

Chapter 3: Environmental Setting

Physical Resources

Geology

The surficial geology of the area consists of glacial till containing unconsolidated sand, gravel, and boulders or “erratics” from Harbor Hill Moraine deposits and glacial outwash containing loamy or silty topsoil underlain by sorted and stratified sand and gravel. Some drift deposits were shaped into “kame and kettle” landforms (small knolls and topographic depressions, respectively) as well as small shallow valleys or drainage ways carved by subglacial meltwater (Bennington 2005). Deeper and wider valleys formed during the advance and retreat of the Wisconsin Ice Sheet during the fourth glacial stage of the Pleistocene Epoch, include areas that are today inundated by the various surrounding harbors and bays. Coastal bluffs and beaches formed from the coastal processes of the Holocene Epoch are significant shoreline features at Caumsett State Historic Park Preserve. See Figure 5 for a map of the surficial geology of the park.

Topography

Topography in the park is generally flat-to-rolling with areas of gentle-to-steep slopes and coastal bluffs along the north shore. Elevations range from sea level to approximately 130 feet above mean sea level (msl). See Figure 6 for a map of the topography of the park.

Soils

Soils at Caumsett State Historic Park Preserve are consistent with soils of the Carver-Plymouth-Riverhead Soil Association. This soil association is described by the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) (2008) as deep, rolling, excessively drained and well-drained, coarse textured and moderately coarse textured soils. See Figure 7 for a map of the soils of the park.

Subsurface Resources

Groundwater

Groundwater elevations vary depending on exact location and topography, water table slope, and seasonal and yearly fluctuations caused by variable weather patterns. Groundwater levels at the park average an estimated 5 feet above mean sea level within the upland portion of the park (Suffolk County Department of Health Services 2002). This water table level translates to a depth to groundwater of between 0 and 95 feet below the ground surface depending on exact location. The surface elevation of Fresh Pond is a relatively good indicator of the elevation of the fresh groundwater table in the northeast quadrant of the park, as well as the degree of fluctuation in groundwater levels due to seasonal and annual weather patterns.

Based on groundwater contours available from the Suffolk County Department of Health Services, the groundwater divide within the park generally bisects the polo fields from east-to-west. Groundwater flow, therefore, generally flows to the north toward Long Island Sound on the north side of the divide and south toward Lloyd Harbor on the south side of the divide (*Ibid.*).

Water

Ponds

Fresh Pond is a “kettle hole” pond that was formed by the glacial outwash from the receding Wisconsin glacier. Fresh Pond is 12 acres in size and approximately 10 feet deep. The Field family altered the pond by adding drains and aerators so the pond could support trout species. Due to its location at the bottom of a sloping hill, runoff from upland areas is contributing to the eutrophication of the Fresh Pond. This means additional nutrients are being deposited in the pond and is causing a decline in the oxygen level of the water (Greller *et al.* 2005).

An invasive species, Common Reed Grass (*Phragmites australis*) is found along the shoreline of the pond. Fresh Pond has been monitored by the Environmental Management Bureau’s (EMB) Water Quality Unit as recently as 2006 and found that the pH and turbidity all fall within the normal level.

There is also a vernal pond in a low lying area that collects water in the spring, up to four or five inches deep. The plants in this area are adapted to wet conditions and the pond provides habitat for Spring peepers (a small tree frog). The vernal pond dries up by mid-summer.

Long Island Sound

Long Island Sound (LIS), which stretches along 2 miles of the northern area of the park, is an estuary where fresh water from the land and salt water from the ocean mix, creating a highly productive ecosystem. LIS is a significant scenic and natural resource feature and provides views of Connecticut and the North Shore of Long Island. In 1987, Long Island Sound was designated as a National Estuary. LIS has 1320 square miles of surface water and a watershed of 16,820 square miles. It is 110 miles long and 21 miles at its widest point with over 600 miles of shoreline and an average depth of 63 feet. It is estimated that \$5.5 billion is generated per year from services and resources it provides. LIS supports important commercial and recreational fishing, boating and tourism and is a major commercial waterway. More than 8 million people live in the IS watershed, and the associated development has increased some types of pollution, altered land surfaces, reduced open spaces, and restricted access to the Sound (US Environmental Protection Agency (EPA) 2009). The Sound supports a great variety of coastal habitats including tidal and freshwater wetlands, submerged aquatic vegetation such as eelgrass beds, beaches, dunes, cliffs and bluffs, estuarine embayment’s, coastal and inland forests, riverine migratory corridors, shellfish reefs, intertidal flats and rocky intertidal habitats. More than 120 fish species occur here and more than 125 species of birds rely on the Sound for food and habitat (Ibid).

Lloyd Harbor

Lloyd Harbor forms the southern border of Lloyd Neck and is approximately 630 acres in size and five feet deep. The entrance to Lloyd Harbor is from Huntington Bay which frames the eastern part of Lloyd Neck. Most of the stormwater flow from the watershed discharges into the narrow inner portion of the harbor. Recreational and commercial shellfish harvesting are important in Lloyd Harbor. The head of the harbor has restricted circulation, which can lead to depressed oxygen levels especially in the summer months; however, the harbor has very few shellfishery closures and generally remains open to harvesting year-round. The East Beach sand spit provides some protection at the harbor’s mouth and is a popular anchorage and mooring area in the summer months (Village of Lloyd Harbor 2001). See Figure 8 for the water resources map.

Oyster Bay

Oyster Bay National Wildlife Refuge, comprised of Oyster Bay and Cold Spring Harbor, is the largest wildlife refuge on Long Island and forms the western border to Lloyd Neck. The refuge

supports 3,000 acres of bay bottom and more than 200 acres of intertidal and high marsh. Shellfish, finfish and other marine species are abundant and Oyster Bay supports the only commercial oyster farm remaining on Long Island. Over 126 species of birds have been documented including 23 species of waterfowl. Oyster Bay also supports a great amount of recreational uses, such as boating.

Wetlands

A review of DEC freshwater wetlands maps indicates the existence of one freshwater wetland in the park. Freshwater wetlands are classified by rank with Class 1 being the highest rank, or most ecologically sensitive. A small intermittent south-to-north flowing freshwater stream, channel, or drainage way was also identified leading from the west-central portion of the park to the tidal wetlands at “Fly Island” to the northwest. The tidal wetlands are associated with a tidal creek and its tributaries, which drain to the west toward Cold Spring Harbor. A few short drainage ditches have also been documented as existing in this area (Warner, 1975). These areas are described in more detail below.

Fresh Pond wetland complex: As a kettle hole pond, the Fresh Pond has a fluctuating water level depending on the season. According to DEC, this wetland complex is classified as a Class 2 freshwater wetland and is approximately 14 acres in size.

Low Salt Marsh wetland complex: The low salt marsh is a coastal marsh community located in the northwest corner of the park. The 89-acre low salt marsh is a federally regulated tidal wetland. Low salt marshes occur in sheltered areas of the seacoast and represent one zone of a coastal salt marsh ecosystem. On Long Island, low salt marshes are more often found on the south shore making this occurrence, on the north shore, particularly unique. In addition, the marsh is tidal and supports many important ecological functions, including, “...food chain production, provision of fish and wildlife habitat, barrier to waves and erosion, storm and flood water storage, and nutrient and chemical uptake (Niedowski 2000).” See Figure 9 for the wetlands map.

Shoreline

There is a total of 47 acres of the maritime beach ecological community within the park. The roughly 2.5 miles of shoreline was used as a dumping ground for building materials during the Field era of the estate. The beach has recovered from this practice and remains one of the best examples of this community type in the state. Additionally, the beach provides the habitat for the federally endangered and threatened colonial nesting birds (Smith and Lundgren 2008).

Air

The park is located within the New York, New Jersey, Connecticut, and Long Island non-attainment area for failing to meet the national ambient air quality standard for air pollutants, specifically, ozone (EPA 2008).

Natural Resources

Ecological Communities

Thirteen separate ecological communities have been identified at Caumsett by the New York Natural Heritage Program. Four ecological community types at the park are particularly noteworthy and are considered significant. They are coastal oak-hickory forest (133 acres), oak-tulip tree forest (687 acres), maritime beach (47 acres), and low salt marsh (89 acres). Each of these communities is classified by the State as “unprotected” (Smith and Lundgren 2008). However, the oak-tulip forest and maritime beach communities are considered “good” to “excellent” quality occurrences, while

the coastal oak-hickory and low salt marsh environments are considered “good” quality occurrences (*Ibid.*).

The park also consists of 33 acres of the successional oak-tulip tree forest community (no rarity ranking available), 10 acres of erosional slope, 150 acres of successional old field, 23 acres of successional shrubland, 17 acres of salt shrubland, 2 acres of marine rocky intertidal zones, 79 acres of marine eelgrass meadow, 12 acres of eutrophic pond, and 251 acres of developed land (*Ibid.*). See Figure 10 for the ecological communities map.

Flora

A study of vascular flora in Caumsett State Historic Park Preserve was conducted by Andrew Greller, professor of biology at Queens College, in 2008. Greller concluded that the vascular flora inventory at Caumsett is made up 101 families, 330 genera and 624 species, of which 405 species (65%) are native and 219 species (35%), are non-native species (Greller, Barringer 2008). For additional information see Appendix C.

Upland forests of Caumsett State Historic Park Preserve are categorized in one of two ecological community types: Coastal Oak-hickory forest and Oak-Tulip tree forest. These forests are typical for the coastal areas of the northeastern United States and include a diverse assembly of mature trees, shrub and herbaceous plant species.

The low salt marsh provides a unique habitat for many aquatic plants. The vegetation of the low salt marsh is primarily cordgrass (*Spartina alterniflora*) and a few species of marine algae can live between the stems of the cordgrass, including knotted wrack (*Ascophyllum nodosum*) (Smith and Lundgren 2008). On the Sound, projects to restore the eelgrass (*Zostera marina*) population have been ongoing at the park since 2006 through partnership efforts by Cornell University Cooperative Extension. Restoration of submerged aquatic vegetation such as eelgrass has been identified as a priority in the Long Island Sound Study (2009) Habitat Restoration Initiative. Sea grass beds are ranked as one of the most bio-diverse community types on earth, and eel grass is the only Long Island seagrass. Eelgrass meadows keep water clean by sequestering nutrients and settling and trapping particles, slowing currents and reducing wave force, as well as stabilizing the seafloor and providing erosion control. They provide food, habitat and spawning grounds, supporting an array of species including crustaceans such as blue crabs and lobsters, mollusks such as bay scallops, and fishes such as flounder, blackfish, sea bass and striped bass (Cornell University Cooperative Extension 2008).

Successional Old Fields

The existing pattern of open field and forest is very similar to what existed when the property was owned and managed by Marshall Field. Some notable changes include expansion of the southern end of the open field commonly known as the 50-acre field, some limited clearing within previously forested areas within the vicinity of the pheasant houses, and successional forest development within a scenic corridor extending northwest from the main house to the shore. Decisions regarding management of the open fields need to seek a balance among their ecological value as habitat for wildlife and native species, and their importance as part of the Field estate's historic designed landscape.

Rare or Threatened Plants

The following are considered to be rare or threatened plants found at Caumsett State Historic Park Preserve: Dwarf glasswort (*Salicornia bigelovii*), narrow-leaf sea blite (*Suaeda linearis*), Dune

sandspur (*Cenchrus tribuloides*), Georgia bulrush (*Scirpus georgianus*), and clustered bluets (*Oldenlandia uniflora*).

Fauna

For the most part, the park's wildlife is typical of the region and the suburban setting. The park supports a wide range of mammals, birds, fish, amphibian, reptile, and insect species that are common to the coastal areas of the northeastern United States. For a detailed list see Appendix C.

Nuisance Wildlife

Canada Geese populations cause considerable damage and unsanitary conditions from the large amount of droppings. High populations of white tailed deer are also a management problem in the park as they have no natural predators in this area and hunting is not permitted within the park. Deer browse throughout the park and can cause damage to the herbaceous and shrub layers of the forest and woodland areas.

Significant Coastal Fish and Wildlife Habitat

The Department of State has designated two areas of the park as Significant Coastal Fish and Wildlife Habitat areas. The first area, located at Lloyd Point on the northwest tip of Lloyd Neck, is approximately 275 acres in size. The narrow, sparsely vegetated sand peninsula protects a bay area, salt marsh and tidal flats. This area is an excellent example of a coastal wetland ecosystem, supporting a diversity of fish and wildlife habitats. The low salt marsh community can support various types of crabs, shellfish, and small fishes. The shallow maritime waters that form the northern border of the park provide sportsmen the opportunity to fish for such species as bluefish, snappers, tautog, fluke, striped bass, weakfish and Atlantic mackerel. The second area designated is Lloyd Harbor and is located south of Lloyd Neck between Cold Spring Harbor and Huntington Bay. This area is approximately 800 acres in size and consists of salt marsh, mudflats and open water. The majority of Lloyd Harbor is less than 8 feet deep at mean low water and has tidal fluctuations of about 7 feet. Lloyd Harbor is a waterfowl wintering area with concentrations of approximately 380 birds annually. The harbor serves as a nursery area for various marine fish species. Hard clams, blue mussels and ribbed mussels occur in Lloyd Harbor and provide a commercial shell fishery and recreational shell fishery (Village of Lloyd Harbor 1995).

Endangered, Threatened and Rare Animal Species

A total of eighteen federal- or state-listed birds have been observed at Caumsett. Four of these species regularly use Caumsett as a breeding site: Piping Plover (State-endangered and Federally-threatened), Common Tern (State-threatened), Least Tern (State-threatened), and Osprey (State special concern). Piping Plovers have nested at Lloyd Point since at least 1988 with up to thirteen nesting pairs occurring there. Least Terns have nested nearly every year since at least 1977 with up to 100 breeding pairs at Lloyd Point. Common Terns first nested in 1998. Protection and management of nestlings and fledglings of these species at risk are conducted by OPRHP and the three species are surveyed annually as part of the *Long Island Colonial Waterbird and Piping Plover Survey* (DEC 2008).

Sea turtles are also found in Long Island Sound waters off Caumsett's shore. Loggerhead (*Caretta caretta*), Kemp's Ridley or Atlantic (*Lepidochelys kempii*), and green (*Chelonia mydas*) sea turtles are all likely inhabitants of Sound waters. All species of sea turtles found in Long Island waters are state, federally and globally endangered. Marine mammals such as bottlenose dolphins, harbor porpoises and seals are also found within the Sound.

Invasive Species

Under state law adopted in 2007 and amended in 2008 (Environmental Conservation Law Article 9, Title 17), “invasive species” means a species that is:

- (a) non-native to the ecosystem under consideration; and
- (b) whose introduction causes or is likely to cause economic or environmental harm or harm to human health.

The law also indicates that harm must significantly outweigh any benefits for a species to be considered invasive.

While there are many invasive plant species impacting the native ecological communities of Caumsett, no invasive animal species are known in the park at this time. The Caumsett Foundation’s Environmental Committee has provided invaluable assistance in identifying, locating, and removing invasive plants in the park. For example, the Foundation prepared a report in 2009 on mile-a-minute weed (*Polygonum perfoliatum*) removal projects in the park. Park management has recognized the need to control invasive plants and has supported volunteers through the Foundation and the Long Island Invasive Species Management Area (LIISMA), as well as staff, to perform manual removals as possible within operating constraints. Invasive species are viewed as a management issue and are addressed in Chapter 5 of the plan.

Historic Resources

History of the Park

The history of human occupation at Caumsett State Historic Park Preserve spans over 5,000 years and encompasses three major periods in the development of Long Island. The first period lasted more than 4,000 years and is associated with the history of indigenous peoples of North America, especially during the Middle and Late Woodland Periods. During this time, many tribes or cultural groups occupied the broad expanse of territory that includes Manhattan and Long Island. According to one historian's account, there were at least 13 different tribes (or cultural groups) inhabiting parts of Long Island when the Dutch began settling New Amsterdam in the early 17th century. The second period in the park's history is associated with the establishment of British settlements on eastern Long Island and the formation of a royal patent known as the Manor of Queens Village in 1685. The association of the Lloyd family with this royal patent and all of the lands comprising Lloyd's Neck continued for over 200 years, spanning from the Colonial era through the formation of the New Republic and well into the 19th century. The third and final period began during the early 20th century and is associated with America's "Gilded Age" and the creation of Marshall Field's country estate known as "Caumsett."

The Matinecock Indians are among the 13 or more cultural groups that inhabited portions of Long Island before European occupation. They are generally believed to have occupied a portion of Long Island extending from Flushing eastward to Fresh Pond and southwards from the Sound to the central highlands. The Matinecock lived in small temporary villages and engaged in farming, fishing and hunting. The various "necks" along Long Island's north shore reportedly possessed fertile soils and highly productive fishing grounds.¹

¹ Information about Native American groups on LI derives from two main sources: Bolton's [Indian Paths in the Great Metropolis](#) (1922) and Prime's [History of Long Island](#) (1845).

In 1654, a group of British settlers obtained a deed for the lands comprising Lloyd's Neck from the Matinecock chief Raticocan. Initially called "Horse Neck" by the early British settlers, all of the land gradually came under the ownership of James Lloyd through a combination of his marriage to Grizzle Sylvester (widow of Nathaniel Sylvester, who purchased a portion of the tract in 1666) and several small land purchases. By about 1679, James Lloyd had acquired all of the neck and was granted a manorial patent in 1685. James Lloyd was a Boston merchant and never actually resided on Lloyd's Neck; instead, he established contracts with several tenant farmers who settled on the land.

Henry Lloyd, son of James Lloyd, was the first family member to establish a permanent residence on Lloyd's Neck. Henry removed to Lloyd's Neck in 1711, only a few years after marrying Rebecca Nelson; together they raised 10 children presumably while residing in the "salt-box" manor house that survives to this day. Henry Lloyd died before the onset of the American Revolution, and ownership of his lands passed to his four surviving sons: Henry, John, Joseph and James. Joseph built another house on the manorial estate, the only other one to have survived, in 1766.

During the American Revolution, the British occupied Long Island and built a fort, known as Fort Franklin, at the western tip of Lloyd's Neck. British troops also reportedly cut down a large quantity of timber during their brief occupation. After the war, John Lloyd returned to the family estate and purchased the lands forfeited by his Loyalist brother, Henry. The entire estate remained in the Lloyd family until the 1890s. The practice of leasing parcels to tenant farmers continued throughout the 19th century, although the number of tenant farmers declined as the century waned.

By the third quarter of the 19th century much of Long Island was still sparsely settled. The rural character and pastoral charm of eastern Long Island, combined with the relatively low price of land and easy access to New York City, prompted interest among America's wealthy elite to acquire vast tracts and build private clubs and country estates. The development of country estates on Long Island also paralleled a nearly unprecedented period of architectural exuberance in the planning, design and construction of private residences and country clubs. It is also a period of time when American architects were heavily influenced by the teachings of the Ecole des Beaux Arts and traditional European architectural forms.

Marshall Field III acquired over 1600 acres of land, comprising about two-thirds of Lloyd's Neck, in 1921 for the purpose of building a self-sufficient country estate and gentleman's farm. Field acquired most of this land from the Incorporated Land Company, which had failed in its efforts to attract enough investors to build a private golf course. In typical fashion, Field hired an architect -- John Russell Pope -- to design and manage the construction of his estate. One of the extraordinary aspects of the estate's development was the scale of the undertaking. The project included construction of a complete network of underground utilities (water, sewer, electric and telephone), several miles of new roads, and extensive clearing and grading. The project also called for the construction of over 20 new buildings and two docks as well as a series of formal gardens and English parks. To accomplish all of this work within the span of about 4 or 5 years, Marshall Field assembled a large team of designers, managers and laborers. Associated designers included Warren and Wetmore, architects; Alfred Hopkins, engineer; and the Olmsted Brothers and Marian Cruger Coffin, landscape architects. The firm of John Russell Pope coordinated and managed the work of all these designers into a unified composition that, once completed, exhibited the cohesiveness and patina of a long-established country estate.

By the early 1940s, the character of Long Island had changed and was becoming substantially more suburban. Suburbanization, together with changes in the overall structure of the economy, led to a cessation of estate building and eventually to the demise of many country estates. The dissolution of many country estates on Long Island paralleled the development of State Parks under the direction

of Robert Moses. Moses expressed interest in acquiring Caumsett for a state park prior to Marshall Field's death in 1956, and ultimately purchased a large portion of the estate in 1960. Part of the original Caumsett estate was sold to create a residential subdivision (known as Fiddler's Green). Ruth Pruyn Field, who survived Marshall Field, retained a small portion of the estate until 1966 at which time it was absorbed into the park. After several years of discussions with the local community regarding development of the facility, Caumsett was opened to the public in 1978 for the purpose of providing passive recreation and environmental education. Caumsett remains a valuable public facility that possesses rare and unique natural resources along with a rich historical legacy.

Cultural Resources

The majority of the cultural resources that exist within Caumsett State Historic Park Preserve are associated with two distinct periods in the property's history. The first historic period includes the establishment of the British colonial manor of Queens Village and its continued ownership by several generations of the Lloyd family (beginning around 1679 and continuing to the 1870s or 1880s). The second historic period is associated with the development of Caumsett as the Gilded Age country estate of Marshall Field III. Native American tribes and cultural groups occupied or utilized a broad area including all of the lands forming Lloyd Neck for many hundreds of years before the arrival of Europeans on the American continent; however, no coordinated effort has been made to identify any specific sites of occupation within the park.

The entire park is listed in the National Register of Historic Places. The nomination identifies the property's significance related to the areas of agriculture, architecture and landscape architecture during the period from the 18th through the early 20th centuries. The nomination states: "the estate's evolution produced an architecturally important residence and numerous dependencies related to the lifestyle of a wealthy gentleman farmer," and notes that the park, "...is valuable because of its picturesque landscape and the significant roles its owners have played in the development of Long Island (National Register Nomination Form 1979)." See Figure 11 for a cultural resources map.

Archeological

The archeological resources at Caumsett include both pre-historic and historic artifacts and the foundations or other remains of buildings and other man-made structures. Archeological testing within the vicinity of the Henry Lloyd manor house has uncovered evidence of pre-historic (Middle and Late Woodland periods) activity along with 19th century cultural material. This includes evidence of shell middens and Native American pottery, along with 19th century whiteware, transfer-print tableware and medicine bottles (Silver 1987). Archeological survey and testing within the park has been limited to areas impacted by construction projects undertaken since 1975; however, historical accounts and more recent research suggests that evidence of Native American occupation on Long Island is widespread.

Historic records indicate that at least one barn and several outbuildings were constructed north of the Henry Lloyd manor house during the 18th century. The Lloyd family also leased part of their land to tenant farmers, who likely built simple dwellings with barns and outbuildings. There is at least one reference to removing "several nondescript cottages and sheds... on the Harbor side" during the construction of the Marshall Field estate (Higgins 1928). The location of any such structures remains unknown; however, the foundation of what is likely a mid- to late-19th century schoolhouse is still

exposed along with the gravestones from one or more small cemeteries. Artifacts associated with the British construction and occupation of Fort Franklin (1777-1780) may also exist.²

A third grouping of archeological resources is associated with the former structures that were constructed for the Marshall Field estate. Approximately 14 buildings, including the Indoor Tennis Court, bath houses and several residences, were demolished after the State acquired the property in 1961. In many cases the buildings were demolished and their cellars or basements filled in; the foundations of some are still visible. In addition to information about the materials used in the building's construction, these sites may contain artifacts that could provide information about the people who worked and managed the estate.

Historic Buildings and Structures

There are a total of 16 historic buildings in the Park, including the sprawling Farm Group complex that served Field's cattle and dairy operation. The vast majority of the surviving historic buildings and structures were built for the Field estate, with most of the construction activity occurring between 1922 and 1928. One notable exception is the Summer Cottage, which was built about 1939. The Henry Lloyd manor house is the only surviving structure within the Park boundaries that is associated with the original manor (the Joseph Lloyd manor house also survives but is not within the park boundaries).

During construction of the Marshall Field estate, an extensive network of underground utilities was installed to deliver water, electric and telephone service to each of the buildings. While largely invisible, generators within the power house and two steel water tanks remain as a testament to the scale of the estate's self-sufficiency. There is also a network of underground drains and sewer lines that lead to one of two large septic fields.

Most of the historic buildings have survived relatively intact, albeit suffering from a backlog of deferred maintenance. The Henry Lloyd manor house was altered and modified several times, but was largely restored to its 18th-century appearance during the late 1970s and early 1980s. Two wings were removed from opposite ends of Field's main house in 1950; however, the alterations were made during Field's ownership and were accomplished in a manner that has preserved the building's Georgian architectural design.

All of the estate's principle buildings were designed by John Russell Pope. Pope was a prominent New York City architect that was educated at Columbia University, the American Academy in Rome and at the prestigious Ecole des Beaux Arts in Paris. While several other design professionals were involved in the estate's development, including Alfred Hopkins and the firm of Warren and Wetmore, Pope maintained overall responsibility for the planning, design and construction. An inventory of all historic buildings, which includes everything built before 1960, is included in Appendix D. See Figure 12 for a map of the historic Field Estate.

Historic Designed Landscape

The Field estate was created in the image of an English country manor. The historic landscape included expansive lawns planted with trees (specimen trees), woodland, fenced pastureland and, within close proximity to the main house, ornamental flower gardens. Views were carefully placed

² According to two separate accounts, a large residence built in 1879 for Anne Alden and called "Fort Hill" was placed on the site of the British fort. If these accounts are true, this would place the British fort outside of the park's boundaries. See Robert B. MacKay, Anthony Baker and Carol A. Traynor, eds., Long Island Country Houses and Their Architects, 1860-1940, (1997), 280-81; and Matthew Bessell, Caumsett - The Home of Marshall Field III, (1991), 3.

and configured, and the process of moving through the landscape was intended to be one of continual discovery. It is a landscape that, while largely artificial, is meant to appear natural and imbued with a sense of antiquity.

Pope retained primary control over the layout of the estate, including the alignment of the roads and views of the Sound and harbors. However, Pope was assisted by the Olmsted Brothers firm (established by the sons of Frederick Law Olmsted), along with George Gilles, an English estate gardener who Field hired to become his master gardener. The Olmsted Brothers were primarily responsible for designing the terrace gardens and the forecourt of the main house, along with the plantings around the Indoor Tennis Court. The intimate terrace garden and sweeping daffodil field next to the Winter Cottage was designed by Marian Cruger Coffin.

The Field estate was also a business enterprise, with a cattle breeding and dairy operation along with a large greenhouse and vegetable/flower garden. The enterprise required a substantial work force, many of whom resided on the property either in small cottages or in larger boarding houses. Thus, the layout and design of the estate reflect its dual purpose as a picturesque venue for recreation and relaxation as well as an efficient, albeit proper, setting for carrying out the farm's business. The aesthetic differences between the working and non-working portions of the estate reflect this duality and are a defining characteristic of a gentleman's farm in the Gilded Age.

Caumsett State Historic Park Preserve retains most of the defining features and characteristics that were created for Marshall Field's "Caumsett." These include the pattern of field and forest, the network and alignment of roads and pathways, constructed views and vistas, plantings and formal garden elements. The historic designed landscape is really the essence of what was and remains "Caumsett." Its timeless, natural appearance belies its artificiality, attesting to the skill of its designers and the enduring appeal of this aesthetic. See Figure 12 for a map of the historic Field Estate.

Scenic Resources

The historic landscape of the Field property including its pattern of forests and fields, the width and layout of its roads, and the presence of the remains of an old cart way that crosses the polo fields has remained largely intact (Flagg 2008). The landscape of the park preserves the original design of the Field estate. The main drive is an important part of the experience. The transitions from sunny fields to shady woodlands and the road's dips and curves all create a sense of mystery and anticipation of what lies ahead. This landscaping technique was pioneered by Frederick Law Olmsted in Central Park and was passed on to his associates and sons, who designed Caumsett's grounds for the Field's estate.

Scenic Vistas

Long View—From the Main House looking northwest. This view was designed by Pope but has not been appropriately maintained in many years and several areas have overgrown.

50 Acre Field—This view can be seen from Fisherman's Road and is comprised of rolling hills of tall grasses that reflect the agricultural history of the park. The 50 acre field is maintained as part of the Bird Conservation Area and is habitat for birds and wildlife.

Plank Road—Plank Road provides scenic views of the Low Salt Marsh, Long Island Sound and Cold Spring Harbor. The views from Plank Road can be appreciated for both their scenic and environmental value.

Bluff Overlook—This view provides sweeping views of the shoreline and Long Island Sound. This view allows park patrons to see the natural edge of the shoreline.

Long Island Sound—The Long Island Sound is a major scenic feature of the park and it can be seen from various point in the park offering a new experience from different locations.

Lloyd Point—This view shows the natural beauty of the low salt marsh and Long Island Sound shoreline.

Gardens

There are several garden locations throughout the park that date back to the Field era of the estate. The gardens in the park were primarily designed by the Olmsted Brothers. The Summer Cottage, Winter Cottage and Main House all had ornate gardens on their grounds. The Sunken Garden was located near the Main House and has not been cared for in some time. While many of the gardens have not been tended to and are overgrown, many of the original plantings can still be found. In addition, the Walled Garden, near the entrance of the park, went through several iterations during the Field era of the estate but has been restored as an ornate garden that is cared for by the Caumsett Foundation. See Figure 11 for the cultural and scenic resources map.

Recreational Resources/Activities

Picnic Areas

There are no formal picnic facilities within the park except for a few picnic tables near the park office. Informal picnicking is allowed with a carry-in/carry-out policy.

Boat Launching

Though no official boat launching area exists within the park, boaters utilize the old dock area on Oyster Bay to access the park, via the water. There is limited control on the number of boats mooring offshore, how they access the shore and the use of the immediate shoreline area. Many kayakers and canoeists drop their vessel off on the side of Lloyd Harbor Road, park their car at the main parking lot, and walk down to their vessel.

Trails

There are approximately 27 miles of trails within the park and of those, 3 miles are paved. The “main loop” is a 3 mile paved trail and is one of the more popular and scenic trails within the park. Walking, running, hiking, horseback riding and bicycling is allowed on the trails, although horses are only allowed in designated areas of the park. Trail signage is sparse. The paved trails are the existing (historic) interior paved roads of the park. Pedestrians and bicyclists have access to these paved trails along with park operations and permitted users. Horses are not allowed on the paved trails. There are no connections to other trails outside of the park.

Equestrian

The equestrian concessionaire utilizes the stables and designated fields for use by persons stabling their horses at the park. Persons utilizing the equestrian center have limited access to rest of the park. The general public can trailer their horses to the visitor’s parking lots and access the equestrian trails, however, the general public does not have access to the designated equestrian area. The center also hosts equestrian events throughout the year.

Polo

Polo events are held periodically at the park. These events are organized by the equestrian concessionaire and occur within the licensed area for the concessionaire.

SCUBA Diving

SCUBA diving is allowed in the park through a permit process. Specific locations within the park are designated for SCUBA access, primarily near the Fisherman's parking lot.

Fishing

Saltwater fishing is allowed at the park. Park patrons may attain a permit so that they may park at Fisherman's parking lot near Long Island Sound. Annual and 24 hour permits are provided on a first come basis and only ten 24-hour permits are issued on a daily basis. The permits also provide for after hours use of the park. Fishing in the Fresh Water Pond is not permitted. See Figure 13 for a map of the recreational resources of the park.

Interpretive/Educational Programs

Caumsett State Historic Park Preserve conducts over 50 environmental education programs per year. These programs include star watches, orienteering, children's programming and night walks.

Private Programs

Caumsett State Historic Park Preserve provides environmental education for school groups, Boy and Girl Scouts, home school groups and various organizations.

Public Programs

Nassau BOCES

Nassau County BOCES (Board of Cooperative Educational Services) runs the Caumsett Outdoor Education Center out of the Summer Cottage. Nassau BOCES is responsible for the majority of environmental education at the park and provides a variety of programs for elementary, middle and high school students.

Volunteers for Wildlife

Volunteers for Wildlife is a non-profit organization dedicated to preserving the natural habitat of Long Island "to promote public awareness of wildlife's needs and preservation of Long Island's natural habitat through wildlife rehabilitation, education programs, community outreach, and wildlife advisory services (Volunteers for Wildlife 2008)." The organization was established in 1982 and has been operating out of the park for the past 21 years.

Lloyd Harbor Historical Society

Established in 1974, the Lloyd Harbor Historical Society is dedicated to preserving the early, colonial history of the area. The society is based out of the Henry Lloyd 1711 House and runs various activities, tours and demonstrations for local schools and the community.

Annual Large Events

Caumsett Foundation Annual Benefit

The Caumsett Foundation holds an Annual Party and Art Auction to benefit the park. The event is typically held every fall at the park.

Caumsett Summer Cultural Arts Festival

The Caumsett Foundation and OPRHP support this summertime tradition of the performing arts beginning in June and running through August. Events include plays, musical performances and “Moo to You” which celebrates Caumsett’s dairy farming history.

Long Island State Parks Summer and Winter Run Series

Caumsett plays host to a 5k road race one evening in the summer and in the winter. 5k races are held at other Long Island State Parks on other days throughout the seasons.

Caumsett 50k

The United States of America Track and Field National 50k Championship is held in the park in March.

Winter Activities

Cross Country Skiing

Patrons may use the walking trails for cross country skiing but they are not groomed.

Snowshoeing

Snowshoeing is permitted throughout the park.

Arts and Culture

Caumsett Foundation

The Caumsett Foundation is a non-profit organization created in 1995 “...to support and enhance Caumsett State Historic Park Preserve as a unique and historic environment on Long Island's north shore. The Foundation is dedicated to education, low-impact recreation, historic and environmental preservation and conservation of the scenic value, natural heritage and cultural history of the site (Caumsett Foundation 2008).”

Emergency Plans and Services

Caumsett State Historic Park Preserve currently uses several plans for safety practices within the park. Current confined space entry and hazard communication plans for worker safety are maintained as are lists of Material Safety Data Sheets (MSDS) for all supplies and chemicals used at the park.

Security within the park is provided by the NYS Park Police from their regional headquarters located at Belmont Lake State Park. They provide year round police coverage in cooperation with other local, county and state police agencies.

In the event of a major storm or hurricane, the park follows regional procedures. In addition, park vehicles are prepared for emergency use and for post-storm clean-up, generators are checked and made to be in working order and, if necessary, Fisherman’s Road is closed to the public and fishing is not allowed.

Police

NYS Park Police patrol and respond to emergencies at Caumsett. Supplemental assistance is provided by the Village of Lloyd Harbor Police who provide support during fire or ambulance calls.

Fire

Huntington Fire Department is the primary emergency response for the park. If there were a large building or brush fire requiring additional assistance, nearby fire departments (Halsite, Cold Spring Harbor and Manorville) would provide assistance. Evacuation and response is listed in the park's Emergency Management Plan, which is reviewed and updated regularly.

Fire management is guided by the goal of prevention. The park conducts watches during the dry season, educates the public about the appropriate disposal of a lit cigarette or matches and regularly mows the fire lanes in the park. The latter practice not only helps prevent the occurrence, but would also assist in a rapid response by emergency vehicles and personnel should a fire ever occur in the park.

Police, Fire, Ambulance/Emergency Rescue

The NYS Park Police, the Village of Lloyd Harbor Police, the Suffolk County Sherriff's Office, and the Huntington Fire Department all service the park. Multiple ambulatory and rescue services are available to the park depending on the need. Huntington Volunteer Ambulance Company provides service to the park for aided calls. Due to the county jurisdiction lines that surround Caumsett, Eaton's Neck Coast Guard Station and Nassau County Marine Unit will respond should the need occur during a water rescue.

All-Hazard Emergency Operations Plan

The park, in cooperation with the NYS Park Police, local, county and other state emergency services, tenants and park concessionaires is currently working to create an "All-Hazard Emergency Operations Plan" (EOP) which will replace existing plans with one comprehensive emergency plan. The plan will be based on guidelines provided by the Federal Emergency Management Agency (FEMA). The EOP will be a guide in case of any type of incident, whether it is a man-made or natural event or disaster and will cover all aspects of the park and all related facilities.

Infrastructure

Water Supplies

Potable Water

Suffolk County Water Authority supplies potable water to the park. It is metered in a vault at the entrance to the park.

Waste Water and Sewerage

There are two main septic distribution systems in the park. One is located between the Dinham Cottage and Master's Garage which services the Main House, Master's Garage and Dinham Cottage. The other system services the Dairy Complex, Stables, Winter Cottage, and Summer Cottage.

The rest of the buildings, Power House, Engineers Cottage, Park Manager's Residence, and Henry Lloyd Manor House have their own septic systems. These systems are original to the park and date back to the early 20th century. They are pumped out on an as-needed basis.

Utilities

Natural gas

There is no Natural Gas Main on Lloyd Neck. Liquid propane bottles are used for cooking and/or heating at the Yellow barn (part of the equestrian center), Nassau BOCES (Summer Cottage) and the Dinham Cottage.

Electricity

Electricity is supplied to the park by Long Island Power Authority with 5 separate feeds that supply electric to the park. Eventually the Masters Garage and Dinham Cottage will have their own meters.

Telephone

Telephone service to the park is provided to the park by Verizon.

Other communications

DSL internet service is provided to the park by Verizon.

Roads and Bridges and Dams

While there are no bridges or dams in the park, 8 culvert passes exist in the park. The park has 3.5 miles of paved roads and approximately 27 miles of trails. Existing roads and parking areas total 8.8 acres of impervious surface in the park.

Parking Areas

The park has one major parking area near the park entrance and Farm Group. This parking lot can accommodate approximately 118 vehicles. The second parking area is known as the Fisherman's Parking lot. It is located at the terminus of Fisherman's Road near Long Island Sound and can accommodate approximately 25 vehicles. Additional parking can be found in front of the Main House, Winter Cottage, Summer Cottage, and within the licensed area of the equestrian center, however, none of these areas are formalized or designated parking areas.

Accessibility

The park has a total of six designated accessible parking spaces at the main parking lot and at the Main House. Various actions have been taken to comply with current indoor and outdoor accessibility standards.

Buildings

There are a total of twenty-two individual structures within the park. Most of the buildings in the park were built during the Marshall Field era and, at one time, were all in use. However, many buildings from that time (the indoor tennis courts, bath house, game keeper's cottage and kennels) are no longer in existence. While several buildings within the park are currently in use there are some vacant structures. In addition, some buildings in the park could be used differently in the future. An inventory of the buildings in the park is in Appendix B.

Operations

Maintenance

The park maintenance shop is located within the Dairy Barn Complex and is staffed by skilled trades' workers and supporting staff.

Solid Waste Management and Recycling

Garbage pickup for the park is by private carter. Recyclables are taken to the Town facility.

Park Season and Hours

The park is open year round from sunrise to sunset. The vehicle use fee (entrance fee) is currently \$6 and is collected from April through November and the Empire Passport is accepted. Hours of collection vary throughout the season.