

United States Department of the Interior
National Park Service

**NATIONAL REGISTER OF HISTORIC PLACES
REGISTRATION FORM**

This form is for use in nominating or requesting determinations for individual properties and districts. See instructions in How to Complete the National Register of Historic Places Registration Form (National Register Bulletin 16A). Complete each item by marking "x" in the appropriate box or by entering the information requested. If any item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, architectural classification, materials, and areas of significance, enter only categories and subcategories from the instructions. Place additional entries and narrative items on continuation sheets (NPS Form 10 900a). Use a typewriter, word processor, or computer, to complete all items.

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1. Name of Property

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historic name Fort Miles Historic District

other names/site number CRS# S-6048

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2. Location

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street & number At the confluence of the Atlantic Ocean and Delaware Bay
not for publication city or town Lewes vicinity X
state Delaware code DE county Sussex code 005 zip code 19958

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3. State/Federal Agency Certification

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As the designated authority under the National Historic Preservation Act of 1986, as amended, I hereby certify that this x nomination request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60. In my opinion, the property x meets does not meet the National Register Criteria. I recommend that this property be considered significant x nationally statewide locally.

Signature of certifying official

Date

8/12/2004

State or Federal agency and bureau

In my opinion, the property meets does not meet the National Register criteria.

Signature of commenting or other official

Date

State or Federal agency and bureau

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6. Function or Use

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Historic Functions

Cat: <u>Defense</u>	Sub: <u>arms storage</u>
<u>Defense</u>	<u>fortification</u>
<u>Defense</u>	<u>military facility</u>
<u>Transportation</u>	<u>water-related</u>
<u>Domestic</u>	<u>institutional housing</u>

Current Functions

Cat: <u>Domestic</u>	Sub: <u>Single dwelling</u>
<u>Recreation & culture</u>	<u>Outdoor recreation</u>
<u>Landscape</u>	<u>Park</u>
<u>Education</u>	<u>Research Facility</u>
<u>Transportation</u>	<u>Water Related</u>
<u>Domestic</u>	<u>Camp</u>
<u>Unknown</u>	
<u>Vacant</u>	

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7. Description

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Architectural Classification

Other: Standardized World War II
Fortification and Mobilization
Architecture

Materials

Foundation reinforced concrete, timber piles
roof reinforced concrete, metal,
corrugated asbestos, dimensional
sawn lumber
walls reinforced concrete, metal,
corrugated asbestos concrete
block, dimensional sawn lumber
other N/A

Narrative Description

See continuation sheets

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8. Statement of Significance
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Applicable National Register Criteria

- A Property is associated with events that have made a significant contribution to the broad patterns of our history.
- B Property is associated with the lives of persons significant in our past.
- C Property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.
- D Property has yielded, or is likely to yield information important in prehistory or history.

Criteria Considerations

- A owned by a religious institution or used for religious purposes.
- B removed from its original location.
- C a birthplace or a grave.
- D a cemetery.
- E a reconstructed building, object, or structure.
- F a commemorative property.
- G less than 50 years of age or achieved significance within the past 50 years.

Areas of Significance Military
Period of Significance 1940-1945 +/-
Significant Dates 1940
Significant Person N/A
Cultural Affiliation N/A

Architect/Builder N/A

Narrative Statement of Significance

See continuation sheets

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9. Major Bibliographical References
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See continuation sheets.

Previous documentation on file (NPS)

- preliminary determination of individual listing (36 CFR 67) has been requested.
- previously listed in the National Register
- previously determined eligible by the National Register
- designated a National Historic Landmark
- recorded by Historic American Buildings Survey #
- recorded by Historic American Engineering Record #

Primary Location of Additional Data

- State Historic Preservation Office
- Other State agency: Delaware Department of Natural Resources and Environmental Control.
- Federal agency
- Local government
- University
- Other

Name of repository: Center for Historic Architecture & Design, University of Delaware

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10. Geographical Data
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Acreage of Property 1440 acres

UTM References

	Zone	Easting	Northing	Zone	Easting	Northing	
A	<u>18</u>	<u>491044</u>	<u>4292858</u>	C	<u>18</u>	<u>492294</u>	<u>4294010</u>
B	<u>18</u>	<u>491916</u>	<u>4293924</u>	D	<u>18</u>	<u>439007</u>	<u>4290296</u>
				E	<u>18</u>	<u>490944</u>	<u>4290255</u>

See continuation sheet.

Verbal Boundary Description

See continuation sheet

Boundary Justification

See continuation sheet

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11. Form Prepared By
=====

name/title Elizabeth Ross, Graduate Research Assistant
organization Delaware Department of Natural Resources and Environmental
Control date March, 2004

street & number 89 Kings Highway telephone (302)831-8097

city or town Dover state DE zip code 19901

Edited by: Robin Bodo, National Register Coordinator
Delaware State Historic Preservation Office
21 The Green, Suite A
Dover, DE 19901
(302)739-5685

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Additional Documentation
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Continuation Sheets

Maps

USGS quad map
Site plan showing tax parcel boundaries and major features
Sketch map showing resources and CRS numbers

Photographs

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Property Owner
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name State of Delaware Department of Natural Resources and Environmental
Control street & number 89 Kings Highway telephone 302-739-4413
city or town Dover state DE zip code 19901

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Paperwork Reduction Act Statement: This information is being collected for applications to the National Register of Historic Places to nominate properties for listing or determine eligibility for listing, to list properties, and to amend existing listings. Response to this request is required to obtain a benefit in accordance with the National Historic Preservation Act, as amended (16 U.S.C. 470 et seq.).

Estimated Burden Statement: Public reporting burden for this form is estimated to average 18.1 hours per response including the time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding this burden estimate or any aspect of this form to the Chief, Administrative Services Division, National Park Service, P.O. Box 37127, Washington, DC 20013-7127; and the Office of Management and Budget, Paperwork Reductions Project (1024-0018), Washington, DC 20503.

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Physical Description

Located in Sussex County, just southeast of Lewes, the Fort Miles Historic District consists of approximately 1,165 acres within the larger boundary of Cape Henlopen State Park. The district contains 61 resources that contribute to the significance of the district because they were constructed between 1940 and 1945 as part of the military installation, and 18 non-contributing resources that reflect additions to the district after 1945 or resources heavily altered after the period of significance. Many of the buildings from the initial development period were built as temporary construction and are no longer extant. Despite this loss, the surviving resources in the Fort Miles Historic District represent an important part of the military history of Delaware.

Fort Miles contains a mid-twentieth century planned military landscape consisting of the fort's defensive installations and the post to support it. While the purpose and function of the fort changed several times after 1945, key features of the military landscape survive intact. These include resources such as batteries, gun emplacements, fire control towers, a parade ground, and road layout, as well as significant examples of support resources such as storage buildings, barracks, and mess halls. The landscape retains much of the physical characteristics of a mid-twentieth century seacoast fortification. Although Fort Miles sustained some significant loss of resources after the close of World War II, the landscape and physical features that remain provide an excellent example of a military base from the mid-twentieth century.

Compared with existing conditions, historic maps, aerial photographs, War Department site plans, architectural drawings, and military correspondence indicate that many of the resources from the World War II period have been demolished or modified. Historic maps provide the best evidence as to how the landscape of Fort Miles has changed since the initial building phase in 1941. The best indicator of this extensive building loss comes in comparisons of the installation's military maps of the fort during its maximum development and the current inventory of historic resources. Despite this level of loss, the fort still retains physical integrity in the form of its plan and layout, and the physical features of the surviving resources.

The following list describes each of the resources included within the boundaries of the Fort Miles Historic District and indicates its status as contributing or non-contributing. The buildings grouped according to property type and association. The names given to the resources are those obtained from the engineering records for Fort Miles and represent the historic names assigned at the time of construction. In some cases the engineering records indicated the inventory number assigned by the Fort; where such a number exists it follows

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the name of the building (e.g., Harbor Defense Office T-410). The statewide Cultural Resource Survey (CRS) inventory number, assigned by the State Historic Preservation Office, for the entire Fort Miles Historic District is S-6048. Numbers following a decimal point after this initial number indicate a specific building, object, or site within the fort.

INVENTORY

Mine Facilities- With the exception of three cable huts, all of the buildings and structures that pertained to the operation of the underwater mine program were located in the northwest corner of Fort Miles, along the Delaware Bay. Military correspondence and cartographic evidence indicate that the mine program and buildings were among the earliest installations within Fort Miles. Access to the various buildings was gained via Dock Road.

Mine Storage Building (S-6048.004). Framed in steel and covered with corrugated asbestos siding, cartographic records indicate that the Mine Storage Building was completed by September 1941. The two and one-half story, parallel-gabled Mine Storage Building is located west of Dock Road, near the mine wharf and measures approximately 204 by 100 feet. Single pane fixed windows and vertical board replaced the World War II era windows and garage doors in the twelve evenly-spaced bays on the west façade. Each gable on the north and south façade contained one centrally located garage door flanked by fixed two sixteen-paned windows. The northern elevation's eastern bay has been modified by a placement of a door and two fixed nine-pane windows in the original garage opening. The western façade's twelve evenly-spaced sixteen-pane double wide windows remain intact and unmodified. Although most of the interior was dedicated to the storage of mines the building included three toilet rooms, a tool room, an office, quarters, and a closet. An integral part to the underwater mine program for the Harbor Defenses of the Delaware, the Mine Storage Building provided space for the 1000-pound contact mines used in the Delaware Bay. Adaptively reused by the University of Delaware, the building now houses the University's "Wave Center." (1 Contributing Building)

Mine Casemate (S-6048.060). Completed by December 1943, the Mine Casemate is located near the mine facilities, along the Delaware Bay. The Army's "Report of Completed Works" indicates that eight-foot thick reinforced concrete comprises the building's 60.5-foot long northern façade. The casemate's western and eastern façades extend approximately 83.5 feet behind the northern façade and

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incorporate a seventeen-foot extension from the main block. The western and eastern walls differ in thickness, depending on their relative location to the water-facing north façade. The northern halves of the walls mimic the northern façade. They are eight feet of reinforced concrete, while the southern portions of the walls are four feet thick. The south façade contains two seven-foot wide openings behind double doors: one in its eastern corner and one in its western corner. Halls leading from these entrances provided access to a Power Room and a Heating and Ventilator Equipment Room and the central corridor. The central corridor then provided access to air locks, storerooms, G. W. S. Equipment Rooms, Latrines, an Operating Room, and a Plotting Room. The roof and foundation were also comprised of eight-foot thick reinforced concrete. The foundation was further stabilized by the incorporation of timber piles into the sand and earth below the casemate. Earth fill, a burster course, and earth cover and vegetation protected and concealed the Mine Casemate from identification and bombardment. The state park, in an attempt to mitigate vandalism, sealed the entrances to the bunker with earth and sand, thus the mine casemate is not accessible and therefore its interior remains unevaluated. (1 Contributing Building)

Cable Hut #1(S-6045.014), #2(S-6045.061), #3(S-6045.031), #4 (S-6045.006). Completed by December 1943, the Installation's Cable Huts measured six feet cubed in their interiors. Their low-sloped pyramidal hipped roofs and walls are composed of eight-inch thick reinforced concrete. The structures' cement floors rested on a reinforced concrete foundation that extended four feet below grade. The Cable Huts served as a nexus for the electrically controlled underwater mine program. Two huts are located on the Delaware Bay, near the Fortification's Waste Water Treatment Plant. One is located on the northern side of the Park's Bathhouse Boardwalk. Another is located south of Post Lane, just west of the Parade Ground. (4 Contributing Buildings)

Corps Of Engineers And Quartermaster Corps Buildings- he Army Corps of Engineers and the Quartermaster Corps operated within a small section of Fort Miles. Located near the Fort's western boundary, just south of the Fort's entrance, the area now hosts the Cape Henlopen Park Office. The following list describes extant resources in detail and provides location information for the non-extant buildings and structures.

Army Engineer and Signal Property Building T-511. (S-6048.002). Constructed during winter 1943 the Army Engineer and wood-framed Signal Property Building measures 50 by 100 feet and is located at the southeast corner of Motor Lane and Signal Road. The gable-ended northern façade contains five evenly

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spaced openings concealed by single sections of corrugated asbestos sheeting. Originally fitted for offloading supplies from rail, four of the five loading bays on the east façade have been modified. Three windows replaced the northern loading bay and are now covered by corrugated asbestos sheeting, the second bay contains a window and vertical board siding, the third retains its sliding freight door, while the fourth and fifth openings contain one window surrounded by vertical board siding. The southern elevation exhibits identical fenestration to the northern elevation. From the north, the western elevation displays one door, followed by two windows, three garage doors and one set of double doors. The building's foundation is comprised of poured concrete, extends approximately three feet above grade, and provides a loading platform along the western façade. Cement-asbestos siding covers the building's original wood shiplap sheathing. The roof exhibits five vents along its ridgeline and four sunroofs on its eastern slope. Rains gutters and down spouts accent the open eaves along the western and eastern elevations. Two fuel tanks remain within a reinforced concrete pen on the northern side of the building. All of the building's windows are one over one double hung sash in aluminum casing. This building provides storage for the park. (1 Contributing Building)

Post Engineer Warehouse T-514 (S-6048.085). Constructed with concrete block walls, the Post Engineer Warehouse rests on a poured concrete foundation. The one story building exhibits a low slope gable-ended northern façade. The northern façade's three bays are separated by concrete block piers. The eastern bay contains three contiguous windows, the middle bay a metal garage door, and the western bay a modified pent roof porch that contains one door flanked by two contiguous windows to its west. The ten-bay eastern façade exhibits windows in its first, third, fifth, sixth, eighth and tenth bay and garage doors in its second fourth seventh and ninth bay. Similar to the northern elevation, the gable-ended southern façade contains three bays, but identical windows in the first and third bay flank the centrally placed garage door. The western elevation consists of ten bays, with windows in the first, second, fourth, fifth, eighth, and tenth bays and garage doors in the third, sixth, and ninth bays. All windows on the building's east, south, and west elevations contain one six over six double hung sash window on either side of a central twelve pane fixed window. Each window rests on a poured concrete sill. Concrete clock piers separate each of the building's bays. The building maintains its use as a warehouse for the park's superintendents and maintenance personnel. (1 Contributing Building)

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Batteries And Bunkers- The bunkers' eastern façades measure eight feet thick and 78 feet, nine inches long. Their southern and northern façades are identical. Near their midpoints, each wall extends six feet out and the wall thickness changes from eight to four feet for the remainder of its run. The exterior walls, of the north and south elevations, measure 67.5 feet long. The western façades are marked by a seven-foot wide entrance in both their north and south corner. A three-foot thick wall forms two successive right angles and retracts back a total of sixteen feet from the entrances. In order to conceal their location and provide protection in the event of an enemy strike, each Plotting Room was covered with earth fill, a burster course, and vegetation. The interiors are divided into four main sections: the tactical and engineering area, in the east, a corridor, storage and latrines to the west, and the entrance hallways. Double doors on each entrance open onto a hallway. The north hallway provides access to the Signal Corps, Power, and Storage Battery Room, while the south hallway provides access to the Heating and Equipment Room. Each hallway leads to separate air lock and wash areas and then onto the main corridor. The corridor runs on a north to south axis. To its west are located a storeroom, an equipment room, and the Plotting Room's latrines. To its east lie the Switchboard Room, the Plotting Room, and the Spotting Room. Today, Plotting Rooms #118 and #119 are completely concealed. In an attempt to mitigate personal injury and vandalism, Delaware's Department of Parks and Recreation placed earth and sand in front of the buildings' entrances. A large earthen mound, ventilator shafts, and pipes are the only evidence that indicate the Plotting Rooms' existence.

Battery #22 (S-6048.030). Constructed between December 1941 and June 1942, Battery #22 was equipped with four 155-millimeter caliber guns and is among the earliest extant World War II defensive works. The emplacements, a circular central platform and one 180-degree arced rail, resembled a half moon shape that measured 38 and one-half feet across. A circular concrete platform measuring ten feet in diameter supported a 31-foot gun tube in the center of the arch. The gun mount slid on the 180-degree arced rail placed on a three-foot thick foundation behind the circular platform. Commonly referred to as a "Panama Mount," for its use in the Panama Canal, each emplacement held a 155-millimeter gun. Four corrugated sheet steel igloo magazines complemented the Panama Mounts. Of the four original 155-millimeter guns Panama Mounts, only one survives. It is located underneath the Cape Henlopen State Park's Beach house boardwalk. (1 Contributing Building)

Battery 118 Smith (S-6048.042). Constructed between March 1941 and October 1942, Battery 118 held two sixteen-inch guns and was the largest battery in the fortification. The battery measured 570 feet long. Entrances located behind each of the gun blocks on the western elevation measure 16 feet across.

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Both lead to the twelve-foot wide transverse corridor. The corridor provides access to storerooms, shell rooms, powder rooms, latrines, a water cooler room, and the compressor room. The guns, manufactured by Watervliet Arsenal and Midvale Ordnance Company, measured 816 inches in length and were placed on barbette carriages manufactured by Watertown Arsenal. Each of the gun block rooms measures 43 feet by 43 feet and is further secured to the earth with timber piles. Comprised entirely of reinforced concrete, the battery's walls and roof measure between x feet and x feet wide. A two-foot wide concrete burster course and earth fill conceal and protect the battery. Most recently used as a recreation facility by the naval installation, Battery 118 was turned over to Delaware DNREC in 1996. (1 Contributing Building)

Battery 221 Herring (S-6048.044). Constructed between January 1942 and August 1943, the reinforced concrete Battery Herring (221) was the southern most battery for Fort Miles. Measuring approximately 173 feet in length, an eight-foot wide transverse corridor runs parallel to the ocean and provides interior access to two storage rooms, two air compressor and generator rooms, six shell rooms and two powder rooms. The transverse corridor also provides south and north access to the firing platforms for the six-inch guns. Another corridor connects to the middle of the transverse corridor and runs west to the rear entrance of the battery. This corridor provides access to the plotting room, switchboard room, latrine and an equipment room located to the south of the hall and a powder room and water cooler room located to the north of the hall. A separate entrance on the west elevation provides access to the muffler gallery. All exterior walls and roof surfaces are comprised of reinforced concrete and measure between one and one-half to three feet thick. A layer of earth followed by a one and one-half foot concrete slab, called a burster course, and then a final layer of earth and vegetation over the burster course effectively concealed and protected the battery's location. The battery controlled two six-inch gun emplacements. Unlike the bunker, the firing platforms and guns were not concealed by an earthen cover and burster course. Steel shields provided the overhead cover. Comprised of concrete, the gun emplacements measured 45 feet in diameter and were placed 210 feet apart, from center to center. Timber pilings driven into the earth below supported the recessed concrete foundation for the gun carriage. Mounted on barbette carriages manufactured by the Wellman Engineering Company, each gun measured 310 inches in length and was manufactured by the Watervliet Arsenal. The guns provided a radius of fire equivalent to 26,000 feet. After the installation was decommissioned as a coastal fortification, the Navy outfitted the battery for use as a Sound Surveillance System (SOSUS). Through this renovation, the Navy subsequently removed the earthen cover and burster course original to the World War II period

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construction. Although the Navy modified the battery to incorporate components of the SOSUS program, several key features remain intact, including the two concrete gun emplacements on either side of the battery. (1 Contributing Building)

Battery 222 Hunter (S-6048.029). Constructed between April 1942 and October 1943, exhibited a similar structural composition to Battery Herring (221). Located just north of Battery 22, the Battery Hunter controlled two six-inch guns placed to the north and south of the battery. Mounted on barbette carriages manufactured by the Wellman Engineering Company, each gun measured 310 inches in length and was manufactured by the Watervliet Arsenal. With a foundation, walls, and roof comprised of reinforced concrete, Battery Hunter was further protected by a burster course and earth fill above its roof. (1 Contributing Building)

Battery 519 (S-6048.086). Constructed between November 1942 and August 1943, Battery 519 was equipped with two twelve-inch guns. Each gun measured thirty-seven feet in length and was mounted on a barbette carriage. Both guns and carriages were manufactured by the Ordinance Company. The battery was constructed entirely with reinforced concrete. (1 Contributing Building)

Harbor Defense Command Post (S-6048.064). Located south of the Engineer Reservation, The Harbor Defense Command Post (HDCP) remains completely covered by earth and sand. Completed by October 1943, the building's corridor pattern roughly resembles a "u" shape, with the bulk of the rooms located around the bottom of the "u." The east elevation measures 83.5 feet long. Rooms dedicated to cryptography, H.D.C.P. radio, message center, and operations are placed along the interior of this eastern wall. A five-foot wide corridor provides access to these rooms as well as room located along the western elevation, such as offices, latrines, storage areas and the equipment room. Additional corridors on the north and south elevations lead past power rooms, to the structure's west entrances. All exterior reinforced concrete walls measure two feet wide and the interior ceiling height measures nine feet. (1 Contributing Building)

Plotting Room #118 (S-6048.045) and Plotting Room #119 (S-6048.065). Located west of Dune Road, in the southern reaches of the installation, Plotting Room #118 coordinated tactical information for Battery #118 (Battery Smith). Located east of Dune Road near the Engineer Reservation, Plotting Room #119 coordinated tactical information for Battery #519. Hidden beneath earth and vegetation to

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conceal their location from enemy ships and aircraft, both Plotting Rooms were completed by December 1943. (2 Contributing Buildings)

CANTONMENT CONSTRUCTION- Cantonment construction at Fort Miles includes a large section of land located between Point and Dock Roads, Post Lane, south of the Delaware Bay. Small encampments were also located on the tip of the cape near the Naval Meteorological Station, on the west side of Dune Road near Battery Smith, and on the west side of Dune Road near Battery Herring. With the exception of an area located on the eastern boundary of the main cantonment, which was built utilizing a Series 700 plan during the fort's initial building phase in 1941, these four locations utilized the same standardized plan – the modified Theater of Operations plans. Construction on the barracks, mess hall, latrines, and recreation building near Battery 519 occurred in 1943 and, although the plans for this small encampment are similar to the rest of the base, their differences and time period necessitates a separate entry. It is also important to note the Fort Engineer's choice of building material. Theater of Operations buildings, the most temporary of standardized Army structures, were constructed of wood frame. All of the Theater of Operations buildings at Fort Miles, however, were built with concrete block.

Barracks T-308 (S-6048.020), T-309 (S-6048.020), T-312 (S-6048.017), T-314 (S-6048.016), T-348(S-6048.012), T-349 (S-6048.010), and T-351 (S-6048.009). Built by in 1942, these single story side-gabled barracks are located in the main living area of Fort Miles; north of Post Lane, east of the mine facilities, and south of the Delaware Bay. Based on the same Theatre of Operations standardized plan, the eight cantonment barracks housed enlisted men during their service at Fort Miles. Divided by a concrete block interior wall, each building contains two living quarters. The front elevation is marked by eleven openings; with entry doors in both the third and ninth space. The rear elevation contains eleven symmetrically spaced windows. An open eave made from the enclosed rafters on both the rear and front elevations provide an anchor for modern aluminum gutters and downspouts. Both gable ends contain a single door, a roof vent, and a cream colored fascia. The single pile, concrete block buildings reside on poured concrete slab foundations. All windows are one over one double hung sash in aluminum casing and rest on concrete sills. The Department of Parks and Recreation maintains these buildings for summer youth camps. (7 Contributing Buildings)

Supply and Administration Buildings T-346 (S-6048.006), T-307 (S-6048.023), and T-310 (S-6048.019). Located within the cantonment section, the one story side-gabled single-pile Supply and

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Administration Buildings were constructed by March 1944. Erected according to the same Theater of Operations standardized plan, each building displays concrete block construction and rests on a poured cement slab foundation. Their front elevations reveal four evenly spaced openings, with the second dedicated to the structure's entry door. The rear façade exhibits four evenly spaced windows. Slight eaves provided by the roof's exposed rafters protect the front and rear fenestration from rain. One gable end presents two evenly spaced windows, a cream colored fascia, and roof vent. The other gable end displays one centrally placed door, a roof vent, and cream colored fascia. All windows contain twelve-pane wood framed awning windows and mosquito screens that rest atop concrete sills. Used as office and storage space during World War II, the Supply and Administration Buildings are not used by the park. (3 Contributing Buildings)

Mess Hall T-347 (S-6048.007). Located west of Middle Road in the main cantonment section of the installation the one-story, gable roofed Mess Hall T-347 follows a modified Theater of Operations plan. Concrete block walls rest on a poured cement foundation. The buildings south façade is marked by a cream-colored fascia on its cable end. A vent falls just below the roof's apex. A centrally-located door is flanked on either side by a modern one over one widow in aluminum casing. The east and west façades are marked by the same fenestration pattern and are protected by an open eave and modern aluminum gutters and rain spouts. From the southern end of the building, eight symmetrically placed window, a double door, two half-scale windows and then three regular-sized windows comprise the east and north façade's fenestration. The northern façade is marked by double door offset to the west, a cream-colored fascia and roof vent. All windows are one over one double hung sash in aluminum casing and rest on poured concrete sills. This mess hall continues to serve the same function for the Park's youth camps. (1 Contributing Building)

Battery 519 Barracks. T-603 (S-6048.087), T-604 (S-6048.088), T-607 (S-6048.089), T-608 (S-6048.090). A total of four barracks line XX Road, the access road to Battery 519. Based on the same standardized plan, each one-story side gabled concrete block barrack measures 100 by 20 feet. The front elevations contain thirteen openings, with the second, seventh, eighth, and twelfth dedicated to doors. The centrally-located door openings on the gable ends have been filled in with concrete block. The rear elevations exhibit thirteen symmetrically-placed window openings and an extended entry way between the eleventh and twelfth window. All of the windows exhibit wood shutter details and poured concrete sills. The Navy continued to use these buildings for recreational purposes until 1996, when they were

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declared surplus and acquired by the State of Delaware. Although the Department of Parks and Recreation does not currently use these buildings, these Barracks will contribute to the historical interpretation of the proposed World War II museum within Battery 519. (4 Contributing Buildings)

Battery 519 Recreation Building T-600 (S-6048.092). Battery 519's Recreation Building is located on the north side of XX road, west of the Supply and Administration Building. Constructed during 1943, the one story front gabled Recreation Building is composed of concrete block and rests on a concrete slab foundation. An exterior chimney stack on the east end of the north façade is composed of concrete block. Otherwise, the north and south elevations are identical and contain eight symmetrically placed window openings, poured concrete windowsills, and decorative window shutters. The roof's wooden rafters extend beyond the structure's girts, thus furnishing an open eave on both the north and south façade. Both gable ends exhibit the same construction; the doorways were placed off center to the south with one window on either side. Vents in the gables' apexes, as well as wooden fascias are also included on these elevations. As with the Barracks, the Recreation Building was declared surplus in 1996 by the Navy. (1 Contributing Building)

Battery 519 Supply and Administration T-601 (S-6048.091). The Supply and Administration Building for Battery 519 is located between the Recreation Building and the Latrine site, north of XX Road. The one story front gabled concrete block building was based on a modified Theatre of Operations building plan. The south gable exhibits one centrally placed door. Four windows on concrete sills, with wooden shutters, line the west and east elevations. Another centrally located door, as well as a concrete block chimney stack are located behind a wood framed porch on the northern façade. Although the park acquired this property in 1996, it currently does not use the building. (1 Contributing Building)

SUPPORT AND SERVICE BUILDINGS

Harbor Defense Office T-410 (S-6048.005). The two and one-half story wood framed Harbor Defense Office is located on the north side of Post Lane, just inside the park's western boundary. Cartographic evidence suggests that its construction occurred during the initial building phases of Fort Miles, in summer 1941, and is among the earliest extant World War II period structures. Found on each three-bay gable end and decorated with cream and light brown paint, wood framed stairs facilitate access to the first and second story aluminum door entrances. A cream colored wooden fascia provides further

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decoration to the gable ends. With an irregular pattern of single and two contiguous windows in its ten bays, the northern façade exhibits centrally located doors on the first and second stories. The eight-bay southern façade of the structure exhibits a first period two-story single pile ell projecting from the two central bays. Located below the ridgeline, a brick chimney stack with decorative corbelling pierces the southern slope of the gable roof. Light brown cement-asbestos shingles cover the exterior walls, while decorative variegated composition shingles protect the roof of the main block and first period ell. The main block rests on a masonry foundation. A second period wood-framed, one-story shed-roof closed porch projects from the first period ell and provides an entrance and storage area for the building. Located behind wood framed mosquito screens, cream colored wood framed one over one double hung sash windows occur at irregular intervals in single and double wide placements in both the first and second stories of each façade. Cream colored exposed roof rafters on both the north and south façade provide support to the building's decorative eave. Used today as a student dormitory for the University of Delaware's marine studies program during the summer months, the building retains a high degree of integrity. (1 Contributing Building)

Annex T-411 (S-6048.093). The single-story salt box wood-framed Annex dates from 1941 and is located in the east lawn of the Harbor Defense Office, T-410, on the north side of Post Lane. The five bay south façade exhibits World War II period wood-paneled and four-pane fixed glazed doors in both the second and fourth bays and one over one double hung sash windows in the first, third, and fifth bays. Evidenced by the extant hardware and fixtures, wooden framed mosquito screens have been removed from the south façade windows. The east façade contains a double wide six-pane awning window. The World War II period window on the west façade has been replaced by a single pane fixed window and vertical board siding. The north façade contains four evenly-spaced bays; three exhibit at least one of the six-pane double wide awning windows. Clad in light brown cement-asbestos shingles and trimmed in cream, the Annex rests on a masonry foundation. The building is currently used for storage. (1 Contributing Building)

Chapel T-360 (S-6048.025). One and one-half stories, the installation's chapel sits atop a knoll within the cantonment area. Constructed by March 1944, the building exhibits concrete block construction. The front-gabled southern façade contains one centrally placed opening retrofitted with a post period door and vertical board siding, a vent below the roof's apex, and a cream colored fascia. One concrete cross flanks either side of the door, denoting the entrance to the chapel. In a south to north pattern, the

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east and west façades display eight symmetrically placed windows followed by an uneven pattern of one door and then two windows. The east façade contains a concrete block pier between the fourth and fifth window, while the west façade displays piers at both the southwest corner and between the eighth window and door. Enclosed rafters provide the open eave just above the west and east façades' aluminum one over one double hung sash windows. A door and window on the north elevation fall on either side of a centrally placed concrete pier. A fascia and roof vent accent the roof line. Modern doors replaced the World War II period door and frames. The brown painted building's sills are comprised of poured concrete. The chapel provides the park's camps with space for religious and recreational activities. (1 Contributing Building)

Officers Mess Hall T-301 (S-6048.026). Located on the west side of Officers Road, the one-story Officers Mess Hall displays post period siding, windows, and doors. The wood framed cross-gabled Officers Mess, was one of two mess halls dedicated to officers, and among the earliest buildings constructed. The main entrance is located on the east gable beneath a wood framed porch. Secondary entrances provide egress from each of the three remaining gables. Closed eaves accent the building's roofline. A brick chimney stack is located on the southern slope of the west gable while an exterior stack is located in the corner of the east and south gables. This building supplies the park with space for Youth Camp III, as well as private functions and events. (1 Contributing Building)

Storage Building - Owned By DE Pilot Association (S-6048.028) (1 Contributing Building)

FIRE CONTROL TOWERS- Built of twelve-inch reinforced concrete, eleven cylindrically shaped Fire Control Towers line the Delaware Seashore, but only four are within the boundary of the Fort Miles Historic District. Fire control towers, or base end stations, incorporated the most accurate method of target location available prior to the advent of radar and sonar: triangulation. Targets were identified through 180-degree observation slits with an optical instrument called the M-1910 azimuth unit. Target coordinates were then submitted electronically to the Fort's Plotting Rooms. Typically, an interior deck held two observation units and each tower held at least one deck. The observation decks were accessed through a trap door in the floor. Steel ladders were placed at staggered intervals between decks. Depending on the tower's height, small landings were sometimes incorporated between floors. Although the stations primarily assisted in the identification of naval targets, antiaircraft observation occurred on the roofs. In most cases, the metal safety railings placed on

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the Towers' roofs remain. The scarcity of structural steel, as well as the increased splinter-proof protection provided by reinforced concrete furnished good reason for the Corps of Engineers to choose this method of construction over other plans that called for large quantities of limited materials. The plans also called for a special lusterless concrete aggregate treated with coloring to match the surrounding landscape as well as copious evergreen plantings at the structure's base to provide further camouflage. Two of the towers have undergone extensive modification in the years following World War II. Located on the land spit of Cape Henlopen, Tower #9 now serves as a navigational facility for the Delaware Pilot Association. The Delaware Department of Parks and Recreation converted Fire Control Tower #7, located near the ordnance igloos in the center of the camp, into an observation tower for the park's visitors. A winding staircase with metal observation platforms replaced the World War II period interior. The structures' optical instrumentation, the M-1910 observing unit, and hardware were removed after the war. The interior metal stairs and doors of the nine unmodified towers are in poor condition. Although based on the same standardized plan, the location, height, and battery assignments for each Fore Control Tower differ. Tower height and fenestration depended on several factors, such as topography and distance from the gun emplacement. The following list describes those differences.

Fire Control Tower #7 T-668 (S-6049.032). Located in the Fort Miles Installation, Fire Control Tower #7 measures 69.5 feet in height and 17 feet in width. Observation points are located at 50 feet, 58 feet, and 66 feet along the eastern façade. This station provided tactical assistance to the Mine Battery. (1 Contributing Structure)

Fire Control Tower #8 T-385 (S-6049.029). Located in the Fort Miles Installation, Fire Control Tower #8 measures 72 feet and seven inches in height and seventeen feet wide. Two observation openings occur at approximately 61.5 feet and 69.5 feet on the eastern façade, respectively. The tower's reinforced concrete foundation extends eleven feet, two inches below grade and rests on timber piles. Fire Control Tower #8 provided tactical observation for Battery Smith and Battery No. 519. (1 Contributing Structure)

Fire Control Tower #9 T-130 (S-6049.027). Located in the Fort Miles Installation, Fire Control Tower #9 measures 24.5 feet tall and nineteen feet wide. Its reinforced concrete foundation extends fifteen feet below ground level and rests on timber piles. Three observation slits occur at regular intervals along its eastern façade. FC Tower #9 provided tactical observation for Battery Herring, Battery Hunter, and the

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Mine Battery. The tower has been adaptively reused by the Delaware Pilot Association for maritime navigation. (1 Contributing Structure)

Fire Control Tower #12 T-570 (S-6049.055). Located in Fort Miles, fire control tower #12 is comprised entirely of twelve-inch reinforced concrete and was equipped with a DPF M-1910 observing instrument. (1 Contributing Structure)

ORDNANCE IGLOOS, RIFLE RANGE AND PARADE GROUND

Ordnance Igloo #1 T-672 (S-6048.049), #2 T-673 (S-6048.050), #3 T-674 (S-6048.051), #4 T-675 (S-6048.052), #5 T-670 (S-6048.047), #6 T-671 (S-6048.048), #7 T-588 (S-6048.052) and #8 T-587 (S-6048.053). Although based on the same standardized plan, the Fort Miles Ordnance Igloos were completed in two stages. Igloos #1 through #4 were completed by January 1942, while Igloos #5 through #8 were completed by July 1944. The eight Igloos are located on Igloo Road, near the center of the Fort Miles Installation. The structures derive their name from their half-cylindrical shape. Their interiors measure approximately 40 feet, four inches deep by 26 feet, six inches wide and twelve feet, six inches in height. Their reinforced concrete walls rest on a poured cement slab foundation. Partially hidden and protected by earth fill and vegetation, its walls and roof are composed of six-inch reinforced concrete. The Reports of Completed Works site the use of these T.N.T. Magazines as storage "for the ordnance department's special fuse program."¹ Their location was concealed by sand cover. Each of the entrances to the eight igloos is visible today. (8 Contributing Buildings)

Rifle Range (S-6048.094). Transferred on 11 February 1943, the rifle range was located just north of Battery 519. Originally, the rifle range incorporated four concrete walls. One wall survives and is located between the shoreline and Butts Road. (1 Contributing Structure)

Parade Ground (S-6048.095). The post's Parade Ground is located south of Post Lane directly across from the Guard House. Used for recreational as well as ceremonial purposes, the Fort Miles Parade Ground continues to serve the state park in a similar manner. (1 Contributing Site)

¹ Report of Completed Works.

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INFRASTRUCTURE

Chlorine Building (S-6048.054) (1 Contributing Building)

Pump House T-354(S-6048.063), T-500(S-6048.098), T-524 (S-6048.099). Architecturally similar to the extant barracks, these three concrete block Pump Houses display an entrance on one of their gable ends. Although these buildings contain the same eave and fascia treatment as their barrack counterparts, they were also constructed with a decorative quoin pattern on each of their corners. Vents located on the walls as well as warning lights denote the buildings' mechanical nature. An integral part of the water supply and sewage systems, the park maintains these buildings for the same purposes today. (3 Contributing Buildings)

Waste Water Treatment Plant T-322 (S-6048.015). The post's Wastewater Treatment Plant is located along the Delaware Bay. Originally treated through a process that utilized Imhoff Tanks and sludge beds, the waste water was eventually released into the Delaware Bay. Modified to cycle back into sludge beds located within the park's interior, the Waste Water Treatment Plant is still used today. (1 Contributing Structure)

Reservoirs. Two reservoirs served the post's water needs. The 100,000 gallon reservoir T-532 (S-6048.097) is located on the northwest corner of High and Stump Roads. The 50,000 gallon reservoir is located near the northwest corner of Officers Road and Post Lane, T-356 (S-6048.096). (2 Contributing Buildings)

ROADWAYS- Most of the road system at Fort Miles was laid out fairly early in the site's construction. The engineering schematics called for concrete roadways of sixteen, eighteen, twenty, or 22 feet in width with three-foot wide gravel shoulders. The thickness of the roadbeds measured six or eight inches, depending on location. Road surfaces were slightly rounded toward the crown at the centerline in order to mitigate rainwater. For the purposes of counting resources, the roadways are counted collectively as one contributing site.

Dune Road (S-6048.067). Completed by January 1942, the 22-foot wide Dune Road begins at the entrance to the post, runs in a southeast direction through the southern half of the installation and ends near the location of the Coast Guard flagpole. Extant today, the road exhibits the same macadam

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construction and two-lane appearance of its World War II period.

Post Lane (S-6048.068). Completed by January 1942, the 22-foot wide Post Lane runs east from the entrance to the installation to the public beach and is used today to provide access to the park's beach house and other secondary roads.

Point Road (S-6048.069). Partially completed by January 1942, Point Road provided access to structural elements located north along the cape. Running south to north this 22-foot wide road connects to Post Road near the present-day parking lot for the park's bathhouse. Although resurfaced with macadam, its two-lane composition is still intact.

Prettyman Lane (S-6048.070). Prettyman Lane measured sixteen feet across and provided access to the Naval Meteorological Station and support buildings to the west of Point Road. The park maintains a parking lot and bathroom facility in an area that roughly corresponds with the northern section of the road.

Sandy Point Road (S-6048.071). Sandy Point Road extends from the west side of Point Road and leads to Battery Hunter (222). Today the road provides access to a park pavilion and the bird observation deck located on top of Battery Hunter.

Dock Road (S-6048.072). Located near the entrance to the park, Dock Road originally provided the fort's men access to the Mine Facilities. Leading north from Post Lane, this 22-foot wide road is still used today and provides park visitors the route to the fishing pier, bait shop, nature trails, bathroom facility, and pavilion.

Bay Lane (S-6048.073). Bay Lane served as one of the principal vehicular arteries through the main cantonment section of Fort Miles. Located between Dock Road and the Guard House, Bay Lane led northeast from Post Lane, through the camp and eventually connected to Officers Road. Although nearly intact, the Department of Parks and Recreation modified a small portion of the roadway that originally connected to Officers Road wooden fencing, creating a dead-end. The park maintains this road for visitor and maintenance access to the youth camps.

Middle Road (S-6048.074). Middle Road bisected the main cantonment area. Accessed via either the

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north side of Post Lane or the south side of Bay Lane, the road continues to serve the park's camp. The southern exit onto Post Lane, however, is blocked by landscaping.

Officers Road (S-6048.075). Officers Road runs in a northeasterly direction from Post Lane toward Point Road and provided access to the camp's earliest barracks, as well as the Infirmary, and Officers' Mess Hall. This road retains its original concrete surfacing and facilitates access to the park's Youth Camp III and disc golf course.

Engineer Road (S-6048.076). Engineer Road ran parallel to the northern section of Dune Road and provided the main northwest access to the fort's Corps of Engineers and Quartermaster Corps buildings. Today, Engineer Road carries visitors past the Park Office to Contact Stations.

Motor Lane (S-6048.077). Located perpendicular to Dune and Engineer Roads, Motor Lane provided access to the Harbor Defense Motor Pool, Harbor Defense Motor Pool Rack, Tanks, Gas Station, Fuel Oil Storage, the Third Echelon Garage, and the Oil Shed. Extended to incorporate a loop back to Engineer Road, Motor Lane services the Cape Henlopen Park Office.

Signal Road (S-6048.078). Located west but parallel to Engineer Road, Signal Road provided access to the A and E Sig Prop Building, the Post Engineer Warehouse, and the Chemical Warfare Storage Building. Linking Motor Lane to Chemical Lane, this concrete road is currently used by the park's superintendent, assistant superintendent and maintenance personnel.

Chemical Road (S-6048.079). This road connects Signal Road to Engineer and Dune Roads and is currently used by park personnel.

Stump Road (S-6048.080). The 22-foot wide Stump Road provided the fort's troops with access to the incinerator.

High Road (S-6048.081). High Road forms a loop along the southern side of Dune Road, near the middle of the post. This road provided access to the first four ordnance igloos.

Igloo Road (S-6048.082). Igloo Road spurred from Dune Road and connected to the southern edge of

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High Road, thus providing access to the four additional ordnance igloos built by 1944. Still paved, the park uses Igloo Road as part of its trail system.

Butts Road (S-6048.083). Running parallel with the shoreline, Butts Road connected the eastern terminus of Post Lane to XX Road and provided access to the Fort's Rifle Range. The park maintains the road today as a paved nature trail.

XX Road (S-6048.084). XX Road forms a loop from the western side of Dune Road, opposite Fire Control Tower #7. This road provides access to Battery 519 and its encampment. Closed to vehicular traffic, the park continues to use XX Road as part of its trail system.

POST WORLD WAR II RESOURCES

Debrak Building
Park Office
Superintendent's Residence
Assistant Park Superintendent's Residents
Biden Center
Pavilions
Beach Bathhouse
Camp Bathhouses (2)
Primitive Camp Shower Building/Laundry
Primitive Camp Shower Building
Contact Station (2-engineer's area, 1- primitive camp)
Bait Shop
Comfort Station
Post War Recreation Building near 519

Mine Wharf and Boathouse. Located at the end of Dock Road and projecting on the Delaware Bay, the mine pier measures approximately 1774 feet long and 25 feet wide. A perpendicular piece measuring 400 by 50 feet is located at the end of the pier. The Mine Boathouse was located on the pier's eastern side and measured 200 by 42 feet. Completed by December 1943, the Mine Pier and Boathouse were comprised of creosoted wood

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pile bents, stringers, and decking. Mines, cable, and mine anchors were loaded onto the mine boat via the pier. A fire destroyed part of the wharf, including the boathouse. Rebuilt in 1979 at the original location, the mine pier is used today as part of the state park's recreation facilities. (1 Non-contributing Structure)

Guard House T-340 (S-6048.024). The single story side gabled concrete block Guard House is located on the north side of Post Lane. Exterior modifications included the removal of windows and doors. Best known for holding the men of the surrendered German submarine, U-858, the Guard House furnished the base with quarters to house prisoners and guards. Adaptively reused, the Fort's Guard House currently furnishes space for the Cape Henlopen State Park Nature Center. (1 Non-contributing Building)

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STATEMENT OF SIGNIFICANCE

Located east and south of Lewes, Sussex County, Delaware, Fort Miles represents nationally significant trends in federal coastal defense policy, military landscape and post planning, and standardized military architecture, making it eligible for the National Register under Criterion A, for its association with broad patterns in the nation's military history, Criterion C for its distinctive design and materials. Under Criterion A, Fort Miles represents the last stage of the United States' federal coastal defense policy, as it evolved from the Permanent Defense System in the early-nineteenth century through the modernization program of World War II fortifications in the mid-twentieth century. Created to house the most powerful seacoast armament available at the time, the fort also embodied the most recent military engineering technology available and is therefore associated with major military engineering trends and patterns. Furthermore, Fort Miles illustrates not only the well-ordered, regimented planning traditions of the United States military, but also new methods in post planning that accounted for natural environmental features; thus the fort serves as significant example of World War II coastal fortification planning. Under Criterion C, the fort serves as an excellent representative of coastal defense fortification of the mid-twentieth century. The buildings that support the fortifications represent significant examples of buildings constructed from standard Army plans.

Fort Miles possesses a significant concentration, linkage, and continuity of sites, buildings, structures, and objects, united by a plan. It qualifies for listing in the National Register as a planned military landscape and historic district, presenting the distinctive characteristics of a coastal fortification of the mid-twentieth century. The Fort Miles Historic District possesses significance on a national level with a period of significance that extends from 1941, the date of the first mobilization presence through 1945, when the fort ceased to function as a harbor defense facility. Although there has been some loss of buildings and structures from various points in the fort's development, the resources that remain within the boundaries of the district reflect a high level of physical integrity, particularly for a fort of the World War II Period.

The military landscape and individual resources of the Fort Miles Historic District retain integrity of location, setting, design, materials, workmanship, association, and feeling. In terms of location, the Fort remains where it was originally constructed and the boundaries of the district encompass the full extent of the historic reach of the military post. The setting of the fort is preserved by the natural features that defined the original boundaries (the Delaware Bay, the Atlantic Ocean, and the Lewes – Rehoboth Canal), as well as the fact that the layout of the fort has not been significantly altered by later use. Both the overall plan of the military

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landscape as well as many of the individual resources retains integrity of design and materials through the preservation of the road system, parade ground, and exterior appearance of the individual resources. Similarly, due to the lack of extensive changes in the plans of the army buildings, they retain integrity of workmanship in the form of their reflection of the U.S. Army's standardized plans. The fort retains integrity of association through the visual, or physical, demonstration of the appearance of World War II Period military base. The retention of integrity in all of these areas contributes to the feeling of Fort Miles.

Areas of Significance

Fort Miles is significant in three specific areas of Military history: coastal defense policy; military landscape and post planning; and, the standardized architecture of the United States Military. Fort Miles stands as a representative of the last seacoast defense initiative of the United States federal government. Fort Miles represents the zenith of a one hundred and fifty year-long federal coastal defense strategy and stands as the last example of the national coastal defense program. Fort Miles reflects not only a brief period of military history, but also represents the culmination of seacoast defense strategy and technology and is the last fortification along the Delaware River.

Although American seacoast defense systems span one hundred and fifty years and are typically broken into eight separate chronological orders beginning with the First System (1794-1800), a comprehensive federally funded policy of protecting the American coastline did not begin until after the War of 1812. This federal policy of coastal defense, known as the "Third System," "promoted the construction of a chain of fortresses along the American coast from 1820 through the 1850s."¹ Third System fortifications played a significant role in harbor defenses through the Civil War. Built in the early nineteenth century on Pea Patch Island in the Delaware River, Fort Delaware was one of these strategically-located fortresses. The protection of the nation's harbors and coasts would remain a vital undertaking of the federal government and continue along coastal waterways well into the mid-twentieth century as new methods in fortification arose to defend against and implement improved armament technologies. Fort Delaware was followed by an Endicott Period fortification, Fort DuPont (1900) and the Post-World War I fortification Fort Saulsbury (1918), each built further south along the Delaware River, each providing a defense further away from strategic ports and harbors. Technological

¹ Fort DuPont Historic District National Register Nomination (FDHNRN), section 8, page 1.

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improvements in fort construction and armament enabled this southward movement and ultimately culminated in the World War II installation at the mouth of the Delaware Bay. By 1941, Fort Miles replaced Fort DuPont as the principal fortification along the Delaware River and Bay. The military strategic thinking that Fort Miles represented was obsolete by 1950, through the advent of carrier-borne air attack and intercontinental ballistic missiles, coastal defense systems ceased to provide adequate defense of the nation's borders.

A second area of significance involves Fort Miles' appearance as a planned military landscape. Fort Miles as a planned landscape represents the accretion of land over a period of sixty-seven years.² The development of Fort Miles followed a fairly clear military plan after the fort was commissioned in 1941, reflecting the national trend in military construction that saw the development and implementation of standardized layouts, building plans, and architectural styles during the mid-twentieth century.

A third and final area of significance lies with the standardized military architecture of the fort itself. Fort Miles' architecture is the product of standardized building design that began in the 1860s and continued through the completion of construction at Fort Miles. Constructed with reinforced concrete, dimensional lumber, concrete block, steel, and asbestos, many of the structures at Fort Miles lack ornamentation and reflect utilitarian design. Overall, Fort Miles reflects the theme of national coastal defense policy of the United States during the mid-twentieth century, culminating in the forts of the World War II period, as well as illustrates the culmination of twentieth-century trends in fort planning and military architecture.

Summary of Federal Coast Defense Strategy, 1800-1945

As a maritime nation with extensive shorelines, the United States relied on its Navy for its first line of defense and upon a system of coastal fortifications for its second line of defense from the 1790s through the 1940s. Within 150 years, eight categorical generations of coastal defenses appeared on the American Military Landscape.³ Fort Miles, commissioned in 1941, represented the last generation of coastal fortifications, known as World War II Forts. By World War II, eighteen harbor defense commands throughout the U.S. protected

² The United States Army Acquired 140 acres for an Army Reservation in 1873. Information from Elizabeth G. R. Ross "Ft. Miles: Challenging Preservation?" Master's Thesis, University of Delaware, Newark, DE: 2002, x.

³ For American seacoast periods see Emanuel Raymond Lewis, Seacoast Fortifications of the United States: An Introductory History (Washington, D.C.: Smithsonian Institution Press, 1970), 7; and "American Seacoast Defenses (a brief history)" at the Coast Defense Study Group's (CDSG) website: <http://www.cdsg.org/>

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America's coastlines, among them, the Harbor Defenses of the Delaware. Replacing Fort DuPont as the headquarters of the Harbor Defenses of the Delaware, Fort Miles provided the first line of defense for the Delaware River and Bay from 1941 through 1945. Its charge was the protection of the Delaware Estuary - the gateway to important industrial, military, and commercial centers such as Wilmington, Trenton, Camden, and Philadelphia. The building of Fort Miles symbolized the pinnacle in a century and a half-long coastal defense policy that saw the construction and demolition of numerous posts along the Delaware River.

World War II Era Fortifications

New developments in carrier-borne and long-range aircraft continued after World War I and by the late 1930s the U.S. Army answered these threats with a new fortification model.⁴ The first battery of its kind, Battery Richmond P. Davis in San Francisco utilized overhead casemating to protect two 16-inch guns, magazines, and operating facilities.⁵ This new type of casemating involved the construction of reinforced concrete bunkers. An ample layer of earthen fill and cover was then placed over the casemate. Up to the construction of Battery Davis, substantial guns were not concealed. The concrete walls and ceilings and earth fill provided by the casemate was designed to protect the weapon from large missiles and bombs fired by both boat and aircraft. Battery Davis would come to serve as the model for which all other World War II era fortifications were based.

Events during the fall of 1939 and spring and summer of 1940 served as catalyst to our harbor defense policy. Although, the U.S. participated in the war through its lend lease program with England prior to 1941, Nazi aggression on the European continent gained great momentum after the fall of Poland in September 1939. Within ten months of Poland's fall, Germany took Norway, Denmark, and France. Nazi submarines, or u-boats, were patrolling America's Atlantic Coast, threatening cargo and passenger ships.

With Germany's invasion of Poland and our peacetime contributions to the British military increasing many of our military leaders grew concerned about the nation's security. By spring 1940, the War Department

⁴ Lewis, *Seacoast Fortifications*, 115.

⁵ Lewis, *Seacoast Fortifications*, 115.

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questioned the outmoded artillery technology of the Harbor Defense posts throughout the United States and requested reviews and reports of existing coast defenses.⁶

By July of that year, Fort Mott was the only harbor defense post along the Delaware River that considered no longer required for sea coast defenses, save its "essential areas for fire control or other installations, with access thereto for personnel and cables."⁷ Furthermore, the preliminary findings of the study identified major deficiencies in seacoast defense: "fixed batteries of heavy seacoast armament which have served their purpose for the past twenty to forty years are now out ranged to a marked degree, caliber for caliber, by the guns of modern navies."⁸ By 1940 six-inch and eight-inch naval guns had a longer range than the standard post World War I 12-inch batteries. Moreover, the mobile batteries introduced during and after World War I were meant to provide temporary cover for fortifications not equipped with fixed artillery. Railway artillery, in particular, was extremely susceptible to aerial attack and was not to be used in conjunction with fixed artillery.⁹

World War I brought with it unforeseen destruction and loss of life. America, in the years following the war, aimed to keep isolated from the rest of the World. Within the initial stages of the Second World War, however, it became apparent that the United States was sufficiently unprepared for military conflict. The tenuous climate in Europe combined with the inadequate defenses on the country's coastline catalyzed a new and improved military defense program. Termed the Modernization Program, the program sought to rectify the problems enumerated in the study above.

⁶ Brig. Gen. George V. Strong, Memorandum for the Adjutant General, 3 April 1940 "Abandonment of Harbor defense posts no longer required for Sea Coast Defense," Modern Military Records Division, Record Group 407, Entry 36, Box 955, National Archives and Records Administration, College Park, MD.

⁷ Maj. Gen. Walter C. Baker, Chief of Chemical Warfare Service, President Harbor Defense Board to Adjutant General, 27 July 1940 "Abandonment of the Harbor Defense Posts No Longer Required for Seacoast Defense," Modern Military Records Division, Record Group 407, Entry 36, Box 955, National Archives and Record Administration, Washington, D. C?

⁸ Baker to Adjutant General, 27 July 1940, "Abandonment of Harbor Defenses," 2.

⁹ Baker to Adjutant General, 27 July 1940, "Abandonment of Harbor Defenses," 2-3.

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The Board considers it urgent that the modernization of the harbor defenses be accomplished at the earliest practicable date. In view of the present disturbed international situation the plans for modernization should seek primarily to meet the present situation rather than to attempt a slower program to meet the indefinite requirements of the distant future. To this end it appears imperative that, for new batteries, use be made of the most suitable guns and mounts now available, or readily procurable.¹⁰

The new plan proposed that the military equip existing and new fortifications with batteries of two 16-inch Naval guns as their primary armament and batteries of two 6-inch guns as their secondary armament. The program also called for replacement of the tractor drawn 155mm guns with 6-inch fixed batteries, and overhead protection (through casemating or armor shields) of all large artillery.¹¹ Altogether, the program called for the completion of seventy-seven new batteries that would utilize the newly available 6- and 16-inch Naval guns. One hundred and twenty-eight batteries were to be abandoned (including entire posts) once the new and modified batteries were completed.¹²

By September 10, 1940, the modernization plans were approved by the Secretary of War.¹³ Military reconnaissance of Cape Henlopen during the fall of that year confirmed the area's highly sought strategic location. By winter 1941, the U.S. Army acquired 1290 acres of the land comprising the tip of Cape Henlopen. Named in honor of General Nelson Appleton Miles who served as a commanding officer in the U.S. Army from 1895 to 1903, the fort was officially commissioned in the spring of 1941. By the time the U.S. Army completed construction, the Cape Henlopen fortification contained two fixed 16-inch Naval guns, two 12-inch guns, four 6-inch guns, four 3-inch anti-aircraft guns, eight 90-millimeter anti-aircraft guns, and two underwater mine

¹⁰ Baker to Adjutant General, 27 July 1940, "Abandonment of Harbor Defenses," 3-4.

¹¹ Baker to Adjutant General, 27 July 1940, "Abandonment of Harbor Defenses," 3.

¹² Baker to Adjutant General, 27 July 1940, "Abandonment of Harbor Defenses," 1-4.

¹³ Col. F. S. Clark, Acting Assistant to the Chief of Staff, Memorandum for the Adjutant General, 10 September 1940, "Modernization of Harbor Defenses, Continental United States," Modern Military Records Division, Record Group 407, Entry 36, Box 955, National Archives, Washington, D. C.

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batteries.¹⁴ The army removed two railway batteries, each equipped with four 8-inch guns, and two of the four Panama-mounted 155-millimeter guns once Battery Smith was completed.

The completion of the defensive and tactical structures was only one phase of the construction needed for successful operation of a World War II coastal fortification. Unlike fortifications of the past, support structures, military residencies, and tactical commands developed alongside the armament. World War II fortifications met the need for fast assemblage in light of the increase tension-laden global environment of the early 1940s. The rapid response to the threat of war mandated that the U.S. use the best armament available at the time, rather than develop new armament to meet the demands of new fortification construction. Therefore, most of the artillery used in the early 1940s existed by the time the modernization program was initiated. The location of the armament often determined where support facilities were built. These batteries were an integral part of the planned military landscape. The addition of standardized barracks, support facilities, and service buildings to the military landscape occurred alongside the construction of bunkers and observation towers. The modernization plan made possible the quick rise to defense the nation desperately needed by December 1941. Within the course of four years, the U.S. military completed all of the physical components at Fort Miles.

The forts of the World War II Period represented the culmination of 150 years of military strategy and technology. Building on elements from the past, World War II fortifications utilized technological developments, such as open plan design, triangulation, and standardized architecture developed during the Endicott and World War I Eras. More importantly, World War II reservations incorporated these elements into the latest technology readily available. Overhead casemating, artillery shields, and anti-aircraft guns provided the military with the means of defending our coasts against the most modern foreign navy. Rendered obsolete within just a few years of its construction, Fort Miles stands testament to the nation's ability to quickly respond to the threats of war. World War II fortifications continued the legacy of incorporating the most powerful guns and the best military strategies available to defend America's coastlines.

¹⁴ Baker to Adjutant General, 27 July 1940. "Abandonment of Harbor Defenses." in Exhibit A "Revision of Harbor Defenses," 5.

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Fort Miles: Planning the Military Landscape

Descendents of the open plan designs introduced during the post Civil War period continued in use through the construction of World War II fortifications. The largest seacoast fortifications to date, World War II bases comprised expansive tracts of land. Although weaponry became more standardized and provided increased coverage than had been available during and after World War I, the technical expertise of operating the most modern equipment required a number of skilled enlisted men and officers. As the Fort DuPont Historic District nomination explained, "in addition to the men needed to operate the guns, a growing number of support personnel became a necessity in the operation of an installation."¹⁵ Fort Miles, in particular operated one 16-inch battery, one 12-inch battery, two 6-inch batteries, two 90-millimeter batteries, one 3-inch battery, one 155-millimeter battery, two 8-inch railroad batteries, and two mine batteries. The fort also required observers for the fire control towers, engineers for the plotting rooms, construction specialists from the Corps of Engineers, ordnance repair technicians, and medical staff. All of these functions required specially skilled men and officers. In order to facilitate efficient movement of the numerous personnel required to operate the post and fort, the Area Engineer grouped buildings by function throughout the military landscape. Many of the buildings with the same function, such as cantonment structures, ordnance storage, and construction facilities, were located near one another to facilitate ease of movement throughout the reservation. These structures and their functions often determined how the military landscape evolved. Therefore, "orderly arrangements of streets provided movement while the fort's structures were clustered by function (e.g. residential) or hierarchically (e.g., the separation for enlisted men from officers)."¹⁶

¹⁵Fort Dupont Nomination, section 8, page 12.

¹⁶Fort Dupont Nomination, section 8, page 12.

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Furthermore, Fort Miles represents the continuation of open-plan fortification design. An engineering tactic developed during the post Civil War and Endicott Era fortifications, open-plan designs mitigated the destruction levied by the substantial and far ranging armament of foreign navies. By placing defensive works some distance from one another and the support structures of the base, the enemy could not easily overtake the fortification with one shot, as was the case with the closed plan fortifications of the Third System. Furthermore, open plan designs incorporated defensive works "only on those exposures most open to attack or to protect artillery batteries."¹⁷ As the Fort DuPont Historic District nomination explained:

For coastal locations, this meant that defensive works faced the water and shielded the seacoast weaponry. A road system comprised of two main arteries meeting near the center of the reservation, combined with numerous secondary streets, provided the template on which the functional organization of the base was constructed. Specific areas within the complex served as locations for residential, administrative, and service buildings. In many cases, a single fort served as the regional headquarters for several batteries. These facilities also accommodated regional command functions. [Fort Miles'] significance in part lies in its appearance as a planned military landscape that appeared in forts built during World War II.¹⁸

The site at Fort Miles demonstrates the increased range and tactical measurements of new armament. Equipped with four large gun batteries, four small gun batteries, 2 mobile railroad batteries, and extensive underwater mine facilities, Fort Miles defended a twenty-six mile radius of ocean, bay, and land. A temporary National Guard encampment stationed at Cape Henlopen in the spring of 1941 saw the initial installation of the site's military defenses. Support structures such as barracks and mess halls, together with the bunkers and gun emplacements were all laid out according to an orderly, planned arrangement.

¹⁷Fort Dupont Nomination, section 8, page 12.

¹⁸Fort Dupont Nomination, section 8, page 12.

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When Fort Miles was officially commissioned under recommendations of the War Department in 1941, the open plan design of a well-ordered military landscape became a reality. Typical of open-plan forts, batteries only existed on the side of the fort susceptible to military bombardment, the ocean (east) side. A full-scale military base was encapsulated in the 1290 acres at the tip of Cape Henlopen. Following standardized plans, construction included barracks, administrative and storage buildings, recreation facilities, a school, a chapel, and other support structures. Roads began delineating space within the reservation, providing routes of movement. A hierarchy of space emerged as well; batteries and support buildings occupied the eastern quadrant of the reservation, enlisted men's barracks and non-commissioned officers' quarters stood adjacent to these, and administration buildings, took up the western part of the fort's grounds. A parade ground lies to the south of the original cantonment, near the middle of the fortification. By 1944, the major elements were in place, and Fort Miles assumed a configuration easily recognized today as a planned military reservation.

Fully incorporated into a state park by 1996, the Fort Miles reservation continued to serve the U.S. military for over fifty years. The Army, Navy, and Air Force utilized and modified many of the World War II period structures after the end of the war. Although no longer used as a military installation, alterations currently continue on the fort, with the minor rerouting of existing roads, and the construction of nature trails and park buildings. Several of the existing buildings continue to function in a similar manner. The extant barracks and mess halls, for example, are now used for youth camping and the extant recreation buildings serve the same purpose as they did in 1944. In some cases, new structures maintain the same function of the structures they have replaced. A beach bathhouse resides near the location of the Bell Haven Surf Club and two modern bathhouses replaced outmoded latrines. Furthermore, due in large part to their construction, bulk, and subterranean location, most of the bunkers and ordnance storage structures that date from the World War II period survive. Although somewhat altered to meet the demands of a public park, the existing road system closely resembles that of the original fortification. While the Delaware Division of Parks and Recreation continues to build support structures for the public park, the planned landscape that developed by 1944 remains intact.

Fort Miles and Standardized Military Architecture

The buildings and structures of Fort Miles illustrate not only an important trend of United States Army architecture and construction, but also serve as a rare example of localized plan adaptation. Taken together,

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these elements contribute to the social, spatial, and tactical plan of the Fort Miles military landscape. This section A) places Fort Miles within the historical context of standardized military architecture, B) explains the importance of concrete block construction within this context and C) illustrates how the standard architecture of Fort Miles contributed to both spatial and social compartmentalization.

History of Standardized Military Architecture

Growing anticipation of America's involvement in the war resulted in an unprecedented military building program. By early summer 1940, the U.S. Congress designated more than one billion dollars in defense and armament spending. This figure would eventually grow to \$20.2 billion by the close of the war. The increased military force needed to defend the nation necessitated the modification of existing installations as well as the construction of new bases. Within five years, from 1939 to 1944, U.S. troops swelled from just over 200,000 men to well over six million.¹⁹ These troops would require housing and training facilities far beyond the military's supply.

Although standardized plans for military fortifications and their support structures were in place as early as 1886, those plans were developed for an army of considerably less size, whose active duty incorporated training and service abroad. During World War I, America housed and trained many troops for combat in Britain. By 1940, the Axis consumed nearly all of Continental Europe, and England was charged with housing its own as well as other European troops. Therefore, American troops would have to be trained and stationed in America. "For the first time, [America] had to accommodate a huge standing army that would remain in the domestic U.S. for an indefinite period of time."²⁰

Standardized stock plans had been a part of military fortification construction for over fifty years by the initial stages of the mobilization program. Standardized military architecture developed as a response to the housing conditions of Civil War military forces. A fifty percent increase in disease-related deaths of servicemen

¹⁹ Diane Shaw Wasch and Perry Bush, "The Historical Context of World War II Mobilization Construction," in World War II and the U.S. Army Mobilization Program: A History of 700 and 800 Series Cantonment Construction including Historic American Building Survey Documentation for Amp Edwards, Massachusetts and Fort McCoy, Wisconsin, edited by Arlene R. Kriv, (Washington, DC: DOD and DOI, 1992), 3.

²⁰ Wasch and Bush, "Historical Context," 10.

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in the years following the Civil War pointed to a causal relationship with military housing practices.²¹ A Report on Barracks and Hospitals with Descriptions of Military Posts, published in 1870 noted the correlation between poor health and inadequate housing of military personnel.

It has been said that we have the best-fed and the worst-housed Army in the world... the defects in the plan of ... barrack[s] are often so far compensated by faulty construction that evil results are not apparent; and the very cracks and crevices in roofs, walls, or floors, which are so often complained of, may explain why destructive lung affections [sic] or fevers have not attended overcrowding to a greater degree than they have done.²²

Fortifications, therefore, served as a microcosm for the critical analysis of housing standards and their relevance to air born diseases.

By 1872, the Army's Quartermaster General, Montgomery C. Meigs, responded to the housing crisis through formulating a series of standardized military housing plans. This development forever changed the Army's approach to quartering its troops. Through the remainder of the nineteenth century, engineering officers, line officers, and civilian contractors rendered the architectural drawings necessitated by military encampments.²³ In 1903 military architectural drafting was consolidated through the appointment of an Advisory Architect to the Construction Division of the Army Quartermaster Corps. By 1914, the first series set for the Army's mobilization housing came through. Designated the number "600," these drawings, sometimes subtly modified, were incorporated into cantonment construction throughout World War I and into the 1930s.

The 600 series modular buildings emphasized expedient erection and were characterized by lightweight dimensional lumber construction. The use of cumbersome log timbers for cantonment construction during the

²¹ John S. Garner, "World War II Temporary Military Buildings: A Brief History of the Architecture and Planning of Cantonments and Training Stations in the United States," a report prepared for the U. S. Army Construction Engineering Research Laboratories (USACERL), March 1993, 21.

²² John S. Billings, *A Report on Barracks and Hospitals, with Descriptions of Military Posts* (Washington, D.C.: GPO, 1870), xxxii - xxxiii, quoted in Garner, 21.

²³ Garner, 22.

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nineteenth century gave way to two by fours and two by sixes. The balloon frame technique employed by the 600 series required factory-sawn lumber and was comparatively less elaborate, expensive, and labor intensive than log construction. Exterior cladding, one-inch by twelve-inch boards and one inch by three-inch battens, "were nailed directly to the [structure's] plates, sills and intermediate girts" and provided the strength to the underlying frame.²⁴

Moreover, their simple design and plan not only facilitated speed and ease of construction, but also shaped the orderly and efficient character of the twentieth century military landscape.

Unpainted single-story gable-roofed frame buildings, with single-sash windows and metal chimneys on tarpaper roofs, did little to advance the art of military architecture. Only when assembled in cantonments – each building occupying a designated location and contributing to the operation of a company to battalion, and battalion to regiment – could the logic and utilitarian strategy of such buildings and their arrangements be appreciated.²⁵

These standardized design practices born out of the late nineteenth century and fully implemented by World War I played a significant role in the regimented lifestyle associated with the military during the early twentieth century.

During the peaceful years between the World Wars, the Quartermaster Corps continued to update and modify those plans.

Within the offices of the Quartermaster General, in charge of construction for the Army, a team of architects and experienced builders developed a stock of plans to fit all the needs of the Army. The plans were developed and distributed to various forts as construction needs arose. The ready availability of plans ensured that a post could be developed or expanded quickly and would also meet a certain

²⁴ Garner, 22.

²⁵ Erna Risch, *Quartermaster Support of the Army: A History of the Corps, 1775 – 1939* (Washington, D.C.: GPO), 581; *Report of the Board of Review of Construction to the Assistant Secretary of War* (Washington, D.C.: GPO, 1920), 121; *Handbook for Quartermasters* (Washington, D.C.: GPO, 1930), 817 – 67, cited in Garner, 22.

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aesthetic code.²⁶

Nonetheless, the plans were drawn with the intention that troops would not be housed in structures for very long; they would finish out their training overseas. Therefore, contemporary military housing construction and material were less than adequate for long stays. Furthermore, the passage of the Selective Service Act in September 1940 "explicitly specified that no one would be sworn into service unless the government had made adequate provision 'for such shelter, sanitary facilities, water supplies, heating and lighting arrangements, medical care, and hospital arrangements... as may be determined...to be essential to public and personal health.'"²⁷

The Quartermaster Corps responded to the need for improved housing with redesigned plans for the mobilization program. Throughout the war effort, demands for additional structural improvements, shortages of materials, and attempts to limit the cost and improve assembly speed resulted in six different standardized architecture series.²⁸ The Quartermasters incorporated the new plans into the evolving base. Therefore, World War II installations often reflect more than one type of standardized plan. Moreover, availability of materials, construction industry lobbying, natural topography, and the location's climate shaped the choice of building material. By spring 1941, the Construction Division permitted "construction plans to deviate from the standard

²⁶Fort Dupont Nomination, 14-15.

²⁷ Wasch and Bush, "Historical Context," 10.

²⁸ Within four years the Quartermaster Corps and, then, the Corps of Engineers utilized six different standardized groups of plans.

700 Series:	September 1939 – Fall 1941
Revised 700 Series:	Fall 1941 – October 1942
800 Series:	Fall 1941 – October 1942
Modified Theatre of Operations (T.O.):	April 1942 – October 1942
T.O. 700 Series:	October 1942 –
"New" 700 Series:	

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plans. [This] allowed the field to take advantage of local materials and conditions."²⁹

Architecture Contributes to the Planned Landscape

Standardized military architecture combined with increased post size allowed the Army to delineate space and create an ordered, regimented military landscape. Through developing a series of plans for barracks, mess halls, administration buildings, officer's quarters, and non-commissioned officer's quarters, the military could mold an encampment's environment. Size and appearance of housing denoted one's rank.

The social structure of the military was also reflected in and shaped by buildings. Soon after the conception of standard plans, space allocation also became regulated using one of two methods. The first way provided all ranks with the same number of rooms but increased the room size with higher rank. This method was in use by 1870. The second method of allocation allowed uniformly sized rooms, but an increased number with a higher rank.³⁰

²⁹ Wasch and Bush, "Historical Context," 39.

³⁰ Fort Dupont Nomination, section 8, page 15 and Bethany C. Grashof, A Study of United States Army Family Housing Standardized Plans, 1866-1940 20 - 21.

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The larger, more elaborate structures were often designated for commissioned officers. Officers, non-commissioned officers, and enlisted men were often housed in different locations and utilized separate barracks, mess halls, and latrines. More importantly, the military barracks reflected new standards in floor space quotas. As John Garner explained, "the Surgeon General determined occupancy by establishing minimum space requirements for quartering in order to ensure health and sanitation."³¹ Floor space requirements changed from 400 cubic feet per man in 1916 to 700 cubic feet in 1940. Company sizes also changed between the wars, from 250 troops per company in 1917 to 126 men per company in 1941. These methods of space allocation are significant because they provide the basis for modern army housing practices.

Moreover, as artillery ranges increased and seacoast defense strategy evolved, particularly at the turn of the century, posts gradually occupied more land. Comparatively, seacoast defenses of the Endicott, Taft, War Interlude, and World War II periods consumed larger quantities of land than Third System and Civil War fortifications, and, therefore, had more room to separate land uses.

The residential, service, and support structures remaining from the World War II period at Fort Miles exhibit the utilitarian style demanded by the U.S. Army during the 1940s. Climate, topography, and availability of materials shaped the style of the buildings. Unadorned and pragmatic, the buildings of Fort Miles mark the time in military post construction where form followed function; where embellishment came second to material availability and speed of construction.

Historic Development of the Fort and Property Types

Located at the mouth of the Delaware Bay, the location of Fort Miles possessed military significance as early 1873. The earliest military presence came through the development of an U.S. Army Reservation on the bayside of the cape. Consisting of approximately 140 acres, the Army reservation was used primarily for training exercises. Named Camp Henlopen, the reservation served as part of the Middle Atlantic Coast Artillery whose headquarters were at Fort DuPont.

³¹ Garner, 35.

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Throughout the 1930s the U.S. Army conducted several land surveys of the area and by early 1941, all 1290 acres of Fort Miles were secured. Construction on Fort Miles began in the spring 1941. An integral part of the seacoast defense program, Fort Miles housed the command for the Harbor Defenses of the Delaware from 1941-1950. Continued military presence after the war ended included the operation of a Naval SOSUS unit through 1996. Beginning in 1964, as the Department of Defense began to downsize their coastal fortifications and the Delaware Division of Parks and Recreation (DPR) began acquiring the reservation's surplus land. Today, DPR owns, maintains, and operates all of the land that once comprised the Fort Miles as the Cape Henlopen Sate Park.

As a result of the continued use of Fort Miles by both the military and Delaware's state park agency, the built environment of Fort Miles underwent significant changes in the last sixty years. These changes at Fort Miles altered not only the purpose of the fort, evolving from a coastal defense installation to a public park, but also its physical layout and architectural fabric. The development of the site and its military landscape can be divided into two distinct periods:

- Pre-1940: The Site of Fort Miles as a Strategic Location
- 1941-1945: Fort Miles Realized

All of the cultural resources integral to the fort were constructed between 1941 and 1945, when Fort Miles provided the primary defense of the Delaware River and Bay.

The historic resources that survive communicate their original functions and remain in their original locations, providing a tangible link to the fort's past. Resources at the fort can be divided into several large groups, or property types. These include 1) batteries, 2) administrative resources, 3) residential buildings, 4) service resources, and 5) support resources. A variety of buildings, structures, and objects fall into each of these categories. A final property type is the military landscape itself, comprising the physical layout of the fort.

Batteries are the armament configurations on the post, including both the guns and the earthworks that supported them. Administrative resources, such as the flagstaff (N-1499.017), the guard house (N-1499.014), and the fire house (N-1499.018), assisted with the military functions of the fort, specifically command operations, ceremonial representation, and general safety. Residential buildings include all housing facilities at the fort. Barracks housed enlisted men and officers (N-1499.052 and N-1499.053). Support resources provided

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logistical support to the military functions and activities. Support buildings include buildings for the storage and repair of ordnance (N-1499.016), fire control towers, pontoons and motor vehicle (N-1499.066 and N-1499.029), as well as pump houses (N-1499.006 and N-1499.051), water storage facilities (N-1499.034), and buildings used for engineering, electrical supply, and radio communications. Finally, service resources supported the needs of the fort's inhabitants: food service and preparation (N-1499.028 and N-1499.059), recreation (N-1499.054), personal vehicle storage (N-1499.077), and religious meeting (N-1499.055).

Pre-1940: A Strategic Location

The government activity occurring on Cape Henlopen prior to 1940 confirmed the area's strategic location. Navigational aids, such as the Cape Henlopen Lighthouse (1767), the Delaware Breakwater, and the Cape Henlopen Beacon (1865) signified the importance of the entrance to the Delaware River and Bay. A 500 by 1000-foot tract of land was ceded to the government on the bayside of the cape for the construction of the iron pier in 1871. A U.S. Quarantine Station was located along the Lewes coastline during the nineteenth century. The U.S. government acquired one hundred and forty acres for an Army Reservation in 1873; it partly overlapped land acquired for the U. S. Quarantine Reservation. The land adjoining it and making up the remaining acreage of the Quarantine Station measured 1200 by 1500 feet and was ceded to the U.S. government in 1889. The last acquisition of the U.S. government in the nineteenth century was a one-acre tract of land located south of the Henlopen Lighthouse. Ceded to the U.S. Coast Guard in 1897, this parcel was situated just inside the southeastern boundary of Fort Miles. Non-governmental lessees included the Lewes Sand Company and the Sussex Sand Company. The Bel Haven Surf Club, located near the present day state park bathhouse, also leased a small plot of land on the ocean side of the cape, and was presumably used by local townspeople as a recreation facility.³²

Geomorphic changes to the land resulted in the undermining of the Cape Henlopen Lighthouse in 1926. Similar fates befell the Coast Guard station, also. Both structures were lost to the changing shoreline and presumably only ruins remain below the water and dune lines. The Quarantine Station was abandoned by the close of the nineteenth century and is no longer extant. Archaeological tests have not been conducted and it is presumed that the Mine Battery Casemate (S-6048), as well as utility trench work for Fort Miles, may have

³² "Property to be Acquired from the State of Delaware and or Town of Lewes 24 January 1941," RG 77, Fortifications, WWII "Military Files," Cartographic Branch, National Archives, College Park, MD.

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disturbed the site.³³ Eventually abandoned during the 1940s, the Bel Haven Surf Club was converted into the Harbor Entrance Control Post (S-6048) during the early stages of the war. Although the nineteenth century Army reservation, named Camp Henlopen, was used as a training facility and did not house defense works, the early presence of the military on Cape Henlopen played a significant role during the early planning stages of the modernization program.

1940 to 1945: Fort Miles Realized

In September and November 1940, the U.S. Army conducted secret surveys of land along the Delaware shoreline. Although various government agencies, including the military, owned parcels of land along Cape Henlopen, the surveys revealed that much of the land belonged to the town of Lewes. Condemnation proceedings followed and by spring 1941, the U.S. Army began building Delaware's largest coastal fortification to date.

World War II provided the U.S. Army with an opportunity to modernize existing coastal fortifications and implement new fort construction at strategic sites. Following Congressional appropriations during the early 1940s, the U.S. Army commissioned Fort Miles. Named after General Nelson Appleton Miles, who served the army from 1895 to 1903, the fort evolved through a series of changes that not only altered its physical shape but its very purpose. Coastal defense shifted to secondary importance as the national defense strategy moved to a global theater. But throughout its evolution, Fort Miles left behind a structural legacy that enables us to visualize its substance. The first part of this section looks at the plan and layout of the fort's landscape as it evolved through time, investigating the street arrangements, parade grounds, different residential and administrative areas and the hierarchy of the design. The second part explores the architectural resources, considering the types of buildings found on the fort's grounds and their condition.

³³ Cara L. Wise, "Cultural Resource Management Plan for Four Seashore Parks and Other Coastal Properties" report compiled for the Technical Services Section, Delaware Division of Parks and Recreation, 1985, 47

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Section 8 Page 20 Fort Miles Historic District
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The Military Landscape

Constructed between 1941 and 1943, the batteries were the *raison d'être* of Fort Miles. The fort's design centered around twelve defensive works. Many of the batteries were designed to be self-sufficient when under attack, containing their own ammunition magazines, electrical generators, boilers, and communications systems. Built under recommendations of the Harbor Defense Board, these batteries spanned the coastal perimeter of the original 1700-acre tract, leaving most of the post's interior for the fabrication of residential, service, and support buildings. Most of these buildings were constructed during the initial build-up of the war, between 1941 and 1944.

The planned landscape for Fort Miles was clearly visible within months of initial construction and remains so today. Although singular structures built within the post may represent different standardized drawing periods, the functions of the delineated space remained the same throughout the fort's construction. By 1944, Fort Miles reached its full development. Although Delaware's Division of Parks and Recreation removed much of the original mobilization housing, the planned military landscape persists. Much of the original road system remains, including three important arteries: Post Lane, Dune Road, and Point Road.

Bounded by the Atlantic Ocean to the east, the Delaware Bay to the north, and marshland to the west, the fort developed in a clearly defined hierarchical fashion. Positioned along the Ocean and Bay shoreline, batteries occupied the entire eastern boundary of the fort and the tip of the cape. The majority of men were housed in the cantonment section, while small encampments supported four of the battery locations.³⁴ Located north of Post Lane, south of the Delaware Bay, east of the Mine Batteries and west of Battery 22, the cantonment section consisted of temporary mobilization housing and modified Theatre of Operations housing. Most of the

³⁴ Depending on the number of men required to operate the battery, small encampments typically consisted of a combination of barracks, mess halls, latrines, recreation buildings, and supply and administration buildings. These were located on the tip of the cape to man the Naval Radio Station and the three anti-aircraft batteries (two 90 mm and one 3-inch), Battery 519 (two 12-inch guns), Battery Smith or 119 (two 16-inch guns) and Battery Herring or 221 (two 6-inch guns).

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reservation's support and service buildings were located in that area, along Post Lane. The Engineer's Reservation and the Quartermaster, as well as the fort's gas station, several garages, and the motor pool were located near the camp's center, along its western boundary. During World War II, the area that supplied workspace for the Quartermaster would be converted into the Engineer's Reservation. Although ordnance storage occurred at the various bunkers, eight ordnance igloos supplied storage in the south central part of the reservation. Located off of Dune Road, Igloo Road provided access to the remotely placed explosives.

By 1950, all of the major defensive works were abandoned. The military, however, continued to use parts of the base for training facilities and the Navy operated a SOSUS operation from Battery Herring. Most of the road system remains intact and facilitates access to various recreation areas within the park. Several roads have been adapted or modified into paved trails. An important piece of the military landscape, these byways contribute to the fort's history because they illustrate how movement occurred within the ordered military environment.

The built landscape of Fort Miles combined the use of standardized architecture and landscape planning with needs of construction in a coastal environment. The major thoroughfares provide north-south and east-west access but also incorporate elements of the site's topography. Post Road runs east and west, and provides the southern boundary of the cantonment section. Point Road departs from the eastern terminus of Post Road and runs north along the arm of the cape, thus providing access to the site's World War II Naval facilities, a small encampment, a fire control tower and three anti-aircraft batteries. Dune Road ties into Post road at its western terminus, near the entrance to Fort Miles. Running in a south, then east, then south direction, Dune Road winds through the reservation's Engineering section, provides access to both Plotting Rooms, and Batteries 519, Smith, and Herring. The bulk of service, tactical, and support structures were easily accessible by these three roads. As John Garner explained:

The rows of barracks and the open space of the parade field, together with the command post at the termination of the main drive, are the principal architectural and landscape features. The expanse and repetition of these features and the institutional character of the cantonments leave no doubt about their purpose. Matters of terrain, drainage, fields of fire for artillery and rifle ranges, and access to existing roads and highways governed the plans of these installations.³⁵

³⁵ Garner, 59.

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Smaller, secondary routes, however, provided further access to the Mine Facilities, the Engineer Reservation, and the cantonment.

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COMPREHENSIVE PLANNING

State Plan Link

Zone: Coastal
Period: 1880-1940+/-: Urbanization and Early Suburbanization
Theme: Government
Property Type: Military Institutions: Base

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Section 9 Page 1 Fort Miles Historic District
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Section 10 Page 1 Fort Miles Historic District
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Boundary Description and Justification

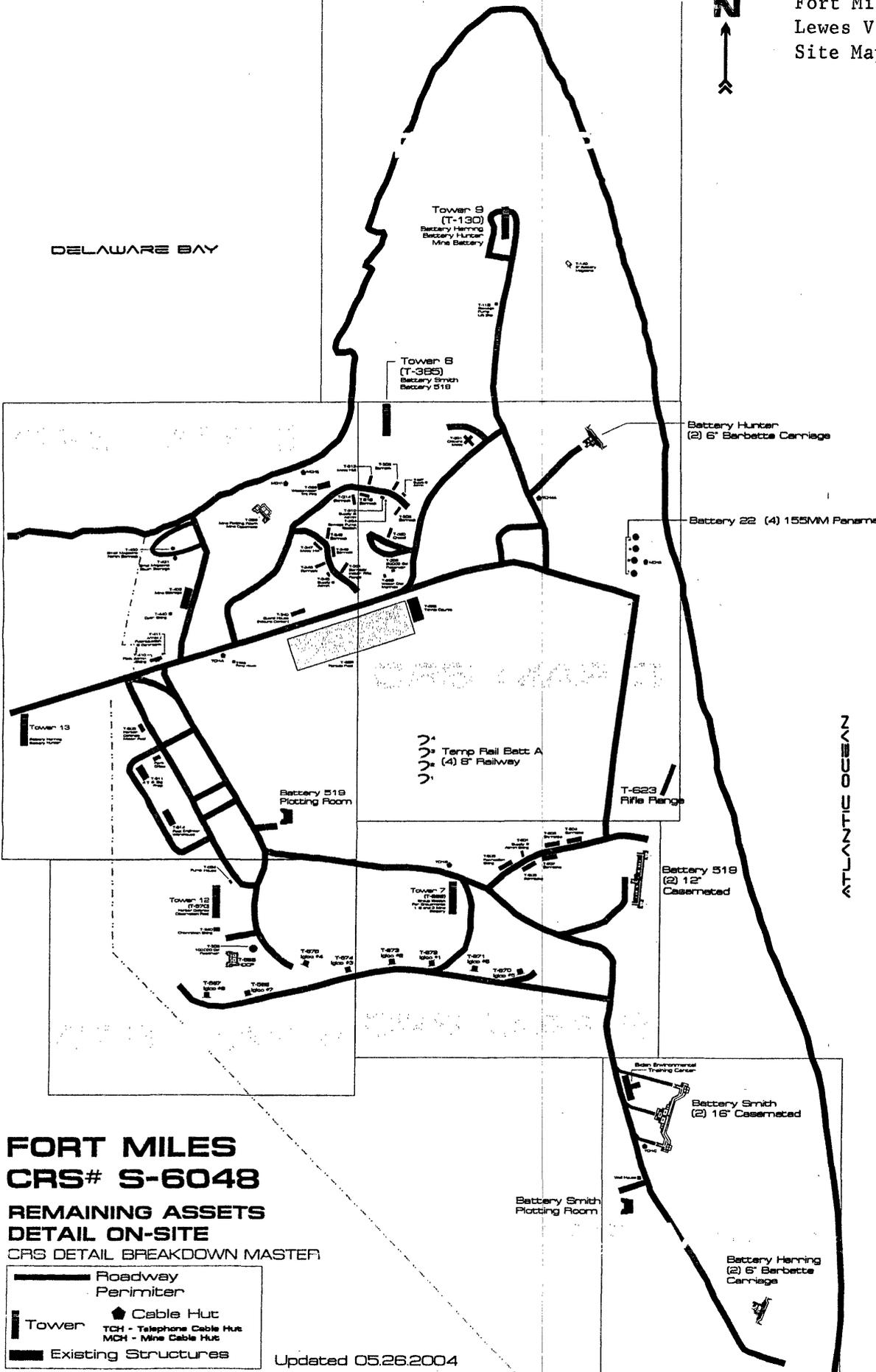
The nominated property boundary is completely within the Cape Henlopen State Park. Generally bounded by the Atlantic Ocean to the East, the Breakwater Harbor to the north, the southern boundary is marked by remnants of the former boundary fence that defined the military reservation, and the western boundary follows the western boundary of the military reservation and is currently defined by the fenced eastern boundary of the adjacent Barcroft property and traces of clearing along the former military boundary fence. The northernmost tip of Cape Henlopen is not included within the boundary because it did not exist during the period of significance. The Cape Henlopen Archeological District (NR 1978) is located generally to the west of the nominated property.

This boundary includes the surviving contiguous resources associated with the Fort Miles encampment. Associated fire control towers located outside the nominated boundary will be considered for individual listing in the future.



Fort Miles Historic District
Lewes Vic., Sussex Co., DE
Site Map- Over all

DELAWARE BAY



ATLANTIC OCEAN

FORT MILES CRS# S-6048

REMAINING ASSETS DETAIL ON-SITE CRS DETAIL BREAKDOWN MASTER

	Roadway
	Perimeter
	Tower
	Cable Hut
	TCH - Telephone Cable Hut
	MCH - Mine Cable Hut
	Existing Structures

Updated 05.26.2004

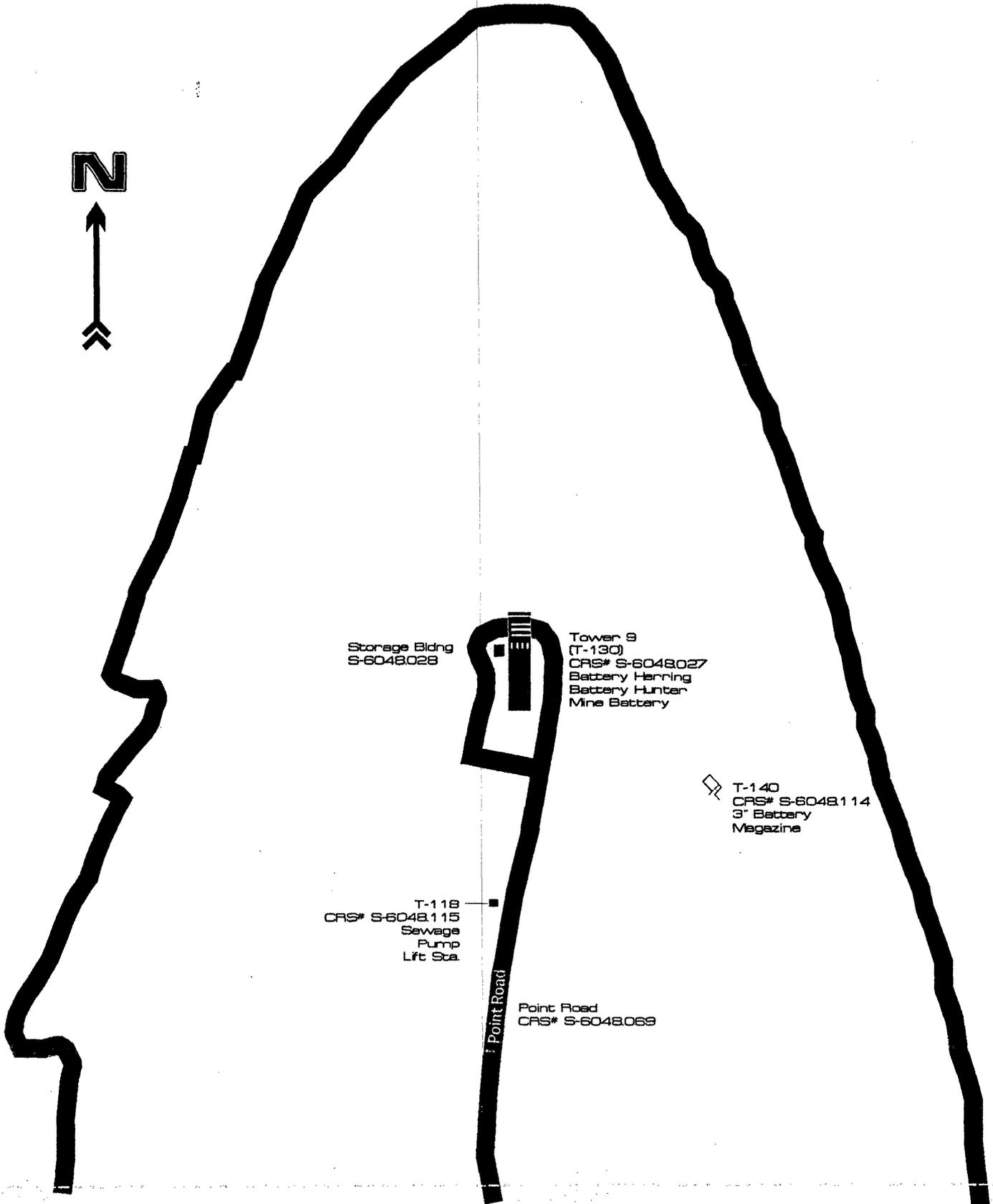
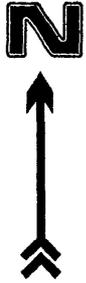


MAP BY MIKE ROGERS & NATE DAVIDSON

FORT MILES
CRS# S-6048

CRS MAP 1

Fort Miles Historic District
Lewes Vic., Sussex Co., DE
Site Map Detail
1 of 6



Storage Bldg
S-6048.028

Tower 9
(T-130)
CRS# S-6048.027
Battery Herring
Battery Hunter
Mine Battery

T-140
CRS# S-6048.114
3" Battery
Magazine

T-118
CRS# S-6048.115
Sewage
Pump
Lift Sta.

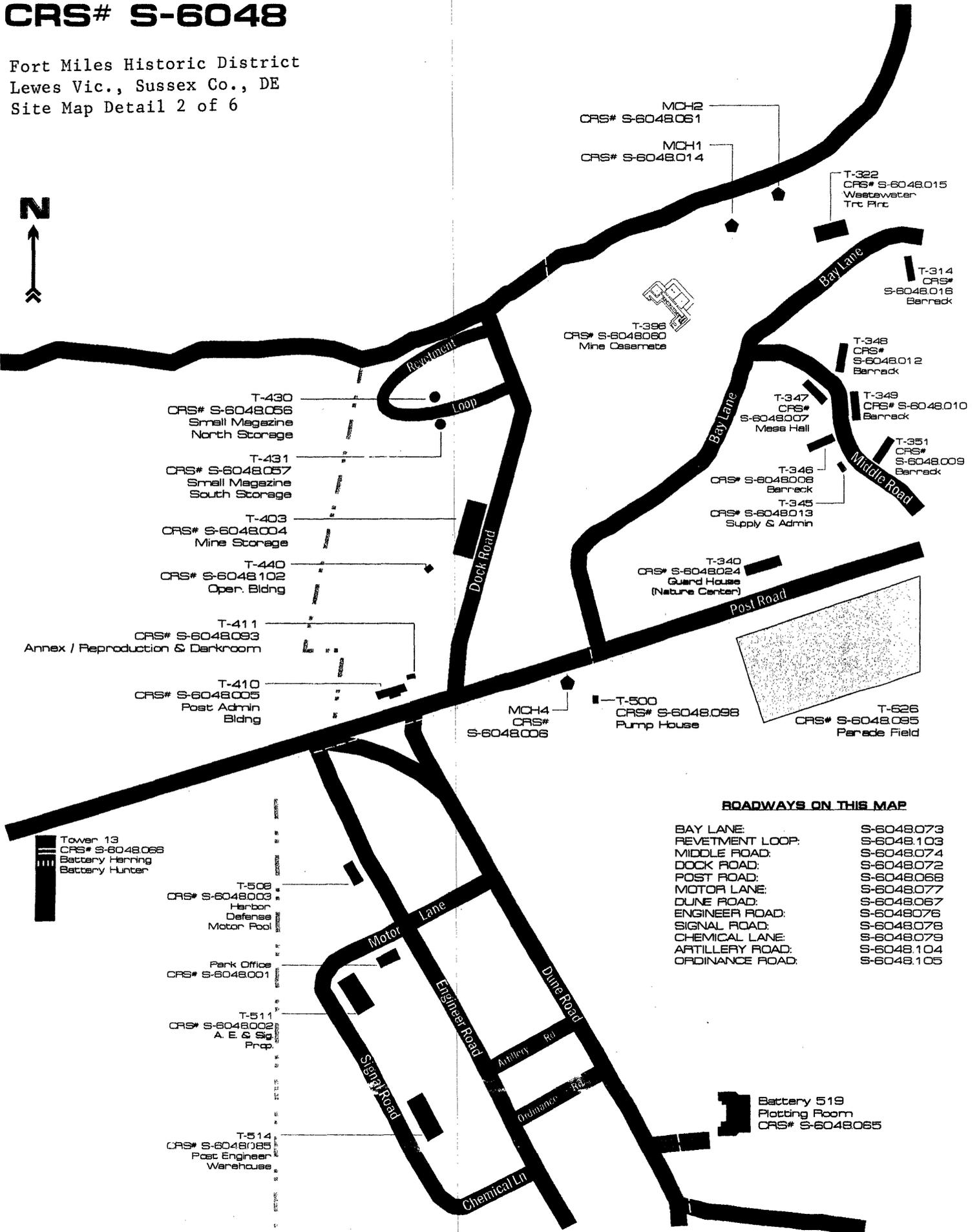
Point Road

Point Road
CRS# S-6048.069

FORT MILES CRS# S-6048

Fort Miles Historic District
Lewes Vic., Sussex Co., DE
Site Map Detail 2 of 6

CRS MAP 2



T-430
CRS# S-6048.056
Small Magazine
North Storage

T-431
CRS# S-6048.057
Small Magazine
South Storage

T-403
CRS# S-6048.004
Mine Storage

T-440
CRS# S-6048.102
Oper. Bldg

T-411
CRS# S-6048.093
Annex / Reproduction & Darkroom

T-410
CRS# S-6048.005
Post Admin
Bldg

MCH2
CRS# S-6048.061

MCH1
CRS# S-6048.014

T-322
CRS# S-6048.015
Wastewater
Trt. Plnt

T-314
CRS# S-6048.016
Barrack

T-396
CRS# S-6048.060
Mine Casemate

T-348
CRS# S-6048.012
Barrack

T-347
CRS# S-6048.007
Mess Hall

T-349
CRS# S-6048.010
Barrack

T-351
CRS# S-6048.009
Barrack

T-346
CRS# S-6048.008
Barrack

T-345
CRS# S-6048.013
Supply & Admin

T-340
CRS# S-6048.024
Guard House
(Nature Center)

MCH4
CRS# S-6048.006

T-500
CRS# S-6048.098
Pump House

T-626
CRS# S-6048.095
Parade Field

ROADWAYS ON THIS MAP

BAY LANE:	S-6048.073
REVETMENT LOOP:	S-6048.103
MIDDLE ROAD:	S-6048.074
DOCK ROAD:	S-6048.072
POST ROAD:	S-6048.068
MOTOR LANE:	S-6048.077
DUNE ROAD:	S-6048.067
ENGINEER ROAD:	S-6048.076
SIGNAL ROAD:	S-6048.078
CHEMICAL LANE:	S-6048.079
ARTILLERY ROAD:	S-6048.104
ORDINANCE ROAD:	S-6048.105

Tower 13
CRS# S-6048.068
Battery Herring
Battery Hunter

T-508
CRS# S-6048.003
Harbor
Defense
Motor Pool

Park Office
CRS# S-6048.001

T-511
CRS# S-6048.002
A. E. & Sig.
Prp.

T-514
CRS# S-6048.085
Post Engineer
Warehouse

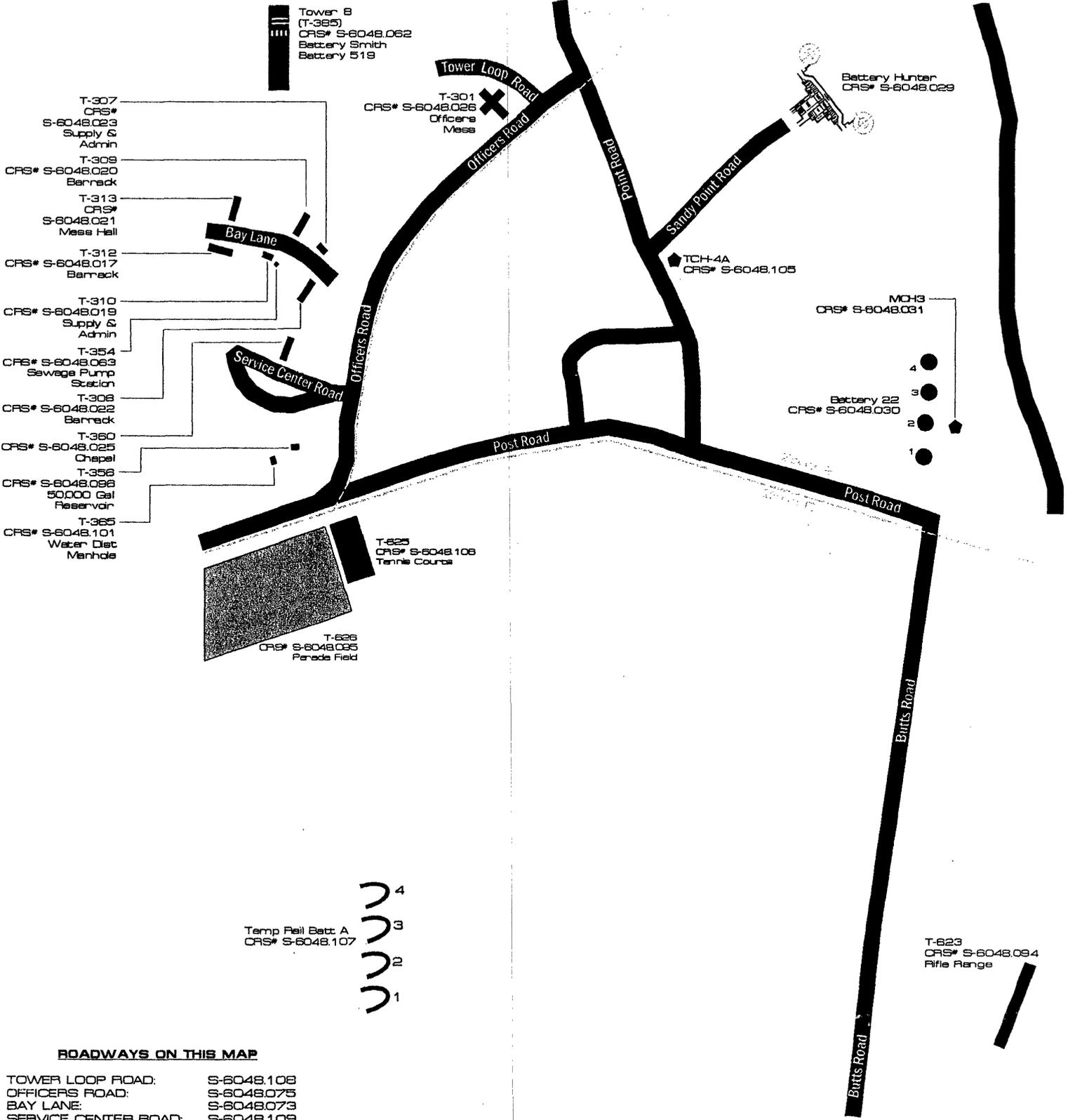
Battery 519
Plotting Room
CRS# S-6048.065

FORT MILES CRS# S-6048



CRS MAP 3

Fort Miles Historic District
Lewes Vic., Sussex Co., DE
Site Map- Detail 3 of 6



- T-307
CRS# S-6048.023
Supply & Admin
- T-309
CRS# S-6048.020
Barrack
- T-313
CRS# S-6048.021
Mess Hall
- T-312
CRS# S-6048.017
Barrack
- T-310
CRS# S-6048.019
Supply & Admin
- T-354
CRS# S-6048.063
Sewage Pump Station
- T-308
CRS# S-6048.022
Barrack
- T-360
CRS# S-6048.025
Chapel
- T-358
CRS# S-6048.098
50,000 Gal Reservoir
- T-365
CRS# S-6048.101
Water Dist Manhole

Tower B
(T-385)
CRS# S-6048.062
Battery Smith
Battery 519

T-301
CRS# S-6048.026
Officers Mess

Battery Hunter
CRS# S-6048.029

TCH-4A
CRS# S-6048.105

MO-13
CRS# S-6048.031

Battery 22
CRS# S-6048.030

T-825
CRS# S-6048.108
Tennis Course

T-626
CRS# S-6048.095
Parade Field

T-623
CRS# S-6048.094
Rifle Range

Temp Rail Batt. A
CRS# S-6048.107

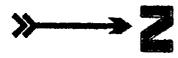
ROADWAYS ON THIS MAP

TOWER LOOP ROAD:	S-6048.108
OFFICERS ROAD:	S-6048.075
BAY LANE:	S-6048.073
SERVICE CENTER ROAD:	S-6048.109
POST ROAD:	S-6048.068
POINT ROAD:	S-6048.068
SANDY POINT ROAD:	S-6048.071
BUTTS ROAD:	S-6048.083

FORT MILES CRS # S-6048

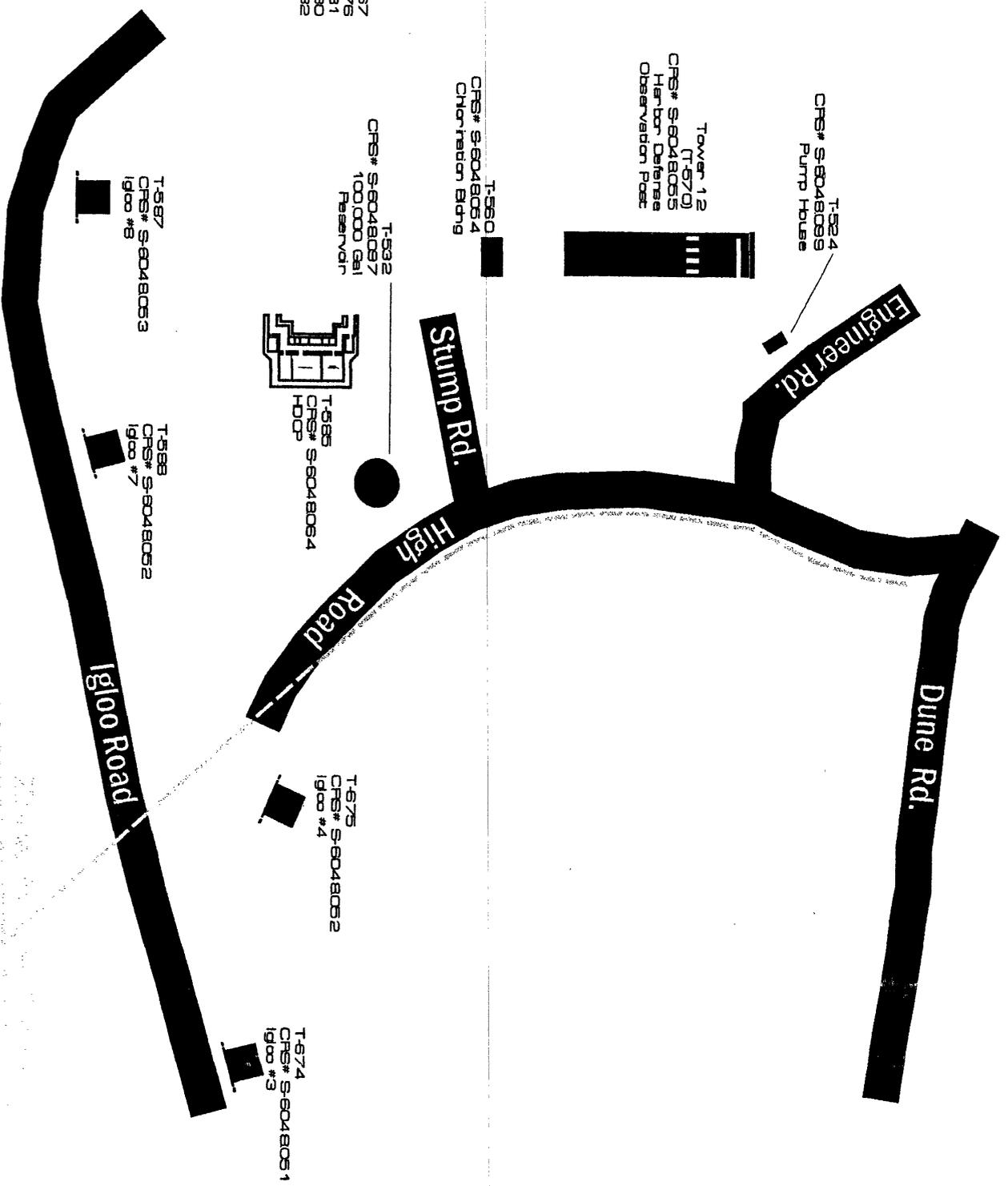
CRS MAP 4

Fort Miles Historic District
Lewes Vic., Sussex County, DE
Site Map- Detail 4 of 6



ROADWAYS ON THIS MAP

DUNE ROAD: S-6048067
 ENGINEER ROAD: S-6048076
 HIGH ROAD: S-6048081
 STUMP ROAD: S-6048080
 IGL00 ROAD: S-6048082



T-524
CRS# S-6048089
Pump House

T-670
CRS# S-6048055
Harbor Defense
Observation Post

T-560
CRS# S-6048054
Chlorination Bldg

T-532
CRS# S-6048097
100,000 Gal
Reservoir

T-585
CRS# S-6048064
HOOD

T-675
CRS# S-6048052
Igloo #4

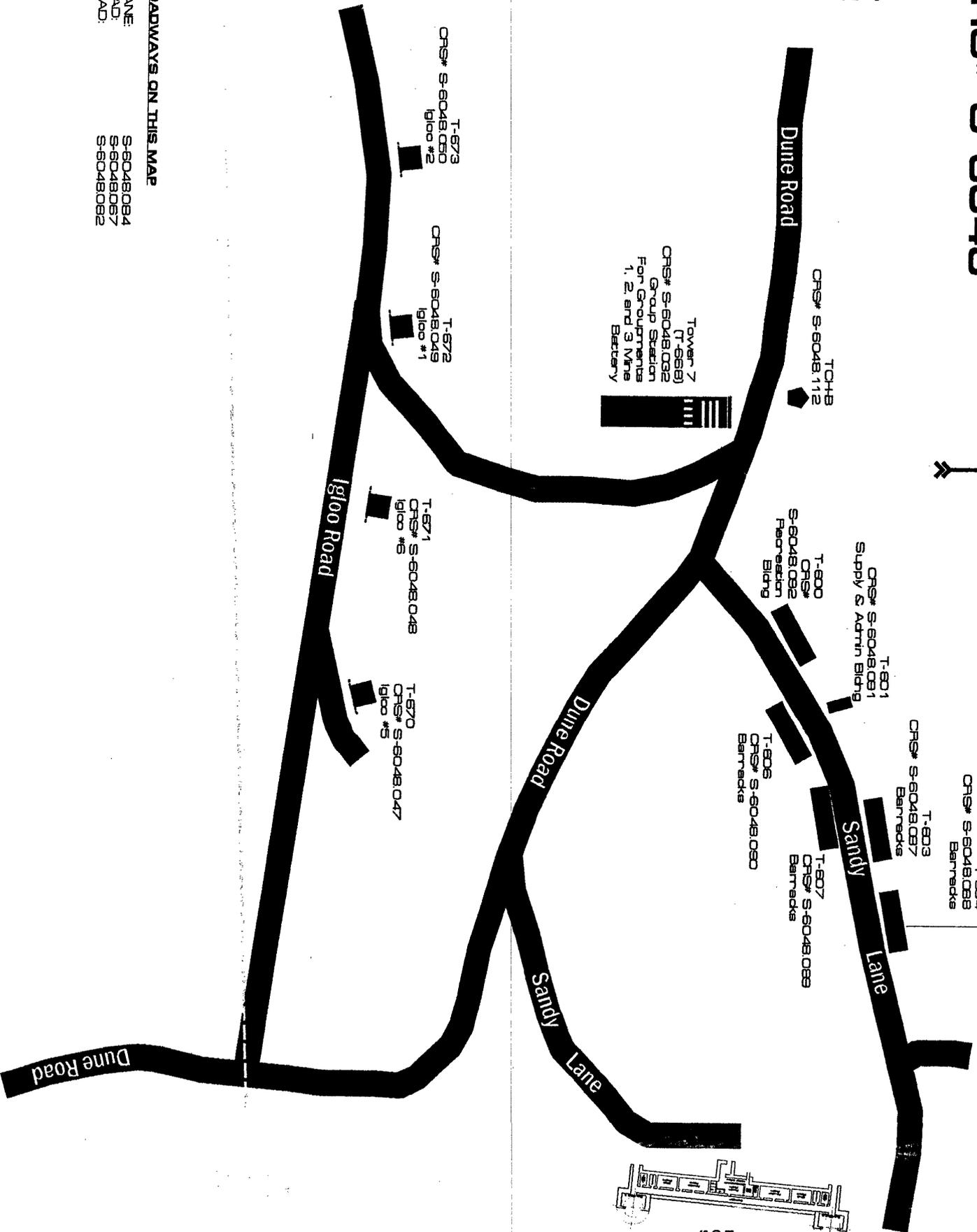
T-674
CRS# S-6048051
Igloo #3

T-587
CRS# S-6048053
Igloo #8

T-588
CRS# S-6048052
Igloo #7

FORT MILES CRS # S-6048

CRS MAP 5

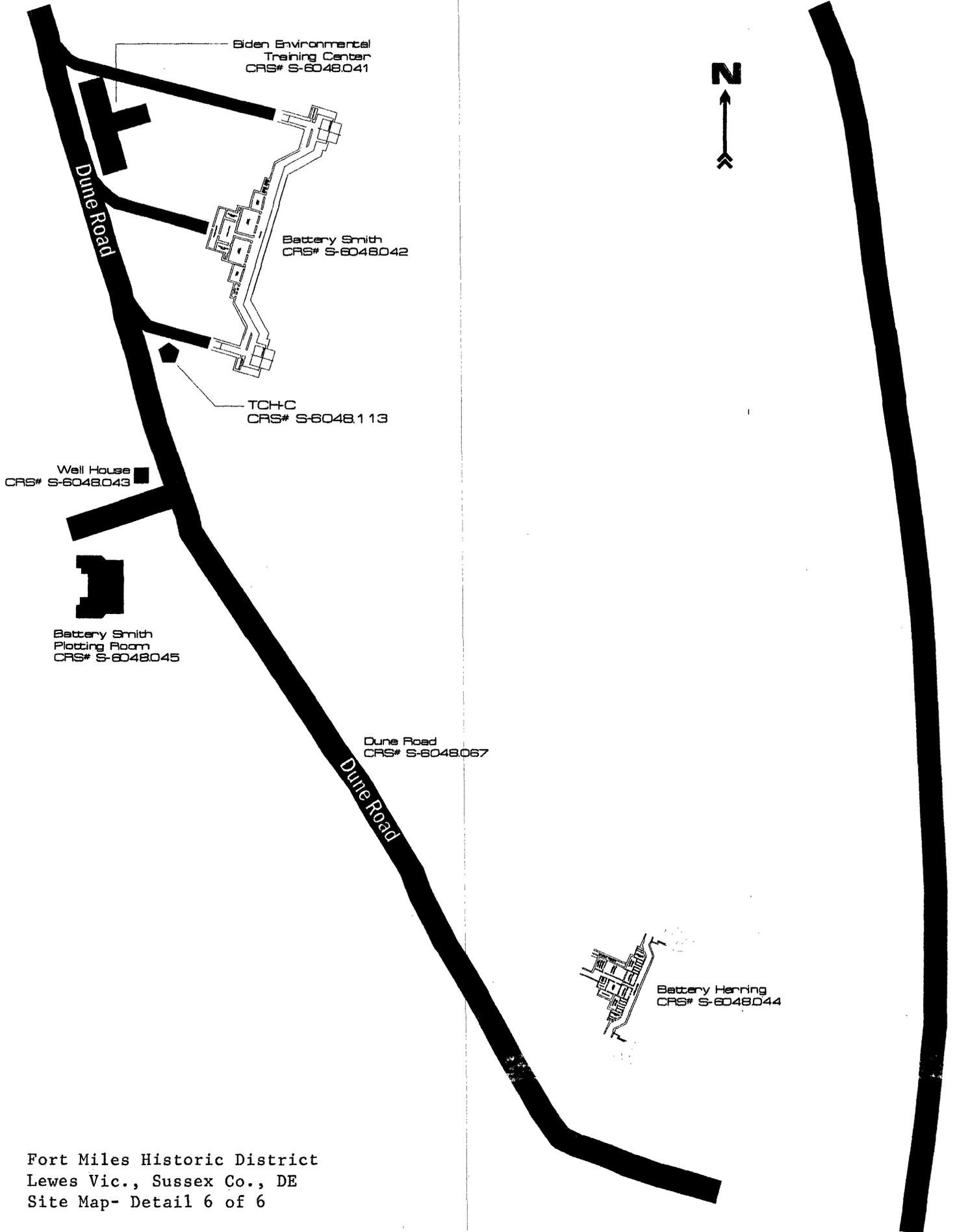


ROADWAYS ON THIS MAP

SANDY LANE: S-6048.084
 DUNE ROAD: S-6048.067
 IGLOO ROAD: S-6048.082

FORT MILES CRS# S-6048

CRS MAP 6



United States Department of the Interior
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CONTINUATION SHEET

Section Photographs Page 1 Fort Miles Historic District
name of property
Sussex County, Delaware
county and State

Fort Miles Historic District
Cape Henlopen State Park
Lewes Vicinity, Sussex County, Delaware
Photographer: Jack R. Goins
Date: April 10, 2004

Negatives: Cultural and Recreational Services Section
Delaware Department of Natural Resources and Environmental Control
152 S. State Street, Dover, DE

- 1 of 35 Fire Control Tower #7
View: Looking Southeast from Dune Road
- 2 of 35 Mess Hall
View: Looking east from Middle Road
- 3 of 35 Fort Miles Chapel and Fire Control Tower 8 in background
View: Looking Northeast from Point Road
- 4 of 35 Supply and Administration Building
View: Looking Southwest from Bay Lane
- 5 of 35 Barracks
View: Looking Southwest from Bay Lane
- 6 of 35 Barracks
View: Looking North from Bay Lane
- 7 of 35 Chlorination Building
View: Looking North from Stump Road
- 8 of 35 Parade Ground
View: Looking Southwest from Post Road
- 9 of 35 Ordnance Igloo
View: Looking North from Igloo Road.
- 10 of 35 Battery Hunter
View: Looking East from Sandy Point Road
- 11 of 35 Battery 519 Center Entrance.
View: Looking East from rear of the Battery.
- 12 of 35 Battery Herring
View: South Entrance looking East from the rear of the battery.

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| 13 of 35 | Battery Herring, Muffler Gallery
View: Looking East from the rear of the battery. |
| 14 of 35 | Battery Smith, South Gun Room Entrance
View: Looking East from Dune Road. |
| 15 of 35 | Battery Smith, North Gun Room Entrance
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| 16 of 35 | Plotting Room for Battery Smith
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| 17 of 35 | Mine Storage Building
View: Looking West from Dock Road |
| 18 of 35 | Army Engineer and Signal Corps Building
View: North and West Elevations. Looking South from Signal Road |
| 19 of 35 | Post Engineer Warehouse
View: South and West elevations. Looking north from Chemical Lane. |
| 20 of 35 | Harbor Defense Motor Pool
View: South and East Elevations. Looking Northwest from Engineer Road. |
| 21 of 35 | Post Administration Building
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| 22 of 35 | Fort Miles Rifle Range
View: Looking Northeast from Sandy Lane. |
| 23 of 35 | 519 Cantonment Area
View: From Fire Control Tower 7, looking Northeast. |
| 24 of 35 | Supply and Administration Building in 519 Cantonment
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| 25 of 35 | Barracks in 519 Cantonment.
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28 of 35	Fire Control Tower 9. View: Looking North from Point Road.
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