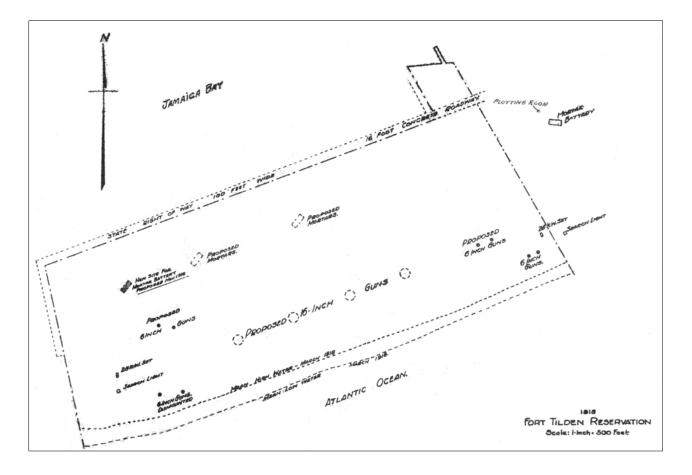
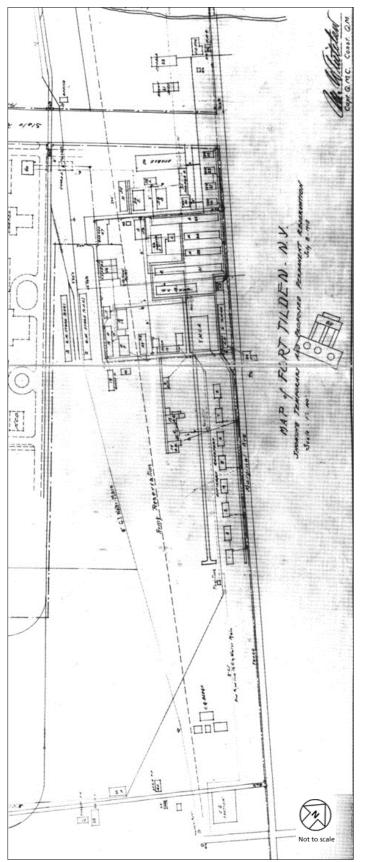
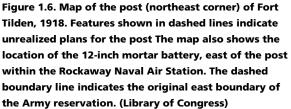
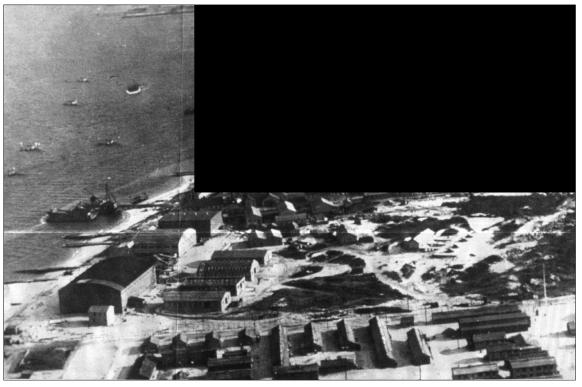


Figure 1.5. Map of the initial layout of fortifications at Fort Tilden, 1918. Note how the eastern boundary of the reservation originally was in line with the eastern boundary of the wharf area, with the mortar battery outside of the boundaries on the Rockaway Naval Air Station. (Library of Congress)







Figure

1.7. Aerial view looking east across the post of Fort Tilden and the Rockaway Naval Air Station (RNAS), c.1919. The photo depicts the twelve-inch mortar battery, magazine and platforms (Building 58) within the RNAS and the layout of the northeast corner of the post. Post buildings from left to right include four NCO Quarters (Buildings 26-29), stable and forage shed (Buildings 50 & 51), barracks and mess halls (Buildings 21-25), hospital annex (Building 10), and Post Exchange (Building 45). (National Archives)



Figure 1.8. View of officer quarters, typical of the temporary frame construction built during World War I, c.1919. (National Archives).



Figure 1.9. Fort Tilden Y.M.C.A. (Building 9), located near current site of Building 1, photographed c.1919. (Gateway Museum Collection, GATE 4670)



Figure 1.10. The Double Non-Commissioned Officer (NCO) quarters (Building 60), looking northwest soon after its completion, c.1919. (National Archives)



Figure 1.11. The Headquarters Building (Building 49, later the Artillery Engineer Signal Office and Engineer's Office Building 201) in the wharf area, built in 1919, photographed c.1937. Note the beach grass and young trees planted during the interwar period. (Gateway Museum Collection, GATE 4197)

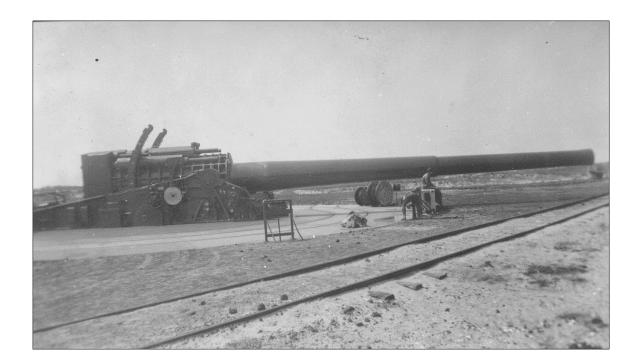


Figure 1.12. One of two sixteen-inch gun on concrete platforms that comprised Battery Harris, looking southwest across the narrow-gauge rail line, 1930. These guns were designed to hit targets at sea and in the air. (Gateway Museum Collection, GATE 533)



Figure 1.13. Battery Harris firing a sixteen-inch gun, looking southeast, c.1930. In the foreground are an ammunition magazine and standard gauge rail line. Note the beach grasses and low dunes along the Atlantic Ocean. (Gateway Museum Collection, GATE 13125)

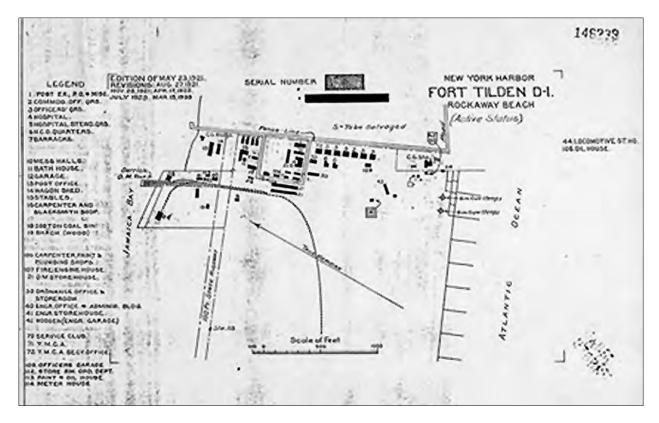


Figure 1.14. US Army map of the post and wharf area drafted in 1929 and revised in 1935 showing minimal change to the landscape since World War I (compare with Figure 1.6; note different orientation). Battery East remains south of the post. (Library of Congress)

WORLD WAR II ERA, 1937-45

During the late 1930s on the eve of World War II, funding appropriations to the military increased modestly and the War Department was able to finally carry out improvements at the nation's coastal fortifications first planned in 1926. These improvements were largely aimed at replacing World War I temporary wooden structures.⁵⁹ Carried out by the Army Quartermaster, the Army's plan focused on functionality, unity, and a distinct hierarchy of areas such as industrial, residential, officer quarters, and administrative and community functions. Architectural styles were created to respond to the local climate and architectural history. Colonial Revival-style architecture was favored for new construction at installations located in the Northeast.⁶⁰

Beginning in 1937, the US Army initiated the long-awaited improvements at Fort Tilden, which included a complete redevelopment of the post. Much of the work was accomplished through the federal Works Progress Administration (WPA).⁶¹ Plans called for the removal of all of the mostly wood-frame structures in the post, but retained the masonry Double NCO (Building 60AB), Headquarters (Building 49), and the Engineer Storehouse (Building 44). A new vehicular roadway system was also built in the post, using concrete paving, and trees and shrubs were planted along roads and around buildings.⁶² During this time prior to World War II, Fort Tilden was garrisoned with a "caretaking" detachment of approximately thirty-three men.

In 1939, with the outbreak of war in Europe and declaration of a national emergency in the US, Fort Tilden was brought back to active status and plans were made to practice with the 16-inch guns of Battery Harris.⁶³ Beginning in September 1940, the post garrison was augmented by the arrival of Batteries E and F, transferred from Fort Hancock, New Jersey. The military personnel at Fort Tilden again increased between January and June 1941 from the small "caretaker staff" to over 1,000 personnel. To accommodate this wartime mobilization, a new wave of construction was authorized for the construction of standardized Series 700 temporary buildings, which included ninety barracks along the west side of the central post, along with a post chapel. Work also continued on improvements planned prior to the war, including laying out of a parade ground.

Another component of the nation-wide construction program carried out at Fort Tilden was modernization of the defensive works to enhance protection from aerial attack through concealment and bombproofing. The old batteries and secondary defensive works were casemated and covered with protective earthen cover. Plants were established on the earthen cover to stabilize the soil and provide concealment through blending with the natural surroundings. In addition to upgrading the existing batteries, new batteries and movable guns were added to the fortification area, primarily for anti-aircraft defenses. The Army also emplaced 5-inch naval deck guns along the Atlantic shoreline, between Battery Construction 220 and Battery Kessler. New concrete roads were built throughout the fortification area to provide vehicular access to the batteries from adjacent roadways and the post.

Between 1942 and 1944, other bombproof command posts were constructed within the fort. The Advanced Harbor Entrance Control Post (HECP) Number 2, also known as the Groupment Command Post (Building 13) was built to maintain surveillance of the approaches to the harbor entrance and provide fire control data to the gun batteries. In the northwest corner of the fortification area, a mine casemate (Building F-20, later 511) was constructed to control groups of submarine mines planted between Rockaway Point and the Ambrose Channel, located off the entrance of New York Bay just east and south of Sandy Hook.⁶⁴ There were also several radars such as a surface search SCR-582 Radar and a SCR-296A Fire Control Radar used to maintain surveillance of the harbor.

As the war began to wind down in 1945, the New York Harbor defenses were drastically reduced in size as the threat of naval attack largely disappeared. At Fort Tilden, only Battery Kessler was kept in active status. By March of 1945, downsizing of the harbor defenses continued as the submarine mines were retrieved from the entrance to New York Harbor. By June, the HECP and Mine Casemate at Fort Tilden were taken over by the US Coast Guard. The entire concept of coastal fortifications was on the verge of abandonment as the success of the D-Day invasion proved, as historian Emanuel Raymond Lewis has noted, that "men and material could easily be landed under supporting air cover without the benefit of port facilities."⁶⁵

LANDSCAPE CHRONOLOGY, 1937-45

The Army begins the long-awaited redevelopment of Fort Tilden based on a master plan that redesigned the entire post and portions of the wharf and fortification areas [see Appendix B)⁶⁶ One of the first major building projects was the construction of an ordnance building (Building 20, now Storage Building 219) in the wharf area. Built with WPA labor, the new streamlined Colonial Revival-style structure replaced an old ordnance building, machine shop, and storeroom buildings built during World War I. The two-story structure, facing a circular drive, measured 42' long by 127' wide, built of brick-faced cinder concrete blocks. In 1939, the structure was converted into the headquarters of Fort Tilden (fig. 1.15).⁶⁷

The WPA begins construction of a Detachment Barracks (Building I). Initially named the New Detachment Barracks, serving as quarters to forty-nine enlisted men, the barracks was a 40' long by 87' wide, twostory Colonial Revival-style brick building (fig. I.I6). The building faced the parade ground (not completed until 1941). That same year, the barracks was used as an auxiliary hospital.

1937-38 At this time, the dock undergoes major repairs. Work consists of replacing rotted piles, timbers, creosoted timbers, docking, dock sheathing, bolts, nuts, cross bracing, and miscellaneous other materials. Also at this time, a standard gauge railroad track is laid to the full length of the dock (fig. 1.17).

To defend the beach from possible amphibious landings, five-inch naval deck guns are installed along Shore Road (fig. 1.18).

1938 Contracts consisting of over \$750,000 are let for new building construction at Fort Tilden, and WPA crews are assigned to carry on additional work such as grading and landscaping the grounds.⁶⁸ The fort consists of 309.9 acres plus an easement of 1.63 acres of filled land in an unknown location.⁶⁹

A third 3-inch anti-aircraft gun is mounted forming Anti-Aircraft (AA) Battery No. 5 located north of Battery Harris Magazine Four.⁷⁰ By August 20th, the WPA begins construction on two Officer's Quarters (Building Nos. 22 and 23). Originally listed as Building No. 30, Building No. 22 is a two-story Colonial Revival-style brick building with a onestory attached garage and a two-story sleeping porch (fig. 1.19).⁷¹

The WPA completes construction of the post hospital (Building T-194).⁷²
In a letter dated December 1, 1939 from the Adjutant General to the Commanding General, Second Corps Area, Governors Island, two named batteries are designated: "*The battery at Fort Tilden*, *N.Y.*, *formerly referred to as Battery West, is hereby named "Battery Kessler" in honor of the late Colonel Percy M. Kessler, United States Army. The battery at Fort Tilden, N.Y., formerly referred to as Battery East, is hereby named* "*Battery Ferguson" in honor of the late Brigadier General Frank K. Ferguson, United States Army.*"⁷³

1940 At Battery Kessler, concrete loading platforms are built to replace the old timber platforms, and a 78' long by 30' wide bombproof service and magazine consisting of reinforced concrete was erected. The 12' by 18' concrete fire control and target plotting structure (now Building 322) are constructed directly north of the battery.⁷⁴

By December, construction of the Post Exchange, dispensary, and six of the wood-frame cantonment buildings is completed.⁷⁵

To accommodate the rapidly increasing personnel, over ninety Series
 700 temporary barracks and other new buildings are erected (fig. 1.20).
 Most of the barracks are in the post, but two complexes are also built in
 the fortification area.⁷⁶

In early 1941, the WPA begins construction of the parade ground. In typical Army fashion, the parade ground was designed as the primary ceremonial area at Fort Tilden (fig. 1.21). The rectangular space is three acres in size, bounded by Barrett Road on the north, Heinzelman Road on the west, Murray Road on the south, and Davis Road on the east. Plans call for the land to be seeded, rolled hard, and landscaped. Along Barrett, Davis, and Murray Roads a double row of London Plane trees are planted and stone bollards placed in front of Building I (see Figure 1.16).⁷⁷ At the northeast corner of the parade ground near the main entrance to the fort, the WPA installs a 75-foot tall steel flagpole, and a canon is placed nearby (fig. 1.22).

- Feb. The Recreation Building (Building T-158) a long one-story frame building is completed west of the parade ground, along with the motor repair shop (T-184) in the wharf area.⁷⁸ By the end of February, fifty-five additional wood-frame cantonment type buildings are completed in the post.⁷⁹ On February 28th, the theater (initially Building 174, now Building T-4), a large one-story frame building, is completed.⁸⁰
- FallIn the months before the United States entered World War II, a battery
of 155mm GPF guns is established at Fort Tilden. The battery is movable
to allow for additional anti-aircraft support between Battery Kessler and
the planned Battery Construction 220 (fig. 1.23).
⁸¹ The Army also
establishes 37mm anti-aircraft movable guns along the Atlantic shoreline
for additional support to AA Battery #5 (fig. 1.24).
- Oct. On October 12th, the chapel (Building T-3) is dedicated and described by the *Brooklyn Eagle* and *New York Herald Tribune* as follows: "The new chapel, which will seat 400, is designated in the rustic manner...The chapel interior is in knotted pine with antique rafters and chandeliers, and the pews are in walnut. A sliding panel will conceal the altar when it is not in use. An electric organ is part of the chapel equipment." The chapel was about eighty-one feet long by sixty-two feet wide at the widest point and built of timber siding, with a roof of green asphalt shingles.⁸²
- 1941-42 The 16-inch gun emplacements at Battery Harris are modernized with reinforced concrete casemates. Each casemate consists of two powder rooms and two projectile rooms, a tool room and a latrine. The narrow gauge railway is run through the casemate to facilitate the handling of ammunitions. A set of double steel-barred gates is placed at the end of each railway corridor to secure the interior spaces of the casemates. The

casemates are then covered with earth and planted with pines and other vegetation to stabilize the soils and provide additional camouflage (fig. 1.25).⁸³

- Approximately eighty-two new buildings had been constructed since
 1938, costing some \$715,000; \$215,000 was spent on pines and shrubbery
 and rebuilding the sea wall, and \$150,000 was allotted for camouflage.⁸⁴
 Records of the three-inch fixed AA battery #5 indicate that the
 revetment was constructed in January 1942, concrete base extended
 September 1942, and camouflage structure completed April 1943.⁸⁵
- The Army constructs two Igloo magazines (Buildings F-9 and F-10) along Center Road to serve as ammunition storage for the AA Battery #5. Battery Ferguson is deactivated and a new battery known as Battery Construction #220 is completed. Similar to Battery Kessler, with additional features that included two air compressor rooms, a plotting room, a radio and a fire control switchboard room, an air conditioning plant, a power generator room, CWS gas proofing equipment and airlocks. The entire structure is covered with earth and sand and provided with two M1903A2 six-inch guns mounted on M1 barbette carriages. The battery was not named.⁸⁶
- The Mining Casemate and Plotting Room (Building F-20, later Building 511) is built along West Road near Gate 7 in the northwest corner of the fortification area.⁸⁷ Along the east side of Hero Road at the southeast corner of the post, the Advanced Harbor Entrance Control Post (HECP) Number 2 is constructed. This command post consisted of a mining casemate, two operating rooms, radio room, latrines, a fan room, a CWS equipment room, and a boiler room.⁸⁸ Also during 1944, a surface search SCR-582 Radar (later Building 12) is installed on a tower to the rear of the Advanced HECP system; and one of three SCR-298 Searchlight Radars used throughout the New York Harbor defenses was established at Fort Tilden to support the surveillance efforts (location not known).⁸⁹

1945 With the end of the war drawing near, the process of retrieving mines in the waters begins and the Advanced HECP is closed down and taken over by the US Coast Guard ship reporting detachment.⁹⁰

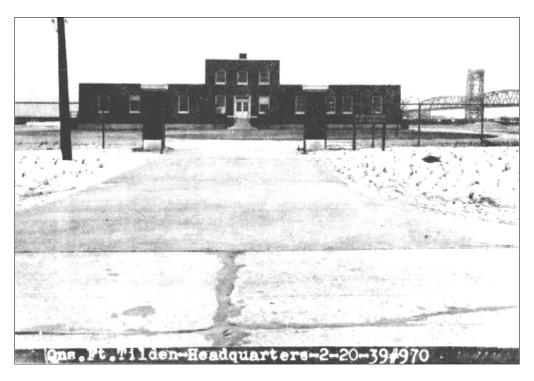


Figure 1.15. The Headquarters/Ordnance (Building 20), 1939, looking north from Rockaway Beach Boulevard. The Ordnance Building served as Fort Tilden's headquarters during World War II. Note the circular concrete drive and lawn, pair of brick entrance gate piers, chain link fencing, and newly planted grasses in the foreground. (National Archives)



Figure 1.16. Looking southeast at the front of Barracks/Administration Building, (Building 1), 1941. Note the newly planted trees and bollards lining the roadway and parade ground. In the left background is a Series 700 temporary officer's quarters (T-170). (National Archives)

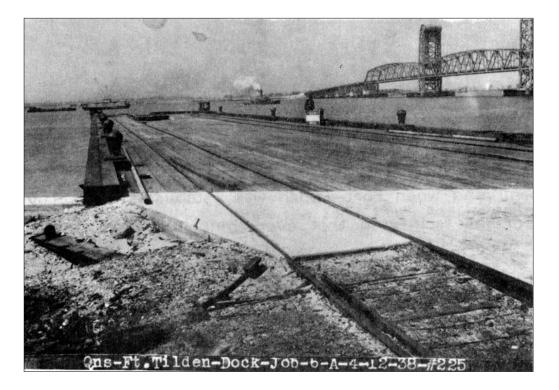


Figure 1.17. Looking northward towards Jamaica Bay from the dock at present day Riis Landing, c.1938. Note the rail lines used to transport supplies to the post and fortifications. (National Archives)



Figure 1.18. A 5-inch navel deck gun, probably near Battery Kessler along the Atlantic Ocean, c.1938. (Gateway Museum Collection, GATE 4193)



Figure 1.19. The Commanding Officer's Quarters (Building 30), looking southeast, c.1943. Visible in the background is the former US Coast Guard Station Rockaway, which was a separate property at the time. (National Archives)



Figure 1.20. Aerial photograph of Fort Tilden looking northeast over the recently redeveloped post, c.1941. In the foreground is the complex of Series 700 temporary-style barracks and mess halls. At the top of the photograph, the ordnance building, roundhouse, repair shops, various engineer offices, dock, and rail lines make up the wharf area. Bordering the wharf is the new US Coast Guard Station and to the west is the Roxbury bungalow colony. In the upper right hand corner is the parade ground, which at the time was still not completed and contained several World War I structures. (National Archives)



Figure 1.21. Soldiers in drill formation on the parade ground, looking northwest, 1941. Buildings from left to right include recreation hall (Building T-158), tailor shop (Building T-44), guest house (Building T-160), post restaurant (Building T-161), and Double NCO Quarters, Dispensary 10 (Building 60 AB). (Gateway Museum Collection, GATE 13105)



Figure 1.22. The parade ground with flagpole (Building 28) and cannon, looking east toward Jacob Riis Park, c.1941. In the background are young London Plane trees along Davis Road, and gate 9. This gate was used as the main entrance to the fort. It is flanked by two brick entrance piers with lanterns. The main gate booth (Building 41) and the quartermaster's office (Building 16) are located to the left of the gate. (Gateway Museum Collection, GATE 13098)



Figure 1.23. Soldiers and movable 155mm GPF gun, looking southeast toward the ocean, c.1941. Note sandy ground and beach grass in the background. (Gateway Museum Collection, GATE 19013)



Figure 1.24. A moveable 37mm anti-aircraft gun stationed along the Atlantic beach, c.1941. (Gateway Museum Collection, GATE 19026)



Figure 1.25. Casemated and earth covered Battery Harris, looking east, c.1942. The pine trees in the foreground, probably surrounding Battery Kessler, were planted to stabilize soils and/or camouflage the defensive works. (Gateway Museum Collection, GATE 1312)

THE COLD WAR ERA, 1945-74

After the surrender of Japan in 1945, the Army began to retrofit Fort Tilden to serve as emergency civilian housing for returning veterans and their families. In January 1946, forty-six of the temporary barracks were converted to single, two, and three bedroom apartments.91 The civilian housing at Fort Tilden was short lived, however, for in December 1950, the installation was brought back to active status with the announcement of an installation of a 1,000-man battalion intended to train new recruits and provide anti-aircraft protection for New York City. In December 1950 at the start of the Korean War, one battalion, numbering 1,000 men, is assigned to Fort Tilden as a regular anti-aircraft group. The 69th AAA Battalion was assigned to Fort Tilden to staff four batteries of 90 mm guns.⁹² By early spring of 1951, the 281 veterans and families living at Fort Tilden were forced to leave to make way for the new battalion. This was the beginning of the Cold War and the nuclear arms race, initiated when Russia announced in 1949 they had a working atomic device. This and the beginning of the Korean War in 1950 generated renewed concern over the coastal defenses of New York City, in which Fort Tilden continued to play an important role.93

Advances in modern bomber technology led the US government to question whether anti-aircraft artillery was sufficient defense against possible enemy attacks. In response, Bell Laboratories, Inc.and Western Electric began developing new surface-to-air missile defense program entitled Project Nike (named after the Greek goddess of victory) in June 1945.⁹⁴ Following the start of the Korean War in 1950, the Department of Defense wanted a working version of the Nike system. The first surface-to-air missiles produced were the Nike-Ajax, a two-stage supersonic guided missile with a range of about thirty miles. Between 1952 and 1957, several harbor forts defending the New York City area were outfitted with Nike missile defense systems. The defense systems were constructed in underground emplacements and were located at Fort Tilden and two other forts in New York Harbor: Fort Hancock (Sandy Hook, New Jersey) and Fort Slocum (Long Island Sound, Queens), with Highlands Air Force Base (Monmouth County, New Jersey) serving as the area control and command site.⁹⁵

A typical Nike missile battery was divided into three areas: the Integrated Fire Control (IFC) area containing the radars that tracked the missiles; the launch area containing the missile launchers, magazines, and support buildings; and an administrative area. The three components were often located on separate parcels of land. At Fort Tilden, the Nike site, designated NY-49, included a single launch area (fig. 1.26). Two IFC stations were developed at the western end of the fortification area. The administration area occupied undetermined buildings in the post or wharf area. In the same year Nike-Ajax missiles became operational, the Army began developing a more advanced generation of Nike missiles, Hercules, in 1953. Nike-Hercules improvements over the first generation included four solid- fuel boosters, a burn out speed of Mach 3.5, and a range of about one hundred miles. In the spring of 1958, Fort Tilden was half-outfitted with the Nike-Hercules missiles that replaced the Nike-Ajax system (fig. 1.27). Coordinating the numerous Nike sites within the New York area was an Army Air Defense Command Post (AADCP) that operated the Missile Master which ensured only one battery engaged a target at a time. The Fort Tilden system was never fired.⁹⁶

With replacement of the old harbor defenses with the Nike missile system, the Army faced a large amount of surplus property and infrastructure at Fort Tilden. In response, the Army redeveloped some of the land, such as for a post dump, demolished approximately 25 World War II temporary buildings, and created a trailer park to address acute housing needs. The former HECP (Buildings 12-13) and mine casemate (Building 511) were leased to the Navy. The US Army Reserve also used the site for training, and built its own reserve center along Rockaway Beach Boulevard at the north side of the site in the late 1950s.

The area surrounding Fort Tilden underwent some significant changes during this period. Most notably, all of the land west to Breezy Point (Rockaway Point) and north of Fort Tilden including Roxbury was acquired by Northern Properties for \$17.5 million to erect a high-rise development with a projected population of 220,000. Residents in the Breezy Point and Roxbury communities formed a cooperative and acquired their land for \$11.5 million. Northern Properties advanced its construction plans for the open land immediately west of Fort Tilden. Here, construction was begun on several high-rise apartment buildings, but the project soon came to a halt when the city announced in 1963 plans to acquire the property as parkland (fig. 1.28). The shells of the buildings would remain standing for a decade and a half.⁹⁷

As development and conservation efforts collided in the surrounding area during the 1960s, the Army slowly began to shut down Fort Tilden. The Nike missile technology was becoming obsolete, and in 1967, the Nike missiles are put into launch position for one of the last times (fig. 1.29). Later that year, NY-49 was decommissioned.⁹⁸. With lack of defensive purpose, the Army began to explore new uses for Fort Tilden. In 1969, for example, the US Department of Agriculture proposed developing an animal quarantine station at Fort Tilden, a project that was never realized. Instead, conservationists—spurred by the Northern Properties development—were successful by 1972 in having Fort Tilden dedicated as open space as part of a planned new national park unit in New York

City. It would be another two years, however, before the Army would fully decommission Fort Tilden.

LANDSCAPE CHRONOLOGY, 1945-74

- 1945-55 During this time, the Army removes one post building, the firehouse (T-195), and eight buildings in the fortification area, including barracks (T-201, T-202, T-203, T-206, T-222, and T-223), mess hall (T-221), and latrine (T-225). The post chapel is moved a short distance from Worcester Road to the terminus of Heinzelman Road.
- 1946 By January, forty-six of the cantonment barracks in the post had been converted to veteran apartments. ⁹⁹ A master plan for Fort Tilden is completed (see Appendix B).
- 1949 By this time, all of the old seacoast guns had been removed from the batteries.
- 1954 Construction of Nike-Ajax guided surface-to-air missile silos begins. The silos and launch pad are built in the fortification area, south of Range Road just west of Hero Road. Support structures for the Nike missile launch area include two sentry booths, a missile assembly building, gas and paint storage buildings, generator building, warhead building, and dog kennels (figs. 1.26, 1.27).¹⁰⁰

Two IFC (missile tracking stations) are constructed, one in the northwest corner of the fortification area and the other in the southwest corner. Each station is composed of radar towers, generator buildings, ready rooms, computer buildings, operation buildings, barracks, and storage sheds that controlled the Nike missiles at Fort Tilden (see fig. 1.28). The Army also constructs two Nike-Radar Mast Assembly (RF MAST) stations within the fortification area. The stations are composed of two track-radar frequency band generators and a radar collimation mast. The northern station, RF MAST Building 504, is located north of Marshall Road between entrance gates 6 and 7. The southern station, RF MAST Building 514, is located south of Range Road and east of the Nike missile tracking station #2.

1955-61 The US Army Reserve Center is constructed along Rockaway Beach Boulevard, just west of Hero Road. The complex includes two structures, an assembly structure (Building 415) and vehicle storage structure (Building 416) that is enclosed by chain link fencing. During these years, the Army removes thirteen additional wood-frame structures from the post and seven structures from the wharf area. The removal included World War II-era Buildings T-103, T-106, T-109, T-112, T-115, T-121, T-124, T-127, T-128, T-117, T-114, T-162, T-196, T-12, T-163, T- 48, T-68, and 3. The Army also removes the hospital ward consisting of five buildings.¹⁰¹

- By this time, the Nike missile launch area is upgraded with Nike-Hercules missiles, requiring reconfiguration of the missile landing area.
- By this time, the Army had closed the gate entrance in front of the former ordnance/administration building (Building 219) in the wharf area and removed Walke Road. Entrance Gate 5 was also closed and the northern portion of East Road was removed. The Long Island Lighting Company constructs a substation along Rockaway Beach Boulevard between the US Army Reserve Center and Hero Road.
 By 1961, the Army had also removed the World War II pistol range and constructed a new pistol range west of the Rifle Range between Shore Road and Range Road; and had also created a post dump between the new pistol range and the RF Test Mast Building 514, located south of Range Road.
- 1962 Around this time, the Army acquires land from the Coast Guard at the southeast corner of Fort Tilden, and by 1964 demolishes the old frame Coast Guard Station and outbuildings.¹⁰²
- 1970 By this time, the acquisition radars and towers in the Nike missile tracking stations had been removed, following disarmament of the system in 1967.



Figure 1.26. The Nike NY-49 launch site at Fort Tilden, looking southeast showing Hercules modifications, 1959. A sentry booth (Building 309) is located at the entrance to the launch area. In the background there are some remaining World War II structures located along the beach. These structures are as follows from left to right: officer's bath house (Building 34, later 18), officer's latrine (Building 23, later 17), officer mess hall (Building 24, later 16), enlisted men's mess hall (Building 25, later 15), and generator shelter (Building T-198). Directly east of the Nike area is the Harbor Entrance Command Post (HECP) (later Building 13). (US Army)

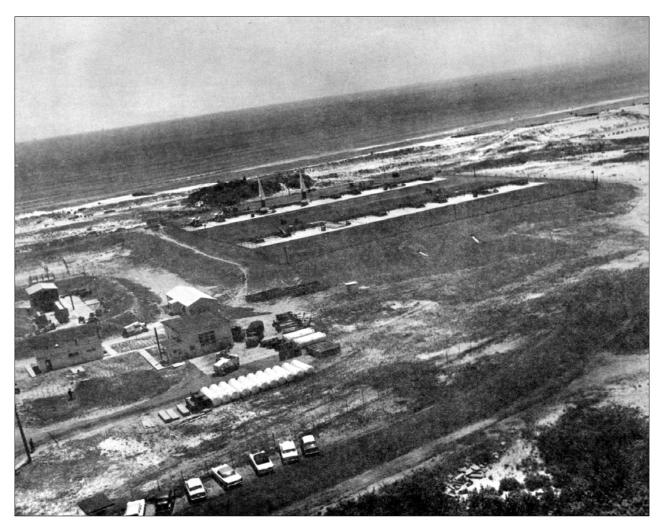


Figure 1.27. The Nike NY-49 launch site, looking southwest across the western part of the post showing Hercules modifications, 1959. Directly south of the Nike site is a mound of sand and vegetation camouflaging Battery Construction 220 (Building 315). To the left are Nike support structures (Buildings 302, 303, 304, 305, 307 and 309), all constructed during the 1950s. In the upper right of the photo are the target butts for the rifle range. (US Army)



Figure 1.28. Nike NY-49 missile tracking station #2, looking southwest, 1970, three years after the site was decommissioned. Beginning from left to right, the photo illustrates structures 518, 517, 516, 515, T-522, Radar Tower 525 (with radar unit and dome removed), and 526. The high-rise buildings in the background, instrumental in the movement to preserve Fort Tilden as open space, were begun in c.1962 and construction was halted in 1963. (Gateway Museum Collection, GATE 20979)

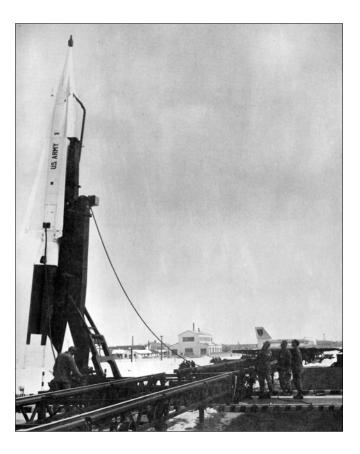


Figure 1.29. Nike Hercules missile in launch position, on eve of being decommissioned, looking east towards the post, 1967. The Ordnance Repair Shop (Building 46, later 9) and the bowling alley (Building T-179, later T-8) are in the background. (US Army)

NATIONAL PARK SERVICE ERA, 1974-PRESENT

The uncertain future of numerous antiquated military facilities around the country, particularly those in sprawling metropolitan areas, spurred public interest during the 1960s in conserving these facilities as public parkland. In New York City, legislation was initiated in 1968 calling for the National Park Service to establish "...a national seashore at the entrance to New York Harbor, stretching from Riis Park on the Rockaway Peninsula to Sandy Hook in New Jersey". Most of the proposed parkland, which included Fort Tilden, consisted of military bases. Instead of a national seashore, these initial plans instead led to a new type of national park, known as a National Recreation Area. The New York City park, named Gateway National Recreation Area, was the first of its type in the country, followed closely by Golden Gate National Recreation Area in the San Francisco Bay Area.¹⁰³

Legislation establishing Gateway National Recreation Area in the states of New York and New Jersey was passed by Congress on October 27, 1972. The act created four units of Gateway: the Jamaica Bay Unit, Breezy Point Unit, Sandy Hook Unit, and Staten Island Unit. The bill provided for land acquisition and established the Gateway Advisory Commission.¹⁰⁴ Fort Tilden was included in the Breezy Point Unit (now part of the Jamaica Bay Unit), along with Jacob Riis Park and the shoreline adjoining the Breezy Point Cooperative, acquired from the city. The Breezy Point Cooperative, including Roxbury north of Fort Tilden, was excluded from Gateway. Although Gateway was created in 1972, it would be another two years—1974—before the Army fully decommissioned Fort Tilden and turned it over to NPS. At the time of its closing, Fort Tilden employed 200 people.¹⁰⁵ NPS acquired a total of 309 acres, amounting to all of the Fort Tilden property except for the Army Reserve Center, an eight-acre parcel at the northeastern corner of the fortification area on Rockaway Bay Boulevard that was retained by the Army.

Shortly after the Army turned Fort Tilden over to the NPS, the park began researching and developing alternative recreational uses for the property, including its enormous physical plant of buildings, batteries, and roads. One of the first planning documents, the "Statement for Management and Environmental Assessment," was completed in 1976. It included short-term and long-range planning alternatives in order to meet the recreational and leisure demands of the New York City population. For Fort Tilden, some of the suggestions included that the military beach structures be renovated to provide group beach support facilities, and that the open spaces be used for field sports.

Also suggested was the demolition of wood-frame buildings in the post to improve the visual quality of the site.¹⁰⁶

From September 1975 through February 1976, the public was involved in the initial stages of the general management planning process for Fort Tilden. Completed in 1979, the "General Management Plan for Gateway National Recreation Area, New York" proposed additional recreational expansions, adaptively reusing historic structures, accommodating a ferryboat dock, and providing shuttle service to and from Fort Tilden. Specifically, the fortification area was to be managed as a natural area, while a new beach center was to be constructed in the post. Select buildings were planned for reuse as hostels and environmental study centers. Also envisioned were substantial athletic, recreational and picnicking areas. These proposals were aimed at increasing site visitation to the park.¹⁰⁷ Plans recognized the historic significance of the fortification area, including its resources dating from World War II and earlier. In 1984, the area was listed in the National Register of Historic Places.

As NPS was developing these planning documents, it was also making changes to the Fort Tilden landscape, especially to the post and wharf area, which were considered lacking in historic significance. The extensive number of buildings in these areas contained far more space than the park could use, and the cantonment-style buildings, initially built for the short term, were apparently not perceived as worth preserving. As early as the mid-1970s, the park removed fiftysix buildings from the post, the majority being wood-frame barracks, officer quarters, mess halls and day rooms; in the wharf area, the dock (Building T-210) planking and rails were removed. During this same time, the park also began to dismantle structures from the Nike missile launch area and tracking stations, demolishing approximately twenty buildings in total. The launch area was used as a park maintenance area and dump.

In contrast to the post and wharf area, park planners did consider the fortification area outside of the Nike complexes worthy of preservation, primarily the large concrete and earthen batteries dating from World War II.¹⁰⁸ In 1984, a large part of the fortification area was listed in the National Register of Historic Places as the Fort Tilden Historic District. Despite this designation, the structures were not maintained or interpreted in any significant way, although many park staff and visitors took great interest in them. The fortification area was instead managed primarily for passive recreational uses such as walking and bird watching. Here, the park largely allowed nature to take its course, resulting in successional woods to take over most of the fortification area except along the beachfront, in many cases concealing the historic fortifications from view. A nature trail was laid out from the beach to Battery Harris, and an observation

platform was built on top of the battery, providing panoramic views of the ocean. At the west end of the fortification area at the site of Nike Tracking Station 2, the park constructed a parking lot and comfort station, geared primarily toward visitors coming to fish.

In 1986 and 1988, the National Park Service prepared two "Development Concept Plan/Environmental Assessment" (DCP/EA) reports, which detailed implementation of plans outlined in the General Management Plan, including the construction of sports fields, parking areas, restrooms, parking areas, and a consortium of cabins for a youth hostel.¹⁰⁹ Implementation of the DCP/EA recommendations began during the 1990s. Into the first decade of the 2000s, the park removed additional buildings and structures throughout Fort Tilden. These included abandoned facilities in Nike missile tracking stations #1 and #2, roads and remaining Series 700 World War II buildings in the post and wharf area to provide room for baseball diamonds, community gardens, and development of the Riis Landing transportation hub intended to provide ferry service to Manhattan.¹¹⁰

LANDSCAPE CHRONOLOGY, 1974-2005

- 1974 The Army decommissions Fort Tilden and transfers the property to the National Park Service (NPS) as part of Gateway National Recreation Area. Soon after acquisition, NPS photo documents the former military installation, illustrating a still largely open landscape in the fortification area and World War II-era buildings surrounding the parade ground in the post (figs. 1.30-1.39).
- 1974-82 During this time, forty-eight buildings including many of the woodframe cantonment barracks, administrative quarters, and officer quarters are demolished in the post.
- 1974-84 During these years, the dock (Building T-209) superstructure is removed from the wharf area.

During this time, twenty buildings are demolished in the fortification area. The majority of above-ground structures are removed from the Nike missile tracking station #2, Nike missile launch pad, and rifle target practice area.

- In the spring of this year, NPS proposes the demolition of eight buildings in the post, including Buildings 104, 105, 127, 128, 131, 132, 147, and 164.
- 1984-02 During this time, two buildings (T-212 and T-210) are demolished in the wharf area.
- 1984-02 During this time, six buildings (T-5, T-155, T-158, T-159, T-160, and T-161) are demolished in the post.

- 1984-02 The remaining above-ground structures are removed from the two Nike missile tracking stations, and the rifle and pistol ranges, RF MASTS and hardstand at entrance gate six in the fortification area are also removed.
- 1985 By this time, NPS had constructed the Fisherman Parking Lot and comfort station on the former site of the Nike missile tracking station #2.
- 1990s During this time, the post sewage lift station (Building 103) is moved from its original location along Rockaway Beach Boulevard to the former location of Building T-127.
- 2001 Three buildings (T-208, T-218 and 211) are demolished in the wharf area to accommodate construction of a new parking lot for a new ferry dock planned for the Riis Landing transportation hub.
- 2002 By this time, the former cantonment barracks area had been converted to five little league baseball diamonds and a community garden.
- 2005 The Rockaway Artists' Alliance occupies Buildings T-4 (Theater), T-6 and T-7; special use permits and senior citizen groups occupy and maintain post Building T-25; and the Rockaway Little League rehabilitates a former wood-frame barracks (Building T-162) into a clubhouse. NPS employees continue to live in many of the permanent officer quarters, and the US Park Police maintains a horse corral adjacent to the parade ground.

See Chapter 2, Existing Conditions, for photographs of NPS-era features, including comfort stations and Fisherman's parking area.

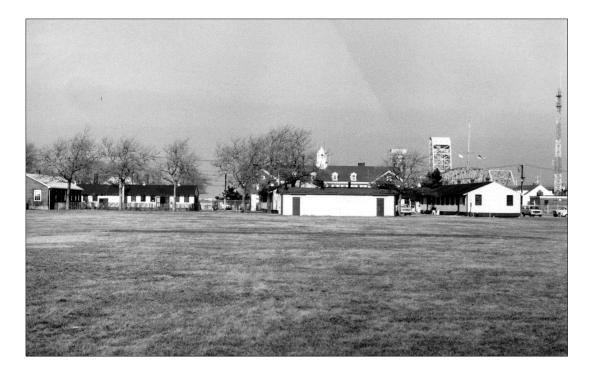


Figure 1.30. The Fort Tilden parade ground, looking north toward post administration buildings and the Coast Guard Station, at the beginning of NPS stewardship, c.1974. From right to left, visible Fort Tilden buildings include 102, T-128, 130,T-104, T-105, and 125; the Post Exchange (Building T-126, site in open area to left) had already been demolished, and T-128, T-104, and T-105 would soon be demolished. (Gateway Museum Collection, GATE 20993)



Figure 1.31. Western edge of the parade ground, looking northwest across Heinzelman Road, c.1974. Buildings from right to left, which include 125, 60, T-131, T-132, 148, and T-147; T-131, 132, and 148, were subsequently demolished. (Gateway Museum Collection, GATE 20995)



Figure 1.32. Former Fort Tilden barracks and administration building (Building 1) built in 1937-38, looking southeast across parade ground, c.1974. (Gateway Museum Collection, GATE 20976)



Figure 1.33. The Fort Tilden Series 700 chapel built in 1941, looking southeast, c.1974. The large yews may date to the Cold War when the building was purportedly shifted to its present location. (Gateway Museum Collection, GATE 20996)



Figure 1.34. The former Provost Marshall building (Building T-128) on the parade ground, typical of the many Series 700 standard Army buildings of the World War II era at Fort Tilden, c.1974. This and most other frame buildings were demolished in the 1980s. (Gateway Museum Collection, GATE 20980)



Figure 1.35. Abandoned Nike missile silo, ventilator shaft, and security lighting in launch area about seven years after 1967 decommissioning of the Nike NY-49 complex, looking northeast, c.1974. The US Army Reserve Center is in the left background, with two-story cantonment barracks and the Marine Parkway Bridge visible in the right background. (Gateway Museum Collection, GATE 22027)



Figure 1.36. Looking northwest from Battery Kessler towards Nike missile tracking station #1, c.1974. The fencing for RF MAST and Oil Storage (Building 322) are in the foreground. Battery Harris Magazine (Building 414) and Bombproof Fire Control Building (Building 314) are just south of the tracking station. Successional woody vegetation was beginning to take over, but the open grasslands typical of the military era remained in large part at this time. (Gateway Museum Collection, GATE 21046)

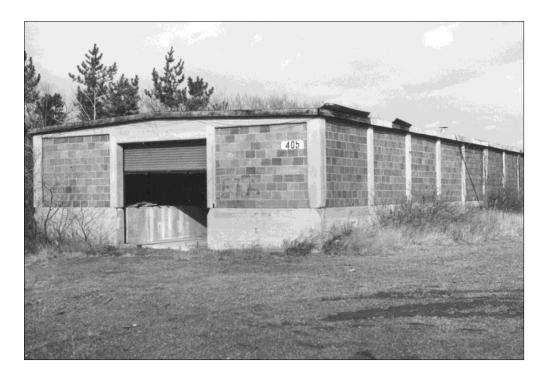


Figure 1.37. Magazine for Battery Harris (Building 405), built c.1923, looking northeast, c.1974. Note World-War II era pines in background; rail tracks ran through the overhead door. (Gateway Museum Collection, GATE 20984)

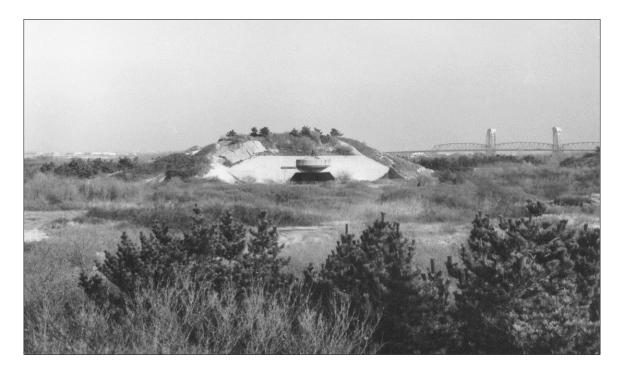


Figure 1.38. Battery Harris East (Building 406), with earthen and concrete casemate constructed in 1941-42, looking northeast with the Marine Parkway Bridge in the background, c.1974. The sixteen-inch guns had been removed in c.1949. Note open grasslands and pines on top of casemate and in foreground, planted by the Army most likely during World War II. (Gateway Museum Collection, GATE 21047)

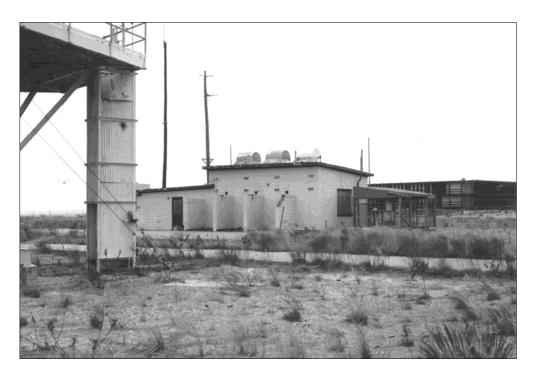


Figure 1.39. HIPAR station (Building 526) and radar platform of the Nike NY-49 missile tracking station #2, c.1974. In the background are the Silver Gull cabanas, acquired by NPS as part of Gateway National Recreation Area. In the 1980s, NPS redeveloped the tracking station site as the Fisherman's Parking Area, retaining only the HIPAR station. (Gateway Museum Collection, GATE 21034)

ENDNOTES

¹ "Rockaway...'place of waters bright," originally cited in *Rockaway, The Playground of New York, Annual yearbook of the Rockaways* (June 1934), cited in *The* Wave (Rockaways newspaper) website, <u>www.rockawave.com/common/history/history.html</u>, accessed 8/8/2005. The Canarsie (Canarsee) were one of thirteen ethnic groups of the Delaware people who inhabited Long Island prior to European settlement.

² A "groin" is a "rigid structure built out from a shore to protect the shore from erosion, to trap sand, or to direct a current for scouring a channel." Merriam-Webster Collegiate Dictionary, tenth edition, s. V. "groin."

³ The construction in the early 1930s of a jetty at the westward point, by then known as Breezy Point, stabilized the westward drift. U. S. Geological Survey, New York City Regional Geology, "Breezy Point (Gateway National Recreation Area)," <u>http://3dparks/wr/usgs.gov/nyc/parks/loc69.htm</u>, accessed 8/8/2005.

⁴ History of the Rockaways," *Rockaway Review*, (December 1948). Richard Cornell's descendent Ezra founded Cornell University in 1865. *Rockaway, The Playground of New York.*

⁵ Rocellus Sheridan Guernsey, "The Defenses of New York in 1812," *Journal of the Military Service Institution of the United States* 10 (May 1889): 245-48; Emanuel Raymond Lewis, *Seacoast Fortifications of the United States: An Introductory History* (Annapolis, MD: Naval Institute Press, 1979), 21.

⁶ The Act of March 20, 1794, listed the positions to be fortified and the armament to be provided for this purpose. See US Statutes at Large, vol. 1, 345. One further location, Annapolis, was added under 1 Stat. 367. Lewis, *Seacoast Fortifications of the United States: An Introductory History*, 21.

⁷ Known as the defenses of the First American System of fortifications, these forts were open works with earth parapets over which, depending on the size and importance of the harbor, from eight or ten to several dozen guns could fire. In addition to their major seaward battery, some of the forts included an enclosed earthen redoubt or a blockhouse with a light cannon or two to guard their landward sides. Lewis, 21.

⁸ Tony P. Wrenn, General History of the Jamaica Bay, Breezy Point, and Staten Island Units, Gateway National Recreation Area, New York, NY (National Park Service, 1975), 64.

⁹ The State of New York had purchased the blockhouse from the US government for one hundred dollars. Some 34 years later, the United States Government leased the tract to Aaron A. DeGraew, despite the fact that at the time the title of the property was vested with the State of New York. This grant by the Federal Government has caused much confusion concerning the ownership of the land. "History of the Rockaways," *Rockaway Review*, (December 1948).

¹⁰ Although the station was located at the western end of Rockaway Peninsula, after Fort Tilden was constructed, the station was located southeast of the post along Beach 169th Street and the Rockaway Beach. The Station was rebuilt in 1913 as a "Lorain-Type" building. This structure is shown in Figure 1.17. "Station Rockaway Point, New York" (US Coast Guard, www.uscg.mil/hg/history/STATIONS/ROCKAWAY%20POINT.html), 2005.

¹¹ Leo Polaski and Glen Williford, *Images of America*, *New York City's Harbor Defenses* (Charleston, SC: Acadia Press, 2003), 63.

¹¹ William C.Gaines, "Fort Tilden," *The Periodical: Journal of America's Military Past* 79 (Summer 1997), 56.

¹² Gaines (Summer 1994), 19.

¹³ "History of the Rockaways," *Rockaway Review*, (December 1948); William C.Gaines, "Fort Tilden: A Historical Perspective," *The Periodical: Journal of America's Military Past* 21 (Summer 1994), 19.

¹⁴ "History of Fort Tilden" website, chapter 3: "History of the Rockaway Naval Air Station," on-line article at <u>http://www.geocities.com/fort_tilden/rnas.html</u>, 19 October 2000.

¹⁵ V.T. Terrible, "Rockaway's Neighbor: Fort Tilden," *Rockaway Review* (December 1949), 21.

¹⁶ As a result of the immediate construction, the wood frame structures were often of a makeshift type and of very poor quality. Louis Torres, *Historic Structures Report, Historical Data Section of Fort Tilden, Gateway National Recreation Area, New York* (Denver, CO: US Department of the Interior, National Park Service, 1980), 9.

¹⁷ As the land consisted of largely of sand, it was necessary to construct the roads with eight-inch concrete slabs laid directly on the sand. In all, the contractor constructed 1,250 feet of 14 feet-wide roads; 1,575 feet of 10 feet-wide roads; and 215 feet of 30 feet-wide roads built of concrete slab. Torres, 10.

¹⁸ Drawing of Fort Tilden, 1918, in Torres, Appendix 1.

¹⁹ In order to supply water and other utilities to the newly constructed buildings, new connections were made to existing lines. The water supply initially was run from the village of Roxbury, and was later connected to the water main and conduits of the Queens County Water Company at Rockaway Beach. The initial three-inch water main run from the village of Roxbury was found to be unfit for drinking and often became frozen. The new connection to the Queens County Water Company was made by an eight-inch main having a pressure of 45 pounds and was run parallel to the south shore for the new bulkheads, dock, and gun emplacements being erected. In all, approximately 9,850 feet of water main were constructed. Sanitation pipes were also laid, up to 1600 feet, running to all newly erected buildings and ultimately discharged into Jamaica Bay. To replace the great fire hazard and unsatisfactory lighting conditions that kerosene lamps provided, approximately 3,400 feet of above ground electric lines were installed extending from the Queens Borough Gas and Electric Company in New York City to the post. Other utilities were also constructed. To keep intruders off the site, galvanized iron fencing and entrance gates were erected around the perimeter. Approximately 3,400 feet of electric lines were installed. Torres, 12-13.

²⁰ Fort Tilden, New York, Post Map (Washington: Construction Division War Department, March 25, 1920). Torres, Appendix 3.

²¹ The incinerator had a capacity of three tons every twenty-four hours and was located about 1,000 feet from the northwest corner of the permanent post. Torres, 13.

²² Richard Greenwood and Ricardo Torres, "Fort Tilden Historic District National Register Nomination," 1976, Section 8, pg. 2.

²³ In 1927, the Acting Secretary of War, Hanford MacNider, ordered an investigation into the condition of the fort, the result of a strong complaint made by Congressman J. J. Kindread on behalf of residents of he Rockaways. According to Congressman Kindread, the buildings at Fort Tilden were not fit for human habitation. *New York Times*, November 10, 1927, cited in Torres, 19.

²⁴ The transfer of land to the Army left the Coast Guard reservation divided into two sections, one fronting the ocean and the other fronting Jamaica Bay to the north. Torres, 22.

²⁵ Wrenn, 55; "Jacob Riis: Reformer and Photographer" (on-line biography, c.2005), <u>http://www.boisestate.edu/socwork/dhuff/history/gallery/gallery/Gallery-JR/BIO.htm</u>.

²⁶.Gaines (Summer 1994), 55-56.

²⁷ Gaines (Summer 1994), 56; Torres, 6.

²⁸ Torres, 14.

²⁹ Gaines (Summer 1994), 56; Torres, 6.

³⁰ Torres, 6.

³¹ Gaines (Summer 1997), 57.

³² Gaines (Summer 1994), 9. All of this tract south of Rockaway Beach Boulevard was incorporated into Fort Tilden in the late 1920s.

³³ Ibid.

³⁴ Ibid.

³⁵ Torres, 147.

³⁶ Terrible, 57. It is unknown whether this flagpole was later incorporated into the 1941 parade ground or demolished and replaced.

³⁷ Torres, 9.

³⁸ Gaines (Summer 1994), 22.

³⁹ Torres, 10-14; Gaines (Summer 1997), 58-59.

⁴⁰ Torres, 132, 134.

⁴¹ Torres, 145-46. Although there is little historical information concerning the Engineer's office, the building is similar in construction and materials to that of the Double NCO Quarters.

⁴² Torres, 17; Gaines (Summer 1997), 59-60.

⁴³ Torres, 59-60.

⁴⁴ Gaines (Summer 1997), 59.

⁴⁵ Torres, 16.

⁴⁶ Torres, 17.

⁴⁷ Gaines (Summer 1997), 60-61.

⁴⁸ Torres, 7.

⁴⁹ Wrenn, 65; Gaines (Summer 1997), 61.

⁵⁰ Gaines (Summer 1997), 62.

⁵¹ Torres, 18.

⁵² Gaines (Summer 1997), 63.

⁵³ Torres, 146.

⁵⁴ *Ibid*, 18.

⁵⁵ Ibid, 20.

⁵⁶ *Ibid*, 22.

⁵⁷ Wrenn, 66.

⁵⁸ Gaines (Summer 1997), 62.

⁵⁹ R. Christopher Goodwin and Associates, Inc., *National Historic Context for Departments of Defense Installations*, 1790-1940 Volume 1 (Baltimore: U. S. Army Corps of Engineers, Department of Defense, 1995), 132-133.

⁶⁰ Goodwin, 134. Although the text makes specific references to New England, it is assumed New York is included in this particular style.

⁶¹ Torres, 23.

⁶² *Ibid*, 24.

⁶³*Ibid*, 64.

⁶⁴ Gaines (Summer 1997), 65-66.

⁶⁵ Lewis, 124.

⁶⁶ The original master plan was not found. Appendix B is the 1946 edition that shows all of the World War II-era changes.

⁶⁷ *Ibid*, 144.

⁶⁸ Edwin A. Osborn, "Rockaway - - One of the Major Protection Points of New York Harbor," *Rockaway Review* (June 1941), 39, 59.

⁶⁹ Torres, 7.

⁷⁰ *Ibid*, 17.

⁷¹ *Ibid*, 132.

⁷² *Ibid*, 23.

⁷³ Wrenn, C-1.

⁷⁴ Gaines (Summer 1997), 64-65.

⁷⁵ Wrenn, 67.

⁷⁶ Ibid.

⁷⁷ Ibid, 139.

⁷⁸ Torres, 112, 140.

⁷⁹ Ibid, 23.

⁸⁰ *Ibid*, 126, 128.

⁸¹ Gaines (Summer 1997), 66.

⁸²Brooklyn Eagle, October 9, 1941; New York Herald Tribune, October 13, 1941. Cited in Torres, 111-112.

⁸³ Gaines (Summer 1997), 65.

⁸⁴ "Uncle Sam's Acres," *Rockaway Review* (June, 1948).

⁸⁵ Wrenn, 65.

⁸⁶ Gaines (Summer 1997), 65-66.

⁸⁷ Gaines (Summer 1994), 33.

⁸⁸ Gaines (Summer 1997), 66.

⁸⁹ Gaines (Summer 1997), 67.

⁹⁰ Gaines, "Fort Tilden," 68.

⁹¹ A master plan for the property drawn in c.1946 illustrates the redesign of the post and denotes specific housing areas to be turned over to the Federal Public Housing Authority. While the units were of a temporary construction, they were winterized and heated by a central heating system. Each unit was equipped with kitchen facilities. Torres, 26.

⁹² Torres, 27.

93 "Army Vacates Tenants," Rockaway Review (February, 1951).

⁹⁴ Mark Morgan and Mark Berhow, *Rings of Supersonic Steel: Air Defenses of the United States Army 1950-1979 an Introductory History and Site Guide*, (San Pedro, CA: Fort MacArthur Military Press, 1996) 7.

⁹⁵ Department of the Interior, *Last Line of Defense: Nike Missile Sites in Illinois* (Denver: National Park Service, Rocky Mountain System Support Office, 1996), 28; Polaski, 125.

⁹⁶ Morgan and Berhow, 17.

⁹⁷ From Jeffrey A. Kroessler, *Encyclopedia of New York City* (New Haven: Yale University Press, 1995), cited in article "Breezy Point," Congressman Anthony D. Weiner website, www.house.gov.weiner/neighborhoods/hoods_breezypoint.htm.

⁹⁸ "History of Fort Tilden" website, chapter 26: "Nike Missiles at Fort Tilden," no date.

⁹⁹ Gaines (Summer 1997), 68.

¹⁰⁰ *Ibid.*, 28.

¹⁰¹ Maps at Fort Wadsworth, NPS/ Gateway Museum Collection, Cabinet 17, Drawer D.

¹⁰² U. S. Army, "Site Plan of Fort Tilden," 1964.

¹⁰³ "Statement for Management and Environmental Assessment, Gateway National Recreational Area, New York/ New Jersey" (National Park Service, 1976), 43.

¹⁰⁴ "Development Concept Plan/ Environmental Assessment, Jacob Riis Park/ Fort Tilden, Breezy Point District, Gateway National Recreation Area, New York DRAFT" (National Park Service, 1988), 4.

¹⁰⁵ "History of Fort Tilden" website, chapter 27, "Fort Tilden Becomes Part of Gateway National Recreation Area—1974."

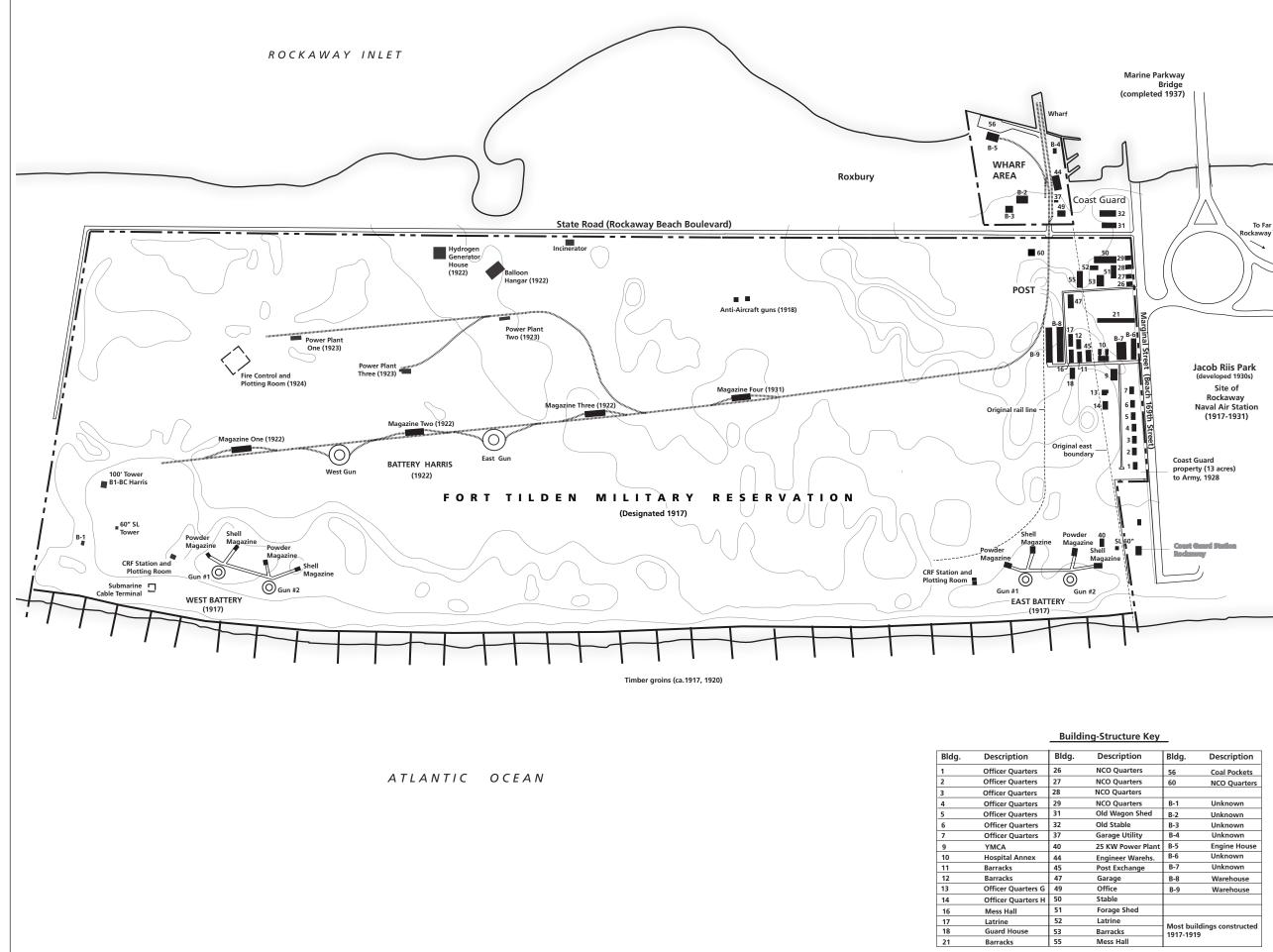
¹⁰⁶ "Statement for Management and Environmental Assessment, Gateway National Recreation Area, New York/ New Jersey" (North Atlantic Region, National Park Service, 1976).

¹⁰⁷ "General Management Plan, Gateway National Recreation Area New York/ New Jersey" (National Park Service, 1979), 43-44.

¹⁰⁸ Although the above-ground Nike missile launchers were initially considered as contributing resources in the Fort Tilden Historic District, they were left out in the final listing made in 1984 (most had been torn down by this time). Aside from the Nike structures, the park only removed two World War II-era buildings from the fortification area—two power plants.

¹⁰⁹ "Development Concept Plan/ Environmental Assessment."

^{no} "Ferry Heads to Rockaway?," *The Wave*, Rockaway, New York, 16 September 2000, front page; "\$300,000 for Riis Landing Ferry Site, U. S. Representative Anthony D. Weiner website, <u>www.house/gov/appx.list/press/ny09</u> weiner/042211ferries.html.



n	Bldg.	Description
ers	56	Coal Pockets
ers	60	NCO Quarters
rs		
ers	B-1	Unknown
Shed	B-2	Unknown
	B-3	Unknown
ity	B-4	Unknown
er Plant	B-5	Engine House
arehs.	B-6	Unknown
nge	B-7	Unknown
	B-8	Warehouse
	B-9	Warehouse
d		
	Most bu 1917-191	ildings constructed 19

Gateway National Recreation Area Rockaway Beach, New York

World War I Era 1916–1937



National Park Service

Olmsted Center for Landscape Preservation www.nps.gov/oclp in partnership with Department of Landscape Architecture Center for Cultural Landscape Preservation SUNY College of Environmental Science and Forestry, www.esf.edu/la/cclp

SOURCES

1. US Army, Placement and Emplacements General Plan, 1930 2. US Army, Fort Tilden General Map, 1919 updated to 1935

3. USGS, Coney Island quadrangle map, 1898

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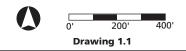
Christina Selvek, John Auwaerter Illustrator CS5, 2005, updated 2013

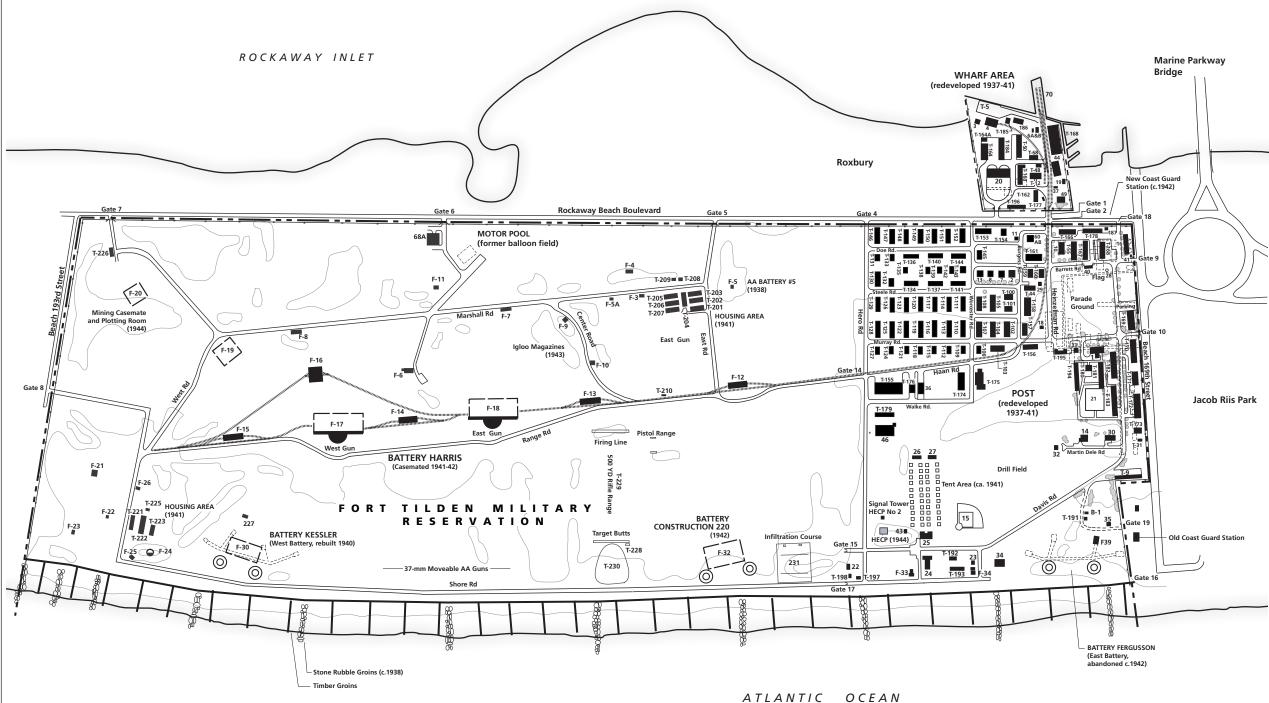
LEGEND

- ----Property boundary
- Building or structure
- Subsurface structure or foundation
- 0 Gun platform
- Timber groins
- Road
- Rail line
 - 2' contours
- 0 Feature removed during period

NOTES

- Plan shows landscape in 1937.
 All features shown at approximate location and scale.
 Contour lines estimated based on 1920 Fort Tilden map.
- Small-scale vegetation and features not shown.
 Most buildings and structures built in 1917-18; plan does not show all that were built or removed during
- the period.No buildings shown outside of Fort Tilden, except at Coast Guard station.





Bldg. No	Description	Bldg. No	Description	Bldg. No	Description	Bldg. No	Description	Blda No	Description	Bldg. No	Description	Bldg. No	Description	Bldg. No	Description	Bldg. No	Description	Blda I	No Description
2.09.110		j		5		3				5				3		5		5	
1	Administration	21	Tennis Courts	T-44	Tailor Shop	T-110	Mess Hall	T-130	Barracks	T-150	Barracks	T-170	Officers Quarters	T-193	Barracks	T-225	Latrine	F-15	BH Magazine One
2	NCO Quarters	22	Generator Plant	44	Engineer Warehs.	T-111	Barracks	T-131	Supply Room	T-151	Barracks	T-171	Officers Mess Hall	T-194	Hospital Ward No. 4	T-226	Unknown	F-16	Bombproof Magazine
3	Ordnance StoreRm.	23	Officers Latrine	46	Ordnance Shop	T-112	Day Room	T-132	Day Room	T-152	Barracks	T-172	Officers Quarters	T-195	Fire House	227	Kessler Oil Storage	F-17	Battery Harris West
4	Round House	24	Officers Mess	T-48	Storehouse	T-113	Barracks	T-133	Day Room	T-153	Mess Hall	T-173	Officers Quarters	T-196	Engineer Shed	T-228	Target Tool Shed	F-18	Battery Harris East
T-5	Coal Pockets	25	Enlisted Mens Mess	49	Engnr. Signal Off.	T-114	Barracks	T-134	Barracks	T-154	Supply Room	T-174	Movie Theater	T-197	Storage Building	T-229	Rifle Range	F-19	Fire Control Room
T-6A	Scale House	26	Enlisted Mens Latrn	T-50	Engineer Warehs.	T-115	Supply Room	T-135	Supply Room	T-155	Quartermaster Wrhs.	T-175	Chapel	T-198	Generator Shelter	T-230	Minature AA Range	F-20	Mine Casemate
T-6B	Salvage Bldg.	27	Enlisted Mens Latrn.	T-55	Sales Store	T-116	Mess Hall	T-136	Mess Hall	T-156	Library	T-176	Radio Shelter					F-21	Unknown
7	NCO Quarters	28	Flag Pole	60AB	NCO Quarters	T-117	Barracks	T-137	Barracks	T-157	Guard House	T-177	Gas, Oil Station	T-201	Barracks	F-3	Ammo Storage	F-22	Unknown
8	NCO Quarters	29	Gas Station	68A	Generator House	T-118	Day Room	T-138	Chemical Warfare	T-158	Recreation	T-178	Finance Office	T-202	Barracks	F-4	Unknown	F-23	Fortification
T-9	Garages	30	Officers Quarters	70	Boat Dock	T-119	Barracks	T-139	Supply Room	T-159	Administration Bldg.	T-179	Bowling Alleys	T-203	Barracks	F-5	AA Battery #5	F-24	Fortification
10	Dispensary	T-31	Green House	T-100	Supply Room	T-120	Barracks	T-140	Mess Hall	T-160	Guest House	T-180	Central Heating Plt.	T-204	Latrine	F-5A	Unknown	F-25	Fortification
11	Garage	32	Radio Shack	T-101	Day Room	T-121	Supply Room	T-141	Barracks	T-161	Post Restaurant	T-181	Hospital Ward	T-205	Barracks	F-6	Power Plant Three	F-26	Unknown
T-12	Carpenter Shop	33	Transformer House	T-102	Barracks	T-122	Mess Hall	T-142	Day Room	T-162	Engineers Office	T-182	Hospital Admin.	T-206	Barracks	F-7	Power Plant Two	F-30	Battery Kessler
13	NCO Quarters	34	Officers Bath House	T-103	Barracks	T-123	Barracks	T-143	Supply Room	T-163	Engineers Shop	T-183	Hospital Nurses Qtr.	T-207	Mess Hall	F-8	Power Plant One	F-32	Bat. Construction 220
14	Officers Quarters	35	Water Meter	T-104	Barracks	T-124	Dav Room	T-144	Mess Hall	T-164	Motor Repair Shop	T-184	Motor Pool & Garage	T-208	Hutment East	F-9	Ammo Storage	F-33	Unknown
15	Baseball Field	36	Artillary Storehs.	T-105	Mess Hall	T-125	Barracks	T-145	Day Room	T-164A	Oil & Grease Storage	T-185	Sewage Pump House	T-209	Hutment West	F-10	Ammo Storage	F-34	Battery Ferguson CRF
16	Quartermaster Off.	37	Garage Area	T-106	Day Room	T-126	Barracks	T-146	Mess Hall	T-166	Post Office	186	Sewage Settling Tank	T-210	Barracks	F-11	Unknown	F-39	Battery Fergusson
18	Siren Tower	40	Telephone Booth	T-107	Barracks	T-127	Supply Room	T-147	Barracks	T-167	Regimental Hdqtrs.	187	Sewage Lift Station	T-221	Mess Hall	F-12	BH Magazine Four		
19	Oil Shop	41	Main Gate Booth	T-108	Barracks	T-128	Mess Hall	T-148	Barracks	T-168	Provost Marshall	T-191	Officer Hutment	т-222	Barracks	F-13	BH Magazine Three	B-1	Fire-control station
20	Ordnance Office	43	Transformer Hs.	T-109	Supply Room	T-129	Barracks	T-149	Barracks	T-169	Officers Club	T-192	Barracks	T-223	Barracks	F-14	BH Magazine Two	T=tempo	orary F=fortification

Gateway National Recreation Area Rockaway Beach, New York

World War II Era 1937–1945





National Park Service **Olmsted Center for Landscape Preservation** www.nps.gov/oclp in partnership with Department of Landscape Architecture Center for Cultural Landscape Preservation SUNY College of Environmental Science and Forestry, www.esf.edu/la/cclp

SOURCES

- 1. US Army, Master Plan of Fort Tilden, 1946
- 2. Aerial photograph, 1941
- 3. US Army, Fort Tilden General Map, 1919 updated to 1935
- 4. USGS, Coney Island quadrangle map, 1898

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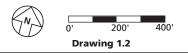
Christina Selvek, John Auwaerter Illustrator CS5, 2005, updated 2013

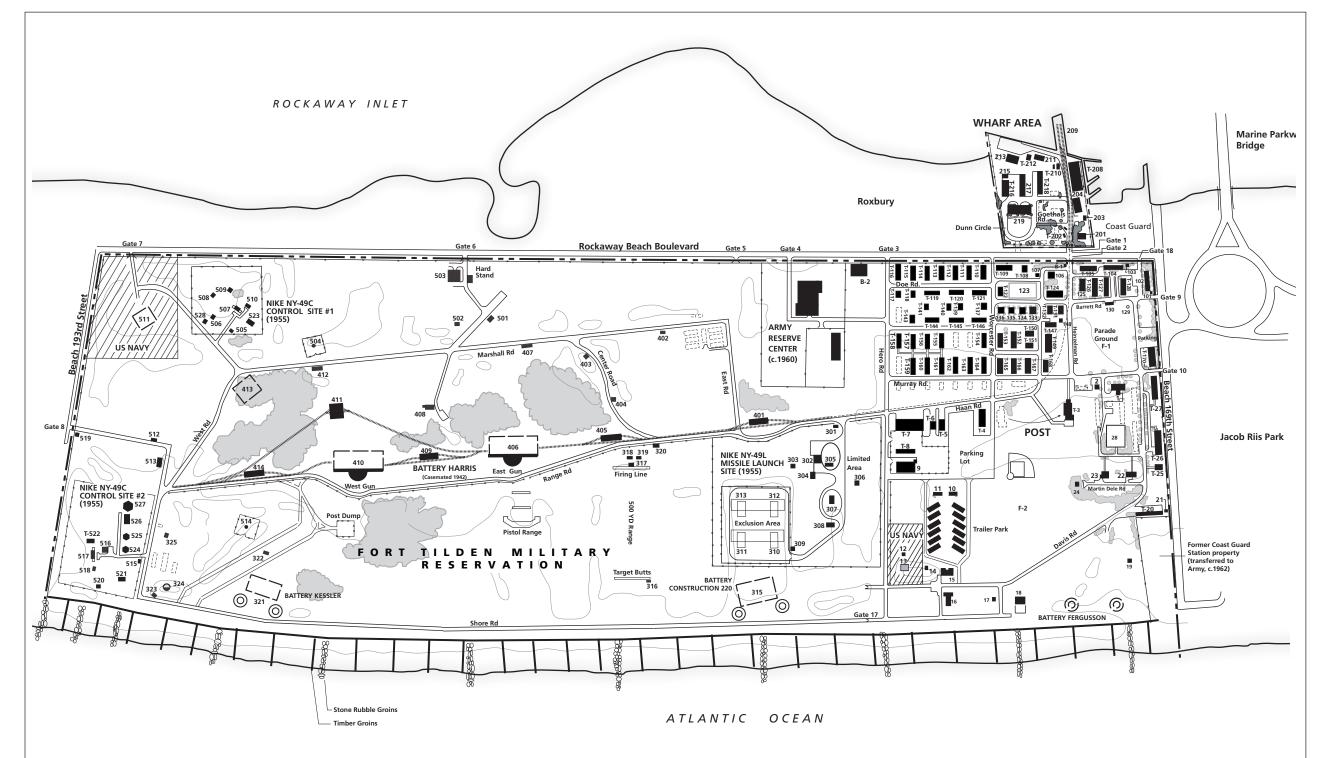
LEGEND

	Property boundary
	Building or structure
	Subsurface structure or foundation
0	Gun platform
	Casemated gun
	Road
	Rail line
\sim	Trees or scrub
٥	Specimen tree
<u>* *</u>	Fence
×	5' contours
	Feature removed during period

NOTES

- Plan shows landscape in 1945.
 All features shown at approximate location and scale.
 Most small-scale vegetation and features not shown.
 Plan does not indicate all dates features were added or removed. Most buildings in the post and wharf area built between 1937 and 1941.
- No buildings shown outside of Fort Tilden, except at old Coast Guard station.





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Bldg. No	Description	Bldg. No	Description	Bldg. No	Description	Bldg. No	Description	Bldg. No	Description	Bldg. No	Description	Bldg. No	Description	Bldg. No	Description	Bldg. No	Description	Bldg. No	Description
1	Administration	18	Beach House	107	Garage	135	Quarters	T-164	Mess Hall	T-216	Auto Shop	314	Storage	405	BH Magazine Three	507	Interconn. Corr.	524	Radar Tower
2	Main Transformer	19	Water Meter	T-108	Administration	136	Quarters	T-165	Quarters	T-217	Garage	315	Bat. Construction 220	406	Battery Harris East	508	Acquisition Radar	525	Radar Tower
T-3	Chapel	T-20	Garages	T-109	Mess Hall	T-147	E M Club	T-166	Quarters	T-218	P.E. Storage	316	Target Shed	407	Power Plant Two	509	MSL Tracking Rad.	526	HI PAR Bldg.
T-4	Theater	21	Sentry Booth	T-113	Barracks	148	Storage	T-167	Quarters	219	Electric Bldg.	317	Range Tower	408	Power Plant Three	510	Generator Bldg.	527	HI PAR Tower
T-5	Engineer Shop	22	Quarters	T-122	Post Nursery	T-149	Service Club	T-168	Library	301	Sentry Booth	318	None	409	BH Magazine Two	511	Leased-US Navy	528	Unknown
T-6	Motor Shop	23	Quarters	123	Play Ground	T-150	Administration	T-170	Officer Mess	302	Missile Assembley	319	None	410	Battery Harris West	512	Latrine		
T-7	Warehouse	24	Empty	T-124	NCO Mess	T-151	Administration	201	Administration	303	Gas Storage	320	Generator Bldg.	411	BH Bomproof Mag.	513	Ready Bldg.	B-1	Guard Booth
T-8	Administration	T-25	VIP Quarters	125	Dispensary	T-152	Mess Hall	T-202	Gas Station	304	Generator Bldg.	321	Battery Kessler	412	Power Plant One	514	RT Test Mast	B-2	LILCO Substation
9	Warehouse	T-26	Barracks	T-126	Post Exchange	T-153	Barracks	203	Oil Shop	305	Latrine	322	Oil Storage	413	BH Fire Control	515	Sentry Booth		
10	Latrine	T-27	B.O.Q.	T-127	Post Craftshop	T-155	Barracks	204	Quartermaster	306	Paint Storage	323	Fortification	414	BH Magazine One	516	Generator Bldg.	F-1	Parade Ground
11	Latrine	28	Tennis Courts	T-128	Provost Marshall	T-156	Barracks	T-208	Storage	307	Warhead Bldg.	324	Fortification			517	Interconn. Corr.	F-2	Drill Ground
12	Leased-US Navy	101	Sentry Booth	129	Flag Pole	T-158	Barracks	209	Dock	308	Dog Kennel	325	Storage	501	Welding Shop	518	Fortification		
13	Leased-US Navy	102	Post Headquarters	130	Store House	T-159	Administration	T-210	Scale House	309	Sentry Booth			502	Storage	519	Guard Booth		
14	Transformer House	103	Post Sewage Lift	T-131	Dental Clinic	T-160	Mess Hall	T-211	Settling Tank	310	Nike Missile Silo	401	BH Magazine Four	503	Motor Pool	520	Acquisition Radar		
15	Beach House	T-104	PX Bldg.	T-132	NCO Club	T-161	Day Room	T-212	Pump House	311	Nike Missile Silo	402	Ammo Storage	504	RF Test Mast	521	MSL. Tracking Radar		
16	NCO Snack Bar	T-105	Post Office	133	Ouarters	T-162	Guard House	213	Motor Pool	312	Nike Missile Silo	403	Ammo Storage	505	Sentry Booth	T-522	Radar Shed		
17	NCO Annex	106	Quarters	134	Quarters	T-163	Barracks	215	Oil Storage	313	Nike Missile Silo	404	Ammo Storage	506	Target Track. Radar	523	Radar Shed		

Gateway National Recreation Area Rockaway Beach, New York

Cold War II Era 1945–1974





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SOURCES

1. US Army, Master Plan of Fort Tilden, 1946, 1964 2. US Army, Master Plan of Fort Tilden, Tree Cover, 1961 3. USGS, Coney Island quadrangle maps, 1955, 1966

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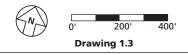
Christina Selvek, John Auwaerter Illustrator CS5, 2005, updated 2013

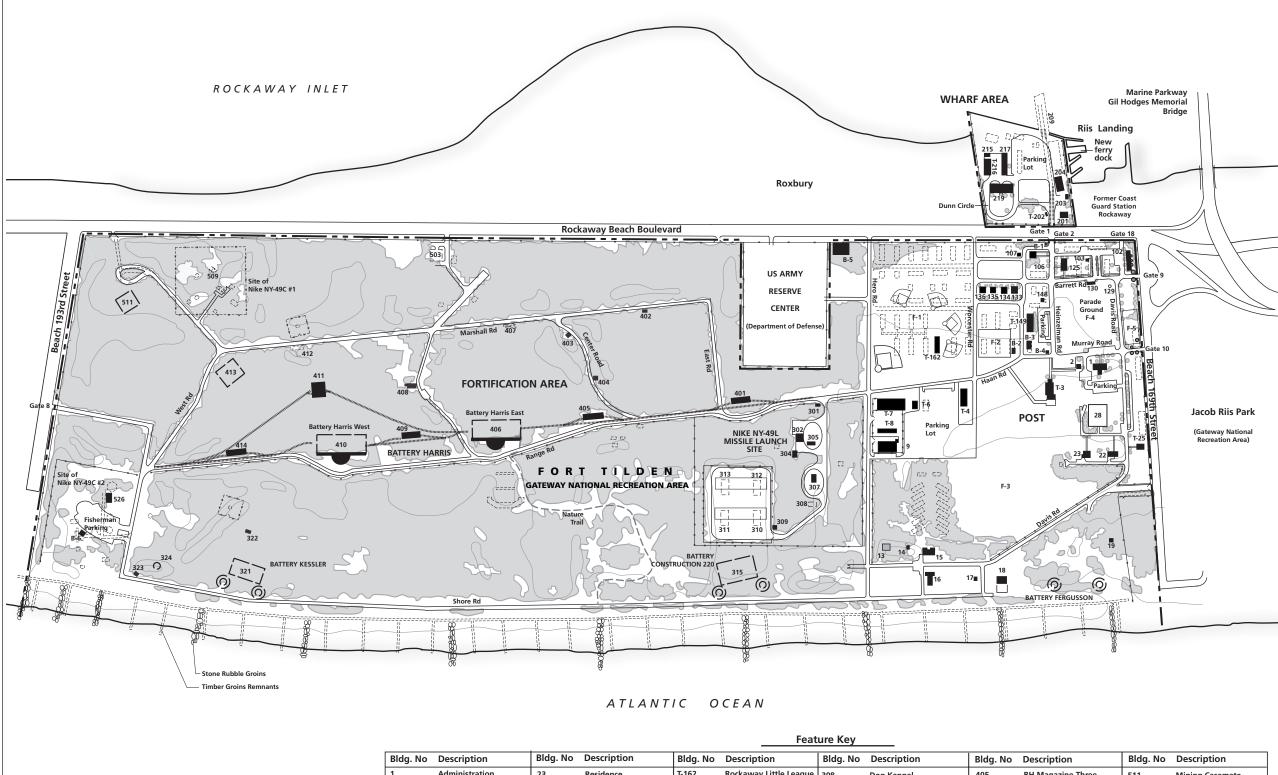
LEGEND

	Property boundary
	Leased area
	Building or structure
	Subsurface structure or foundation
0	Gun platform
	Casemated gun
	Road
	Rail line (abandoned)
	Trees or scrub
0	Specimen tree
<u>* * *</u>	Fence
	5' contours
	Feature removed during period

NOTES

- 1. Plan shows landscape in 1974.
- All features shown at approximate location and scale.
 Most small-scale vegetation and features not shown.
 Plan does not indicate all dates features were added
- or removed. 5. No buildings shown outside of Fort Tilder





Bldg. No	Description	Bldg. No	Description	Bldg. No	Description	Bldg. No	Description		Description	Bldg. No	Description
ыйд. №	Description	blug. NO	Description	Blug. NO	Description	Blug. NO	Description	Bldg. No	Description	ыйд. №	Description
1	Administration	23	Residence	T-162	Rockaway Little League	308	Dog Kennel-	405	BH Magazine Three	511	Mining Casemate
2	Main Transformer	T-25	Senior Citizen Bldg.	201	Leased Bldg.		Foundation Only	406	Battery Harris East	526	HI PAR Bldg.
T-3	Chapel	28	Basketball Courts	T-202	Gas Station	309	Sentry Booth	407	Power Plant Two-		
T-4	Theater	102	Post Office	203	Oil Shop	310	Nike Missile Silo		Foundation Only	B-1	Guard Booth
T-6	Rockaway Art Alliance	103	Post Sewage Lift	204	Plumbers Shop	311	Nike Missile Silo	408	Power Plant Three	B-2	Com. Garden Shed
T-7	Rockaway Art Alliance	106	Residence	209	Foundation-Dock	312	Nike Missile Silo	409	BH Magazine Two	B-3	Comfort Station
T-8	Storage	107	Garage	215	Oil Storage	313	Nike Missile Silo	410	Battery Harris West	B-4	Kiosk
9	Storage	125	Residence	T-216	Auto Shop	315	Battery Construction 220	411	BH Bombproof Magazine	B-5	LILC Substation
13	HECP	129	Flag Pole	T-217	Garage	321	Battery Kessler	412	Power Plant One-	B-6	Comfort Station
14	Transformer House	130	Storage	219	Storage/ Electric Bldg.	322	Oil Storage		Foundation Only		
15	Beach House	133	Residence			323	Telephone Pit	413	Fire Control Bunker	F-1	Baseball Fields
16	NCO Snack Bar	134	Residence	301	Sentry Booth			414	BH Magazine One	F-2	Community Gardens
17	Latrine	135	Residence	302	Maintenance Bldg.	401	BH Magazine Four	503	Motor Pool-	F-3	Drill Ground
18	Beach House	136	Residence	304	Maintenance Bldg.	402	Ammo Storage		Foundation Only	F-4	Parade Ground
19	Water Meter	148	Storage	305	Maintenance Bldg.	403	Ammo Storage	509	Missile Tracking Radar-	F-5	NYCPD Corral
22	Residence	T-149	Community Bldg.	307	Maintenance Bldg.	404	Ammo Storage		Foundation Only		

Gateway National Recreation Area Rockaway Beach, New York

National Park Service Era, 1974–Present





National Park Service **Olmsted Center for Landscape Preservation** www.nps.gov/oclp in partnership with Department of Landscape Architecture Center for Cultural Landscape Preservation SUNY College of Environmental Science and Forestry, www.esf.edu/la/cclp

SOURCES

1. US Army, Master Plan of Fort Tilden, 1946, 1961 2. US Army, Master Plan of Fort Tilden, Tree Cover, 1961 3. USGS, Coney Island quadrangle map, 1955, 1966

DRAWN BY

Christina Selvek, John Auwaerter Illustrator CS5, 2005, updated 2013

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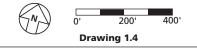
EGEND	
	Property boundary
	Building or structure
	Subsurface structure or foundation
Ø	Gun platform
	Casemated gun
	Road
	Rail line (abandoned)
\sim	Trees or scrub
٥	Specimen tree
<u>× × ×</u>	Fence
\square	5' contours

Feature removed during period

NOTES

0

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 Most small-scale vegetation and features not shown.
 Plan does not indicate all dates features were added
- or removed. 5. No buildings shown outside of Fort Tilden.



2. EXISTING CONDITIONS

This chapter provides a narrative and graphic overview of the existing (2005) Fort Tilden landscape. Contemporary site functions, visitor services, interpretation, park operations, and maintenance are described to the extent they contribute to or influence the character of the landscape. The narrative is organized according to the three character areas: fortification area, post area, and wharf (Riis Landing) (see Drawing 0.1). This description is based on the most current available NPS surveys, aerial photography, and field observation. Additional detail on existing conditions, organized by landscape characteristics and associated features, is found in Chapter 3: Analysis and Evaluation.

Fort Tilden is on the eastern end of the Rockaway Peninsula, a barrier beach along the southern shore of western Long Island. The area is part of the Atlantic Coastal Plain physiographic providence, which extends from the north shore of Long Island to Florida along the Atlantic Ocean and westward to the Appalachian Piedmont.¹ The area is composed of thick sedimentary deposits derived from the eroding Appalachian Mountains, and soil and rock materials deposited as the continental ice sheet retreated along Long Island. Within the coastal plain, numerous slender and elongated barrier islands and beaches protect the coast from waves. The Rockaway Peninsula barrier beach was formed as a result of a compound re-curved spit. A re-curved spit is a long narrow accumulation of sand with one end joined to the mainland and the other projecting out to deep water. As increasing volumes of sand are required to build above the watermark, the spit turns to where it is shallower.

Fort Tilden is located in Queens County, a borough of New York City, and the area on the Rockaway Peninsula is generally known as "The Rockaways." Surrounding Fort Tilden are additional park properties within the Jamaica Bay Unit of Gateway National Recreation Area: to the east, Jacob Riis Park, and to the west, the Silver Gull Beach Club cabanas and open land. To the north across the Rockaway Inlet is Floyd Bennett Field, location of the main visitor center for the Jamaica Bay Unit. Surrounding communities include Roxbury directly north of Fort Tilden, a dense neighborhood of former seasonal bungalows (fig. 2.1). To the west is Breezy Point, a larger bungalow colony which, with Roxbury, has a population of approximately 2,250. A mile east of Fort Tilden is the main village on the peninsula, Far Rockaway, a former nineteenth-century summer resort area and a now a year-round community of approximately 12,000 people.²

The landscape of Fort Tilden is today characterized by a mix of maintained and naturalized areas that originated from military use and development between 1916

and 1974 (fig. 2.2, see also fig. 2.1). The landscape of 309 acres fronting on the Atlantic Ocean consists of scattered buildings, lawn, ball fields, parking areas, paved roads, and large areas of successional woodlands surrounding abandoned gun batteries and other military structures. Once containing more than 160 buildings and structures at its height during World War II, Fort Tilden today contains approximately thirty maintained buildings (Drawing 2.1). The U. S. Army Reserve Center on Rockaway Beach Boulevard, a 1950s-era group of buildings on approximately eight acres retained by the military after the park was created in 1974, is the only remaining active military use within the original limits of Fort Tilden. It presently houses the 449th Maintenance Company.

The Army Reserve Center forms part of the perimeter and public front of Fort Tilden, which is characterized primarily by successional woods and chain link fences, with some views into the post area. Visitors to Fort Tilden can enter through several entrances off Rockaway Beach Boulevard, a four-lane arterial highway, or two side streets, Beach 169th and Beach 193rd. Primary regional highway access is from the Gil Hodges Bridge, built in 1937 and formerly called the Marine Parkway Bridge. The bridge is an extension of Flatbush Avenue, one of the main thoroughfares from downtown Brooklyn.

Fort Tilden receives approximately 300,000 visitors per year, and is used primarily for recreational activities such as surfcasting, bird watching, gardening, walking, and team sports.³ There is no fee to enter the park, but public access to the fortification area is restricted. NPS also leases out portions of the post area to community groups and municipal departments, including the Rockaway Little League, Rockaway Artists' Alliance, and the Rockaway Theater Company. Many of the buildings are used as housing for NPS staff.

FORTIFICATION AREA

The largest part of Fort Tilden is the fortification area, consisting of approximately two hundred acres occupying the western two-thirds of the park (see Drawing 2.1). Approximately 150 acres of the area was listed in the National Register of Historic Places in 1984. It is managed primarily as a natural area, and thus, all of the historic military structures are abandoned and deteriorating, and in a few cases, are no longer standing. The overall character consists of two areas: the ocean beach, dunes, and adjoining beach grasses along the southern part of the fortification area; and the thickets and young woods that dominates the remainder of the area. Two sections not specifically managed as natural areas are the southwestern corner of the fortification area at the site of Nike missile tracking station #2, containing the Fisherman parking area and comfort stations; and the Nike missile launch pad and adjoining support structures, used as a park maintenance area.

The mile long beach access is a large draw for visitors and local fisherman. (Fig. 2.3) Public access to the remainder of the fortification area, aside from the Fisherman parking area through gate 8 at Beach 193rd Street, is restricted due to the numerous abandoned buildings and structures, but visitors are permitted along the nature trail extending from the beach up to the wildlife-viewing platform on top of Battery Harris East. Access to the remainder of the site is by the network of concrete and asphalt-paved roads that form two rectangular loops through the fortification area, with several spurs and connecting legs. Shore Road retains its original concrete pavement, while most of the other roads are paved in asphalt. The road circuit in the fortification area connects with the post area at two points: Shore Road and Range Road. The rail lines that originally ran from the wharf area, through the post area, and to Battery Harris and its magazines, remains, but is almost entirely concealed by vegetation.

Overall, the maintained, open landscape of the military era prior to 1974, with its numerous military structures, planted beach grasses, black pine, and Russian olive, has naturally reverted into a young maritime forest (fig. 2.4). This ecologically rich area now contains several vegetation types including beach-grass dunes, grasslands, phragmites, high and low thickets, and coniferous and deciduous forests. These communities provide feeding and nesting habitats for a variety of marsh and shore birds, including green herons and clapper rails. The landscape evokes a strong feeling of abandonment and time passage, and at the same time, the resiliency of natural systems.

From a cultural resource perspective, the dual emplacements of Battery Harris, built in 1922 and with massive concrete and earthen casemates added in 1941, are the most prominent features within the fort's landscape (fig. 2.5). The casemates are clearly visible to visitors along Range Road. There are no interpretive markers, but standard brown NPS signs identify the structures. Other military structures, such as the bombproof magazine (Building 411), fire control and plotting room (Building 413), mining casemate (Building 511), and Battery Harris magazine (Building 401) have been covered with successional vegetation and are not visible or accessible to the public (fig. 2.6). The former Nike missile launch pad, which is fenced off from the rest of the fortification area and retains few above-ground resources, is part of the park's maintenance area and is also not accessible to the public.

POST

The post is the primary public-use area of Fort Tilden, consisting of remnants of a once dense complex of barracks, officer quarters, administration and recreation buildings, parade and drill grounds, and a chapel (see Drawing 2.1). Since its height during World War II, more than three-quarters of the buildings in the post area have been demolished, leaving a landscape characterized by broad areas of open lawn and fields, scattered buildings, concrete and asphalt-paved and treelined roads, parking lots, and successional woods. All of the main buildings except for a comfort station (B-3) were built by the Army. A few, notably Building 1, retain a high level of historic integrity, but most have been modernized or abandoned.

From Rockaway Beach Boulevard and Beach 169th Street, which together form the north and east sides of the post area, visitors can enter through four different gates (Gates 2, 18, 9 and 10) that are still flanked by brick piers and chain link fencing built by the Army (fig. 2.7). The main park entrance is Heinzelman Road (at gate 2), lined in part by London Plane trees planted during the World War II era (fig. 2.8).

The former ceremonial heart of Fort Tilden, the parade grounds, borders the east side of Heinzelman Road (fig. 2.9). Once enclosed by buildings except along a portion of the east side, the rectangular field is today loosely defined by scattered buildings, along with roadside London Plane trees along the east and south sides. The World War II-era flagpole remains at the northeast corner, but the canon that once accompanied it has disappeared. The landscape of the parade grounds is dominated by Georgian Revival-style Building I, formerly a barracks, hospital, and Cold War-era administration building (fig. 2.10). It was constructed in 1937-38 by the Works Progress Administration, and today serves as the Fort Tilden visitor center. Along the east side on the site of the officer's club is a horse corral used by the New York City Police Department (see fig. 2.7). West of the parade grounds is the portion of the post that once contained a dense complex of barracks and officers' quarters. Today, only a row of four brick officers' quarters, one barracks, and the recreation center remain from the World War II landscape of this area. The building sites are today used as ball fields and community gardens.

South of the barracks area is the chapel, a former warehouse renovated as the home of the Rockaway Artists' Alliance, a new parking lot, and a warehouse and ordnance shop, both abandoned. East of here is a large field that served as the drill grounds (fig. 2.11). To the south is the beachfront of the post area, containing several one-story masonry buildings used by the Army as officer facilities. Aside from the officer bathhouse, today maintained as a park bathhouse, these

buildings are abandoned. East of here, at the southeast corner of Fort Tilden within a rectangular fenced-in area, is the property the Army acquired from the Coast Guard in ca. 1962, site of the Coast Guard Life Saving Station Rockaway Point. The area is today covered mostly in successional woods.

WHARF AREA

Across Rockaway Bay Boulevard from the post is the wharf area of Fort Tilden, also known as the Quartermaster area or Post Engineer area, which once served as the industrial and administrative center of the fort (see fig. 2.8). As with the post, many of the World War II-era buildings and structures have been demolished; only eight of the twenty-two buildings remain. Since 2000, efforts have been underway to redevelop the wharf area and the adjoining former Coast Guard Station Rockaway into a federally-funded transportation hub, known as Riis Landing, named after nearby Jacob Riis Park. As a result of this project, a parking lot and new dock were completed in c.2003 as part of a ferry terminal intended to provide service to Manhattan (fig. 2.12). The new ferry dock (and all of the old slips on the east side of the wharf area) is on the Coast Guard property and was not historically part of Fort Tilden. The original Fort Tilden wharf (Building 209) was located along the north seawall; today, only the pilings remain.

The entrance to the wharf area is at gate 1, opposite the primary entrance to the post area at Heinzelman Road (gate 2) (see fig. 2.8). Remaining in the asphalt roadbed are rails from the tracks that extended from the wharf through the post area to the fortifications. Along the east side of the road is the World War I-era administration building, recently altered and now leased to a concessionaire as part of the Riis Landing operation, and behind it, a concrete and terra-cotta tile warehouse dating from the same period (see fig. 2.8). To the west is the former World War II-era ordnance and administration building (Building 219), built by the WPA in 1937-38 and set facing a circular drive and lawn (fig. 2.13). Today, the stylized Georgian Revival-style brick building it is used by the park as a storage and maintenance facility. To the rear of this building are two World War II-era maintenance buildings that are in dilapidated condition.



Figure 2.1. Current (c. 2001) aerial photograph of Fort Tilden illustrating large-scale landscape patterns and surrounding network of roads, community of Roxbury (north), and golf course and beach at Jacob Riis Park (east). Note large areas of open ground in the post, compared with the mostly wooded conditions of the fortification area. The boundaries of Fort Tilden are indicated by the black line. (Gateway National Recreation Area, annotated by SUNY ESF)



Figure 2.2. View looking across the wooded Fort Tilden landscape from the observation area on top of Battery Harris East, 2005. The post area is visible in the middle foreground, with highrises at Far Rockaway in the distance. The wooded character of the landscape has developed largely since the Army decommissioned Fort Tilden in the early 1970s. (SUNY ESF)



Figure 2.3. View looking southwest across Shore Road at the sand dunes, grasslands, and engineered ocean beach with stone and wood groins, 2005. In the distance is Sandy Hook, New Jersey. (SUNY ESF)



Figure 2.4. View looking east along Range Road illustrating character of successional woods that have grown up on much of the site, 2005. (SUNY ESF)



Figure 2.5. The casemate of Battery Harris West, view looking northwest from Range Road, 2005. (SUNY ESF)



Figure 2.6. An abandoned magazine (Building 401) associated with Battery Harris, view looking northeast from Range Road, 2005. (SUNY ESF)



Figure 2.7. Looking north along Beach 169th Street at the former main entrance (gate 10) to Fort Tilden in the post area, 2005. Behind the gate is a horse corral used by the New York City Police Department, site of the World War II-era officer's club. (SUNY ESF)



Figure 2.8. Looking north at gate 2, the primary park entrance to Fort Tilden within the post area, along Heinzelman Road, 2005. The building at left (Building 106) is the only structure in the post area dating from the initial World War I development of Fort Tilden; the London Plane trees flanking the road were planted during World War II. (SUNY ESF)



Figure 2.9. Looking northwest across the parade grounds toward widely-scattered scattered buildings in the former barracks area, 2005. (SUNY ESF)



Figure 2.10. The administration building (Building 1), built by the WPA in 1937-38, looking east, 2005. The building in the foreground is a transformer station erected around the same time. (SUNY ESF)



Figure 2.11. Ball fields, formerly the drill grounds, looking south from the chapel, 2005. (SUNY ESF)



Figure 2.12. Looking northeast across open ground and recently completed parking lot built for Riis Landing, 2005. This area was the site of a dense complex of buildings during World War II. In the right background is a World War I-era warehouse, and to the left, the Gil Hodges Memorial Bridge, completed in 1937. (SUNY ESF)



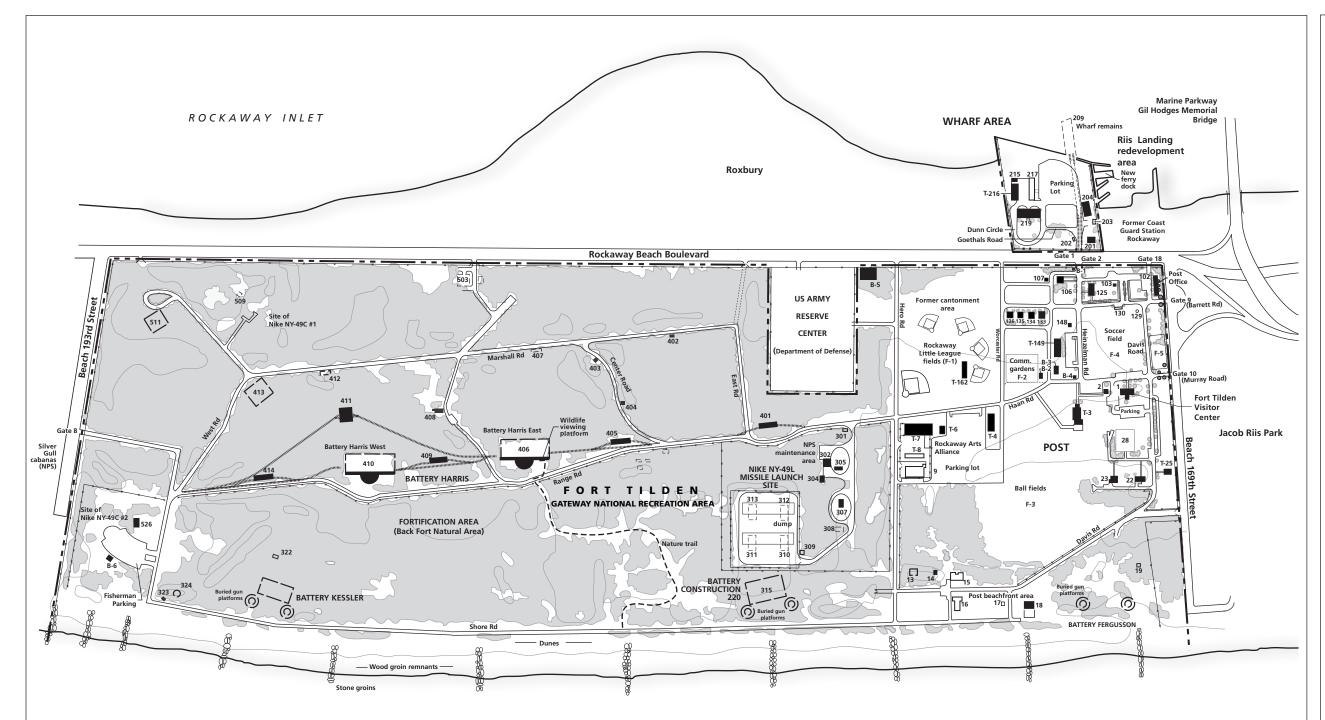
Figure 2.13. Looking west across lawn in front of the former World War II ordnance and administration building facing Rockaway Beach Boulevard (left), 2005. The building is now a park maintenance and storage facility. In the background is the community of Roxbury. (SUNY ESF)

ENDNOTES

¹ Christopher J. Schuberth, *The Geology of New York City and Environs* (Garden City, NY: The Natural History Press, 1968), 9.

² Population figures from: <u>www.city-data.com/zips/11697.html</u>, <u>www.city-data.com/zips/11695.html</u>.

³ HDR Engineering, "Replace Water Distribution System...Final Pre-design Report" (Prepared for the National Park Service, April 8, 2005), 2-5.



ATLANTIC OCEAN

					Featur	e Key					
Bldg. No	Description	Bldg. No	Description	Bldg. No	Description	Bldg. No	Description	Bldg. No	Description	Bldg. No	Description
1	Administration	23	Residence	T-162	Rockaway Little League	308	Dog Kennel-	405	BH Magazine Three	511	Mining Casemate
2	Main Transformer	T-25	Senior Citizen Bldg.	201	Leased Bldg.		Foundation Only	406	Battery Harris East	526	HI PAR Bldg.
T-3	Chapel	28	Basketball Courts	202	Gas Station	309	Sentry Booth	407	Power Plant Two-		
T-4	Theater	102	Post Office	203	Oil Shop	310	Nike Missile Silo		Foundation Only	B-1	Guard Booth
T-6	Rockaway Art Alliance	103	Post Sewage Lift	204	Plumbers Shop	311	Nike Missile Silo	408	Power Plant Three	B-2	Com. Garden Shed
T-7	Rockaway Art Alliance	106	Residence	209	Foundation-Dock	312	Nike Missile Silo	409	BH Magazine Two	B-3	Comfort Station
T-8	Storage	107	Garage	215	Oil Storage	313	Nike Missile Silo	410	Battery Harris West	B-4	Kiosk
9	Storage	125	Residence	T-216	Auto Shop	315	Battery Construction 220	411	BH Bombproof Magazine	B-5	LILC Substation
13	HECP	129	Flag Pole	T-217	Garage	321	Battery Kessler	412	Power Plant One-	B-6	Comfort Station
14	Transformer House	130	Storage	219	Storage/ Electric Bldg.	322	Oil Storage		Foundation Only		
15	Beach House	133	Residence			323	Telephone Pit	413	Fire Control Bunker	F-1	Baseball Fields
16	NCO Snack Bar	134	Residence	301	Sentry Booth			414	BH Magazine One	F-2	Community Gardens
17	Latrine	135	Residence	302	Maintenance Bldg.	401	BH Magazine Four	503	Motor Pool-	F-3	Drill Ground
18	Beach House	136	Residence	304	Maintenance Bldg.	402	Ammo Storage		Foundation Only	F-4	Parade Ground
19	Water Meter	148	Storage	305	Maintenance Bldg.	403	Ammo Storage	509	Missile Tracking Radar-	F-5	NYCPD Corral
22	Residence	T-149	Community Bldg.	307	Maintenance Bldg.	404	Ammo Storage		Foundation Only		

Cultural Landscape Report Fort Tilden

Gateway National Recreation Area Rockaway Beach, New York

Existing Conditions 2005





National Park Service Olmsted Center for Landscape Preservation www.nps.gov/oclp in partnership with Department of Landscape Architecture Center for Cultural Landscape Preservation SUNY College of Environmental Science and Forestry, www.esf.edu/la/cclp

SOURCES

- 1. US Army, Master Plan of Fort Tilden, 1964
- 2. USGS, Coney Island quadrangle map, 1995
- 3. Aerial infrared photograph, 2002
- 4. HDR Engineering, Water Main Layout, 2005

DRAWN BY

Christina Selvek, John Auwaerter Illustrator CS5, 2005, updated 2013

LEGEND

 Property boundary
Building or structure
Subsurface structure or fou

Subsurface structure or foundation

- 0 Gun platform
- -Casemated gun
- Road

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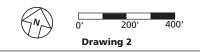
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- Rail line (abandoned)
- Trees or scrub
- Specimen tree
- Fence
- 5' contours
- Ball field

NOTES

- 1. Plan shows landscape in 2005.
- All features shown at approximate location and scale.
 Most small-scale vegetation and features not shown.
 No buildings shown outside of Fort Tilden.



3. ANALYSIS AND EVALUATION

This chapter provides an evaluation of the historic significance and character of the Fort Tilden cultural landscape. The first section includes a review of existing National Register documentation and findings of the Keeper of the National Register issued in 2009 to determine historic significance based on the National Register Criteria, along with an evaluation of integrity for the cultural landscape. The second section is an analysis and evaluation of the cultural landscape based on National Park Service methods. A cultural landscape consists of all above-ground, exterior elements organized by characteristics, which include natural systems, spaces, topography, buildings and structures, vegetation, views, small-scale features, and archeological sites. The fortification area, comprising the landscape presently listed in the National Register, provides an in-depth evaluation of cultural landscape characteristics and features. Due to lack of historic character, evaluation.

NATIONAL REGISTER EVALUATION

EXISTING NATIONAL REGISTER DOCUMENTATION

In 1976, Gateway National Recreation Area prepared an initial draft of a National Register nomination form for the fortification area of Fort Tilden. This nomination did not include the post and wharf area of the fort. The nomination was proposed under a military area of significance beginning with the establishment of Fort Tilden in 1917 and ending with the decommissioning of the Nike missile system in c.1967. The nomination encompassed all of the primary fortifications, including the Nike missile silos and two tracking stations. This draft was submitted to the New York State Historic Preservation Officer (SHPO) in 1979. The SHPO concurred with the documentation and the nomination was forwarded to the National Register. In 1980, the National Register sent the nomination back to the park to address a number of deficiencies.

In November 1980, the park completed a Historic Structure Report/Historic Data Section (HSR) that provided additional information on the resources in the proposed nomination. Based upon this expanded documentation and the earlier comments from the National Register program, the park revised the nomination form in 1982 and forwarded it to the SHPO. The nomination included revised boundaries and period of significance, changes in terminology, new historical documentation, and additional resources. The SHPO concurred with the revised draft in 1983 and forwarded it to the National Register. On April 20, 1984, the Fort Tilden Historic District was listed in the National Register of Historic Places. As listed, the property excluded the Nike missile launch pad and two tracking stations, and included only the portion of the fortification area immediately surrounding and in-between the fortification structures, from Marshall Road on the north to Shore Road on the south (National Register district map in Appendix E). The district was basically rectangular with three narrow extensions to include the Harbor Entrance Command Post (Building 13) on the southeast, Battery Harrison Magazine (Building 401) on the northeast, and the Mining Casemate (Building 511) on the northwest. Total acreage of the historic district was listed as 98 acres.¹

As stated in the nomination form, Fort Tilden, established in 1917, was listed for its significance in the area of military history during the first half of the twentieth century as part of the harbor defenses of New York City. The period of significance was described as extending through World War II. The seacoast artillery, anti-aircraft artillery, submarine mining and observation structures, and lighting and listening posts at Fort Tilden were recognized as illustrating technical improvements which took place in military weaponry between the two World Wars. The nomination form identified the following buildings and structures as contributing resources:

- I. Battery Harris Casemates (Buildings 406, 410)
- 2. Battery Harris Magazines (Buildings 401, 405, 409, 414)
- 3. Battery Harris Bombproof Magazine (Building 411)
- 4. Igloo Magazines (Buildings 403, 404)
- 5. Six-inch Gun Batteries (Building 315/Construction 220, Building 321/Battery Kessler)
- 6. Support Buildings (Buildings 322, 402)
- 7. Power Plants (Buildings 407*, 408, 412*)
- 8. Fire Control and Plotting Room (Building 413)
- 9. Mine Casemate and Plotting Room (Building 511)
- 10. Harbor Entrance Command Post (Building 13)
- II. Telephone Pit (Building 323)
- * = Demolished since 1984 listing

The following resources were identified as management exclusions (noncontributing resources), either because they no longer existed or did not relate to the harbor protection theme of the fort as documented for the National Register: Buildings 324, 325, 514; Rifle range support structures (Buildings 316-320); Pistol Range (site- no building number); and utility building (Building 14, adjacent to Harbor Entrance Command Post Building 13).²

DETERMINATIONS OF ELIGIBILITY

Fort Tilden Historic District (Expansion)

In 2008, the Regional Director of the Northeast Regional Office of the NPS requested that the Keeper of the National Register of Historic Places render a Determination of Eligibility (DOE) on an expansion of the National Registerlisted Fort Tilden Historic District. This request was made due to a difference between the Northeast Regional Office and the New York State Historic Preservation Office (SHPO) (see Appendix F). The Northeast Regional Office was of the opinion that the post and wharf area lacked historic integrity and were not eligible for listing in the National Register. The SHPO issued a determination in 2007 that the entire historic limits of Fort Tilden, including the post and wharf area, were eligible for listing in the National Register.

The Keeper of the National Register concurred with the determination of the New York SHPO, and on May 12, 2009, issued a DOE that expanded the Fort Tilden Historic District to encompass the entire Fort Tilden property, except for the Army Reserve Center that remained under Department of Defense jurisdiction. The DOE also extended the period of significance from 1945 to 1967 (see Appendix G for complete DOE). The Keeper determined that Fort Tilden is eligible under National Register Criterion A for its significance in military history during the period 1916-1967, and is potentially eligible under Criterion D for archeological resources, pending further archaeological study. The DOE found that Fort Tilden met Criterion Consideration G to address the Nike Herculesperiod Cold-War resources that were not yet 50 years old. The DOE did not include a detailed list of contributing and non-contributing resources, but did state that contributing resources should include the surviving World War I-II gun emplacements and associated structures, and surviving features form the Nike missile installations. With regard to the post and wharf area, the DOE determined:

Despite some significant loss of period buildings, the vast majority of surviving historic buildings and structures located in the property's post and wharf area (including such historic features as roads, circulation patterns, overall plan, waterfront ruins, and shoreline beach groins) retain sufficient integrity as a whole to contributing district's significance as an integrated 20th-century coastal defense installation under Criterion A.³

List of Classified Structures

As part of its cultural resource inventory at Fort Tilden following the 1984 National Register listing, NPS added eligible resources within the Fort Tilden Historic District to its List of Classified Structures (LCS), initially drafted in 1986 and sent to the SHPO in 1996. The SHPO concurred with the LCS on October 25, 1996. There a number of differences between the resources listed in the NR nomination and in the LCS. The LCS included all of the extant resources identified in the NR nomination, except for the Telephone Pit (Building 323), and added two additional resources. In addition, the LCS identified each resource separately and varied the terminology (not all resources were identified by building number in the LCS name). The following are the major differences between the 1996 LCS list and NR nomination (latter noted in brackets):

- (Telephone Pit/Building 323—not in LCS)
- Battery Harris Power Plan #3 (Power Plant/Building 408; Power Plant/Buildings 407, 412 not listed in the LCS because they had been demolished by 1996)
- Storage Shed 322 (Support Buildings/Building 322)
- Storage Shed 402 (Support Buildings/Building 402)
- Battery Construction 220 (Six-Inch Gun Batteries/Building 315-Battery Construction 220)
- Battery Harris Gun #1 (Battery Harris Casemate/Building 410)
- Battery Harris Gun #2 (Battery Harris Casemate/Building 406)
- Battery Harris Power Plant #1 Fuel Tank (remnant of demolished Power Plant/Building 412)
- Battery Harris Power Plant #2 Fuel Tank (remnant of demolished Power Plant/Building 407)
- Battery Kessler (Six-Inch Gun Batteries/Building 321-Battery Kessler)
- Groupment Command Center (Harbor Entrance Command Post/Building 13)
- Mine Casemate and Plotting Room (Mine Casemate and Plotting Room/Building 5II)⁴

In addition, five Nike-era structures located outside of the National Register boundaries were identified in the LCS because of NPS interest in their interpretive value, and were recommended for management as cultural resources. These five resources included Nike Silos 310, 311, 312, and 313, and the gatehouse (Launch Pad sentry station/Building 309)⁵

CULTURAL LANDSCAPE INTEGRITY OVERVIEW

Integrity is the ability of a property to convey its historical significance. The National Register identifies seven aspects of integrity for historic properties. These are: *location, design, setting, materials, workmanship, feeling and association*. To retain integrity, a property needs to possess several or most of these qualities to convey the sense of a particular time and place.

As illustrated in Table 3.1, an evaluation of the seven aspects of integrity reveals that, despite a number of changes since the property was initially listed in 1984, the cultural landscape of the fortification area retains overall integrity to the end of the period of significance in 1967. Deterioration and loss of a number of secondary buildings and structures, along with the changes from an open to largely wooded landscape, has affected integrity, but the cultural landscape still conveys its historic significance. There has been little new construction. Setting has been most seriously compromised through changes in the landscape; however, the change due to growth of succession woods is potentially reversible.

The integrity of the cultural landscape of the post and wharf area has suffered additional loss of integrity, due primarily to the removal of buildings, but also due to modern alterations to buildings, and addition of new features such as fences, horse corrals, and community gardens.

Despite the loss of integrity in the cultural landscape, the overall property of the Fort Tilden Historic District retains sufficient integrity for listing in the National Register, as determined by the Keeper of the National Register in 2009.

TABLE 3	1: SUMMARY OF HISTORIC INTEGRI FORT TILDEN, GATEWAY NATION	
Aspects of Integrity	Fortification Area	Post and Wharf Area
Location	Retains Location	Retains Location
Design	Retains Design: Most of the major defensive structures, support buildings, and circulation systems that made the fortification area operational remain intact.	Retains Design: Overall, despite extensive building demolition and some new construction, the historic layout and spatial organization of the post and wharf area remain intact.
Setting	Lost Setting: The relationship of the main fortifications to the ocean and roads remains, but the change from an open to a largely wooded landscape has altered an important aspect of the historic setting, including strategic views and lines of fire.	Lost Setting: Due to extensive building demolition, the density that defined the open spaces has been substantially lost, and therefore the post and wharf area do not retain integrity of setting.
Materials	Retains Materials: Buildings, roads, and structures remain and have not been altered, despite deterioration that is accelerating at a number of buildings. Only one modern building and a parking lot have been added.	Lost Materials: Overall, due to extensive building demolition and removal of some roads, the post and wharf area do not retain integrity of materials. A number of buildings have been renovated with incompatible modern materials. Several new parking lots, contemporary lighting, and a new comfort station have also been added.
Workmanship	Retains Workmanship: The buildings and structures retain their original construction materials and thus display historic workmanship.	Lost Workmanship: Overall, due to extensive building demolition and use of incompatible modern materials in renovation of surviving buildings, the post and wharf area do not retain integrity of workmanship.
Feeling	Lost Feeling: The growth of successional woods and management as a natural area has altered or concealed the historic military character of the landscape.	Lost Feeling: Overall, due to extensive building demolition and new use as a recreational area, the historic military feeling of the post and wharf area has been lost.
Association	Retains Association: Although no longer an active military property, the fortification area remains intact as a vestige of the harbor defense system of New York City.	Lost Association: Overall, due to extensive building demolition, the post and wharf area have lost much of their historic association with the harbor defense system of New York City.
Overall	Retains Integrity (cultural landscape)	Does Not Retain Integrity (cultural landscape)

CULTURAL LANDSCAPE EVALUATION

Based on the National Register documentation and Determination of Eligibility for the Fort Tilden Historic District (2009), all of the property presently under the jurisdiction of the NPS meets the National Register Criteria. However, based on the findings of this Cultural Landscape Report, only the landscape of the fortification area retains historic character. The landscape of the post and wharf area lacks historic character due to extensive building demolition and renovation, and addition of parking lots and recreational features.

The following cultural landscape evaluation analyses Fort Tilden according to landscape characteristics and features. Landscape characteristics are tangible and intangible aspects that individually and collectively give a landscape character and aid in understanding its cultural value. The following are the landscape characteristics found in the Fort Tilden landscape:

Natural Systems: the natural aspects that have influenced the development and physical form of a landscape.

Spatial Organization: the three-dimensional organization of physical forms and visual association in a landscape creating ground, vertical, and overhead planes that define and create spaces.

Land Use: describes the principal activities in a landscape that form, shape, and organize the landscape as a result of human interaction.

Circulation: the spaces, features, and applied material finishes that constitute the systems of movement in a landscape.

Topography: the three-dimensional configuration of a landscape surface characterized by features; built landforms.

Vegetation: the planted or managed deciduous and evergreen trees, shrubs, vines, ground covers and herbaceous plants, and plant communities.

Buildings and Structures: the elements constructed primarily for sheltering any form of human activity in a landscape.

Views and Vistas: the prospect created by a range of vision in a landscape, conferred by the composition of other landscape characteristics and associated features. **Small-Scale Features:** elements that provide detail and diversity combined with functional and aesthetic concerns such as fencing, light poles, and signs.

Archeological Sites: sites containing surface and subsurface remnants related to historic or prehistoric land use.

A landscape characteristic is composed of landscape features, which are the smallest physical elements of a landscape that can be managed as a individual units.⁶ These are inventoried by letter and number corresponding to the characteristic (e.g., Circulation, C-I = Range Road, Buildings and Structures, B-410 = Battery Harris West). Buildings are inventoried according the numbering system used by NPS or the latest used by the Army. A list of all features within the fortification area is found in Table 3.2. Some characteristics, such as spatial organization and land use, do not have associated features.

The following method is used to evaluate landscape characteristics and features:

Historic Condition: A summary discussion of the history of the characteristic or feature during the historic period (1916-1967) based on the site history of this CLR. Supplemental documentation not in the site history is referenced in the endnotes.

Post-Historic and Existing Conditions: A brief description of the existing condition of the characteristic or feature, noting changes since the end of the historic period in 1967.

Evaluation: A determination of whether the characteristic or feature contributes to the historic character of the Fort Tilden landscape. Features are determined **contributing** if they were present at the end of the period of significance (1916-1967), retain integrity, and are associated with the documented significance in military history. Features are determined to be **non-contributing** if they were not present during the period of significance, do not retain integrity, or are not associated with military history. If insufficient documentation is available, the characteristic or feature is evaluated as **undetermined**.

At the end of this chapter are existing condition photographs documenting most of the inventoried features, and Drawing 3.1 that locates all inventoried features within the fortification area. Features in the post and wharf area are not evaluated due to loss of historic character in the landscape, but a list of features is provided following the characteristic evaluation. See Drawing 2 for location of features in the post and wharf area.

FORTIFICATION AREA CULTURAL LANDSCAPE EVALUATION

Natural Systems and Features

<u>Historic</u>: As early as the eighteenth century, the Rockaway Peninsula protruded westward from Long Island with an accretion of hooks that had developed from the deposition of sand along the ocean shore. This expansion took place over a period of several hundred years. Developing between the peninsula and the mainland were shallow lagoons, bays and marshes that currently characterize Jamaica Bay. During the early twentieth century, culminating with the construction of Fort Tilden in 1916-1918, the barrier beach was engineered to stabilize its shifting nature with a stone and wood groin field along the ocean shore, and the uplands were filled in preparation for the construction of Fort Tilden. Natural dunes were probably removed by the Army to maintained lines of fire, especially after construction of Battery Harris in the interior of the site in 1922.

<u>Post-Historic and Existing Condition</u>: Since 1967, the beach has remained relatively stable due to the groin fields (see B-1). The NPS has encouraged accumulation of sand dunes along the beach through addition of snow fencing. Maritime deciduous woods, which may have begun to grow during the historic period, spread across the fortification area.

<u>Evaluation:</u> The natural, sandy landform of the Rockaway Peninsula contributes to the historic character of the fortification area as a defining characteristic of the landscape throughout the historic period (1917-1967). The sandy soils influenced methods of construction and use of plant materials. The alignment of the ocean beach in particular is a significant component of the overall military design of the landscape, although the existing prominence of the sand dunes most likely reflects non-historic natural resource management. The growth of successional maritime woods has altered the historic character of the landscape.

Forest (Successional Woods). See V-3.

Spatial Organization

<u>Historic Condition</u>: During the World War I era (1916 to 1937), the fortification area was a loosely defined space of open sand and grassland that occupied much of Fort Tilden. Ancillary batteries were located outside of the fortification area within the Rockaway Naval Air Station prior to 1919 (site of Jacob Riis Park) and at Breezy Point during World War II. The main fortifications were located along the entire Atlantic frontage, anchored by East Battery and West Battery (later reconfigured as Battery Kessler). Supporting structures were mainly constructed along the northern part of the area along Rockaway Beach Boulevard. The interior of the fortification area remained undeveloped until 1922 when Battery Harris was built. This battery required the construction of additional rail lines and support structures that were located primarily to the northern half of the fortification area to retain strategic open views of the ocean to the south. During the World War II era (1937-1945), the fortification area was reduced in size at its eastern end, where the site of the original East Battery was redeveloped as part of the post. The limits of the fortification area were defined on the east primarily by Hero Road, with the Harbor Entrance Command Post the only fortification-related structure east of Hero Road. The north and west limits of the fortification area remained bounded by Rockaway Beach Boulevard and Beach 193rd Street. The perimeter of the fort was marked by a chain-link fence. In the interior of the fortification area, a new road system divided the area into three loosely-defined rectangular areas. The fortification area overall remained an open grassland space, with dunes most likely removed to maintain lines of fire. The artificial dunes at Battery Harris and other defensive works punctuated the interior of the space. During the Cold War Era (1945-1974), the Nike missile launch pad and tracking stations were positioned within the fortification area, each within its own secured, fenced area.

Post Historic and Existing Conditions: After 1967, change included the natural transition from a largely open landscape to a wooded one, and the redevelopment of the southwest corner (Nike missile tracking station #2) as the Fisherman Parking Lot, and the removal of tracking station #1. The space is defined by Hero Road/HECP and the post on the east, Rockaway Beach Boulevard on the north, Beach 193rd Street on the west, and the Atlantic Ocean on the south. The fortification area correlates with the park's "Back Fort Natural Area," and with the western section of Fort Tilden defined in the park's planning documents. The fence-enclosed Nike NY-49 launch site remains a distinct space in the landscape. The spatial definition of the rifle range, miniature AA range, and two Nike NY 49-missile tracking stations (control areas) are no longer evident due to growth of successional woods, removal of perimeter fencing, and/or addition of new features (Fisherman Parking Lot).

<u>Evaluation</u>: Spatial organization was a defining historic characteristic of the fortification area landscape. While the landscape retains the same spatial organization defined by location of defensive works, circulation corridors, and perimeter security fence, the loss of defined spaces within the larger landscape, such as the rifle ranges and Nike NY-49 tracking stations, and conversion to a largely enclosed wooded area, has significantly altered the historic character of the landscape. Only the Nike NY-49 launch site retains its historic spatial character.

No associated features

Land Use

<u>Historic Condition</u>: Throughout the historic period (1916-1967), the fortification area was used as a military installation with gun batteries, ammunition storage, communication facilities, power plants, and fire practice areas, along with roads and rail tracks used to transport supplies and troops. During the World War II era, land use within the fortification area became more diversified as two housing areas consisting of barracks and mess halls were built at the northeast and southwest corners of the fortification area. During the Cold War, the fortification area continued to be used for training and fortification purposes, primarily for the Nike missile system; the World War II-era barracks and mess halls were removed during this time, as were most of the major guns, but the casemates and magazines were left standing. By 1955, the Army had completed construction of Nike site NY-49 as one of a series of Nike missile sites in the New York City area. Between 1955 and 1961, the Army built a Reserve Center at the northeast corner of the fortification area.

<u>Post-Historic and Existing Conditions:</u> At the time the NPS took over Fort Tilden in 1974, the Army retained the Reserve Center, and it remains the only current military use within the historic limits of the fortification area. Today, the fortification area is used and managed primarily as a natural area, surrounding abandoned military facilities. Other uses include park maintenance facilities at the Nike missile launch pad area, and visitor parking and comfort stations at the site of the Nike missile tracking station #2.

<u>Evaluation</u>: The existing natural resource management and recreational uses, along with visitor parking and park maintenance uses, do not contribute to the historic character of the fortification area landscape. While similar to secondary historic uses by the military, the existing land uses were mostly introduced after 1974 following the decommissioning of Fort Tilden. Overall, these uses do not detract from the historic character of the landscape, although management as a natural area and resulting encroachment of vegetation has diminished the historic character of the landscape.

No associated features.

Circulation

<u>Historic Condition:</u> During the World War I era (1916-1937), circulation within the fortification area initially consisted of standard gauge rail lines extending from the southern portion of the post toward the 6-inch gun Battery East (Battery Kessler). When construction of Battery Harris began in 1922, the rail lines were rerouted extending westward from the post along the entire length of the fortification area and aligned with present day Range Road. The rail lines provided a means of transporting ammunition from the magazines to Battery Harris and eventually to the dock within the wharf area. Extending off the primary rail line, another rail line was constructed to service the three power plants for Battery Harris. Although not depicted on period maps, there was probably an informal network of sand tracks in the fortification area that allowed for movement of vehicles between the rail lines and the fortifications. When the US Army redesigned Fort Tilden beginning in 1937, a permanent system of concrete roadways was constructed within the fortification area (some may also have been asphalt). This system supplemented and in part replaced the rail system. Based on the new installation plan, this circulation system created a loop road enclosing Battery Harris, the magazines, and power plants. These roads included Range Road and Marshall Road to the north and south and East Road and West Road along the east and west sides. Range Road extended from the post to the far western edge of the fortification area and terminated at entrance Gate 8 on Beach 193rd Street. East Road also terminated at an entrance gate, Gate 5. Center Road, located within the loop just east of Magazine Three (Building 405), provided access to two Igloo magazines (Buildings 403 and 404). A service road was built to access Power Plant Two (Building 408) from Marshall Road. Across from the service road were entrance Gate 6 and the roadway that accessed the Gas Generator House (Building 68A). In the northeast corner were entrance Gate 7 and a roadway that connected the Mining Casemate and Plotting Room (Building 511) to Marshall Road. Along the Atlantic shore, Shore Road was constructed to service Battery Kessler and Battery Construction 220 and eventually connected to East Road. When the Bombproof Magazine (Building 411) was built in 1942, additional rail lines were constructed to connect the structure to the existing rail system, apparently replacing the line to the World War I-era power plants.

During the Cold War, many of the concrete roads were repaved in asphalt. Changes to the road layout include the removal of a portion of East Road, the closure of entrance Gates 5, 6 and 7, extension of the service road accessing Power Plant Two (Building 408) to connect with Range Road, and the addition of three access roads to service the Nike missile launch pad and tracking stations. <u>Post-Historic and Existing Conditions:</u> The circulation system within the fortification area consists of remnants of a rail system dating to the World War I and World War II eras, and a system of concrete and asphalt roads dating to the World War II era. The NPS built the Fisherman Parking Lot in ca. 1985 within the southwestern Nike missile tracking station 2. Pedestrian circulation features that have been added include a wooden stairway that originates at the base of Battery Harris East and extends to the top of the battery and an observation deck and sandy trail paths that connect the beachfront to Battery Harris and Range Road. <u>Evaluation:</u> Circulation is a defining historic characteristic of the fortification area landscape. Roads and rail lines remain largely intact, although concealed in in areas by vegetation. Circulation features dating from the NPS era are generally minor and do not detract from the overall historic character of the landscape.

Circulation Features

C-I. Range Road (including entrance Gate 8) (fig. 3.1)

<u>Historic Condition:</u> Range Road was originally built in c. 1940 by the Army as part of plans for improving Fort Tilden prior to the onset of World War II. The concrete roadway was the primary east-west route through the fortification area and extended from Hero Road along the south side of Battery Harris and associated magazines to Beach 193rd Street at entrance Gate 8. The road was probably resurfaced in asphalt during the Cold War.

<u>Post-Historic and Existing Conditions:</u> Range Road is an asphalt-paved one-lane road. The current alignment dates from World War II. There are no entrance gate piers marking the entrance to Range Road along Beach 193rd Street. <u>Evaluation:</u> Contributing

Range Road, built c. 1940, contributes to the historic character of the fortification area landscape. The asphalt surface is most likely an historic Cold War alteration.

C-2. East Road (including entrance gate 5) (fig. 3.2)

<u>Historic Condition</u>: East Road was originally built in c. 1940 by the Army as part of plans for improving Fort Tilden prior to the onset of World War II. The northsouth road connected Range Road to Marshall Road and Gate 5 on Rockaway Beach Boulevard. A secondary service drive located off East Road provided access to a small cluster of barracks that was built during World War II within the southeast corner of Marshall Road and East Road. The northern portion of East Road was removed by 1961 and entrance gate 5 was closed; it was probably resurfaced in asphalt prior to 1967.

<u>Post Historic and Existing Conditions:</u>. East Road is one-lane wide and continues to connect Range Road to Marshall Road. There appear to be no remains of the secondary service drive. There are no entrance gate piers marking the entrance to East Road from Rockaway Beach Boulevard.

Evaluation: Contributing

East Road, built c. 1940 and altered by 1961, contributes to the historic character of the fortification area landscape. There have been no major changes to the road since the end of the historic period in 1967.

C-3. West Road (including entrance Gate 7) (fig. 3.3)

<u>Historic Condition:</u> West Road was constructed c. 1940 by the Army as part of plans for improving Fort Tilden prior to the onset of World War II. The north-south road originated at the intersection of Range Road and Shore Road, extending northeast to connect with Marshall Road. From Marshall Road, West Road turned northwest to service the Mine Casemate and Plotting Room

(Building 511) and support building (T-226), eventually connecting to entrance Gate 7. The road was probably resurfaced in asphalt prior to 1967. <u>Post-Historic and Existing Condition:</u> At some point after 1974, the northern end of West Road (including Gate 7) was removed and replaced by a turn-around. <u>Evaluation:</u> Contributing

East Road, built c. 1940 and altered after 1984, contributes to the historic character of the fortification area landscape. The removal of the historic entrance after 1967 detracts from the road's historic character.

C-4. Marshall Road (fig. 3.4)

<u>Historic Condition:</u> Marshall Road was constructed c. 1940 by the Army as part of plans for improving Fort Tilden prior to the onset of World War II. It was designed to provide vehicular access to the power plants and to connect East and West Road. The road was most likely repaved in asphalt prior to 1967. <u>Post-Historic and Existing Conditions:</u> Marshall Road appears to have maintained its historic alignment as depicted on historic maps. Evaluation: Contributing

Marshall Road, built in c. 1940, contributes to the historic character of the fortification area landscape. There have been no substantial changes to the road since the end of the historic period in 1967.

C-5. Center Road (no photo available)

<u>Historic Condition:</u> Center Road was constructed in c. 1940 by the Army as part of plans for improving Fort Tilden prior to the onset of World War II. The curving north-south road was located between East Road and Battery Harris Magazine Three (Building 405). The road connected Marshall Road to Range Road and provided access to the two Igloo Magazines (Buildings 403, 404). <u>Post-Historic and Existing Conditions:</u> The one-lane roadway appears to have maintained its historic alignment, however the road was resurfaced in asphalt and more recently has become impassable due to encroaching successional woods. <u>Evaluation:</u> Contributing

Center Road, built in c. 1940, contributes to the historic character of the fortification area landscape. There have been no major changes to the road since the end of the historic period in 1967, although it is concealed in large part by successional woods.

C-6. Power Plant Three Service Drive

<u>Historic Condition</u>: This service drive was built c. 1940 by the Army as part of plans for improving Fort Tilden prior to the onset of World War II. The service drive extended southward from Marshall Road, providing access to Power Plant Three (Building 408). The drive terminated in a rectangular turnaround. At some

point after World War II, the drive was extended south of Power Plant Three to join Range Road.

<u>Post-Historic and Existing Condition:</u> Power Plant Service Drive is a narrow asphalt paved road; the Cold War extension is gravel.

Evaluation: Contributing

The Power Plant Three service drive, built in c. 1940, contributes to the historic character of the fortification area landscape. There have been no major changes to the road since the end of the historic period in 1967.

C-7. Motor Pool Service Drive (including Gate 6) (fig. 3.5)

<u>Historic Condition:</u> The Motor Pool service drive was built in c. 1940 by the Army as part of plans for improving Fort Tilden prior to the onset of World War II. Located on the northern side of Marshall Road at the site of the balloon field, the service drive provided access to the Motor Pool (Building 503) and connected Marshall Road to entrance gate 6.

<u>Post-Historic and Existing Condition:</u> Shortly after 1974, gate six was permanently closed, and a portion of the roadbed became a garbage dump. The drive consists of two sections: a wider south part oriented northeast, and a narrow spur extending northwest to gate six and the foundations of Building 503. The road surface adjacent to the Motor Pool building foundation is concrete, which is cracked and deteriorating.

Evaluation: Contributing

The Motor Pool service drive, built in c. 1940, contributes to the historic character of the fortification area landscape. There have been no major changes to the road since the end of the historic period in 1967. However, deterioration and use of portions of the road as the park dump is impacting its historic character.

C-8. Shore Road (fig. 3.6)

<u>Historic Condition</u>: Shore Road was built in c. 1940, probably along the alignment of an earlier road that connected East Battery and West Battery, as part of plans for improving Fort Tilden prior to the onset of World War II. The east-west concrete road originated within the post and extended through the length of the fortification area directly behind the ocean dunes. At the southwest corner of the fortification area, Shore Road veered northward to connect with Range Road and West Road. The road provided access to Battery Kessler (Building 321) and the newly built Battery Construction 220 (Building 315).

<u>Post-Historic and Existing Conditions</u>: The only known change to Shore Road after 1967 was the addition of access to the Fisherman Parking Lot, built in c.1985. Shore Road is a two-lane road that extends from Hero Road along the Atlantic shoreline to Range Road. Unlike many other fortification-area roads, Shore Road has not been repayed in asphalt, and its concrete surface is in overall good condition.

Evaluation: Contributing

Shore Road, built in c. 1940, contributes to the historic character of the fortification area landscape. There have been no major changes to the feature since the end of the historic period in 1967. It is the only main road in the fortification area that retains its original concrete surface.

C-9. Railroad (fig. 3.7)

<u>Historic Condition</u>: Standard-gauge rail lines were used as the primary means of transportation at Fort Tilden from the time it was established in 1917 through World War II. The Army probably chose rail lines as the main means of transportation due to the sandy, unstable soil, which engineers may have considered unsuitable for supporting roads that had to serve trucks heavily laden with armament.

The Fort Tilden railroad originally extended south from the dock in the wharf area, crossed State Road (Rockaway Beach Boulevard) through the post, and veered west along the current site of Shore Road to access East Battery; it most likely also continued west to West Battery. Around 1923, the rail line was rerouted to the middle of the fortification area and was used to construct Battery Harris. The rail lines ran from the dock into the post, turned west and extended past the three magazines (Buildings 401, 404, 409) and through Battery Harris. Narrowgauge spurs extended through each of the magazines. Also at this time, a northern spur to the existing rail line was created to access the three power plants (Buildings 407, 408, 412). The rail lines were further extended as a fourth ammunition magazine was added in 1931.

The railroad probably went out of use shortly after World War II. Removal and dismantling the system began as early as 1961, primarily in the post and wharf area.

<u>Post-Historic and Existing Conditions:</u> Most of the rail lines appear to remain in the fortification area, with the exception of two sections along Range Road near magazine Building 401; however due to overgrown vegetation, additional research is needed on the rest of the system to determine integrity. <u>Evaluation:</u> Contributing

The remaining portions of the standard gauge railroad, built in c. 1917, re-routed in c.1923, extended in 1931, and altered after 1961, contribute to the historic character of the fortification area landscape. Although apparently few changes have been made to the system within the fortification area since the end of the historic period in 1967, its historic character has been affected by overgrown vegetation and deterioration. The railroad is a unique feature of the Fort Tilden landscape, necessitated by sandy, unstable ground.

C-10. Fisherman Parking Lot (fig. 3.8)

<u>Historic Condition</u>: The Fisherman Parking Lot did not exist during the historic period.

Post-Historic and Existing Conditions: NPS built the Fisherman Parking Lot in c. 1985 on the site of the Nike missile tracking station #2, which had been demolished a short time before. The fencing and HI PAR (Building 526) were retained. The lot is accessed off Shore Road and gate 8 in the southwest corner of the fortification area. It is a curved, asphalt lot with room for approximately sixty vehicles and with a concrete and planted median.

Evaluation: Non-contributing

C-II. Fort Tilden Nature Trail (fig. 3.9)

<u>Historic Condition</u>: The Fort Tilden nature trail did not exist during the historic period.

<u>Post-Historic and Existing Conditions:</u> NPS constructed the nature trail in the 1980s. The system of foot trails connects the beach to Battery Harris and other World War II structures. The sandy trail varies in width and connects Shore Road and the dunes to Range Road and Battery Harris, passing by a fresh-water pond. A wood post and rope railing lines portions of the path. <u>Evaluation:</u> Non-contributing

C-12. Battery Harris Observation Stairway and Platform (fig. 3.10)

<u>Historic Condition</u>: The Battery Harris observation stairway and platform did not existing during the historic period.

<u>Post-Historic and Existing Conditions:</u> An observation platform was added to the top of Battery Harris East in 1999. The wooden observation platform is accessed by a wooden stairway built up the southeast side of the earthen casemate. The stairway forms a northern extension of the Nature Trail. Evaluation: Non-contributing

Topography

<u>Historic Condition</u>: The natural topography of Fort Tilden consisted of an overall level, sandy surface with numerous shifting dunes. During the World War I era (1916–1937), the Army constructed earthen berms surrounded the East and West Batteries and built a bombproof fire control and plotting room covered with earth, creating rises upwards of ten feet. Beginning in the late 1930s during the World War II era (1937-1945), the Army significantly regraded the southern part of the fortification area, probably as part of the construction of the concrete road system and earthen-covered casemates at Battery Harris, Kessler, and Construction 220 (Buildings 406, 410, 315, 321). By 1943, the mining casemate (Building 511) was constructed and covered with earth creating additional topography within the fortification area. The Army probably removed dunes

along the beach to maintain open firing lines from the batteries. These practices probably stopped after World War II.

<u>Post-Historic and Existing Conditions</u>: No significant changes in topography have occurred within the fortification area since 1967, with the exception of grading for the Fisherman Parking Lot and erosion of the earthen fortifications. The dunes along Shore Road are a naturally shifting part of the topography. The topography of the ocean beach may have also changed since the historic period due to the deterioration of the wooden groins (bulkheads). Battery Harris is the tallest point within the fortification area at approximately fifty feet above mean sea level.

<u>Evaluation</u>: The existing built topography is a defining characteristic of the fortification area landscape. The earthen covers are a hallmark of seacoast defenses from the post-World War I through World War II period, intended for protection and concealment from aerial attack. No significant changes in topography have occurred since the historic period, aside from some erosion of the earthen covers.

No associated features.

Vegetation

Historic Condition: During the World War I era (1916-1937), vegetation within the fortification area consisted of mainly beach-type vegetation such as grasses, giving the landscape an open character.⁷ Beginning in 1937, the Army planted an unknown amount of woody plant material to stabilize the sandy soil and camouflage the gun emplacements. Aside from these plantings, the fortification area remained primarily open without woods or other large-scale vegetation. During the Cold War, the amount of vegetation began to increase. Post-Historic and Existing Conditions: Since the Army decommissioned Fort Tilden in 1974, most of the fortification area has reverted through natural succession from grasses to thickets and maritime upland forest. Beach-type grasses continue to dominate the sand dunes along Shore Road. Evaluation: Vegetation, dominated by successional woods, does not contribute to the historic character of the fortification area landscape, since it developed after the historic period, with the exception of the beach grasses along the beachfront and dunes, and planted pines around the defensive works. The successional woods detract from the historic views and spatial character of the landscape, but attest to the sense of abandonment and time passage.

Vegetation Features

VG-1. Beach Grasses (fig. 3.11)

<u>Historic Condition</u>: Beach-type grasses in the fortification area were established following the initial construction of the batteries in 1917 to reduce blowing and drifting sand. Photographs from the 1920s document low, mixed groupings of groundcover, including Marran grass and a variety of other beach-type grasses. The Army probably continued to plant grasses throughout the historic period to stabilize the sandy soil.

<u>Post-Historic and Existing Conditions</u>: The successional woodland growth within the fortification area has reduced the amount of beach-type grasses to the sand dunes along Shore Road. There are approximately a dozen varieties of grasses with the most prevalent including salt meadow grass, spike grass, sand bur, and little blue stem grass. No information was found on whether the variety of Marran grass (North American beach grass) planted by the Army still survives. <u>Evaluation</u>: Contributing

Beach grasses, including types planted by the Army and native grasses, contribute to the historic character of the fortification area landscape. The grasses are remnants of a vegetation type that historically covered much of the fortification area.

VG-2. Planted Conifers (fig. 3.12)

<u>Historic Condition</u>: The Army planted various species of pines during the World War II era. Historic photographs document the planting of Japanese black pines along the perimeter of Battery Harris before it was casemated. The pines provided additional buffers to the drifting sand and were used as camouflage. <u>Existing Condition</u>: Japanese black pines (*Pinus thunbergiana*) are growing throughout the fortification area and are most prevalent in the area surrounding Battery Harris. These are either the original specimens planted by the Army, or naturalized offspring. Many are in decline due to insect infestation and related fungal infection, while others are either being crowded or obscured by hardwoods succession.

Evaluation: Contributing

The remaining pines surrounding Battery Harris and other battery emplacements contribute to the historic character of the fortification area landscape. They are a significant remnant of the camouflage systems that the Army implemented against aerial attack after World War I that were intended to conceal defensive works within the native environment. The historic character of these plantings has been altered due to natural succession and disease.

VG-3. Successional Woods (fig. 3.12, also figs. 3.1-3.5)

<u>Historic Condition</u>: Historically, the tree growth within the Fortification area was carefully managed to maintain strategic sightlines of the Atlantic coastline into

New York Harbor. By the 1960s, successional woods (deciduous and coniferous maritime upland forest) were becoming established in areas formerly maintained as grasslands, particularly in the area north of Battery Harris. <u>Post-Historic and Existing Conditions:</u> After the fort was decommissioned in 1974, NPS management as a natural area allowed natural succession to overtake most of the landscape. Today, these woods consist of a mixture of high and low scrub oak, red cedar, sumac, pitch pine and Japanese black pine, black cherry, white poplar, and willow. A variety of herbaceous woody shrubs are found in the understory of the successional woodlands, along with invasive bittersweet vine. With the exception of the black pine and possibly some poplars, these species have self-seeded.

Evaluation: Non-contributing

The successional woods do not contribute to the historic character of the fortification area landscape because they have grown up in large part after the end of the historic period in 1967. The successional woods detract from the historic open character of the landscape, and obscure historic buildings, structures, and strategic sight lines.

Buildings and Structures

Historic Condition: During the World War I era (1916-1937), buildings and structures within the fortification area consisted of gun emplacements and magazines. These included Battery East and West (later rebuilt and renamed Battery Ferguson and Battery Kessler), which had four 6-inch guns and Battery Harris East and West, which had two 16-inch guns. A number of five-inch naval deck gun batteries were also located throughout the fortification area along Shore Road. By 1919, two three-inch anti-aircraft guns were mounted northeast of East Road. Buildings and structures supporting Battery East and West included two shell and powder magazines and a coincidence rangefinder (CRF) associated for each battery. Adjacent to Battery East and West was a seacoast searchlight and a 25 KW power plant. The supporting buildings and structures for Battery Harris included four ammunition magazines, three power plants, and a fire control and plotting station. There were also an incinerator, balloon hangar and generator house located to the north of Battery Harris along State Road (Rockaway Beach Boulevard).

In 1941, Battery Harris was casemated, and additional secondary defensive works were built, which included a storage shed along Marshall Road, two igloo magazines along Center Road and a Mine Casemate and Plotting Room near Gate 7. By 1943 Battery Ferguson was decommissioned and replaced with Battery Construction 220, a similar 6-inch gun battery built south of Battery Harris magazine four. One of the last structures built during World War II within the fortification area was the Advanced Harbor Entrance Command Post (HECP, later known as the Groupment Command Post) and the surface search SCR-582 radar installation located just east of Hero Road. The World War II era also saw the addition of two housing areas in the fortification area that included seven barracks, two mess halls, and two latrines. A rifle and pistol firing range, located south of Range Road, was also built for training the stationed soldiers. During the Cold War, the Army changed the design of its defensive buildings and structures as the need for concealment from sea and air disappeared. The Nike buildings were generally of concrete block or corrugated metal, with concrete foundations and near-flat and gable roofs. Standard plans for Nike facilities were employed at Fort Tilden's Nike site NY-49.

<u>Post-Historic and Existing Conditions:</u> The fortification area consists of sixteen buildings, the most prominent being the dual casemates of Battery Harris and the ammunition magazines. All are abandoned and not being maintained; the roof of at least one magazine has collapsed. Concrete gun platforms from Battery Kessler and Battery Ferguson are most likely covered by sand. Three World War II-era fortification-related buildings (B-402, 407, 503) have been demolished, along with approximately twelve temporary barracks/mess halls.

Within the Nike missile launch pad there are six remaining building, plus the four underground silos (three have been filled); most of these support buildings are being used by the park. Within the Nike missile tracking station #2, only the Hi PAR (Building 526) remains. All other buildings and structures associated with the Cold War era, amounting to approximately eighteen plus the above-ground structures at the missile silos, have been removed. NPS has only added one building to the fortification area since it took over Fort Tilden in 1974: the Fisherman Parking Lot comfort station (Building B-6).

<u>Evaluation</u>: Buildings and structures are defining characteristics of the fortification area landscape. The majority of the World War I and II-era buildings and structures remain, but many of the Nike buildings and structures, particularly within the two control sites, have been removed. Deterioration and erosion are impacting the historic character of buildings and structures, along with vandalism and encroaching vegetation.

Buildings-and-Structures Features

B-6. Fisherman Parking Lot Comfort Station (see fig. 3.8)

<u>Historic Condition</u>: The comfort station at the Fisherman Parking Lot did not exist during the historic period.

<u>Post-Historic and Existing Conditions:</u> . The comfort station at the Fisherman Parking Lot was built by NPS in ca. 1985. The small, one-story concrete-block building has a gable roof with two entrances on the north side. <u>Evaluation:</u> Non-contributing **B-13 (LCS 023514). Harbor Entrance Command Post** (no photo available) <u>Historic Condition:</u> The Harbor Entrance Command Post (HECP, later Groupment Command Post) was built in 1943-44 as the last fire-control facility erected during the historic period. It was built at the far southeast corner of the fortification area, east of Hero Road near the post. The HECP was constructed of reinforced concrete and covered with earth according to the same type of design and plan as the Mine Casemate and Plotting Room.

<u>Post-Historic and Existing Conditions:</u> The HECP is a one-story earth-covered concrete bunker with vents protruding from the top of the soil cover. There is a single entry at the west side of the bunker. The structure is abandoned. The structure is identified as the "Groupment Command Center" on the LCS. <u>Evaluation:</u> Contributing

The Harbor Entrance Command Post, built in 1943-44, contributes to the historic character of the fortification area landscape. It served as the command post for the regional system of New York harbor defenses. For the most part, the structure remains intact, however structural deterioration, sand deposits, and encroaching vegetation detract from its historic character.

B-14. Utility Building (Transformer House) (no photo available)

<u>Historic Condition:</u> A small building housing electrical transformers was built on the east side of the earthen casemate of the Harbor Entrance Command Post (HECP, Building 13) by or during World War II. It is listed as the "Transformer House" on the 1946 master plan of Fort Tilden.

<u>Post-Historic and Existing Conditions</u>: The utility building is a small, one-story structure located on the east side of the HECP earthen casemate. It is located on the boundary between the post and fortification areas, adjoining the post-area beach house (Building 15).

Evaluation: Contributing

The utility building, constructed in c.1940, contributes to the historic character of the fortification area landscape, as a support structure for the Harbor Entrance Command Post (Building 13). There have been no major changes to the building since the end of the historic period in 1967.⁸

B-301. Nike NY-49 Launch Area Sentry Booth (fig. 3.14)

<u>Historic Condition</u>: The Nike sentry booth was built in c. 1953-55 as a component of the Nike missile launch area (another booth, B-309, was built at the entrance to the launch pad). The booth was located along Range Road at the entrance to the Nike missile launch pad.

<u>Post-Historic and Existing Conditions:</u> The launch area sentry booth is a small, square building constructed of concrete block with a low shed roof and small window openings. The building is abandoned.

Evaluation: Contributing

The Nike launch area sentry booth, constructed in ca. 1953-55, contributes to the historic character of the fortification area landscape. There have been no major changes since the end of the historic period in 1967, although deterioration and overgrown vegetation have altered its historic character.

B-302. Nike NY-49 Missile Assembly Building (NPS Maintenance) (fig. 3.15) <u>Historic Condition:</u> The Nike Missile Assembly Building was built in c. 1953-55 as a component of the Nike missile launch area.

<u>Post-Historic and Existing Conditions</u>: The missile assembly building is a tall one-story square building with a low-pitched shed roof and painted concrete block walls. Two large, roll-up overhead vehicle doors are located at north and south ends of the building. A single entry door is located on the south side of the building, and a small ell is located off the east side. In this building and its adjacent hardstand, Nike missile crews uncrated, assembled, and tested the missiles. The building is used by the park for maintenance purposes. Evaluation: Contributing

The Nike missile assembly building, constructed in ca. 1953-55, contributes to the historic character of the fortification area landscape. There have been no major changes since the end of the historic period in 1967.

B-304. Nike NY-49 Generator Building (NPS Maintenance) (fig. 3.16)

<u>Historic Condition</u>: The Nike Generator Building was built in c. 1953-55 as a component of the Nike NY-49 missile launch area. It provided electric power for the underground magazines, supplied by a 150 kilowatt, 60-cycle diesel generator. <u>Post-Historic and Existing Conditions</u>: The Nike generator building is a one story with a gable roof and is sheathed in corrugated metal siding. A double entry door is located on the east side of the building. The building is used by the park for maintenance purposes.

Evaluation: Contributing

The Nike missile assembly building, constructed in ca. 1953-55, contributes to the historic character of the fortification area landscape. There have been no major changes since the end of the historic period in 1967.

B-305. Nike NY-49 Ready Room (NPS Maintenance) (fig. 3.17)

<u>Historic Condition</u>: The Nike SF-49 ready room was built in c. 1953-55 as a component of the Nike missile launch area. Since the launch area was located away from the combined housing-administration and battery control areas of the fort, a ready room was needed for the crewmen. This often included a squad room, latrine, day room and heater room.

<u>Post-Historic and Existing Conditions:</u> The building is one-story with cinderblock walls and low-pitched shed roof. There is a double door on the south side of the building with narrow windows on all four sides. The park uses the building for maintenance purposes. <u>Evaluation:</u> Contributing The Nike NY-49 ready room, constructed in ca. 1953-55, contributes to the historic character of the fortification area landscape. There have been no major

changes since the end of the historic period in 1967.

B-307. Nike NY-49 Warhead Assembly Building (NPS Maintenance) (fig. 3.18) <u>Historic Condition:</u> This building did not exist during the historic period. <u>Post-Historic and Existing Conditions:</u> The maintenance building (former Warhead Assembly Building) was built in c. 1953-55 as a component of the Nike missile Launch area at Fort Tilden. This building was located further south and away from the other structures in the event of an explosion. It is a one-and-one half story concrete block building with a flat roof, similar to B-302. Two large roll-up overhead doors are located at the north and south ends of the building, along with single entrance doors. An earthen berm of approximately eight to ten feet encircles the building for protection from an explosion. The building is used by the park for maintenance purposes.

Evaluation: Contributing

The Nike NY-49 warhead assembly building, constructed in ca. 1953-55, contributes to the historic character of the fortification area landscape. There have been no major changes since the end of the historic period in 1967, although deterioration and overgrown vegetation have altered the building's historic character.

B-309 (LCS 041320) Nike NY-49 Launch Pad Sentry Booth (fig. 3.19) <u>Historic Condition:</u> The sentry booth at the Nike launch pad (exclusion area) was built in c. 1953-55 at the entrance to the launch pad and Nike missile silos along the access road.

<u>Post-Historic and Existing Conditions:</u> The sentry booth is a one-story woodframe building with a north-facing shed roof. Metal double hung windows are located on three sides of the building. The building is abandoned and enveloped by vegetation.

Evaluation: Contributing

The Nike NY-49 launch pad sentry booth, constructed in ca. 1953-55, contributes to the historic character of the fortification area landscape. There have been no major changes since the end of the historic period in 1967, although deterioration and overgrown vegetation detract from the building's historic character.

B-310 (LCS 041001), 311 (LCS 041002), 312 (LCS 041003), & 313 (LCS 041004). Nike NY-49 Missile Silos-Launch Pads (fig. 3.20)

<u>Historic Condition</u>: The four missile silos and launch pads for Nike site NY-49 were constructed in 1953-55 for Nike-Ajax missiles, together forming the launch site (exclusion area) at the southeast corner of the fortification area. The four silos were basically identical, consisting of concrete beam and slab structures, fifteen feet deep and covered with four feet of earth. At ground level, there were double folding steel doors through which the missiles were brought to the surface on elevators. In 1959, the silos were modified for Nike-Hercules missiles. The Nike installation was decommissioned in c.1967, at which time the missiles were removed, but the above-ground structures and subsurface silos were left intact.

<u>Post-Historic and Existing Conditions:</u> The Nike missile launch pad today consists of a two-acre, raised earth platform, with cyclone fencing and spotlights around the perimeter. The pad consists of two parallel, 50' long by 250' wide concrete slabs, each with two below-ground silos. The silos are covered with 50' long by 15' wide double folding steel doors. Most of the above-ground launchers and related structures were removed after 1967, although remnant steel hatches, hood vents and other miscellaneous plumbing and utilities remain. Only one of the silos remains intact; the others have been filled in. Much of the concrete pad has become overgrown with vegetation.

Evaluation: Contributing

The Nike NY-49 launch pads and silos, constructed in ca. 1953-55, contribute to the historic character of the fortification area landscape. Since 1967, the feature has undergone several substantial changes, notably removal of the above-ground launchers. This, together with deterioration and overgrown vegetation, detract from the historic character of the landscape.

B-315 (LCS 008383). Battery Construction 220 (fig. 3.21)

<u>Historic Condition:</u> Battery Construction 220 was built in 1940-1942 to replace Battery Ferguson (East Battery), a 6-inch gun battery constructed to the east in 1917. Battery Construction 220 was located about 1,500 feet west of Battery Ferguson along Shore Road. Similar in design to the updated Battery Kessler, Battery Construction 220 had a larger earth covered concrete bunker that included two powder and shell magazines, two air compressor rooms, a plotting room, radio and fire control switchboard room, air conditioning plant, power generator room, CWS gas proofing equipment, and air locks. Access to the interior of the magazine was gained through a set of double steel doors that lead into a corridor running the length of the structure. Atop the southern edge of the bunker was a splinter-proof battery commander's station. Flanking the bunker were two gun emplacements consisting of M1903A2 six-inch guns mounted on MI type barbette carriages. The battery was never named, possibly because it was never considered complete.

<u>Post-Historic and Existing Conditions:</u> Battery Construction 220 is a one-story, earth-covered bunker with a rectangular commanders station located atop the bunker complex. The bunker complex is no longer accessible due to sand blocking the corridor entrances. The commander station, which is visible from Shore Road, has a flat top roof with an open hatchway in the northwest corner. A slit sighting window runs the length of the south side of the station. The two sixinch guns were removed after World War II and the 25' diameter platforms remain, but are covered by sand. The structure is abandoned. <u>Evaluation:</u> Contributing

Battery Construction 220, built in 1940-1942, contributes to the historic character of the fortification area landscape. There have been no major changes to the structure since the end of the historic period in 1967. However, sand deposition and overgrown vegetation detract from its historic character.

B-321 (LCS 008384). Battery Kessler (fig. 3.22)

<u>Historic Condition</u>: Originally known as West Battery, Battery Kessler was initially built in 1917 as a component of the first coastal gun emplacements at Fort Tilden. The battery was built approximately 800 feet from the fort's western boundary and 300 feet from the oceanfront. It contained two M1900 six-inch guns on M1900 barbette carriages, a magazine, and a Coincidence Rangefinder (CRF) station, all constructed without overhead cover. Although as early as the 1920s plans had been developed to improve the battery, actual construction was deferred until 1940 under the Army's nation-wide building and modernization program. At this time, the two six-inch gun emplacements were to remain in the open, while an earth-covered bombproof concrete bunker was located between the two guns to house the ancillary components including two shell and powder store rooms and general store rooms. A corridor ran the length of the structure connecting the magazine to the two gun platforms. The fire control and target plotting room (Building 322) was located in a splinter proof concrete structure built directly north of the emplacement.

<u>Post-Historic and Existing Conditions:</u> Battery Kessler is a one-story, earthcovered concrete bunker measuring 78' long by 30' wide. At the north end of the structure is a corridor that runs the full length of the building with two entrances gated by a set of steel double doors and a vent structure in the middle. The two six-inch guns were removed in c. 1948 and the two platforms flanking the bunker are most likely buried under sand. The structure is abandoned.

Evaluation: Contributing

Battery Kessler, built in 1917 and modified in 1940, contributes to the historic character of the fortification area landscape. For the most part, the structure

remains intact, however structural deterioration, sand deposition, vandalism, and overgrown vegetation have diminished its historic character.

B-322 (LCS 008385) Battery Kessler Oil Storage Shed (no photo available) <u>Historic Condition:</u> Building B-322 (227) was built in ca. 1940 as an oil storage and support facility for Battery Kessler.

<u>Post-Historic and Existing Conditions:</u> The oil storage shed is a one-story concrete block building measuring 12' long by 18' wide. There are two windows, one each on the south and east walls, with a single door on the west wall. The building is abandoned. It is identified as "Storage Shed 322" in the LCS. Evaluation: Contributing

Building 323, built c. 1940, contributes to the historic character of the fortification area landscape. There appear to have been no major changes to the features since the end of the historic period in 1967, although overgrown vegetation and deterioration have altered its historic character.

B-323. Telephone Pit (fig. 3.23)

<u>Historic Condition</u>: The above-ground structure currently identified as Building 323 was constructed in c.1942 in conjunction with the casemating of Battery Kessler, and may have been built on the site of the earlier structure F-25. The structure probably housed a telephone switchboard.

<u>Post-Historic and Existing Conditions:</u> Building 323 is a small rectangular onestory building with a concrete slab hip roof. The building is located west of Battery Kessler along Shore Road, adjoining a battery control station for Battery Kessler (B-324).

Evaluation: Contributing

Building 323, built c. 1942, contributes to the historic character of the fortification area landscape. There appear to have been no major changes to the features since the end of the historic period in 1967, although overgrown vegetation and drifting sand have altered its historic character.

B-324 Battery Kessler Battery Control Station (no photo available)

<u>Historic Condition</u>: This building was constructed in c. 1940 west of Battery Kessler as a fire control and target plotting room for Battery Kessler, and may have incorporated part of the earlier CRF station/plotting room (F-24) built in ca. 1917. The reinforced concrete structure may have had a rounded front sighting room and was camouflaged by an earthen mound. The historic designation of the station is not known, but may have been BI Kessler.

<u>Post-Historic and Existing Conditions:</u> The battery control station was abandoned after World War II and is today entirely concealed by drifting sand. No built portions of the structure are visible.

Evaluation: Contributing

The Battery Kessler battery control station, built c. 1940, contributes to the historic character of the fortification area landscape. There have been no major changes since the end of the historic period in 1967. However, blowing sand and overgrown vegetation have concealed its historic character.

B-401 (LCS 008387), 405 (LCS 008391), 409 (LCS 008392), 414 (LCS 008393). Battery Harris Magazines (fig. 3.24)

Historic Condition: In conjunction with the construction of Battery Harris in 1921-1924, three ammunition magazines were built beginning in 1922. Initially designed to hold a limited quantity of powder or shell, the three magazines were enlarged in 1931-1932 and a fourth magazine (Building 401) was constructed later between 1931 and 1935. The magazines were located approximately 900 feet apart along the standard gauge rail line with narrow gauge rail spurs running through the center of each magazine to facilitate the transportation of munitions. Post-Historic and Existing Conditions: The four magazines are basically identical, consisting of a rectangular, single-story structure with a low gable gypsum panel roof. The exterior walls are of steel frame and concrete construction with terra cotta tile block infill. Within the magazines, there are concrete raised decks on either side of the building used for either powder or shell storage. Narrow gauge rail spurs run through the center of the buildings with rolling lift steel doors located at either end. Each magazine also has a steel plate door in one gable end that is accessible by a flight of concrete steps. The magazines are currently abandoned and deteriorating; the roof deck of Building 401 has partially collapsed.

Evaluation: Contributing

The Battery Harris magazines, built from 1922-23 and modified in 1931-32, with the fourth magazine constructed between 1931 and 1935, contribute to the historic character of the fortification area landscape. For the most part, the buildings remain intact since the end of the historic period in 1967. However deterioration, vandalism, and encroaching vegetation have altered their historic character. The magazines nonetheless remain a significant feature of the military landscape and convey important aspects about the operation of the seacoast batteries.

B-402 (LCS 008388). AA Battery #3 Support Building (fig. 3.25)

<u>Historic Condition</u>: This building was constructed in c. 1940 to house tools for cleaning and preserving equipment for Anti-Aircraft Battery #3.⁹ The freestanding building was built along the south side of Marshall Road between East Road and Center Road, one hundred yards from the guns. <u>Post-Historic and Existing Conditions</u>: The support building is a one-story reinforced concrete structure measuring 12' long by 14' wide with 6' wide double doors. The building is abandoned and is covered by vegetation. It is identified as "Storage Shed 402" in the LCS.

Evaluation: Contributing

The AA Battery #3 support building, built in c. 1940, contributes to the historic character of the fortification area landscape. Although the structure has not been altered, its historic character has been diminished by deterioration, vandalism, and overgrown vegetation.

B-403 (LCS 008389) & B-404 (LCS 008390). Igloo Magazines (fig. 3.26) <u>Historic Condition:</u> The two igloo magazines were built in c. 1943 along the northern portion of Center Road. The magazines were probably designed to store ammunition for the three-inch anti-aircraft batteries located nearby. <u>Post-Historic and Existing Conditions:</u> The two igloo magazines are basically identical. The partially sunken concrete structures have a semi-cylindrical appearance and are partially covered with earth; the recessed entrances feature concrete cheekwalls. The interior of the structures consisted of barrel-vaulted ceilings and bulkhead entryways with metal-banded wood doors. Evaluation: Contributing

The igloo magazines, built c. 1943, contribute to the historic character of the fortification area landscape. Although the structures have not been altered, their historic character has been negatively impacted by deterioration, vandalism, and overgrown vegetation.

B-406 (LCS 008395) & B-410 (LCS 008394). Battery Harris (Battery Harris East and Battery Harris West) (fig. 3.27)

Historic Condition: Originally constructed between 1921 and 1924, the twin emplacements of Battery Harris consisted of two M1919 sixteen-inch guns mounted on M1919M2 barbette carriages located approximately 850 feet apart. The batteries were constructed on circular concrete platforms without any overhead structures. Between 1941 and 1943, Battery Harris was covered by reinforced earth-covered casemates that employed a standardized design used across the country. The two casemates were roughly rectangular, single-story concrete structures constructed in a dome fashion and covered with sand and earth to resemble native dunes. Each casemate was laid out with two central corridors leading to six rooms that included two powder rooms, two shell rooms, one tool room, and a latrine. A set of double steel grill gates was installed at all four corridor entrances. A narrow gauge rail line ran through the east-west corridor to facilitate the handling of ammunitions. The 16-inch gun was positioned at the southern end of the north-south corridor with a circular concrete hood, which projected over the gun to protect it from direct hits. Under the concrete overhang were iron tracks and pulleys that supported a metal chain mail-like cover that camouflaged the exposed gun barrel.

<u>Post-Historic and Existing Conditions:</u> The two matching casemates of Battery Harris East and West are each approximately three hundred feet long by fifty feet tall. The chain mail mesh camouflage was removed shortly after World War II, and the battery was disarmed by 1949. The steel grill gates remain at the four entrances to each casemate. Both Battery Harris casemates are currently abandoned, but the concrete structures are in relatively good condition. Evaluation: Contributing

Battery Harris, built in 1921-24, casemated in 1941-1943, and disarmed in ca. 1949, contribute to the historic character of the fortification area landscape. There have been no major changes to the structures since 1967, although erosion of the earth cover and overgrown vegetation have altered their historic character. Battery Harris is the largest and most prominent fortification at Fort Tilden.

B-407 (LCS 008396). See A-2, SSF-9.

B-408 (LCS 008397). Battery Harris Power Plant Three (fig. 3.28) <u>Historic Condition:</u> Power plant three was built in 1922-1923 as a reserve plant to the other two power plants (#1 & #2) for Battery Harris. The power plant was situated between the other two power plants approximately 250 feet north of Battery Harris. The reserve power plant was of the same overall dimensions and layout as Power Plants One and Two, but a 25 KW gasoline generator was substituted for the air compressor and bottles. In 1937, a radiator was installed by the Army for cooling water in the circulating system of the 90 K.W. diesel engine generator.

<u>Post-Historic and Existing Conditions:</u> Power plant three is a one-story freestanding building with projecting bays. The interior walls are constructed of a steel frame system with hollow tiles, and the exterior is finished in concrete. The low-pitched gable roof is concrete. There is fuel tank identical to those of two similar power plants, (Buildings 407, 412) which were demolished in c. 1984. <u>Evaluation:</u> Contributing

Power plant three, built in 1922-1923 and modified in 1937, contributes to the historic character of the fortification area landscape. Although the building has not been altered, its historic character has diminished by deterioration, vandalism, and overgrown vegetation. It is the only remaining power plant at Fort Tilden.

B-409: See B-401.

B-410: See B-406.

B-411 (LCS 023523). Battery Harris Bombproof Magazine (no photo available) <u>Historic Condition:</u> The bombproof magazine was built in 1942-1943 as part of the casemating of Battery Harris, and was located to the north of the west casemate and south of Power Plant One (Building 412). The magazine, a reinforced concrete structure with earthen cover, housed additional ammunition rounds for Battery Harris. A narrow gauge rail spur was constructed to service the bombproof magazine and connected back to the existing standard gauge rail line system.

<u>Post-Historic and Existing Conditions:</u> The exterior of the earth-covered bombproof magazine has an east and west entrance with sloping concrete wing walls and steel doors. The interior has one central hall with the narrow gauge rail lines flanked by concrete docks for shell storage. The docks are approximately four feet above the tracks and open to the hall through six archways. The bombproof magazine is abandoned.

Evaluation: Contributing

The Battery Harris bombproof magazine, built in 1942-1943, contributes to the historic character of the fortification area landscape. Although the building has not been altered, its historic character has been negatively impacted by deterioration, vandalism, and overgrown vegetation.

B-412 (LCS 023521). See A-1, SSF-8.

B-413 (LCS 008398). Battery Harris Fire Control and Plotting Room (no photograph available)

<u>Historic Condition:</u> The fire control and plotting room was built in 1923-1924 as part of the Battery Harris complex. The building was sited about 600 yards northwest of Battery Harris West. The building was a "Type A" Protected Plotting and Switchboard Room constructed of reinforced concrete with three interior rooms. The bombproof building was covered with earth for camouflage. In 1943, the Army added a fourth room to the building to house Battery Harris's new gun data computer. The new room and corridor were treated in a similar manner to that of the older part of the fire control and plotting room. The original designation of the station is not known, but may have been BI Harris or BC Harris.

<u>Post-Historic and Existing Conditions:</u> The fire control and plotting room is a one-story earth-covered reinforced concrete building with three internal rooms. There is a single entrance on the north side with concrete wing walls. Two steel doors block the entrance to the building. The building is abandoned. <u>Evaluation:</u> Contributing

The Battery Harris fire control and plotting room, built in 1923-1924 and modified in 1943, contributes to the historic character of the fortification area landscape. Although the structure has not been altered, its historic character has been negatively impacted by deterioration, erosion of its earthen cover, and overgrown vegetation.

B-414: See B-401.

B-5II (LCS 008408). Mine Casemate and Plotting Room (fig. 3.29) <u>Historic Condition:</u> The mine casemate and plotting room was constructed from 1942-1943 as one of the three mining casemates that controlled the submarine mine fields in lower New York Harbor during World War II. The Fort Tilden mine casemate served as a command post of the Fort Tilden branch of the submarine defenses. The structure was located within the northwest corner of the fortification area at the northern end of West Road. The bombproof building had two operating rooms, a radio room, latrines, a fan room, a CWS equipment room and a boiler room; all opening onto a central corridor. An airlock compartment served the two entrances to the structure.

<u>Post-Historic and Existing Conditions:</u> The mine casemate and plotting room is a one-story rectangular earth-covered concrete bunker with a set of wing walls that frame the two gated entrances on the north side. There are four concrete vents protruding from the top of the roof. The structure is abandoned. <u>Evaluation:</u> Contributing

The mine casemate and plotting room, built in 1942-1943, contributes to the historic character of the fortification area landscape. Although the structure has not been altered aside from removal of equipment, its historic character has been negatively impacted by structural deterioration and overgrown vegetation.

B-526. Nike NY-49 HIPAR Building (fig. 3.30)

<u>Historic Condition</u>: The HIPAR (High-Power Acquisition Radar) building was constructed in c. 1962 as a component of Nike NY-49 missile Tracking Station 2. The building housed the electronic equipment necessary to operate and maintain the HIPAR radar, located nearby.

<u>Post-Historic and Existing Conditions:</u> The HIPAR building is a one-story concrete-block structure with a low-pitched shed roof. Two vents and a small rectangular element protrude from the roof. There is a single door opening on both the east and south sides of the building, while three openings for a larger overhead door, window and single door are on the west side of the building. The associated radar pedestal was removed after 1967.

Evaluation: Contributing

The Nike NY-49 HIPAR building contributes to the historic character of the fortification area landscape. The building has not been substantially altered since the end of the historic period in 1967; however, encroaching vegetation, deterioration, loss of the adjoining Nike radar facilities, and addition of the Fisherman Parking Lot have significant diminished its historic character.

B-600. Groin Field (fig. 3.13)

<u>Historic Condition</u>: Initial development of Fort Tilden in 1916 most likely included stabilization of the shifting beachfront with wood groins. In 1920, the groins were strengthened at a cost of \$5,644. The stone groins may have been added to reinforce the timber groins following the hurricane of 1938.¹⁰ <u>Post-Historic and Existing Conditions</u>: The stone groins, each approximately one hundred feet long, remain intact. The intervening wood groins (bulkheads) have deteriorated and only remnants remain. Along the fortification area, there are nine stone groins and an undetermined number of remnant wood groins. <u>Evaluation</u>: Contributing

The groin field along the ocean beachfront of Fort Tilden, constructed in ca. 1917 and reinforced with rubble stone groins in ca. 1938, contributes to the historic character of the fortification area landscape. The loss of the wood groin field between the stone groins detracts from the historic character of the landscape; some remnants of the wood system remain.

Views and Vistas

Historic Condition: During the World War I era (1916–1937), the open spatial character of Fort Tilden, with its grassy barrier beach environment, permitted panoramic views to the Atlantic Ocean and New York Harbor, as well as north to the Rockaway Inlet. With the construction of elevated earthen structures at Battery Harris, Battery Kessler, Battery Construction 220, and numerous other fortifications, the Army had multiple elevated views of the landscape and ocean horizon. Although the Army planted Jack pines and other trees in the fortification area, these were planted outside of the lines of fire from the batteries and strategic sight lines from battery control stations. During the Cold War, sight lines were maintained between the Nike NY-49 launch site and the two tracking stations (control areas), as part of the system used to align the radar units. Post-Historic and Existing Conditions: Successional woods cover approximately ninety percent of the fortification area, blocking once panoramic views needed for strategic purposes. Interior views between the fortifications along the road and rail corridors have also been eliminated. Views of the ocean from the Battery Harris casemates, as well as from Battery Construction 220 (see fig. 3.13), Battery Kessler, and the HECP (Building 13) do remain in part. The views between the Nike launch and control sites were lost with demolition of the control sites and growth of successional woods.

<u>Evaluation</u>: The current views and vistas, while extensively reduced from their extent during the historic period (1916-1967), do survive in part and are defining characteristics of the landscape. These views convey the strategic design of the landscape and its fortifications. Because the reduction in views is a result of successional vegetation, the existing condition is potentially reversible.

No associated features

Small-Scale Features

<u>Historic Condition</u>: During the historic period, there was a variety of small-scale features that supported the military use of the fortification area, although no accurate record of these has been documented. Up through World War II, these included perimeter security fences and gates, fire hydrants, manhole covers, and signs, along with moveable vehicles and equipment. During the Cold War, a variety of small-scale features was added to the landscape, primarily new fences and utility light poles around the Nike launch site and two tracking stations. <u>Post-Historic and Existing Conditions</u>: Since 1974, NPS has added some small-scale features, such as trash receptacles, benches, and signs, and has removed some of the fencing..

<u>Evaluation</u>: Aside from chain-link fencing, iron man-hole covers, and possibly a fire hydrant, there are no known surviving small-scale features in the fortification area from the historic period (1916-1967). Most of the small-scale features date from the Cold War era. The small-scale features added by NPS are generally inconspicuous and do not detract from the historic character of the landscape.

Small-Scale Features

SSF-1. Perimeter Fencing (fig. 3.31)

<u>Historic Condition:</u> Perimeter fencing was probably installed when Fort Tilden was established in 1917, but it is first depicted on a 1942 map, protecting the fortification area from curious visitors and providing additional security during a time of war. This was chain-link fencing. Additional fencing was added to the fortification area when the Nike missile system was developed during the Cold War era (1945-1974). The fencing was built around the Nike missile launch pad and two tracking stations, mostly on a concrete curb. The fencing also continued westward along Range Road and southward along Hero Road from the Nike missile launch pad. The 7' tall chain-link fencing is found throughout the fortification area.

<u>Post-Historic and Existing Conditions:</u> Fencing has been removed from the Nike missile tracking station #1 and portions from Nike missile tracking station #2. Typically, the earlier (pre-1945) fencing has more substantial poles with finials. <u>Evaluation:</u> Contributing/Non-Contributing

The perimeter security fencing along the boundary of Fort Tilden along the public roads, and around the Nike launch area, constructed between 1917 and 1955, contributes to the historic character of the fortification area landscape. These fences convey the former secured and enclosed military character of Fort Tilden. Overgrown vegetation and deterioration have diminished the historic character of the fences.

SSF-2. Manhole Covers (fig. 3.32)

<u>Historic Condition</u>: At an undetermined date prior to 1945, iron manhole covers were installed in the fortification area as part of a system of underground communication cables in concrete vaults that linked the defensive works. <u>Post-Historic and Existing Conditions</u>: The existing manhole covers along the line are cast iron with a raised rim and cover that reads: "Stonal (?) Corps U.S.A. MO-85." Although there are likely many in the fortification area, most are concealed by vegetation. Only one was documented for this report (north of Battery Harris magazine, Building 409).

Evaluation: Contributing

The iron manhole covers in the fortification area are an important part of the military communications system that was developed through World War II. Although they are not conspicuous, they contribute to the historic character of the fortification area landscape. Further research is needed to document the entire system.

SSF-3. Fire Hydrants (no photo available)

<u>Historic Condition</u>: The earliest fire hydrants found at Fort Tilden were installed during the World War I era (1916-1937) to service Battery Harris, the Motor Pool building, and the barracks complexes on Shore Road and Marshall Road. The system was probably improved during the World War II era (1937-1945). No known improvements were made to the water service in the fortification area after World War II.

<u>Post-Historic and Existing Conditions:</u> The existing water system, consisting of a central main running roughly parallel to Range Road, with branch lines extending north to the site of the Motor Pool (Building 503), Mining Casemate and Plotting Room (Building 511), and site of the Marshall Road barracks; and south to the site of the Shore Road barracks. Seven fire hydrants are located along these lines, but it is not known how old these are.¹¹ There is a fire hydrant visible near Battery Harris along Range Road.

Evaluation: Unevaluated.

Further research is needed to determine the origin of the hydrants within the fortification area. The hydrants are not a conspicuous part of the landscape.

SSF-4. Nike NY-49 Security Light Poles (fig. 3.33)

<u>Historic Condition</u>: Light poles were constructed in c. 1955 as components of the Nike missile launch pad; one exists along the east side of the launch pad. Approximately eight lights on wooden poles were placed at the perimeter of the launch pad; it is not known how many survive.

<u>Post-Historic and Existing Conditions:</u> The light poles consist of a single luminary supported by a single wooden square pole attached by an L-shaped metal bracket. The security lights are approximately ten to fifteen feet in height, but are barely visible due to encroaching vegetation.

Evaluation: Contributing

The security light poles at the Nike NY-49 missile launch area contribute to the historic character of the fortification area landscape. Deterioration and encroaching vegetation have altered their historic character.

SSF-5. Telephone Poles (see fig. 3.3)

<u>Historic Condition</u>: Wood telephone poles were installed in c. 1955 to provided communication between the Nike missile launch pad and the two tracking stations.

<u>Post-Historic and Existing Conditions</u>: A single telephone pole remains within the launch pad adjacent to the maintenance building (B-302), and a line of poles are located along the northern portion of West Road at the site of Tracking Station I. The wooden poles are approximately thirty feet tall, some still with cables.

Evaluation: Contributing

The wood telephone poles between the Nike launch and control sites contribute to the historic character of the fortification area landscape. Deterioration, loss of cables, and encroaching vegetation have altered their historic character.

SSF-6. NPS Trash Receptacles. (not shown on Drawing 3.2)

<u>Historic Condition</u>: The existing trash receptacles did not exist during the historic period.

<u>Post-Historic and Existing Conditions:</u> Outdoors trash receptacles of various sizes have been placed along Range Road and Shore Road by NPS <u>Evaluation:</u> Non-contributing

SSF-7. NPS Signs (not shown on Drawing 3.2)

<u>Historic Condition:</u> NPS signs did not exist during the historic period. <u>Post-Historic and Existing Conditions:</u> Standard NPS metal signs consisting of white lettering on a brown field were installed at Fort Tilden during the 1980s. Within the fortification area, there are small signs identifying Battery Harris, and others at the Fisherman Parking Lot. They are inconspicuous and do not detract from the historic character of the landscape. Evaluation: Non-contributing.

SSF-8 (LCS 023521). Power Plant #1 Fuel Tank (See also A-1) (No photo available)

<u>Historic Condition:</u> Power Plant #1 was constructed in 1922-1923 to provide power to the sixteen-inch gun emplacement of Battery Harris West. The power plant was located approximately 500 feet north of Battery Harris West along a spur of the standard gauge rail line that was removed in c.1940. The power plant included a partially submerged fuel tank.

<u>Post-Historic and Existing Conditions:</u> NPS demolished the power plant between 1981 and 1986. The fuel tank, which measures 30' long by 15' wide and at least 6' deep, is the only remaining component of power plant #1. Only 18" of the fuel tank is exposed above grade. A hatchway is located in the top near the north end with pipes vent to either side.

Evaluation: Contributing

The fuel tank from power plant #1, constructed in c. 1922-23, contributes to the historic character of the fortification area landscape. The fuel tank is a remnant of the extensive secondary defensive works related to Battery Harris.

SSF-9 (LCS 008396). Power Plant #2 Fuel Tank (See also A-2) (no photo available)

<u>Historic Condition</u>: Power Plant #2 was constructed in 1922-1923 to provide power to the sixteen-inch gun emplacement at Battery Harris East. The power plant was located approximately 500 feet north of Battery Harris East along a spur of the standard gauge rail line that was removed in c.1940.

<u>Post-Historic and Existing Conditions:</u> Between 1981 and 1986, NPS removed the power plant. The fuel tank is the only remaining trace of the building. The tank measures 30' long by 15' wide and at least 6' deep, with only 18" of its depth exposed above the surface.

Evaluation: Contributing

The fuel tank from power plant #2, constructed in c. 1922-23, contributes to the historic character of the fortification area landscape. The fuel tank is a remnant of the extensive secondary defensive works related to Battery Harris.

Archeological Sites

To date, a comprehensive archeological survey has not been undertaken to locate and evaluate archeological resources within the post. There are numerous sites of buildings and structures related to the military use of the property between c.1916 and 1974, but there is a low probability of prehistoric archeological resources because the site was open water into the nineteenth century. However, there may have been earlier barrier islands; coring samples undertaken in 1921 near Battery Harris revealed evidence of an earlier beach, with charcoal and wood traces in sands ten feet below sea level.¹²

Evaluation of archeological resources is beyond the scope of this CLR. However, all above-ground resources dating to the historic period (1916-1967) should be

considered contributing as traces of the historic development and use of the site. The following two sections list known archeological sites with above ground resources; followed by a list of potential archeological sites (sites without aboveground resources).

Archeological Sites (aboveground remains)

A-1. Site of Battery Harris Power Plant #1 (Building 412) See also SSF-8. Power Plant One was constructed in 1922-1923 to provide power to the sixteeninch gun emplacement of Battery Harris West. The power plant was located approximately 500 feet north of Battery Harris West along a spur of the standard gauge rail line that was removed in c.1940. Bottles of compressed air were transported to the 16-inch gun on the railway. Constructed of reinforced concrete, the power plant was 39' long by 20' wide and had a ramp leading up to its 6' wide double doors that opened to the generator room. A rolling steel overhead door also provided access to the structure. Within the power plant were a 90 KW Diesel engine generator and a 3,000-pound air compressor. At the rear of the building were three rooms: a heater room, pump room and a latrine. NPS demolished the power plant between 1981-1986; only the fuel tank (SSF-8) remains.

A-2. Site of Battery Harris Power Plant #2 (Building 407) See also SSF-9. Power Plant Two was constructed in 1922-1923 to provide power to the sixteeninch gun emplacement at Battery Harris East. The power plant was located approximately 500 feet north of Battery Harris East along a spur of the standard gauge rail line that was removed in c.1940. Construction and layout of the power plant was identical to that of Power Plant One (see B-412). Between 1981 and 1986, NPS removed the power plant. The fuel tank (SSF-9) is the only remaining trace of the building.

A-3. Site of Motor Pool Building (B-503)

The motor pool building was initially constructed in c. 1920 and was used as a generator house for the adjacent balloon hangar during World War I. The building continued to be used as a gas generator house throughout World War II to service nearby anti-aircraft batteries. By 1961, the building was used as a motor pool, which housed the motorized vehicles used throughout the military installation. The building was removed by 1984, however the concrete slab foundation remains.

A-4. Foundation of Nike NY-49 Dog Kennel (B-308)

The dog kennel building was built in c. 1953-55 as a component of the Nike NY-49 missile launch area at Fort Tilden. The kennel housed guard dogs that were an important part of the Nike missile's security system. The building was probably removed after 1974; the concrete foundation for the kennel is all that remains.

A-5. Nike NY-49 MSL Tracking Radar Station (B-509)

This building was constructed in c.1953-55 as part of Nike missile tracking station I. The building was demolished after 1974 along all others in the complex, but the foundation remains.

Potential Archeological Sites (No aboveground remains)

- I. Site of Rifle Range (firing line, target butts, & tool shed T-228)
- 2. Site of Pistol Range
- 3. Site of Miniature AA Range (T-230)
- 4. Site of Infiltration Range
- 5. Site of Marshall Road Barracks Complex (T-201-209)
- 6. Site of Shore Road Barracks Complex (T-221-225)
- 7. Site of Range Road Barracks (T-210)
- 8. Site of Building T-226 (at Gate 7)
- 9. Site of Fortification F-4 (Marshall Road)
- 10. Site of AA Battery #5 F-5 (Marshall Road)
- 11. Site of Fortification F-5A (Marshall Road
- 12. Site of Fortification F-11 (Motor Pool Service Drive)
- 13. Site of Fortification F-26 (Shore Road)
- 14. Site of Signal Tower HECP No. 2 (Hero Road)
- 15. Site of Shore Road Generator Complex (22, T-197, T-198)
- 16. Site of Nike missile tracking station I (Buildings 505-510, 523, 528)
- 17. Site of Nike missile tracking station 2 (Buildings 515-522, 525-527)
- 18. Site of RF Test Mast (Building 504)
- 19. Site of post dump (south of Battery Harris West)

TABLE 3.2. FORT TILDEN.	FORTIFICATION AREA LANDSCAPE FEATURES
	I ORTHINGATION AREA EARDSCALE I EARORES

Key: CON= Contributing, NC= Non-Contributing, U= Unevaluated C= Constructed, A= Altered, R= Removed, NA= Not Applicable

Characteristic	Feature CLR# / Evaluation	Feature Name, Building #, LCS ID (if documented)	Dates
Circulation			
	C-i/ CON	Range Road	C/c. 1940
	C-2/CON	East Road	C/c. 1940, A/pre-1961
	C-3/CON	West Road	C/c. 1940, A/post-1984
	C-4/CON	Marshall Road	C/c. 1940
	C-5/CON	Center Road	C/c. 1940
	C-6/CON	Power Plant Three Service Drive	C/c. 1940, A/ post-1984
	C-7/CON	Motor Pool Service Drive	C/c. 1940
	C-8/CON	Shore Road	C/c. 1940
	C-9/CON	Standard Gauge Rail lines	C/c. 1917, A/pre-1961
	C-10/NC	Fisherman Parking Lot	C/c. 1985
	C-II/ NC	Fort Tilden Nature Trail	C/c. 1980s
	C-12/ NC	Battery Harris Observation Stairway and Platform	C/1999
Vegetation			
	VG-I/CON	Beach Grasses	C/c. 1917, 1925-1926+
	VG-2/CON	Evergreen Plantings	C/c. 1937-1945
	VG-3/NC	Successional Woods	C/c. post-1961
Buildings and Struct	B-6/NC	NIDE Comfort Station	C/a mean $a = 0$
		NPS Comfort Station	C/c. post-1985
	B-13/CON	Harbor Entrance Command Post (Groupment Command Center) #13, LCS 023514	C/c.1943-44
	B-14/CON	Utility Building	C/c.1940
	B-301/CON	Nike NY-49 Sentry Booth #301	C/c. 1953-55
	B-302/CON	Nike NY-49 Missile Assembly Building #302	C/c. 1953-55
	B-304/CON	Nike NY-49 Generator Building #304	C/c. 1953-55
	B-305/CON	Nike NY-49 Ready Room #305	C/c.1953-55
	B-307/CON	Nike NY-49 Warhead Assembly Building #307	C/c. 1953-55
	B-309/CON	Nike NY-49 Launch Pad Sentry Booth #309, LCS 041320	C/c. 1953-55

Key: CON= Contributing, NC= Non-Contributing, U= Unevaluated C= Constructed, A= Altered, R= Removed, NA= Not Applicable				
Characteristic	Feature CLR# / Evaluation	Feature Name, Building #, LCS ID (if documented)	Dates	
	B-310, 311, 312, 313/CON	Nike NY-49 Missile Silos-Launch Pads, #310, LCS 041001; #311, LCS 041002; #312, LCS 041003; #313, 041004	C/c. 1953-55, A/c. 1960 post-1977	
	B-315/CON	Battery Construction 220 #315, LCS 008383	C/c. 1940-42	
	B-321/CON	Battery Kessler #321, LCS 008384	C/c. 1917, A/c. 1940	
	B-322/CON	Battery Kessler Oil Storage Shed #322, LCS 008385	C/c. 1940	
	B-323/CON	Telephone Pit	C/c. 1942	
	B-324/CON	Battery Kessler Battery Control Station	C/c.1940	
	B-401, 405, 409, 414/CON	Battery Harris Magazines #401, LCS 008387; #405, LCS 008391; #409, LCS 008392; #414, (LCS 008393.	C/c. 1921-24, A/c. 1931 32	
	B-402/CON	AA Battery #3 Support Building (Storage Shed 402) #402, LCS 008388	C/c. 1940	
	B-403, 404/CON	Igloo Magazines #403, LCS 008389; 404, LCS008390	C/c. 1943	
	B-406, 410/CON	Battery Harris (East and West) #406, LCS 008395; #410, LCS 008394	C/1922, 1941-43	
	B-408/CON	Battery Harris Power Plant Three #408, LCS 008397	C/c. 1922-23, A/c. 1937	
	B-411/CON	Battery Harris Bombproof Magazine #411, LCS 023523	C/c. 1942-43	
	B-413/CON	Battery Harris Fire Control and Plotting Room #413, LCS 008398	C/c. 1923-24, A/c. 1943	
	B-511/CON	Mine Casemate and Plotting Room #511, LCS 008408	C/c. 1942-43	
	B-526/CON	Nike NY-49 HIPAR Building #526	C/c. 1962	
nall-Scale Features	B-600/CON	Groin field	C/c.1916-1938	

TABLE 3.2. FORT TILDEN, FORTIFICATION AREA LANDSCAPE FEATURES

Key: CON= Contributing, NC= Non-Contributing, U= Unevaluated C= Constructed, A= Altered, R= Removed, NA= Not Applicable

Characteristic	Feature CLR# / Evaluation	Feature Name, Building #, LCS ID (if documented)	Dates
	SSF-2/CON	Manhole covers	C/c.1917-45
	SSF-3/U	Hydrants	Undetermined
	SSF-4/CON	Nike NY-49 security Light Poles	C/c. 1953-55
	SSF-5/CON	Telephone Poles	C/c. 1955
	SSF-6/NC	Trash Receptacles	C/post 1974
	SSF-7/NC	Park Signage	C/c. 1980s
	SSF-8 (B-412)/C	Power Plant #1 tank, LCS 023521	C/c.1922-23
	SSF-9 (B-407)/C	Power Plant #2 tank, LCS 008396	C/c.1922-23
Archeological Sites (A	boveground remains)		
	A-I/C	Battery Harris Power Plant #1, #412	C/c. 1922-23, R/c. 1981- 86
	A-2/C	Battery Harris Power Plant #2, #407	C/c. 1922-23, R/c. 1981- 86
	A-3/C	Motor Pool, #503	C/c. 1920, R/pre-1984
	A-4/C	Nike NY-49 Dog Kennel, #308	C/c. 1953-55, R/pre- 1984
	A-5/C	Nike NY-49 MSL Tracking Radar Station, #509	C/c. 1953-55, R/pre- 1984



Figure 3.1: Range Road (C-1) looking west from Battery Harris magazine (Building 401), 2005. (SUNY ESF)



Figure 3.2. East Road (C-2) looking northward from Battery Harris magazine (Building 401), 2005. (SUNY ESF)



Figure 3.3. West Road (C-3) looking southeast toward Marshall Road showing remnant telephone poles (SSF-5) from site of Nike missile tracking station 1, 2005. (SUNY ESF)



Figure 3.4. Marshall Road (C-4) looking west from Building 402, 2005. (SUNY ESF)



Figure 3.5. Motor Pool Service Drive (C-7) looking north to former entrance gate six at Rockaway Bay Boulevard, 2005. At left is the site of the Motor Pool Building (A-3). (SUNY ESF)



Figure 3.6. Shore Road (C-8) looking west between Battery Construction 220 and Battery Kessler, 2005. (SUNY ESF)



Figure 3.7. Standard-gauge railroad (C-7), view of tracks across East Road looking east to Building 401, looking east, 2005. (SUNY ESF)



Figure 3.8. Fisherman Parking Lot (C-10) looking south with the NPS comfort station (B-12) at right, 2005. (SUNY ESF)



Figure 3.9. The Fort Tilden nature trail (C-11) looking southeast from Range Road, 2005. (SUNY ESF)



Figure 3.10. Wood stairway (C-12) leading to Battery Harris Observation Platform, looking northeast from Range Road, 2005. (SUNY ESF)



Figure 3.11. Typical beach grasses (VG-1), looking east along the Atlantic shoreline, 2005. (SUNY ESF)



Figure 3.12. World War II-era Japanese black pine (V-2) in successional woods (V-3), looking east from Battery Harris, 2004. (Pia Hermoso, GATE)



Figure 3.13. Stone groin and remnant wood groin/bulkhead (B-1) along the ocean beach of the fortification area, view from Battery Construction 220 (B-315), 2005. (SUNY ESF)



Figure 3.14. Nike launch pad sentry booth (B-301), looking west, 2005. (SUNY ESF)



Figure 3.15. Park maintenance building (B-302), former Nike missile assembly building, looking southwest, 2004. (Pia Hermoso, GATE)



Figure 3.16. Park maintenance building (B-304), former Nike generator building, looking southwest, 2004. (Pia Hermoso, GATE)

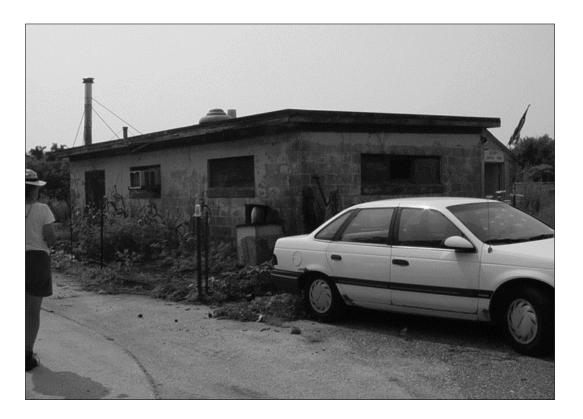


Figure 3.17. Park maintenance building (B-305), former Nike area latrine and barracks, looking southwest, 2004. (Pia Hermoso, GATE)



Figure 3.18. Park maintenance building (B-307), former Nike missile warhead assembly building, looking west, 2005. (SUNY ESF)



Figure 3.19. Nike missile sentry booth (B-309), looking northwest, 2005. (SUNY ESF)



Figure 3.20. A representative Nike missile silo and entry hatch, one of four (B-310-313), looking northwest, 2005. (SUNY ESF)



Figure 3.21. Battery Construction 220 Command Station (B-315), view northeast from Shore Road, 2005. (SUNY ESF)



Figure 3.22. Battery Kessler (B-321), view of earthen cover and west entrance looking northeast from Shore Road, 2005. (SUNY ESF)



Figure 3.23. The telephone pit (B-323), looking southwest, 2005. (SUNY ESF)



Figure 3.24. Battery Harris magazine (B-414), looking west from Range Road, 2004. Vegetation is concealing the entrance for the railway at right. The other three magazines(B-401, 405, 409) are the same design. (Pia Hermoso, GATE).



Figure 3.25. Anti-Aircraft Battery #3 support building (B-402), looking south from Marshall Road, 2005. (SUNY ESF)



Figure 3.26. Entrance to one of two Igloo Magazines (B-403), view from Center Road, 2005. (SUNY ESF)



Figure 3.27. Battery Harris East Casemate (B-406), view north from Range Road showing protruding circular concrete hood and interior steel grill gates, 2005. The gun was removed in c. 1949 during the historic period. (SUNY ESF)



Figure 3.28. Power plant #3 (B-408), looking from Center Road, c.1996. The building is today (2005) more heavily covered in vegetation. (National Park Service, List of Classified Structures)

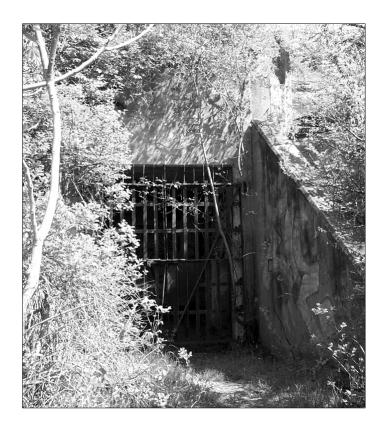


Figure 3.29. Gated entrance to earth-covered Mine Casemate and Plotting Room (B-511), 2005. (SUNY ESF)



Figure 3.30. Nike NY-49 HI PAR Building (B-526), the only remaining building in missile tracking station #2 (Fisherman Parking Lot), 2005. (SUNY ESF)



Figure 3.31. Typical chain-link fencing (SSF-1) found throughout the fortification area, view looking at portion around Nike missile launch pad installed in ca. 1955, 2005. (SUNY ESF)



Figure 3.32. Manhole cover along underground utility vault northeast of Battery Harris magazine (Building 409), 2004. (Pia Hermoso, GATE)



Figure 3.33. Typical Nike missile launch pad security light (SSF-4) showing overgrown conditions, 2005. (SUNY ESF)

POST CULTURAL LANDSCAPE EVALUATION

Natural Systems and Features

See fortification area evaluation.

Spatial Organization

Historic Condition: During the World War I era (1916-37), the post occupied a small portion of Fort Tilden along the northeastern boundary bounded by Beach 169th Street (Marginal Street) and Rockaway Beach Boulevard (State Road). Initially, most of the post was built on land belonging to the US Coast Guard Life Saving Station Rockaway Point that was soon transferred to the Army. The post was organized around a rectangular arrangement of roads, with the buildings sited in an irregular and compact manner. At the center of the post was a headquarters and Y.M.C.A. building, surrounded by warehouses, barracks, and stables. A row of Non-Commissioned Officer's quarters and associated structures stretched southward, paralleling Beach 169th Street; one NCO quarters was isolated at the northwest corner of the post, across from the wharf area. During the World War II era (1938-45), the Army redesigned and enlarged the post, resulting in complete change to its spatial organization, although it remained at the northeast corner of the fort. The redesign created zones for industrial, recreational, administrative, and residential uses. As redesigned, the post extended west to Hero Road and south to the ocean, site of the East Battery. The majority of World War I structures and landscape features were demolished to implement the new installation plan. All of the new buildings were sited close to one another and were aligned either in a north-south or east-west orientation. The central space of the redesigned post was the parade ground, constructed c. 1941, around which was organized many of the administration and recreation buildings. Administrative and medical buildings were arranged along one side of the parade ground, with the barracks, theater, recreation, Post Exchange and offices located on two other sides of the parade ground. The NCO quarters were arranged in a block within the cantonment area, while officers' housing was placed along Davis Road. Warehouses and industrial facilities were located primarily at the edge of the new installation plan, primarily within the wharf area. The consistent scale and style of the buildings created a unified ensemble that was backed by an outer ring of utilitarian structures out of view of the central parade ground.¹³ Aside from the parade ground, other spaces within the redesigned post included the cantonment-style barracks complex to the west, consisting of long, wood-frame buildings; the open drill ground to the south of the barracks complex; the tent area west of the drill ground; and the beach-front area, site of the officers' mess and bath house.

Aside from the removal of some barracks and storage buildings, and replacement of the tent area with a trailer park, the Army did not make any substantial changes to the spatial organization of the post during the Cold War (1945-67). <u>Post Historic and Existing Conditions:</u> Following the decommissioning and transfer of Fort Tilden to NPS in 1974, the spatial organization of the post was altered considerably through extensive building demolition. The barracks complex, including buildings and roads, was completely removed, and approximately half of the buildings surrounding the parade ground were removed.

<u>Evaluation</u>: The landscape of the post today has a far more open spatial character than it did at the end of the historic period in 1967, and the parade ground lacks the enclosure it once had. Several new spaces have been introduced, including a community garden and a horse corral. In addition, successional woody vegetation has enclosed the once-open southwest and southeast corners of the post.

Spatial Organization Features

Parade ground (Figure 3.34, 3.35)

Drill Ground (large ball field)

NYPD horse corral

Community gardens

Rockaway Little League Baseball Diamonds (former barracks area) (Figure 3.36) Beachfront area (Figure 3.37)

Circulation

Historic Condition: During the World War I era (1916-37), the main public road providing vehicular access from the Long Island mainland and Far Rockaway to the east was Washington Street (roughly following today's alignment of the boardwalk at Jacob Riis Park), which terminated at the south end of Beach 169th Street (originally known as Marginal Street). Rockaway Beach Boulevard, probably just a public right-of-way when Fort Tilden was established, defined the northern edge of the fort and terminated at Beach 169th Street. Access into the post was through two gated entrances along Beach 169th Street. Within the post was a rectangular road circuit, with a southern extension paralleling Beach 169th Street that provided access to a row of nine officer's quarters; there were no interior roads connecting to the wharf area or the post. No documentation has been found on the construction of these initial roads in the post. The primary transportation from the post and wharf to the fortification area was a standardgauge rail system, which originally extended due south from the wharf area along the west side of the post to East Battery. During the construction of Battery Harris in the early 1920s, the rail lines were rerouted through the middle of the

fortification area to serve Battery Harris and the supporting magazines and power plants.

During the World War II era (1937–45), the circulation pattern was completely changed as part of the redevelopment of the post carried out in accordance with the Army's nation-wide modernization program during the lead-up to World War II. The plan called for a geometric organization with a loop road providing access to the beach. All of the roads were constructed of concrete, some with concrete gutters and curbs. The primary north/south roads consisted of Hero Road, Davis Road, and Heinzelman Road. The two primary east/ west roads were Murray Road and Haan Road (extension of Range Road in the fortification area) Hero and Davis Road eventually joined along the southern edge of the post to create the external loop road. Entrance gates were placed at terminuses of Hero Road, Heinzelman Road, Barrett Road, and Murray Road along Rockaway Beach Boulevard and Beach 169th Street. Pedestrian walkways were also added to the post in the area surrounding the parade ground, however the exact location of the walkways is unknown.

Few changes were made to the circulation within the post during the Cold War (1945-67), with the exception of asphalt paving over the original concrete. <u>Post-Historic and Existing Conditions:</u> As part of the extensive building demolition undertaken after the fort was transferred to NPS in 1974, walks and several small connecting roads in the barracks area were removed, including Doe, Steel, Murray, Coe, and Walke Roads. Other roads, such as the south end of Heinzelman Road, were repaved, realigned, and fitted with raised concrete curbs. Most of the railroad tracks bordering Haan Road were also removed. Existing circulation consists of roads, paths, steps built by the Army, and several parking areas built by NPS.

<u>Evaluation</u>: Overall, the existing circulation in the post retains historic character to the end of the historic period in 1967, with the exception of the removal of walks and minor roads in the demolished barracks area.

Circulation Features

Barrett Road Basketball courts (Cold War-era tennis courts, Building 28) Davis Road (Figure 3.38) Heinzelman Road (see Figure 3.40) Haan Road Hero Road Martin Dele Road Parade ground parking lots Remnant railroad tracks (north end of Heinzelman Road) Rockaway Artists' Alliance parking lot (Figure 3.39) Shore Road (east end) (see Figure 3.37) Unnamed Army-era roads Walks Worcester Road

Topography

<u>Historic Condition</u>: During the initial development of the post through the World War I era (1916-37), the overall level topography of the post contained several small rises, probably natural sand dunes. Along the ocean beach, the East Battery was built on a small rise. As part of the redesign of the post during the World War II era (1937-45), the small rises were leveled to create level topography for buildings and the parade and drill grounds. Battery East was removed, although the mound on which it was built may have been retained in part. During the Cold War (1945-67), there is not record any substantial change to the topography of the post.

<u>Post-Historic and Existing Conditions:</u> There is no record of any substantial changes to the topography of the post after 1967. Minor grading was undertaken by NPS as part of building demolition, road removal, and parking lot construction.

<u>Evaluation</u>: The topography of the post retains historic character to the end of the historic period in 1967.

Vegetation

Historic Condition: During the World War I era (1916-37), there was very little vegetation planted within the post, except for beach grasses that-as in the fortification area-were planted from an early date to control blowing and drifting sand. During the World War II era (1937-45), the redesign of the post beginning in 1937 incorporated ornamental plantings and areas of lawn. The three-acre parade ground was seeded in c.1941, and the larger drill ground was probably treated in a similar fashion. The Army also planted London plane trees along some of the roads in the post, including Davis, Murray, and Barrett Roads around the parade ground, and south of the four NCO quarters (Buildings 133-136). Foundation plantings, typically yews and pines, were also added around the Dispensary (Building 10), Quartermaster Officer (Building 16), and Administration Building (Building I), among other buildings, probably through the Works Progress Administration. There is little record of change to the vegetation in the post during the Cold War (1945-67). Post-Historic and Existing Conditions: NPS retained most of the roadside London plane trees, along with the lawns at the parade and drill grounds, and evergreen shrubs in front of the Administration Building and chapel. The most

significant change to vegetation in the post since 1967 has been the growth of

successional woods along the perimeter and in the southwest and southeast corners of the of the post. The lawn at the parade ground and drill ground remains. Additional lawn has been created with development of ball field, and new types of vegetation have been introduced at the community gardens. <u>Evaluation</u>: Overall, vegetation in the post retains historic character to the end of the historic period in 1967, with the exception of growth of successional woods in the southern area, and addition of community gardens.

Vegetation Features

Parade ground lawn (see Figure 3.34, 3.35) Drill ground lawn Little League field lawn (former barracks area) Roadside London plane trees (see Figures 3.34, 3.38) Specimen trees Building I evergreen shrubs Chapel yews (Figure 3.40) Other foundation plantings Successional woods (see Figure 3.39) Community gardens

Buildings and Structures

Historic Condition: During the World War I era (1916-1937), there were approximately thirty-three buildings and structures in the post. These were initially built into two phases: temporary quarters erected in 1917 by the 82nd Company, and a cantonment complex erected by the firm of James Steward and Company of New York City in 1918. Consisting primarily of wood-frame Series 600-type temporary buildings all painted a uniform gray color, they included officer and NCO quarters, mess halls, enlisted men's barracks, warehouses, offices, stables, and barns.¹⁴ In 1919, construction of a double non-commissioned officers quarters (Building 106) was completed, designed in a Colonial Revival style using masonry construction and featuring a full-length porch. This building was the only one in the post positioned along Rockaway Beach Boulevard. The majority of post buildings were clustered to the southeast along Beach 169th Street (Marginal Street). Two stables (Buildings 31 and 32) were located on the site of the later Coast Guard Station (Riis Landing), outside of the present limits of Fort Tilden. During the interwar years, as staff at the fort was reduced, many buildings were removed and the overall condition/ appearance of the post became rundown.

In 1937 on the eve of World War II, the Army began to implement an improvement program at Fort Tilden as part of a national-wide program aimed at replacing World War I wood-frame buildings with permanent buildings. All of the remaining buildings from the post were removed with the exception of the masonry double NCO quarters (Building 106). The Army had developed standardized architectural program to organize the complex spatial requirements of the modern military installations. These plans included architectural designs that responded to local climate conditions and reflected local history. A Colonial Revival style, characterized by use of symmetry, gable roofs, classical detailing, and red brick, was used for installations from New England to Virginia. The most formal of the new buildings in the post included Building 1

(barracks/administration) and 22 (Commanding Officer's Quarters), which featured grand massing and classical details around windows and doors. Most of the buildings, such as Building 125 (Dispensary), were simple in design with brick walls, gable roofs, six-over-six double-hung sash windows, and little if any ornamentation. As part of the World War II mobilization that began in 1940, the Army constructed a large complex of Series 700 temporary-style buildings including barracks, recreation and mess halls, and administrative offices, mostly in the western part of the post, but also surrounding the parade ground. These buildings typically consisted of low gable roofs with exposed rafters and ridge ventilators, novelty siding, and multi-paned double-hung sash windows. There were also wood-frame warehouses and the steel-frame Ordnance Repair Shop that formed an industrial complex at the western edge of the post along Hero Road, fronting on the fortification area.

During the Cold War (1945-67), there were apparently few new buildings and structures constructed in the post. A trailer park was created on the site of the tent area.

Post-Historic and Existing Conditions: By the latter 1960s and early 1970s, and especially after the transfer of Fort Tilden to NPS in 1974, many buildings were demolished in the post. Not counting the trailer park, over eighty buildings dating to the World War II era were removed, leaving approximately thirty standing today (2005). Major changes included the removal of the entire cantonment barracks complex, except for Building T-162 that today serves as a Little League clubhouse. Most of the buildings in the beachfront are abandoned, along with the steel-frame Ordnance Repair Shop and wooden bowling alley (Buildings T-8, 9) along Hero Road. Most of the brick buildings were retained; the administration building (Building 1), the most prominent of the post, remains unaltered on the exterior. The former Quartermaster's Warehouse (Building T-7, Rockaway Artists' Alliance) on Hann Road and officer's quarters (Building T-25, senior citizen building) on Davis Road, however, have been substantially remodeled and bear little resemblance to their historic military appearance. Architectural details, including siding and windows, have been altered on the Double NCO Quarters (Building 106), Commanding Officer's Quarters (Building 22), and recreation hall (Building T-149), among others. Since 1974, NPS has added a concrete-block comfort station and kiosk near the parade ground.

<u>Evaluation:</u> Overall, buildings and structures in the post do not retain historic character to the end of the historic period in 1967 due to extensive demolition and alteration. Several individual buildings, most notably Building 1 (administration) and Building T-8 (Ordnance Repair Shop) remain unaltered on the exterior.

Buildings and Structures Features

Building #	Building Name (WW II-era building name, number)
I	Administration Building/NPS Visitor Center (see Figure 3.34)
2	Main Transformer House (Building 33)
T-3	Chapel (Building T-175) (Figure 3.40)
T-4	Theater (Building T-174)
T-6	Rockaway Artists' Alliance (Radio Shelter Building T-176)
T-7-	Rockaway Artists' Alliance (Quartermaster's Warehouse
	Building T-155) (Figure 3.41)
T-8	Storage (Bowling Alleys Building T-179)
9	Storage (Ordnance Repair Shop Building 46) (Figure 3.42)
14	Transformer House (Building 43)
15	Beach House (former Enlisted Men's Mess, Building 25)
16	NCO Snack Bar (former Officers Mess, Building 24) (see Figure
	3.37)
17	Latrine (Officers Latrine Building 23)
18	Beach House (Officers Bath House Building 34) (see Figure 3.37)
19	Water Meter (Building 35; same structure?)
22	Residence (Officers Quarters Building 30) (Figure 3.43)
23	Residence (Officers Quarters Building 14) (Figure 3.43)
T-25	Senior Citizen's Building (Officers Quarters Building T-173)
	(Figure 3.44)
I02	Post Office (Quartermaster Office Building 16) (Figure 3.45)
103	Post Sewage Lift (Sewage Lift Station Building 187)
106	Residence (Double NCO Quarters Building 60AB) (Figure 3.46)
107	Garage (Building II)
125	Residence (Post Dispensary Building 10)
130	Storage (Telephone Booths Building 40)
133	Residence (NCO Quarters Building 2)
I34	Residence (NCO Quarters Building 7)
135	Residence (NCO Quarters Building 8)
136	Residence (NCO Quarters Building 13)
148	Storage (Gas Station Building 29)
T-149	Community Bldg (Recreation Building T-158) (Figure 3.47)
T-162	Rockaway Little League Clubhouse (Mess Hall Building T-116)

	(Figure 3.48)
В-і	Guard Booth
B-2	Community Garden Shed
B-3	NPS Comfort Station (see Figure 3.47)
B-4	NPS Kiosk
	Groin field (part)

Small-Scale Features

<u>Historic Condition</u>: Little documentation has been found on small-scale features in the initial development of the post during the World War I era (1916-1937), aside from a flagpole and a perimeter fence of undetermined type. Beginning with the redesign of the post in 1937, a variety of small-scale features were added to the landscape for both utilitarian and security purposes, including chain link fencing enclosing the perimeter of the post and brick entrance piers with concrete caps and lanterns flanking the entrances to gates 2, 9, and 10, and flagpole on the parade ground, set in a cut stone base with inscriptions of the installation, organization, and United States Coast Artillery insignia.¹⁵ There were also a series of stone bollards placed along Murray Road in front of the Building I. During the Cold War (1945-67), the stone bollards in front of Building I were removed. Overall, there is no accurate record of the small-scale features that were erected by the Army through 1967.

<u>Post-Historic and Existing Condition:</u> Upon transfer to the NPS in 1974, Army signs were removed. There are few remaining small-scale features in the post landscape dating from the Army's tenure through 1967. These include the post flagpole and entrance gate piers, which have had the lanterns removed, and perimeter chain-link fencing. NPS has added signs, lighting, trash receptacles, picnic tables, soccer goal posts, split-rail fencing, and sundry other small-scale features since 1974. Other groups, such as the Rockaway Artists' Alliance and Rockaway Little League, have added backstops, goal posts, and outdoor sculpture, including a missile on the parade ground.

<u>Evaluation</u>: Overall, small-scale features in the post do not retain historic character to the end of the historic period in 1967. However, there remain a number of historic features, notably the entrance piers and parade ground flagstaff.

Small-Scale Features

Basketball hoops Entrance gate piers (Figure 3.49) Fire hydrants Parade ground missile (see Figure 3.34) NPS Park and traffic signs Perimeter chain-link fencing NPS Picnic tables (see Figure 3.38) NPS Portable bleachers Post flagpole (Building 129) (see Figure 3.49) NYPD corral split-rail fencing NPS Street and parking-area lights (see Figure 3.39) NPS Trash receptacles

Archeological Sites

To date (2005), there has not been a comprehensive archeological survey undertaken for the post. As with the fortification area, there is little probability of pre-historic resources given that the site was open water into nineteenth century. However, there may have been earlier barrier islands; coring samples undertaken in 1921 near Battery Harris revealed evidence of an earlier beach, with charcoal and wood traces in sands ten feet below sea level.¹⁶ Historic-period archeological remains of undetermined significance exist throughout the post, most relating to the demolished buildings and structures. Aside from the resources related to the military use of the post, there is also the site of the Coast Guard Life Saving Station Rockaway at the southeast corner of the post. This station was replaced by the large brick building completed in c.1942 north of the post (Riis Landing); the Army acquired the site of the old station in ca. 1962, and the frame station building was demolished around the same time. There were also a number of ancillary buildings (see Appendices A, B).

WHARF AREA CULTURAL LANDSCAPE EVALUATION

Natural Systems and Features

See fortification area evaluation.

Spatial Organization

<u>Historic Condition</u>: The wharf area (Quartermaster area) was originally constructed during the World War I era (1916–37) as the primary support area within the fort, occupying a ten-acre rectangular parcel north of the post that extended into Rockaway Inlet. Here was the dock (wharf) along with an ordnance building, oil house, coal pockets, engineer office (administration building), and warehouses. The buildings were mostly wide apart and did not define or enclose the space. Running through the middle of the wharf area was a standard gauge rail line leading to the batteries. In conjunction with the redesign of the post during the World War II era (1938-1945), the Army constructed twenty additional buildings in the wharf area, requiring the removal of many of the earlier structures.¹⁷ This new construction filled up most of the space in the wharf area, except for a lawn framed by a circular drive in front of the ordnance building (Building 219), built in 1937-1938, which opened onto Rockaway Beach Boulevard through a gate framed by brick piers. Adjacent to the east side of the wharf area was the new Coast Guard Station, completed by c.1942. Aside from the removal of the coal pockets and several small storage buildings, the Army did not make substantial changes to the spatial organization of the wharf area during the Cold War (1945-67).

Post Historic and Existing Conditions: Following the decommissioning and transfer of Fort Tilden to NPS in 1974, the spatial organization of the wharf area was altered considerably through extensive building demolition. Approximately thirteen World War II-era thirteen buildings were demolished, and the superstructure of the dock was removed. Much of this change has occurred recently with the construction of a large parking area for Riis Landing (an area that also includes the adjoining Coast Guard Station not owned by NPS), a federally-funded transportation project intended to provide fast ferry service to Manhattan. Today, the densely developed character of the wharf area during World War II has been opened considerably, and is dominated by the new parking lot. The lawn space in front of the ordnance building (Building 219) survives, although it no longer opens onto Rockaway Beach Boulevard. Evaluation: The spatial organization of the wharf area does not retain historic character to the end of the historic period in 1967. Numerous building demolitions and construction of a large parking lot have altered the historic spatial character. The front lawn space of the ordnance/administration building remains intact.

Spatial Organization Features

Ordnance building (Building 219) front lawn space (Figure 3.50)

Circulation

<u>Historic Condition</u>: During the World War I era (1916-37), bulk transportation of goods to Fort Tilden was mostly by boat given the limited roads on the eastern end of the Rockaway Peninsula (Washington Street along the ocean beach from Far Rockaway provided the only vehicular access to the mainland until the Marine Parkway Bridge was completed in 1937). The wharf area developed around the wharf and bulkhead/dock built along the Rockaway Inlet as part of the initial development of Fort Tilden in c.1917. In order to move supplies across the unstable, sandy earth to the post and fortification area, a standard-gauge rail line was built extending due south from the dock; a short spur ran to an engine house along the west end of the dock. A road paralleled the tracks from gate 1 on Rockaway Beach Boulevard. By World War II, a number of new concrete roads

had been built through the wharf area. These included a formal circular concrete drive, Dunn Circle, built in front of the new ordnance building (Building 219), accessed by a new gate on Rockaway Beach Boulevard. During the Cold War (1945-67), the Army closed the gate at Dunn Circle, and the rail line went out of operation.

<u>Post Historic and Existing Conditions</u>. With transfer of Fort Tilden to NPS in 1974, rail lines were removed and a large parking lot was constructed for Riis Landing. The new asphalt lot required the removal of short sections of concrete roadway and the rail spur and northern part of the main line. <u>Evaluation</u>: Overall, circulation within the wharf area does not retain historic character due to removal of road and rail sections, and addition of the Riis Landing parking lot. The circular drive (Dunn Circle) to the ordnance-administration building (Building 219) remains intact, except for loss of the entrance on Rockaway Beach Boulevard, along with the entrance walk to the original administration building (Building 201).

Circulation Features

Dunn Circle (see Figure 3.50) Goethals Road Heinzelman Road (north) Remnant railroad tracks (Figure 3.51) New Riis Landing parking area (Figure 3.52) Building 201 entrance walk New walk to ferry dock

Vegetation

<u>Historic Condition</u>: During the World War I era (1916-37), beach grasses were planted throughout the fort to minimize blowing and drifting sand. In the mid-1930s, beach grasses and trees were planted in front of the headquarters building (Building 201) outside of the perimeter fence. With the construction of the ordnance building (Building 219) in 1937-1938, the front space was established as a lawn, with beach grass planted outside of the gate along Rockaway Beach Boulevard. Conifers were planted along the front of the new building. Poplars were planted along Goethals Road. No documentation was found on changes to vegetation in the wharf area during the Cold War (1945-67). <u>Post-Historic and Existing Condition</u>: After 1974, the beach grasses along Rockaway Beach Boulevard had disappeared, but the lawn in front of the ordnance building (219) remained, along with several conifers along its front and the poplars along Goethals Road. Several new trees were planted around Building 219. <u>Evaluation</u>: Overall, vegetation in the wharf area retains historic character from the end of the historic period in 1967. Historic features include the ordnance/administration building front lawn and specimen trees.

Vegetation Features

Ordnance building (Building 219) lawn (see Figure 3.50) Ordnance building (Building 219) conifers (see Figure 3.50) Goethals Road poplars Specimen deciduous trees (Buildings 201, 219)

Buildings and Structures

Historic Condition: During the World War I era (1916-37), there were approximately nine buildings and structures within the wharf area. By 1920, the Army had constructed an office (later headquarters building, Building 201, designed in a Colonial Revival style), an engine house, coal pockets, and warehouses to store supplies and armament unloaded from docked ships. The industrial buildings were built of wood frame or concrete and terra-cotta tile construction. One large timber dock (wharf) was built into the Rockaway Inlet, the entire frontage of which was bulkheaded. As part of the modernization of Fort Tilden that began in 1937, fifteen buildings and structures were added to the wharf area (three World War I buildings were removed to make way for new construction). These buildings provided fueling stations and repair shops for army vehicles, storage facilities for armament unloaded from the dock and general maintenance shops serving the post and fortification areas. The new ordnance building (Building 219) also served as the headquarters for Fort Tilden during this time. During the Cold War (1945-67), the Army removed several small buildings in the wharf area.

<u>Post Historic and Existing Conditions:</u>, During NPS era after 1974, numerous buildings were demolished in the wharf area. Of the twenty-three buildings that stood in the wharf area in 1945 (approximately 20 in 1967), only nine remain standing today (2005). Many of these were demolished in c.2001 for construction of the Riis Landing parking area. Prior to this time, the superstructure of the dock was removed, but many of the wood pilings remain. The roof of one of the warehouses (Building 217) has partially collapsed. Building 201, the World War I – era headquarters building, is currently leased and has been retrofitted with modern windows and a new front dormer. Steel windows bars were added to the exterior of the ordnance/administration building (Building 219) at some point after 1945.

<u>Evaluation</u>: Overall, buildings and structures in the wharf area do not retain historic character to the end of the historic period in 1967 due to extensive building demolition and renovation. Only remnants of the historic wharf remain. Existing historic buildings include the ordnance/administration building, original administration building, and three warehouses.

Buildings and Structures Features

Building #	Building Name (former building name, number)
201	Leased Building (Fort Tilden headquarters, Building 49) (Figure
	3.53)
T-202	Gas Station (Building T-177) (see Figure 3.52)
203	Oil Shop (Building 9)
204	Plumbers Shop (Engineer Warehouse, Building 44)
209	Dock (wharf) (remnants) (Figure 3.54)
215	Oil Storage (Building T-164A)
T-216	Auto Shop (Motor Repair Shop, Building T-164)
T-217	Garage (Motor Pool and Garage, Building T-184) (see Figure
	3.52)
219	Storage/Electric Building (Ordnance, Headquarters, Building
	20) (see Figure 3.50).

Note: new Riis Landing ferry dock and adjoining marina on the east side of the new parking lot are not within the wharf area—historically part of the Coast Guard Station Rockaway.

Small-Scale Features

<u>Historic Condition</u>: During the World War I era (1916-37), there was a variety of small-scale features in the wharf area pertaining to the industrial and transportation-related operations there. A chain-link fence with barbed wire and ball finials on the posts ran along Rockaway Beach Boulevard. At the entrance walk to the headquarters building (Building 201), there was a approximately three-foot high wood sign that read: "Headquarters Fort Tilden." On the dock, there was a series of iron bollards. During the World War II era (1937-45), various small-scale features were added to the wharf area as part of the redesign of Fort Tilden. These included a pair of brick piers and the new entrance at the ordnance/administration building (Building 219). No record was found of small-scale features during the Cold War (1945-67).

<u>Post Historic and Existing Conditions:</u> Most of the small-scale features were removed from the wharf area after 1974 when Fort Tilden was transferred to NPS. Surviving small-scale features dating from the historic period include the chain link perimeter fencing and entrance gate piers south of Building 219. A concrete birdbath is located along the western side of Dunn Circle close to Building 219 (origin unknown). Through the Riis Landing project completed in c.2004, wood railings, iron and wood benches, and lights were added in and around the new parking area and ferry landing. A piece of outdoor sculpture was added near the new ferry dock.

<u>Evaluation:</u> Small-scale features in the wharf area overall do not retain historic character to the end of the historic period in 1967. However, no accurate record of small-scale features was found for this report. Existing historic small-scale features are limited to the perimeter fence and gates along Rockaway Beach Boulevard.

Small-Scale Features

Benches Birdbath Dunn Circle/Building 219 Entrance Gate Piers Ferry dock sculpture Park signage Parking lot and ferry walk lighting Perimeter chain-link fencing (see Figure 3.53) Trash receptacles Wood railings at Riis Landing parking area (see Figure 3.54)

Archeological Sites

To date, there has not been a comprehensive archeological survey undertaken for the wharf area. As with the fortification area, there is little probability of prehistoric resources given that the site was open water into nineteenth century. However, there may have been earlier barrier islands; coring samples undertaken in 1921 near Battery Harris revealed evidence of an earlier beach, with charcoal and wood traces in sands ten feet below sea level.¹⁸ Historic-period archeological remains of undetermined significance exist throughout the wharf area, most relating to demolished Army buildings and structures. The remnant pilings of the wharf are an archeogical resource.



Figure 3.34. Looking south through the parade ground to administration building (Building 1) and roadside London plane trees, 2005. The area to the left was lined by buildings during World War II. (SUNY ESF)



Figure 3.35. Looking northeast across the parade ground from the administration building (Building 1), 2005. Most of the perimeter of the parade ground was lined by buildings during World War II; the London plane trees from that era remain. The former US Coast Guard Station Rockaway and Gil Hodges Memorial Bridge are visible in the background. (SUNY ESF)



Figure3.36. Looking northeast across former barracks area (present Little League fields) located west of the parade ground, showing remnant buildings, 2005. These include a row of brick officer's quarters (Buildings 133-136) and the recreation hall (Building T-149, white building). (SUNY ESF)



Figure 3.37. Looking east along Shore Road at the post beachfront area, with shell of the former Officer's Mess (Building 16) in the foreground and the current park bathhouse and latrine (Buildings 17, 18, formerly the officers' bathhouse and latrine) in the background, 2005. (SUNY ESF)



Figure 3.38. Davis Road, looking north from former Commanding Officer's Quarters (Building 22) illustrating World War Ilera road (repaved in asphalt), concrete gutters, and London plane trees, along with NPS picnic tables, 2005. Both sides of the road were lined by buildings during World War II. (SUNY ESF)



Figure 3.39. Large parking lot at Rockaway Art Alliance Building (T-7), looking south across Haan Road toward former drill ground, 2005. (SUNY ESF)



Figure 3.40. The Series 700 Fort Tilden chapel (T-3), looking south from Heinzelman Road where it was relocated during the Cold War, 2005. The yews date to the Cold War, and the curbs along the road are an NPS addition. (SUNY ESF)



Figure 3.41. The Rockaway Arts Alliance building (Building T-7, former Quartermaster Warehouse), a Series 700 building built in ca. 1941 and renovated in 2004, looking southeast from Haan Road, 2005. (SUNY ESF)



Figure 3.42. The World War II-era Ordnance Repair Shop (Building 9) with NPS parking area at right, 2005. This building, along with nearby warehouses (Buildings T-6, T-7) formed an industrial complex at the western side of the post. (SUNY ESF)



Figure 3.43. World War II-era officer quarters, looking southwest with former Commanding Officer's Quarters (Building 22) on the left (with recent vinyl windows and siding) and a smaller officer's quarters (Building 23) on the right, 2005. At right is a Cold War-era tennis-basektball court. (SUNY ESF)



Figure 3.44. Senior citizens' center (Building T-25, former World War II-era officer's quarters), renovated in the 1980s, looking southeast from Davis Road, 2005. The yews probably date from the World War II era. (SUNY ESF)



Figure 3.45. The World War II-era post (mail) office (Building 102) at the entrance to the post between Gates 18 (left) and 9 (right), looking northeast from Davis Road, 2005. At left are remnant foundation plantings from the World War II-era Provost Marshall building (T-168). (SUNY ESF)



Figure 3.46. Officer quarters built in 1919 (former Double NCO, Building 106), looking northwest from Heinzelman Road, 2005. The front porch was originally open; the vinyl windows are a recent addition. Thisis the only remaining World War Iera building in the post. (SUNY ESF)



Figure 3.47. The World War II-era Series 700 recreation building (T-149) with newer siding and windows, and an NPS comfort station on the site of the World War II-era guard house (T-157), looking northeast with the parade ground in background, 2005. (SUNY ESF)



Figure 3.48. The Rockaway Little League clubhouse (T-162), the only remaining Series 700 building from the World War II-era barracks complex west of the parade ground, looking north, 2005. (SUNY ESF)



Figure 3.49. Base of World War II-era flagpole and brick entrance piers at Gate 10, looking north east from parade ground, 2005. Gate 10 once served as the main entrance to the post; the piers originally had lanterns on top. The concrete pads at lower right once support artillery displays. (SUNY ESF)



Figure 3.50. The WPA-built ordnance-administration building (Building 20, now storage) completed in 1937, looking north across Dunn Circle and lawn showing remnant ornamental plantings, 2005. (SUNY ESF)



Figure 3.51. Heinzelman Road in the wharf area showing remnant rail lines, looking south with the old administration building at left, 2005. (SUNY ESF)



Figure 3.52. Riis Landing parking lot, completed in c.2004 on site of several World War II-era buildings and rail lines in the wharf area, looking northeast toward rear of Building 20 (storage, former administration building) at left and garage T-184 to right, 2005. (SUNY ESF)



Figure 3.53. Building 49 (currently leased), the World War I-era headquarters building, looking north showing replacement dormer and new windows, 2005. The chain-link fence dates to the World War I-II era. (SUNY ESF)



Figure 3.54. Remnant pilings from the Fort Tilden wharf (Building 209), looking northeast from the new Riis Landing parking area, 2005. (SUNY ESF)

ENDNOTES

¹National Register file for Fort Tilden, History Program, Northeast Regional Office, Boston, Massachusetts.

² Dwight Pitcaithley and Michael Wurm, National Register of Historic Places Inventory-Nomination Form for Fort Tilden Historic District (June 23, 1982).

³ National Park Service, National Register of Historic Places, "Determination of Eligibility Notification, Fort Tilden Historic District," May 12, 2009.

⁴ Terry W. Savage, Superintendent, to Bernadette Castro, New York SHPO, 9 August 1996. This list of resources identified in this letter included "Storage Shed 150" as being within the Fort Tilden Historic District. This apparently was a mistake in the list, as the current (2005) LCS includes no resource with this name, and no Building 150 currently exists within the district.

⁵ Savage to Castro; Gateway National Recreation Area, List of Classified Structures, Park District 1772, 1774 (Floyd Bennett Field, Jacob Riis Park, Fort Tilden), accessed 19 November 2004.

⁶ Robert Page, Cathy Gilbert, and Susan Dolan, *Guide to Cultural Landscape Reports* (National Park Service, Park Historic Structures and Cultural Landscapes Program, 1998).

⁷ Drifting sand was a serious menace to the armaments and a source of great discomfort for the stationed personnel. Memorandum for Chief of Staff, subject: Planting of Beach Grass at Fort Tilden, July 27, 1928, with 3rd endorsement, July 31, 1928, cited in Louis Torres, *Historic Structure Report, Historical Data Section of Fort Tilden, Gateway National Recreation Area, New York, NY* (Denver, CO: US Department of the Interior, National Park Service, 1980), 20.

⁸ Building B-14 is listed as a non-contributing resource in the National Register documentation (no description of the building was included).

⁹ Torres, 67.

¹⁰ The stone groins are not shown on the 1920 plan of Fort Tilden, but are documented on the c.1942 plan of Fort Tilden.

¹¹ HDR Engineering, "Replace Water Distribution System...Final Pre-design Report (Prepared for the National Park Service, April 8, 2005), drawing 646, sheet 2.

¹² "Development Concept Plan/Environmental Assessment Jacob Riis/Fort Tilden" (National Park Service, February 1986), 66.

¹³ Buildings located along the parade ground during World War II included the Administration Building (Building 1), Transformer Building (Building 2), Siren Town (Building 169), Library (Building T-168), Service Club (Building T-149), Dental Clinic (Building T-131), NCO Club (Building T-132), Storage (Building 148), Enlisted Men's Club (Building T-147), Dispensary (Building 125), Post Exchange (Building T-126), Post Craft Shop (Building T-127), Provost Marshall (Building T-128), and Officer's Mess Hall (Building T-170). Landscape features within the parade ground included rows of London Plane trees that framed the east and south sides; a flagpole (Building 129), and a canon. The Store House (Building 130) was the only building constructed within the parade ground.

¹⁴ William C. Gaines, "Fort Tilden," *The Periodical: Journal of America's Military Past* 79 (Summer 1997), 59.

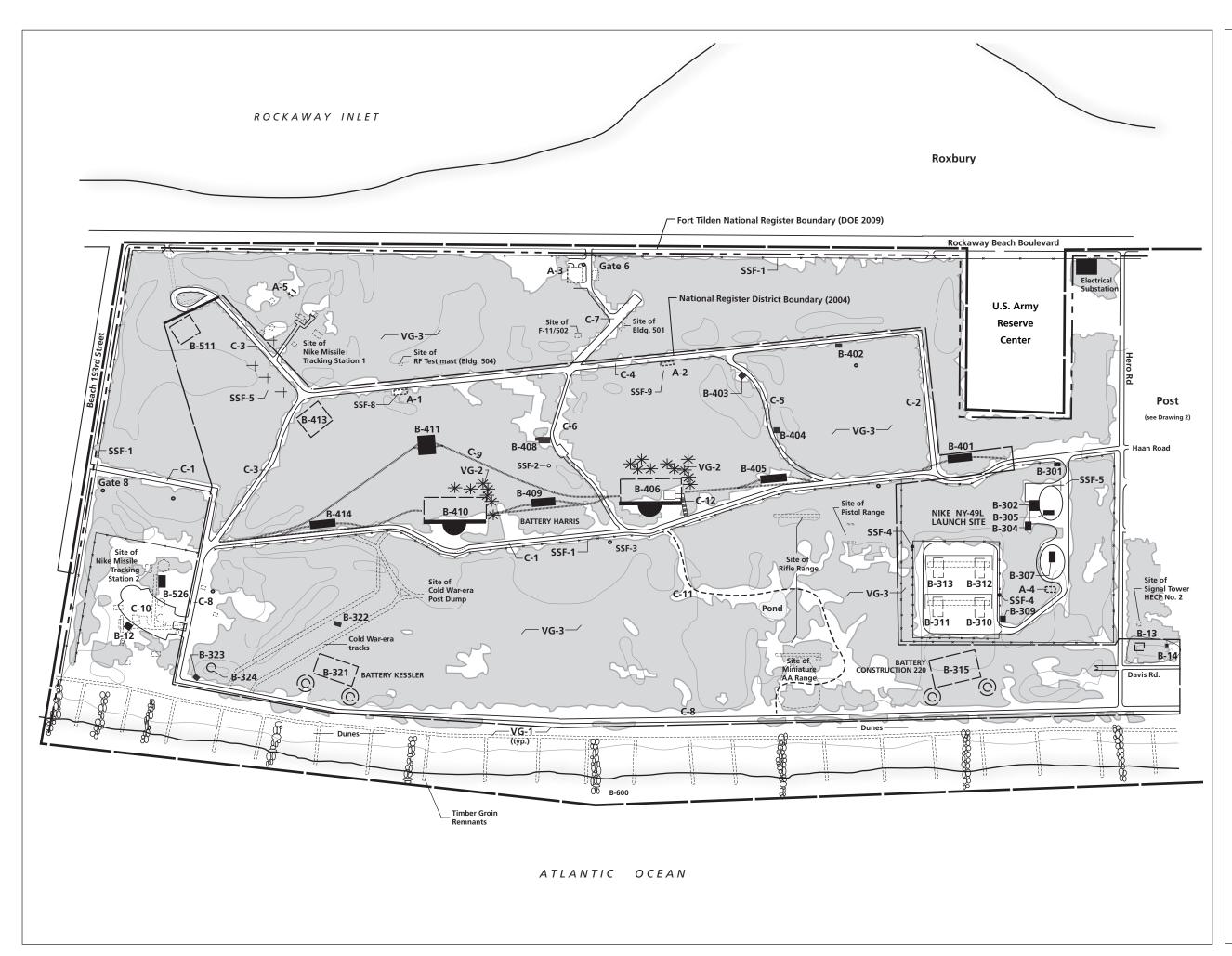
¹⁵ Torres, 139.

¹⁶ "Development Concept Plan/Environmental Assessment Jacob Riis/Fort Tilden" (National Park Service, February 1986), 66.

¹⁷ These new structures consisted of a sewage disposal station (Buildings T-185 and 186), gas and pump houses (Buildings 6A&B, T-68, and T-177), post engineer offices and structures (Buildings T-162, T-163, T-168, and T-196), storage and

warehouses (Buildings 44, 3, T-50, T-48), Ordnance Building (Building No. 20), and maintenance structures (Buildings T-12, 37, 19, T-184, T-164, and T-164A). The majority of structures from the World War I era were removed except for the coal pockets (Building T-5), roundhouse (Building 4), engineer warehouse (Building 44), and engineer office (Building 49).

¹⁸ "Development Concept Plan/Environmental Assessment Jacob Riis/Fort Tilden" (National Park Service, February 1986), 66.



Cultural Landscape Report Fort Tilden

Gateway National Recreation Area Rockaway Beach, New York

Analysis and Evaluation **Fortification Area**





National Park Service Olmsted Center for Landscape Preservation www.nps.gov/oclp in partnership with Department of Landscape Architecture Center for Cultural Landscape Preservation

SUNY College of Environmental Science and Forestry, www.esf.edu/la/cclp

SOURCES

- 1. US Army, Master Plan of Fort Tilden, 1964
- 2. USGS, Coney Island quadrangle map, 1995
- 3. Aerial infrared photograph, ca. 2002
- 4. CLR Period Plans, Drawings 1.3, 2

DRAWN BY

Christina Selvek, John Auwaerter Illustrator CS5, 2005, updated 2013

LEGEND

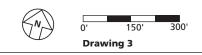
	Property boundary
	Building or structure
	Subsurface structure or foundation
0	Gun platform
	Casemated gun
	Road
	Rail line
\sim	Successional woods
*	Planted conifer
x x x	Fence
\overline{Q}	Ball field
+	Utility pole
• •	Light pole, fire hydrant
0	Manhole cover
	5' contours

(end of period of significance) NOTES

5223

- Plan shows landscape in 2005.
 All features shown at approximate location and scale.
 Not all planted conifers shown.
 See Drawing 1.3 for key to removed building numbers.
 See Drawing 2 for features in the post and wharf area.

Feature removed since 1967



4. TREATMENT GUIDELINES

This chapter provides guidelines for the treatment of the historic Fort Tilden landscape. These guidelines reflect preliminary recommendations based on the findings of the preceding chapters of this report, and do not constitute a complete treatment plan for the Fort Tilden landscape.¹

The National Park Service has completed several studies that frame the management objectives for Fort Tilden. They include *Statement for Management and Environmental Assessment* (1976), *General Management Plan* (1979), and *Development Concept Plan/ Environmental Assessment* (1986, rev.1988). The Development Concept Plan, the most current of the planning documents, does not provide detailed direction on the treatment of the landscape, but does outline the following three management objectives for Fort Tilden:

- To preserve the essential elements of Fort Tilden's historic role in the defense of the New York Metropolitan Area, and to communicate that history to the public.
- To allow natural succession to continue in the wildland areas of Fort Tilden (fortification area)
- To retain the landscape character of a military post in the eastern area of Fort Tilden (post and wharf areas).²

Based on the findings of this CLR and the Development Concept Plan, the following sections outline a general treatment approach and guidelines for the treatment of the fortification area and post-wharf area, organized by landscape characteristic. These recommendations are intended to enhance historic character of the landscape, provide treatment direction to supplement the *Development Concept Plan*, and to address other treatment concerns identified by park staff. As an historic property, treatment of the Fort Tilden landscape, including its buildings and structures, should be undertaken in accordance with Section 106 of the National Historic Preservation Act and the Secretary of the Interior's Standards for the Treatment of Historic Properties, as detailed in *NPS 28: Cultural Resource Management Guideline*.

GENERAL TREATMENT APPROACH

As outlined in the Development Concept Plan and the General Management Plan, NPS is adapting the fortification area (referred to in the plans as "Fort Tilden/West") to serve new (i.e., non-historic) uses as a natural area and an area for passive recreation and interpretation. The management intent is to preserve the historic military resources to the extent feasible, but not to restore the property to its historic appearance. For the post and wharf areas, the Development Concept Plan calls for retaining a campus-like atmosphere to the post and developing it for mixed recreational uses. In the redevelopment of the post, the plan states:

...there are good reasons to retain the orderly landscape character of a military post here. The sense of place created by the tree-lined parade ground and the attractive simplicity of utilitarian architecture provide elements to build on as Ft. Tilden/East continues to evolve as a recreation site...

It is recommended that this same approach be followed for the wharf area, which was identified in the Development Concept Plan as being the park maintenance area.

Based on the historic status of Fort Tilden (per the 2009 Determination of Eligibility) and the park's plans to adapt the site to new uses, the appropriate overall treatment for the landscape is Rehabilitation. As defined by the Secretary of the Interior, Rehabilitation is appropriate for an historic property: "When repair and replacement of deteriorated features are necessary; when alterations or additions to the property are planned for a new or continued use; and when its depiction at a particular period of time is not appropriate..."³ Rehabilitation allows for the preservation and enhancement of historic features, and addition of new features that are compatible with the historic character of the landscape. The Standards for Rehabilitation are:

- 1. A property will be used as it was historically or be given a new use that requires minimal change to its distinctive materials, features, spaces, and spatial relationships.
- 2. The historic character of a property will be retained and preserved. The removal of distinctive materials or alteration of features, spaces, and spatial relationships that characterize a property will be avoided.
- 3. Each property will be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or elements from other historic properties, will not be undertaken.
- 4. Changes to a property that have acquired historic significance in their own right will be retained and preserved.
- 5. Distinctive materials, features, finishes, and construction techniques or examples of craftsmanship that characterize a property will be preserved.

- 6. Deteriorated historic features will be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature will match the old in design, color, texture, and, where possible, materials. Replacement of missing features will be substantiated by documentary and physical evidence.
- 7. Chemical or physical treatments, if appropriate, will be undertaken using the gentlest means possible. Treatments that cause damage to historic materials will not be used.
- 8. Archeological resources will be protected and preserved in place. If such resources must be disturbed, mitigation measures will be undertaken.
- 9. New additions, exterior alterations, or related new construction will not destroy historic materials, features, and spatial relationships that characterize the property. The new work will be differentiated from the old and will be compatible with the historic materials, features, size, scale and proportion, and massing to protect the integrity of the property and its environment.
- 10. New additions and adjacent or related new construction will be undertaken in a such a manner that, if removed in the future, the essential form and integrity of the historic property

Overall, the landscape should be managed to retain and enhance characterdefining features from the period of significance (1916-1967). Allowing natural succession and weathering of the buildings, structures, roads, and small-scale features can impart a compatible sense of time passage and history to the landscape. However, both forces have led to substantial loss of historic character in the landscape. The Development Concept Plan objective to allow natural succession to continue in the fortification area should be reconsidered. This treatment may be appropriate for certain areas of the landscape, but if allowed to continue, will lead to continued loss of landscape character in terms of spatial organization, circulation, buildings and structures, and views and vistas. Within the post and wharf areas, the buildings and grounds should have a wellmaintained appearance that reflects the historic military character of the landscape. Peeling paint, tall weeds, overgrown shrubs, and rustic or informal signs and fences, detract from the historically well-maintained character of landscape.

GUIDELINES FOR THE FORTIFICATION AREA

SPATIAL ORGANIZATION

The historic spatial organization of the fortification should be retained and enhanced by maintaining existing historic perimeter fences, clearing road corridors and building entrances, and reestablishing open spaces through removal of successional woods and invasive vines. These areas include the Nike missile launch site and tracking station remnants, rilfe range, miniature AA range, and pistol range.

CIRCULATION

The existing system of roads through the fortification area should be maintained and repaired in-kind where necessary, especially on surviving historic concrete surfaces, such as Shore Road. Where roads require repair or reconstruction, the existing conditions should be maintained, or if there is supporting documentation, returned to historic conditions. Important aspects of the roads include their surface material, width, alignment, and edge treatment (curbs/shoulders). Encroaching vegetation should be cleared back from the roads to retain the historically open character of the corridors.

It is recommended that Shore Road, as one of the primary historic circulation features of the fortification area, be kept as an open corridor if feasible. The Development Concept Plan recommended elimination of Shore Road to reduce erosion and visitor impacts to the primary dune. Use of snow fencing, as currently exists, and vegetation to reduce erosion and limit visitor impacts is compatible with the historic character of the landscape and permits Shore Road to remain intact.

The rail lines through the fortification area, presently overgrown by successional woods, need to be field checked for condition and integrity. At the least, vegetation should be cleared back from the rail lines to return the open historic corridor and visual connection to the batteries and magazines; and where necessary, earth and/or later layers of asphalt (where the rails cross roads) should be removed to make the tracks visible.

New paths should be routed along historic circulation routes where possible. The rail lines in particular could make an excellent interpretive trail, especially if the trail connected with the historic rail alignment through the post and wharf areas.

VEGETATION

The natural succession of the grasslands and scrub of the historic period into the maritime forest of today has markedly changed the character of much of the landscape. While it may not desirable from an ecological (or budgetary) perspective to return the site to open grasslands, it is possible to selectively manage the vegetation in limited areas in order to enhance historic character and

interpretation. Limited management of the vegetation, such as through clearing or thinning, could also help to further enhance the ecological diversity of the landscape. It is recommended that the following areas be considered for vegetation management:

- Earth Cover of Defensive Works: By removing or thinning trees and brush from all or part of these character-defining earthen structures, they will become more visible in the landscape, as they were during the historic period. This would aid interpretation by allowing visitors to see the earthen structures, many of which today are hidden by woods. Historic black pines and their progeny should be retained. Use of beach grass and native low shrubs (1-5 feet tall), such as wax myrtle, bayberry, chokeberry, and beach plumb would maintain the visibility of the historic topography. Thinning and removal of tall shrubs and trees would need to be undertaken on a regular basis to maintain the open or low-scale character of the vegetation.
- Buildings: Vegetation should be cleared back from historic buildings to allow them to be viewed from the roads, and to protect them from damage caused by abrasion, falling limbs, and excessive moisture. (See also new Gateway Fire Management Plan.)
- Road corridors: Vegetation should be managed to retain or restore the historic open road corridors. The Power Plant Three service drive (C-6— northern part), for example, is currently blocked by woody vegetation, and woods are encroaching onto the pavement of Marshall Road (C-4). Mowing narrow shoulders on each side of the roads could impart a more open and maintained feeling, which would help to convey some sense of the historic open and managed character of the landscape.
- Rifle Ranges: Successional woods are presently concealing the historic rifle ranges near Battery Construction 220. Removing these woods to reestablish the historic open space, such as by maintain mown ground or a low ground cover of native plants, would reestablish the historic spatial character of these features.
- Views and vistas: Vegetation should be managed to retain, or where possible, reopen, the strategic lines of fire from the batteries, and the strategic sight lines from the battery control structures.
- Japanese Black Pines (*Pinus thunbergii*): Where necessary, these trees dating from the World War II period should be released from competing natural succession in order to perpetuate their long-term survival and restore some of their visibility and historic character. The Japanese black pines are also declining due to disease (turpentine beetle and bluestain fungus), especially where in contact with salt spray. It is recommended that that dead, dying, or lost trees be replanted in the same location with disease-resistant native

species that are similar in appearance, such as red-cedar (*Juniperus* virginiana) or Atlantic white cedar (*Chamaecyparis thyoides*).⁴

BUILDINGS AND STRUCTURES

Within the fortification area, the military buildings and structures, such as the casemates, magazines, power plants, gun platforms, and Nike launch pads, are among the most important landscape features . Several buildings are in an advanced state of deterioration: the roofs have collapsed on several magazines, earthen casemates are eroding, concrete wingwalls are spalling, and vandals are causing damage. Many buildings and structures have been obscured by blowing and drifting sand. It is beyond the scope of this CLR to address the breadth of treatment for buildings and structures. If action is not taken soon on stabilizing and repairing the buildings and structures, further loss of integrity will be inevitable.

Recommended treatment includes clearing sand away from portals and gun platforms, securing open buildings against vandalism, repairing roofs, and clearing overgrown vegetation. The Nike launch pad/silos area should be kept free from refuse or excessive vegetation that obscure the remaining features and spatial character of the site.

Where new construction is anticipated, buildings should be designed in a manner that relates to the historic structures and setting through use of compatible architectural style (military-utilitarian), materials (poured concrete, terra cotta, etc.) and site design (orientation to the ocean or historic roads and rail lines, relationship to historic buildings/structures, use of earthen embankments, etc.).

VIEWS AND VISTAS

As discussed under Vegetation, strategic lines of fire from the batteries to the ocean, and strategic sight lines from battery control stations, should be retained where they still exist, and be reopened where now blocked by vegetation. Views are an integral part of interpreting the historic design of the fortifications. It may not be necessary, nor feasible from an ecological perspective, to return the full historic view from each battery, but a representative vista (narrower view) would enhance the historic character and interpretive potential of the landscape.

SMALL-SCALE FEATURES

Existing historic small-scale features, including fences, light poles, telephone poles, manhole covers, and fire hydrants should be retained. The perimeter

chain-link fence along Rockaway Beach Boulevard and Beach 193rd Street, believed to date to the World War II era, warrants preservation. This chain-link fence was historically the defining feature of the fort along the surrounding public roads. It should be repaired, with materials replaced in-kind where necessary due to deterioration (chain link, poles with finials, etc.). Brackets for the barbed wire should be retained if barbed wire cannot be retained or reinstalled. Openings and gates dating to the historic period should be retained. Vegetation should be cleared from the fences where possible to evoke a sense of the historic managed character of the landscape, and to make the fence visible. Chain-link fencing around the Nike sites (launch and tracking stations) should also be retained. New fencing should be compatible with the utilitarian character of the historic fencing. Avoid use of ornamental wood, vinyl, or iron fences.

GUIDELINES FOR THE POST AND WHARF AREA

SPATIAL ORGANIZATION

As shown in the Development Concept Plan proposal, the main open spaces in the post and wharf areas—the military-era parade ground, drill ground, and circular lawn in front of Building 219—should be maintained to retain the key organizational elements of the military landscape. New construction would be most appropriate in areas that were previously developed with buildings, notably around the periphery of the parade ground and in the barracks area. New construction surrounding the parade ground could return the enclosed character that once defined this central space. The parade and drill grounds should be maintained as lawn and not planted with trees or shrubs.

In the wharf area, the once-dense complex of buildings has been largely replaced by the Riis Landing parking lot, which disrupts the linear corridor that once extended south from the dock along Heinzelman Road and the rail line. As the central element of the wharf area, it would be appropriate to mark or reestablish this significant corridor in the landscape, perhaps through the use of contrasting paving materials or re-establishment of the rail lines (see also circulation recommendations).

CIRCULATION

The existing system of roads, which date primarily to the World War II era master plan and were originally concrete and paved in asphalt during the Cold War, are distinctive remnants of the military landscape. It is recommended that existing roads be retained. Where reconstruction is necessary, the historic alignment, width, and design of curbs or gutters should be retained. Where new roads are required, they should follow the general orthogonal layout of the military landscape, rather than using winding, naturalistic alignments; and retain the standard width of the historic roads. (Haan Road, which followed the rail line, and Dunn Circle in front of Building 219, are the only roads that did not have a straight alignment.) Remaining historic walks should also be retained and treated in the same manner as the roads with regard to replacement or new construction.

Remnants of the standard-gauge rail line in Heinzelman Road should be retained as a reminder of what was originally the primary transportation system for Fort Tilden, linking the wharf with the fortification area. Future repaying or reconstruction of the road should retain the visible portions of the rail lines (steel tracks). As an interpretive tool, the missing portions of the tracks, notably in the new Riis Landing parking lot extending to the remaining pilings of the Fort Tilden dock or along Haan Road and Heinzelman Road, could be identified in the landscape through use of paying materials, perhaps as part of a new interpretive trail (see also fortification area circulation recommendations).

VEGETATION

Ornamental plantings remaining from the historic period—notably the roadside London Plane trees planted around the parade ground during World War II, and conifer shrubs and foundation plantings, notably at Buildings 1, 102, T-3, and 219—should be maintained. New plantings should occur in areas that had been planted in the past by the Army, using similar species. Tree and shrub plantings should also be compatible with the spatial organization of the landscape (e.g., avoid planting trees within the parade or drill grounds).

Excavation, if necessary, should occur outside of the drip line of tree canopies. Ground compaction beneath the canopy and injury to trunks and limbs should also be carefully avoided during construction to ensure the future health of the trees. Where terminal impacts are unavoidable, the trees should be replaced inkind in the same location.

Mown turf should be maintained in the parade and drill grounds to retain the military character of these areas and their use as gathering and exercise fields. Likewise, turf should be maintained within the circle in front of Building 219 (former administration-ordnance building) to retain the ornamental character of the landscape.

BUILDINGS AND STRUCTURES

As with the fortification area, it is beyond the scope of this CLR to address the detailed architectural treatment of buildings in the post and wharf areas. However, in order to perpetuate the distinctive character of the military landscape, it is recommended that the materials, style, and general massing of the architecture used by the Army between c.1917 and 1945 be maintained and perpetuated in future new construction. (There were no known building additions during the Cold War.) In general, this includes the use/retention of brick and white-painted wood trim for masonry structures in the post; stucco buildings in the beachfront of the post; and painted novelty siding with contrasting painted trim for wood structures in the former barracks area and along the parade ground (all with multi-paned double-hung sash windows). The wharf area was developed with a mix of brick, wood, and terra cotta. The use of contemporary materials in recent renovation projects, including vinyl siding and replacement single-light vinyl windows or unpainted wood siding, detracts from the historic character of the post and wharf areas.

The pilings of the former wharf should be retained; it would also be appropriate to rebuild this dock if the need arises as part of the Riis Landing redevelopment.

As stated under Spatial Organization, new buildings and structures should also be sited in previously developed areas.

SMALL-SCALE FEATURES

The primary small-scale features in the post and wharf areas from the military era are the perimeter chain-link fence and brick entry piers at Gates 1, 2, 9, 10, and the former entrance to Building 219 on Dunn Circle (now closed). The brick piers, some of which once had lanterns, are distinctive components that define the campus-like character of the landscape. All should be retained, whether or not they border operational entrances. Some of are in poor condition and require repair. The chain link fence, which contained barbed wire, should be maintained or replaced in kind. Retaining this fencing will preserve an important utilitarian feature of the military landscape and maintain visual continuity with the fortification area. The supports for the barbed wire should be incompatible with the character of the landscape.

A key small-scale feature in the post is the parade ground flagpole. Although its paint is failing, it appears to be in stable condition, but warrants a conditions assessment to ensure its long-term preservation.

ENDNOTES

¹ A complete treatment plan (CLR Part II) is beyond the scope of this project. The treatment recommendations were not updated to reflect 2013 landscape conditions.

2 "Development Concept Plan/Environmental Assessment Jacob Riis/Fort Tilden" (National Park Service, February 1986), 38. This report did not address treatment according to the Secretary of the Interior's Standards for the Treatment of Historic Properties.

3 National Park Service, Heritage Preservation Services, "Standards for Rehabilitation" (1995), http://www.cr.nps.gov/hps/tps/secstan5.htm.

⁴ Renee Stoops and Brian Maynard, Department of Plant Sciences, University of Rhode Island, "Searching for Substitutes for the Japanese Black Pine" (Originally published in *Yankee Nursery Quarterly*, vol. 7, no. 4 [winter 1998]), reproduced on-line at University of Connecticut Integrated Pest Management website, <u>http://www.hort.uconn.edu/ipm/nursery/htms/jblkpine.htm</u>.

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Foppes, Kathy. Chief, Cultural Resources Management, Gateway National Recreation Area.

Hermoso, Pia. Student, Historic Preservation Program, The School of The Art Institute of Chicago, and Cultural Resources Intern, Gateway National Recreation Area.

Mellander, Kathy. GIS Specialist, Gateway National Recreation Area.

O'Neill, Tim. Former seasonal ranger, Gateway National Recreation Area.

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APPENDICES

APPENDIX A. GLOSSARY OF SELECT MILITARY TERMS

Active Duty- Full-time duty in active military service.

Administration- The management and execution of all military matters not included in tactics and strategy.

Air Defense- Defense against attack from the air by hostile aircraft or missiles. Air defense measures include anti aircraft artillery, surface-to-air missiles, and fighter aircraft.

Ammunition Magazine- A structure or compartment for storing supplies, particularly ammunition or explosives.

Amphibious Assault/Operation- An operation involving the transfer of troops between ships and land.

Anti Aircraft Artillery (AAA)- Guns used for attacking aerial targets from the ground or shipboard, and the radar, searchlights, and other equipment and devices related to them.

Armament- The weapons and other equipment, including defensive equipment and supplies.

Artillery- A general term, usually referring collectively to gunpowder weapons too large to be handcarried.

Barbette- A support that raises a gun high enough so that it fire may be directed over the surrounding protective armor or parapet, rather than through an embrasure; A barbette may be a mound of dirt, a platform, carriage, or any other supporting device.

Battery- The place where one or more pieces of artillery are installed often including a set of guns, torpedo tubes, searchlights, or missile launchers, usually of the same size and caliper.

Battery Control Station – A secondary defensive work that housed equipment and personnel used in sighting enemy ships to aim guns; also known as a fire-control station. Usually designated by the acronym B, BS, and BC, followed by a number indicating its hierarchy within the fire-control system.

Blockhouse- A defensive structure of heavy timbers, concrete, or other substantial material with small openings or loopholes for observation and for firing weapons. Blockhouses of reinforced concrete, often partially covered by earth, usually form part of modern fortified defensive systems.

Cantonment- A group of temporary structures used for housing troops; a military post or camp.

Casemate- A large chamber, usually covered with a vault, built in the thickness of a fortress wall; usually had embrasures in the outer wall and housed a gun.

Close-Order Drill/Drill Ground- Practice of units in formation in administrative or ceremonial movements.

Dispensary- A medical or dental facility for treating minor ailments and giving preliminary diagnoses.

Embrasure- An opening built into a wall or a parapet through which guns can be fired, with minimum exposure of the gunners.

Emplacement- A prepared position for housing and operating one or more weapons or pieces of equipment, offering protection against hostile fire or bombardment.

Fire-Control System- Control over the direction, volume, and time of fire of guns or rockets by a systematic process which may include the use of certain electrical, electronic, optical or mechanical systems.

Mortar Pit/Weapons Pit- An earthen pit surrounding the mortar emplacement.

Ordnance- Collective term for all military weapons, ammunition, explosives, combat vehicles, and battle material, together with the necessary maintenance tools and equipment.

Parade Ground- A formal area where a ceremonial procession of marching personnel, sometimes interspersed with vehicles.

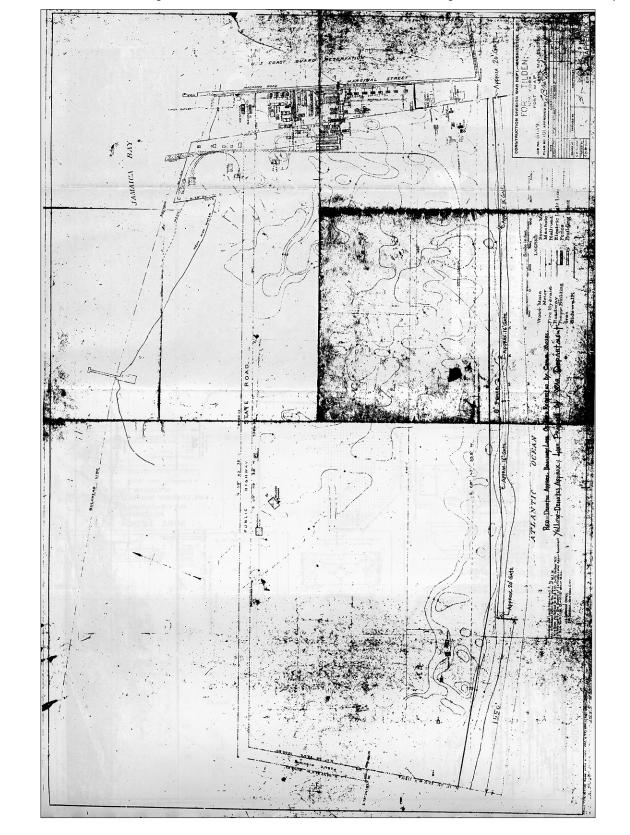
Platform- The flat base upon which a gun is mounted.

Post – A military base, including the grounds and buildings [also support complex for fortifications containing residential, administrative, and industrial uses].

Post Exchange- A retail store at a US post or installation.

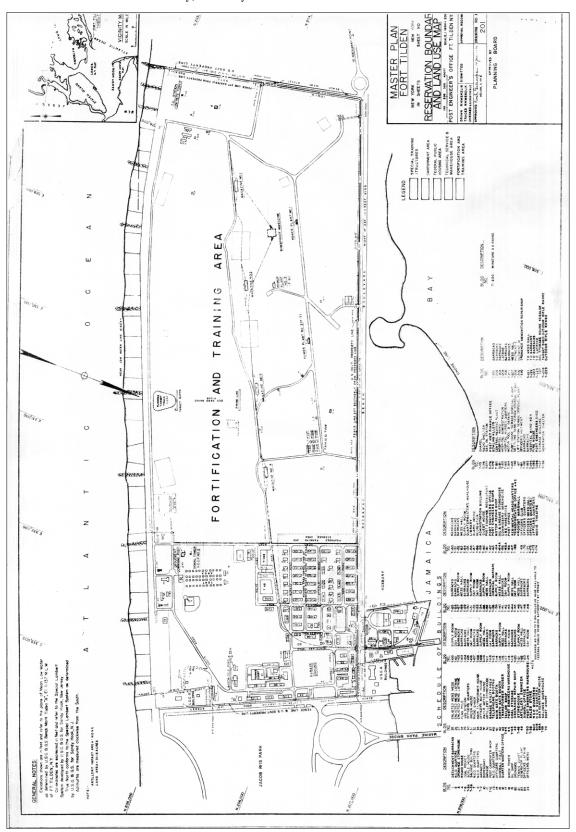
Temporary Construction: Temporary construction, usually indated by a 'T' before the building number, was used primarily during wartime mobilization. The construction was intended to be temporary, but many of the buildings were often retained as permanent. During World War I, the standaradized plans for temporary buildings were referred to as Series 600; during World War II, the plans were Series 700 and Series 800.

Source: Trevor N. Dupuy, Curt Johnson, and Grace P. Hayes, compilers, *Dictionary of Military Terms* (New York: H. W. Wilson Company, 1986).



APPENDIX B. FORT TILDEN POST MAP, 1929

Source: National Archives, reproduced from Louis Torres, Historic Structures Report (National Park Service, 1980).

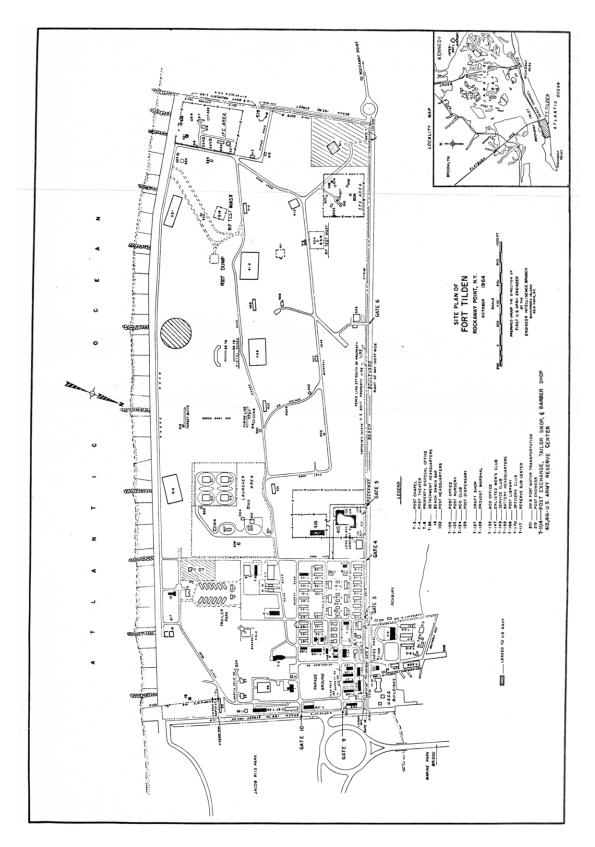


APPENDIX C. MASTER PLAN OF FORT TILDEN, 1946

Source: US Army, Gateway National Recreation Area archives.

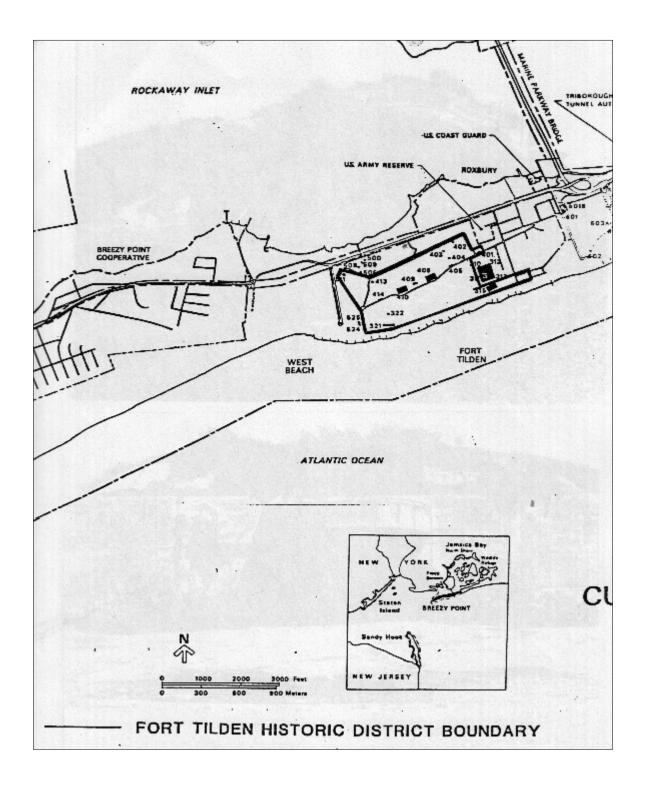
APPENDIX D. SITE PLAN OF FORT TILDEN, 1964

Source: National Archives, reproduced from Louis Torres, Historic Structures Report (National Park Service, 1980).



APPENDIX E. NATIONAL REGISTER DISTRICT MAP OF FORT TILDEN, 1984

Heavy black line denotes National Register district boundary (fortification area)



APPENDIX F. SUMMARY STATUS OF NATIONAL REGISTER ELIGIBILITY FORT TILDEN POST AND WHARF AREA

Prepared by Elizabeth Igleheart, NPS Northeast Regional Office History Program, July 23, 2007

New York State Historic Preservation Office (SHPO) staff member Virginia Bartos has disagreed, in a letter of July 22, 2007, with the recommendation put forth in the Fort Tilden Cultural Landscape Report (CLR) and the History Program's review of the documentation regarding the National Register eligibility of the post and wharf area. Stating that, "Fort Tilden unquestionably retains historic integrity as a listed site." Bartos suggested that the park expand the district to include the post and wharf areas.

The SHPO finding followed a site visit initiated by park Chief, Cultural Resource Management Kathy Foppes, after we had indicated our opinion that the post and wharf areas did not retain sufficient extant resources for an expanded boundary to encompass these areas and that the surviving resources have suffered considerable loss of historic material.

After reviewing the Bartos letter we have not changed our opinions regarding the expansion of the boundary. Extensive building demolition has taken place in the wharf and post areas since World War II, and these landscapes do not retain sufficient integrity to convey their significance. Primarily the removal of buildings has a resulted in a change to the overall spatial organization. In addition, the construction of a parking lot for the neighboring Riis Landing on the site of the removed buildings has further changed the relationship of the buildings to one another. The World War II Era 1945 plan (Drawing.1.2) indicates that a total of 166 buildings and structures comprised the post and wharf areas. Today 29 out of 144 features survive in the post area and 9 out of 22 features survive in the wharf area. (Please note building names and numbers differ in some cases between the CLR and the inventory names.) The surviving buildings and structures are not architecturally distinguished individually and a number of the buildings have been altered, primarily by the use of inappropriate substitute materials.

When the federal agency and the SHPO disagree 36 CFR 63 becomes operative, i.e. the matter is referred to the Keeper of the Register and is reviewed by the National Register staff. So the agency has this option if we are in disagreement with the SHPO. In the NPS, responsibility falls to either the superintendent or the regional director. As a practical matter this office would not proceed without the superintendent's agreement.

Background and History of Documentation

Fort Tilden is comprised of three components: fortification area, post area and wharf area. Most of the fortification area was listed in the National Register on April 20, 1984. The property derives significance for its association with coastal defenses of New York Harbor and as an example of improvements in military technology from World War I to World War II. The period of significance extends from 1917, the date the fort was established, through 1945 and excludes the later Cold War Era Nike Missile System, of which little remains. A National Register documentation internal review form, dated January 9, 1980, included a query regarding the exclusion of the eastern portion of the

fort. The file does not indicate how this query was addressed. The National Register documentation, however, proceeded with only the fortification area listed in the National Register on April 20, 1984.

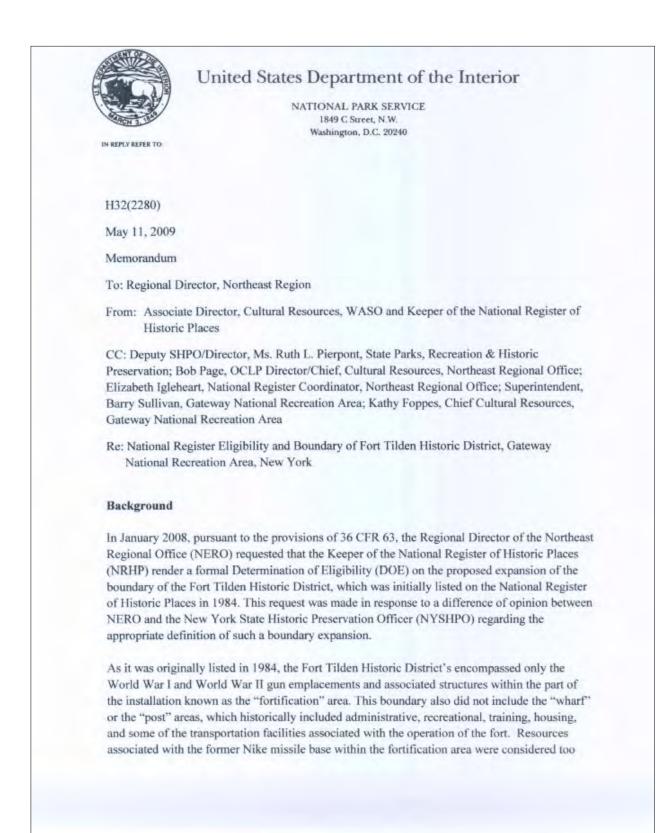
As part of the List of Classified Structures update, the SHPO office concurred with the National Park Service evaluation consistent with the existing National Register status on October 25, 1996.

A Cultural Landscape Report (CLR) for the entire fort has been prepared by the Olmsted Center for Landscape Preservation (September 2005). It includes a site history, existing conditions and analysis and evaluation and is currently in 95% draft. The CLR concluded that the post and wharf areas at Fort Tilden have lost integrity.

The evaluation of the individual buildings is outside the purview of CLR and for this reason individual New York State Inventory Forms were prepared by the park staff in February 2007. The NER History Program reviewed the forms and determined that the surviving buildings and structures are not architecturally distinguished individually and a number of the buildings have been altered, primarily by the use of inappropriate substitute materials.

APPENDIX G. DETERMINATION OF NATIONAL REGISTER ELIGIBILITY, 2009 FORT TILDEN HISTORIC DISTRICT (EXPANSION)

Washington, D.C. 2024	40
DETERMINATION OF ELIGIBILITY NOTIFICATI National Register of Historic Places National Park Service	ON
Name of Property: Fort Tilden Historic District Location: Queens County Request submitted by: D. Reidenbach, Regional Direct Date received: January 10, 2008 Additional informati	ion received February 7, 2008,
Opinion of the State Historic Preservation Officer:	April 3, 2009
x_Eligible _Not Eligible _No Response	eNeed More Information
The Secretary of the Interior has determined that this	property is:
<u>×</u> Eligible Applicable criteria:	Not Eligible
Comment: See Attached Memorandum	
Keyer of the National Register	
independent in the future finder	Date: 5 12 2009



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recent at the time to qualify as a contributing resource to the National Register district that	t was
originally listed in 1984.	

The initial documentation submitted to the Keeper's office in conjunction with the DOE request, while substantial, did not include an evaluation of site archeology. It also did not include a map detailing the specific boundary being proposed by NERO for an expanded historic district. As a result, review of the request was deferred until the supplementary information necessary for the Keeper to render a more fully informed decision was obtained. Included in the documentation that NERO provided to the Keeper's office was a draft copy of a report by the Olmsted Center for Landscape Preservation entitled, "Cultural Landscape Report for Fort Tilden, Gateway	
National Recreation Area, Site History, Existing Conditions, Analysis & Evaluation" (CLR). The draft CLR acknowledges that today the original Fort Tilden Historic District boundaries are no longer inclusive enough to be fully consistent with the guidelines for establishing National Register historic district boundaries. However, based in great measure on the recommendations contained in the CLR, as well as additional review and interpretation by its own cultural resource	
staff, NERO's DOE-request letter concludes that:	

...the post and wharf areas of Fort Tilden do not retain sufficient integrity to convey the significance of the property primarily because of the extensive loss of physical material. This loss has resulted in a change to the overall spatial organization and the ability of the property to communicate its former administrative and support function. Additionally the presence of remaining World War II buildings and the circulation system precludes consideration of a period of significance prior to World War II.

NERO's letter also specifically notes that NERO does not have an opinion with respect to the National Register eligibility of the surviving features of the former Nike missile facilities which were initially developed at Fort Tilden in 1954 and decommissioned in 1967.

The documentation provided to the Keeper by NERO also included a copy of the Fort Tilden opinion letter from the NYSHPO dated November 7, 2007, which asserts:

...that Fort Tilden represents the evolution of [U.S.] homeland defense in the twentieth century and its significance must be evaluated in a broad historical context beginning with the initial construction in 1917 and ending with the decommissioning of the Nike missiles in 1967. Weapons systems deployed at the fort during the first and second world wars and the Cold War were part of fully integrated systems designed to counter changing threats to New York Harbor. Each system represented the military technology of its era and was developed in the context of strategic national defense policies. The weapons systems also required extensive support in the form of transportation, maintenance, housing, training, recreation and administration. These functions were

integral to the operation of the fort and must be evaluated consistently with the gun batteries, magazines and bunkers.

The NYSHPO opinion letter acknowledges that there have been significant losses of historic buildings and structures in the fort's post and wharf areas, but suggests that these losses are not definitive, and that both areas should still be included within an expanded historic district boundary that defines Fort Tilden as an integrated military installation. The NYSHPO letter notes that, "The roads, trees, and surviving buildings of the post and wharf areas retain strong integrity of location, setting, feeling and association and the major divisions of the fort and their historic functions remain clearly evident." The NYSHPO letter further notes that, "Although the Nike system was still operational at Fort Tilden less than 50 years ago, the Cold War is now a clearly recognized historic context and the substantial remnants of the missile system represent an important aspect of Fort Tilden's military history."

The draft CLR provided by NERO includes map, photo, and text documentation concerning buildings and structures historically associated with the fort. However, it did not include a map outlining a specific boundary proposal for an expanded Fort Tilden Historic District, and did not evaluate archeological resources. In order to more fully assess potential with respect to archeological resources, more fully understand the contextual relationship of these resources to Fort Tilden's other surviving historic 20th century resources, and more thoroughly evaluate extant field conditions in the fort's wharf and post areas, and with the concurrence of NERO, staff from the Keeper's office made two onsite inspections of Fort Tilden. The first of these site visits was completed on February 7, 2008; the second site visit, made at the request of NERO, took place on April 2, 2009, following the end of the snow season.

Keeper's Determination of Eligibility--National Register Criterion A

All of the Fort Tilden property as currently administered by the NPS is determined eligible for listing in the National Register of Historic Places as an historic district under Criterion A for its significance within the context of military history during the period 1916-1967. Fort Tilden represents a significant collection of historic resources that as an integrated whole continue to document 20th century efforts to defend New York City and its harbor from attack by sea or by air. Its contributing historic resources include substantial defensive gun emplacements; Nike missile facilities; and significant surviving operational, administrative, housing, and transportation components, all of which combine to form an integrated resource that tangibly reflects the evolution of Fort Tilden as a 20th century coastal defense installation. Furthermore, when considered in combination with other, nearby extant former military facilities such as Sandy Hook and Fort Wadsworth, the surviving historic features and fabric of the Fort Tilden Historic District provide greater understanding of the development of a larger, and more

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complex, coastal military defense system intended to protect one of the nation's preeminent 20thcentury coastal cities.

Contributing resources to the Fort Tilden Historic District fortification area should include the surviving gun emplacements and associated structures dating from World War I and World War II eras, as well as the surviving features and fabric associated with the district's utilization as a Cold War-era base for both Nike-AJAX and Nike-Hercules missiles. Despite some significant losses of period buildings, the vast majority of surviving historic buildings and structures located in the property's post and wharf areas (including such historic features as roads, circulation patterns, overall plan, waterfront ruins, and shoreline beach groins) retain sufficient integrity as a whole to contribute district's significance as an integrated 20th-century coastal defense installation under Criterion A.

Potential Eligibility--National Register Criterion D

Based on a detailed analysis of the documentation provided by NERO, as well as information obtained during two onsite inspections of the property by staff from the Keeper's office, it appears highly likely that the expanded Fort Tilden Historic District includes a significant number of archeological resources that will qualify listing as contributing to the significance the district eligibility under National Register Criterion D. The Keeper therefore strongly recommends that an appropriately qualified historical archeologist synthesize the extensive land-use documentation already available for the historic district, and identify and complete such further work as may be necessary to specifically identify and evaluate district archeological resources.

National Register Criterion Exception G

While some of the resources associated with Fort Tilden's surviving Nike missile facilities are slightly less than 50 years old, enough time has elapsed and perspective gained to consider the Cold War as a defined historical period in its own right. The fort's surviving, Cold War-era Nike missile facilities contribute to a fuller understanding of the ongoing significance of Fort Tilden as a 20th-century coastal military installation, as well as part of a larger costal defense system that operated well into the 1960s.

Verbal Boundary Summary--Fort Tilden Historic District (DOE)

The appropriate boundary for the updated Fort Tilden Historic District as documented in this Determination of Eligibility is coterminous with the boundary of the Fort Tilden property as currently administered and maintained by the National Park Service. This boundary includes the so-called fortification, post, and wharf in their entirety. The district boundary does not include



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OLMSTED CENTER FOR LANDSCAPE PRESERVATION Boston National Historical Park Charlestown Navy Yard, Quarters C Boston, MA 02129 Phone: 617.241.6954 Fax: 617.241.3952 www.nps.gov/oclp/