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San Juan National Historic Site
Puerto Rico



El Morro Esplanade

Cultural Landscape Report

100% DRAFT — MARCH 2021

Cultural Resources, Partnerships and Science Division

Southeast Region

El Morro Esplanade

San Juan National Historic Site, Puerto Rico

Cultural Landscape Report

100% DRAFT FOR SIGNATURE – MARCH 2021

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About the front cover: El Morro Esplanade, view looking north, July 2018. (Source: Wiss, Janney, Elstner Associates, Inc.)

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El Morro Esplanade

San Juan National Historic Site, Puerto Rico

Cultural Landscape Report

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Foreword

The importance of El Morro Esplanade was immediately recognized by Marshal Alexander O'Reilly as early as 1765. In a partial description of the esplanade, he noted that it was nearby the Dominican Convent, and located in the vicinity of Santo Domingo Bastion. He went on to indicate that the terrain was very uneven but that it would not be difficult to improve for defensive purposes. Advances in gunpowder and, consequently, in the artillery of the time made it necessary to maintain the glacis as a field of fire in case of enemy siege.

The esplanade is a space that, over the years, has evolved together with Old San Juan and its fortifications. Broadly speaking, events such as the Spanish-American War of 1898, the First World War, the New Deal, and the Second World War were instrumental in the social, cultural, and physical transformation, not only of the esplanade, but of San Juan, and Puerto Rico. Today, the above goes unnoticed. From being a military and off-limits space, it has become the most visited area of San Juan National Historic Site. The mentality of several generations visualizes the space, to a large extent, as a place for tourism and school trips but also as an ideal place for recreational activities such as exercise, pet walks, kite flying, and family outings. These aspects, unavoidably, have affected our belief system and collective memory. The presence of this space for so many years motivates us to analyze issues of use, adaptation, and preservation of the place.

An improved version of the 1991 CLR, this El Morro Esplanade: Cultural Landscape Report is the result of years of research and consultation that will guide the park's efforts in maintaining and interpreting this important feature of the fortification system. The treatment recommendations within this report will allow the site to preserve the area, facilitate visitor use, and interpretation, create a welcoming and safe environment, manage erosion and drainage, and improve visitor circulation patterns.

A number of individuals contributed to the successful completion of this work. We would particularly like to thank the Project Team who authored the report and the staff of San Juan National Historic Site for their assistance throughout this project. Also, we would like to thank the staff of the Cultural Resources Branch of the Interior Region 2 of the National Park Service. We hope that this study will prove valuable in our ongoing efforts to preserve the historic landscape and to everyone in understanding, preserving, and interpreting this unique resource.

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Management Summary



FIGURE 1. View northwest across El Morro Esplanade toward Castillo San Felipe del Morro. (Source: all photos by CLR team, 2018, unless otherwise indicated)

Introduction

El Morro Esplanade occupies the northwestern end of the small, narrow *Isleta de San Juan* (Islet of San Juan) that includes the city of Old San Juan on the north coast of Puerto Rico. The property sits in a strategic location overlooking the mouth of San Juan Harbor. As designed, the esplanade was a military drilling and defensive space associated with *Castillo San Felipe del Morro* (El Morro Castle), built by the Spanish circa 1539 to defend their interests in the Caribbean (Figure 1 and Figure 2). The esplanade was engineered to serve as the glacis for El Morro, essentially an open space without obstructions that would serve as the field of fire for fort artillery.

Spanish occupation of El Morro and the esplanade continued until 1898, when the United States acquired Puerto Rico after the Spanish-American War. The United States Army subsequently established the San Juan Military Reservation. In 1943, the military reservation was designated Fort Brooke. The post continued to be used to train military personnel until the end of World War II. In 1961, the property was transferred to the Department of the Interior for inclusion in San Juan National Historic Site, established in 1949. Through a cooperative agreement with the US

Army, the National Park Service (NPS) began removing military barracks and other structures associated with Fort Brooke in 1951.

The property was administratively listed in the National Register of Historic Places in 1966, with documentation prepared in 1973 that was never accepted by the Keeper. San Juan National Historic Site and "La Fortaleza" (*La Real Fortaleza de Santa Catalina* [Royal Fortress of Saint Catherine]), the governor's house established by the Spanish in 1537–1540, were inscribed in the World Heritage List in 1983. An Additional Documentation nomination for San Juan National Historic Site is anticipated to go to the Federal Preservation Office and Keeper in 2021.

San Juan National Historic Site is the only National Park unit in Puerto Rico, and one of twenty-two World Heritage Sites in the United States. The park also includes *Castillo San Cristóbal* (San Cristóbal Castle), Fort San Juan de la Cruz, and approximately 2.5 miles of a wall system built by the Spanish to defend the city of Old San Juan from attack. The 35-acre El Morro Esplanade is edged on three sides by segments of the defensive wall system that borders much of Old San Juan and on the fourth side by Calle Norzagaray (Norzagaray Street), part of the city's urban fabric. Today, the iconic open space of El Morro Esplanade is composed of a broad, sweeping, green space that attracts thousands of city residents and visitors every year to enjoy learning about the history of the site and spending time within the open green space. that characterizes much of the cultural landscape.



FIGURE 2. Map of the Greater Antilles Archipelago showing the location of Puerto Rico, and relative position of El Morro Esplanade. (Source: Map by authors)

The National Park Service currently seeks guidance in addressing long-term treatment and management of El Morro Esplanade as well as specific issues and concerns that include erosion, visitor safety, circulation, access, and provision of amenities such as shade, seating, and interpretation. To address these needs, the NPS engaged a consultant team of preservation professionals to prepare a Cultural Landscape Report (CLR).

The team, led by Panamerican Consultants, Inc. (Panamerican) of Buffalo, New York, and including Wiss, Janney, Elstner Associates (WJE) of Northbrook, Illinois, and Liz Sargent HLA (LSHLA) of Charlottesville, Virginia, provided management guidance based on detailed documentation of historic and existing conditions, the identification of character-defining features, National Register of Historic Places significance evaluation and integrity assessment, and the development of treatment guidelines and recommendations designed to address the specific needs and concerns of the NPS.

The CLR updates and expands on a three-volume Historic Structure Report (HSR) and CLR prepared in 1991, while also following the guidance afforded in several park planning and compliance documents, such as the General Management Plan (GMP)(1985), Long-Range Interpretive Plan (2006), and Foundation Document (2013).

Description of CLR Study Area Boundaries

El Morro Esplanade is located east of El Morro Castle, which occupies the far northwestern tip of Isleta de San Juan referred to as Punta del Morro. The CLR study area extends from the edge of the dry moat southeast of El Morro Castle eastward to Norzagaray Street as it passes the Escuela de Artes Plásticas y Diseño de Puerto Rico, Parque Pasivo Viejo San Juan, and Instituto de Neurobiología, and between the North Walls that edge the esplanade to the north, and the West Walls that frame the landscape to the south, ending south of San Agustín Bastion and Casa Rosa. Within this larger study area, the landscape is divided into two parts referred to as Parcel A and Parcel B. The upper terrain that encompasses much of the open green space comprises Parcel A, while the lower terrain that extends from Santa Elena Bastion and El Polvorín southeast to Casa Rosa Gate comprises Parcel B. Parcel A is 23 acres in size, while Parcel B measures 12 acres (Figure 3).

As noted, sections of the North and West Walls frame Parcels A and B. Associated with the walls are five bastions—Santa Rosa and San Antonio in the North Walls, and San Fernando, Santa Elena, and San Agustín in the West Walls— which protrude outward from the otherwise straight curtain walls. While the walls are discussed herein as they related to the esplanade, they are addressed in more detail in a separate CLR that includes a more extensive study area continuing to the east and south of the esplanade.

Much of the landscape associated with Parcel A is maintained in open turf grass. The only building present within Parcel A is the San Antonio Guardhouse, located at the edge of San Antonio Bastion (Figure 4). Parcel B, set topographically below Parcel A, is more corridor-like, with a series of built clusters occurring along its length. These clusters include Santa Elena Guardhouse, set within Santa Elena Bastion to the north, with the El Polvorín complex located to its east; San Agustín Bastion to the southeast, with a playground and recreation facilities located to its east, and the more formal landscape of Casa Rosa, originally built as San Agustín Guardhouse, terminating the study area at the southeast end.



FIGURE 3. Map illustrating the El Morro Esplanade CLR study area. Parcel A is indicated as hatched, while Parcel B, which edges the hatched area to the south, is not. (Source: National Park Service)



FIGURE 4. El Morro Esplanade looking south toward Old San Juan, with the San Antonio Guardhouse in the foreground.

While Parcels A and B are both owned by the Commonwealth of Puerto Rico, Parcel A falls within the authorized boundary of San Juan National Historical Site and is administered by the National Park Service, while Parcel B is administered by the Commonwealth. However, the NPS regularly enters into project-specific agreements with the Commonwealth Historic Preservation Office for Parcel B that relate to addressing maintenance needs, such as correction of drainage problems. Use of the land, as well as the activities allowed therein, are regulated by the 1976 Cooperative Agreement between the US Department of the Interior and the Commonwealth of Puerto Rico.

Historical Summary

Esplanade Historical Background and Context

What is now the esplanade for El Morro was once part of a larger, open defensive space between the fort and the settlement called a glacis. A glacis is a sloped area in front of a fortification which is kept clear of obstacles to increase an attacker's exposure to defensive fire from the fort. Some early plans of the fortification call this area *el Campo del Morro* (the Esplanade of El Morro), while early twentieth-century documents called it the "parade ground," an entirely different use than its original purpose.[1]

Spanish colonization of the island began in 1508 under the direction of Juan Ponce de León, and it initially focused on transferring the wealth of its New World colonies to the Old World in the form of gold and silver. This endeavor led to the use of the Taíno and other indigenous people as forced labor, and the later enslavement of imported Africans in the seventeenth century.[2]

By the 1530s, Spanish planners began to fortify the small island on the northside of San Juan Bay as part of its effort to protect the vital shipping lanes that served to make Spain rich. The first small fortification constructed by the Spanish, La Fortaleza, was quickly replaced by El Morro, the construction of which began in 1539. Projecting into the Atlantic Ocean, El Morro was constructed on the rocky northernmost point on the island, *el morro* (the bluff) sheltering eastside of the bay (refer to Figure 3 and Figure 5). A second fortification, San Cristóbal, and the city wall were begun in 1634.[3]

El Morro was only one element in Spain's emerging, cumulative defenses of Puerto Rico. During the entirety of Spain's control of the island, it erected numerous fortifications in and around San Juan, including:

1. Richard C. Crisson, Robert Holtzheimer, Marjorie Smith, *Cultural Landscape Report: El Castillo de San Felipe del Morro, San Juan National Historic Site, San Juan, Puerto Rico* (NP: National Park Service, 1991), 45, in Joan Berkowitz, Blaine Cliver, Richard Crisson, Billy Garrett, Judy Jacob, Frank Matero, Barbara Yocum, *Fortifications of San Juan National Historic Site Historic Structure Report*, Volume III (Boston: Building Conservation Branch, Cultural Resources Center, North Atlantic Region, National Park Service, and New York: Center Preservation Research, Columbia University, 1991), Section IV.
2. Magley Rivera, "Puerto Rico's History," *Welcome to Puerto Rico!*, 1992, accessed January 28, 2019, http://welcome.topuertorico.org/history.shtml.
3. Berkowitz et al., Volume I, 21.



FIGURE 5. Plano de la Plaza de San Juan de Puerto Rico, 1861. (Source: Park Archives, San Juan National Historical Site [SJNHS] AR_J_T_4_C_2_60_1 1861)

> six fortified houses, the Castillo del Morro, the Castillo of San Cristóbal, seven smaller forts, defensive walls around San Juan of more than 5,000 meters and 15 meters high in some places, six entry gates into the city, sixteen baluartes [i.e., bulwarks/bastions] distributed along the city's walls, five independent batteries, five powder magazines, three defensive lines on the island to the west of the city, twelve forts and batteries along the coasts for the rest of Puerto Rico, and other military structures such as quarters, hospitals, and guard houses.[4]

The fortifications reflect responses over time to a variety of military threats, invasions, and rebellions, including an uprising by the Taíno, seven slave revolts from 1527 to 1848, pirate attacks, military mutinies, and civilian uprisings in the 1800s, and invasions by European rivals.

One of the earliest defensive plans for shore defenses of San Juan Harbor was executed in 1588 by Juan de Tejeda and Italian engineer Juan Bautista Antonelli.[5] The 1588 defensive plan was significant, but it did not address all the site's problems, especially the site's vulnerability to land invasion from the east. At that time, El Morro became a polygonal shape as opposed to its original tower structure, and the unstructured land extending between the village and the fort became the fort's glacis.

The supremacy of El Morro was tested by the English with attacks in 1595 (Sir Francis Drake) and 1598 (Sir George Clifford, Third Earl of Cumberland). The uncompleted defenses worked against the English attack in 1595, but they proved less reliable during the attack in 1598. Clifford held

4. Michele Hayward Merkling and Michael A. Cinquino Argana, *Archaeological Investigations at Castillo de San Felipe del Morro, Old San Juan, Puerto Rico* (Buffalo, NY: Panamerican Consultants, Inc., 1997), 62.
5. Berkowitz et al., I, 11.

the city for three months and left behind a ransacked ruin.[6]

The English attacks spurred the Spanish to repair the damaged fortifications and continue the defensive construction as articulated in 1588. In 1625, the Dutch under the command of Boudewijn Hendricksz (or Hendrikszoon or sometimes Balduino Enrico to the Spanish) attacked the refurbished fortifications, invading the nascent city of San Juan, and ransacking and burning it. Hendricksz attacked the fort by land across the glacis, which at that time was a portrayed as a treeless, almost featureless geographic feature. Ultimately, the Dutch were driven from the island.[7]

Although the Dutch were routed, the attack raised concerns throughout the Spanish administration. Between 1630 and 1650, King Philip IV of Spain, recognizing the strategic importance of San Juan, funded needed repairs and improvements to its defenses. While the wars for New World empire among the European powers continued to smolder, the defenses at San Juan subsequently languished until the middle of the 1700s.

At the conclusion of the Seven Years War in 1763, renewed belligerency from Great Britain inspired another major period of construction in Puerto Rico. Under King Charles III of Spain, a series of reforms and far-reaching plans for the improvement of the fortifications in San Juan were implemented. The ambitious plan, created by Field Marshal Alexander (Alejandro) O'Reilly and executed by Chief of Engineers Thomas O'Daly and Juan Francisco Mestre, changed the character of the city of San Juan, remodeling and strengthening the city's defenses.[8] By the end of the eighteenth century, the wall around San Juan was completed, and fortifications of El Morro and San Cristóbal looked much the way they do today.

The O'Reilly plan upgraded all the existing fortifications and built the final segment of the city wall. The plan made San Juan one of the strongest fortified cities in the Caribbean.[9] This plan also essentially placed the Spanish military in control of the city.[10] The changes to El Morro and the esplanade were dramatic. The fort, and by extension the city of San Juan, became a massive defensive complex supported and augmented by huge walls topped with bastions and heavy fire power. El Morro itself was guarded on its eastern and northern flanks, its land side, by San Cristóbal with its extensive outer works.[11]

Field Marshal O'Reilly recognized the importance of the topography of the glacis. In a partial description of the esplanade, he noted that the fort sat at a higher elevation and observed that the terrain at the center of the esplanade was uneven. He noted the existence of a hill called *la Altura del Calvario* (Calvary Hill), as well as the presence of a 10-to-18-foot-deep ravine, which began just east of Calvary Hill and opened toward the Atlantic Ocean. O'Reilly proposed lowering Calvary Hill to improve the defensive capabilities of El Morro and using the earth taken from the hill to fill the ravine, making the esplanade level ground.[12]

In addition to the effort at leveling the esplanade, the north, south, and west edges of the esplanade were now heavily fortified with walls as well as Santa Elena and San Gabriel Bastions. The north wall was partially completed. By 1792, the El Morro Esplanade was a true fortification glacis.[13]

In the spring of 1797, the new fortifications were tested by naval and land assaults by British forces under the direction of General Sir Ralph

6. Berkowitz et al., III, 11.
7. Hayward and Cinquino, 61-62.
8. Berkowitz et al., III, 21.
9. Ibid.
10. Ibid, 23.
11. Ibid.
12. Ricardo Torres-Reyes, "La Plaza de PR, 1765-1777" (San Juan, PR: NPS, 1952), 94, translated by Crisson et al., in Berkowitz et al., III, 18.
13. Juan Francisco Mestre, *Plano que Manifiesta la Situación de la Plaza de San Juan de Puerto Rico, y Fortificaciones en su Actual Estado con el de su Población*. Madrid, 1797, in Aníbal Sepúlveda Rivera, *San Juan, Historia ilustrada de su desarrollo urbano, 1508-1898* (San Juan, Puerto Rico: CARIMAR, 1989), 129.

Abercromby. The fortifications proved their worth, and the British were again repelled. These defenses would continue to be improved and upgraded until the end of the Spanish period in 1898.

At the end of the eighteenth century, the Spanish had created a walled and heavily fortified city in San Juan. The Spanish military was in control of the city, and construction was completed at their discretion. The esplanade would be maintained as a glacis until 1898.

While El Morro Esplanade is open and flat at present, it contained at one time several geographical and architectural features that planners had to overcome. As noted by O'Reilly, these were a small hill called Calvary Hill in the vicinity of the present-day *Cuartel de Ballajá* (Ballajá Barracks), and another was a ravine at the northeast side of Calvary Hill that wandered off to the northside of the island.

During the 1800s, the biggest change in the glacis was the encroachment of buildings on its eastern and southern edges. While there had always been a scattering of small houses along the edge of the glacis, the houses at this time had been replaced by military and governmental buildings. The new Ballajá Barracks was erected into the glacis, forming a new edge. The esplanade as depicted on maps from 1861 and 1897 had changed little.

Spanish planners had begun to encroach on the glacis on the east and south sides. By the end of the nineteenth century, the military had placed *Pabellones Militares* (military pavilions), probably barracks, headquarters, and mess halls, just north of the *Manicomio* (Insane Asylum). At the San Agustín Bastion, several new, associated military pavilions also sprang up, and there was a scatter of small buildings between Santa Elena and San Agustín Bastions.

In 1897, after more than forty years of discussions between military authorities and the local population, the east wall and a portion of the south wall were demolished so the city of San Juan could expand to the east, the only direction in which there was land.[14]

Then in early May 1898 the US fleet arrived offshore. On July 25, 1898, US ground forces landed in Guanica, Puerto Rico, and began a march across the country toward San Juan. In two weeks, US forces occupied twenty-three of seventy Puerto Rican towns and cities.[15] The United States took formal possession of Puerto Rico on October 18, 1898.[16]

Upon taking formal possession of Puerto Rico, the US Army immediately began to make plans for moving into the former Spanish fortifications. Within five months, work was approved to regrade and to fill in the holes on the esplanade, which was still an open unobstructed glacis.[17]

From the advent of the occupation by the US Army in 1898 through its continued use until 1961, the use of El Morro Esplanade changed from one of defense to one of providing space for quartering troops and associated recreational activities. "From 1898 to 1961, the US Army planted a quantity of trees on the grounds and built four additional roads, some 20 major structures, and a number of related buildings. The buildings included a golf course, swimming pool, and troop quarters."[18]

At first, the army used the esplanade for the grazing of domestic animals, which required the erection of fences and pens.[19] Later, it served as the location for the development of recreational activities and venues. During the first thirty years of use, the army installed a swimming pool near the San Antonio Bastion, using the guard house and ramp there as part of the swimming complex

14. Berkowitz et al., III, 29.
15. Luis F. Clemente, "The U.S. Army's "Country Trip" in Puerto Rico: Facts and Anecdotes," Part 2, Spanish-American War Centennial War Website, National Park Service, 1996, accessed January 10, 2019, http://www.spanamwar.com/Pr-countrytrip.htm.
16. Berkowitz et al., III, 41.
17. Crisson et al., 19.
18 Hayward and Cinquino, 95.
19. Ibid.

(1930-1931); a nine-hole golf course that used the moat at El Morro, several bastions, and most of the esplanade (1907-1911); and a baseball diamond with dugouts (by 1923) at the southeastern end near Norzagaray Street.[20] This recreational complex was augmented by a three-story Officers Open Mess (by 1934) at the site of the former Commanding Officer's quarters near the entry of El Morro on the northside of *Calle del Morro* (El Morro Road). By the World War II era, the esplanade was part of the renamed Fort Brooke and had quarters covering most of its western half.[21]

As part of this transformation from glacis to a recreation and living area, the esplanade underwent a change in vegetation. Trees were planted around the swimming pool, the north wall, and the west wall around the San Fernando Bastion.[22] The introduction of golf to the esplanade required the removal of the animals and the planting of a grasses that would enable the proper rolling of the ball, such as Bermuda grass (*Cynodon dactilon*).[23] The El Morro Esplanade was maintained in this lawn-like fashion until the army left in 1961, and the tradition of maintaining it as a lawn continues today.

The Army vacated Fort Brooke and divided its properties between the National Park Service and the Commonwealth of Puerto Rico. The last soldiers left Fort Brooke in 1958, and between 1961 and 1966, the army divested itself of its property in San Juan.[24]

The period of NPS use of the esplanade between 1966 and 1991 does not seem to be well recorded in the park's files. However, by 1991, many changes had occurred to the esplanade. These included the removal of all the trees, and the smoothing of the plain and its replanting with a mixture of grass types.[25] By 1998, the El Morro Esplanade was open in its original glacis style. The ringing walls and bastions were no longer obstructed, and its eastern edge and parts of the southern edge were defined by roads and buildings as was the original glacis throughout most of its history.

Scope of Work and Methodology

Project Scope

Cultural landscape reports serve as the principal treatment documents and primary tools for long-term management of cultural landscapes. Treatment and management decisions related to the physical features, biotic systems, and use of the cultural landscape are guided by the comprehensive documentation, analysis, evaluation, and establishment of preservation goals presented in a CLR. The content of a CLR provides the basis for making sound decisions about management, treatment, and use. Information about the historical development, significance, and existing character of a cultural landscape is also valuable for enhancing interpretation and maintenance.

The CLR for El Morro Esplanade is intended to provide park management with an assessment of the character-defining features of the cultural landscape and specific treatment recommendations designed to ensure the preservation of these significant resources. The treatment guidelines, recommendations for specific treatment projects, and implementation strategies provided in the CLR will identify and prioritize the actions needed to ensure resource preservation, while balancing the goals of historic preservation with contemporary

20. Ibid, 32, and Jamie Monge, *History of Golf in Puerto Rico* (NP: n.d.), 1.
21. US Department of the Interior, NPS, Division of Architecture, *Master Plan Topographic Base, Map of San Juan, Puerto Rico, San Juan National Historic Site* [Reduced size] Field Office San Juan, November 27, 1953 (San Juan National Historic Site, NHS-SJ-2058).
22. Crisson et al., 31.
23. Ibid.
24. Crisson et al., 5, and Real Estate Part of Fort Brooke for Transfer to Department of Interior, US Army Corps of Engineers, San Juan Area, US Arm Engineer District Jacksonville, September 22, 1960, Revised September 5, 1961 (San Juan National Historic Site, Puerto Rico).
25. Crisson et al., 34–54.

park use and management. The completed CLR will facilitate better inventory and evaluation of park resources, improved resource condition, and contribute to the satisfaction of key issues and needs identified by the park.

The statement of work provided to the project team by the NPS identifies the following tasks to be completed in support of the CLR:

- provide a management summary, historical summary, scope of work and methodology, description of study boundaries, and a summary of the findings of the CLR
- describe the historical development of the study area
- document existing site conditions
- provide analysis of the landscape's potential National Register of Historic Places significance
- identify character-defining features
- assess the integrity of landscape characteristics and features
- document management objectives
- determine appropriate treatment strategies to address such issues as visitor use, authorized use and ownership of the land by the Commonwealth of Puerto Rico and the NPS, vegetation management, turf and grounds maintenance, erosion control, viewshed protection, and the potential impacts of increasing examples of severe weather
- develop treatment recommendations that facilitate preservation of these resources, address park management concerns, and inform ongoing and proposed management decisions
- provide a prioritized list of draft National Park Service Project Management Information System (PMIS) statements for landscape preservation / rehabilitation projects

Project Methodology

The El Morro Esplanade CLR has been prepared in accordance with the guidance offered in the most recent versions of various federal standards documents, such as:

- *A Guide to Cultural Landscape Reports: Contents, Process, and Techniques*
- *The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes*
- NPS Director's Order 10A: *Design and Construction Drawings*
- NPS Director's Order 28: *Cultural Resources Management*
- NPS Director's Order 77—Reference Manual 77: *Natural Resource Management*
- NPS-SER-82: *Biotic Cultural Resources: Management Considerations for Historic Districts in the National Park System, Southeast Region*
- *The Architectural Barriers Act Accessibility Standard (ABAAS)*
- *The National Park Service's Guiding Principles of Sustainable Design*
- National Register Bulletin*: How to Apply the National Register Criteria for Evaluation*
- National Register Bulletin*: How to Evaluate and Nominate Designed Historic Landscapes*
- National Register Bulletin*: Guidelines for Documenting and Evaluating Rural Historic Landscapes*
- National Register Bulletin*: Telling the Stories: Planning Effective Interpretive Programs for Properties Listed in the National Register of Historic Places*

The methodology used to prepare each component of this CLR is described below.

Background Research and Data Collection

Prior to the project kick-off meeting held at the park in July 2018, CLR project team members began to collect documents and other materials pertaining to the project and site, including the 1991 HSR / CLR, 1973 National Register nomination, List of Classified Structures (LCS), Geographic Information Systems (GIS) data, and information available from the NPS electronic Technical Information Center (eTIC) in Denver, Colorado. In preparation for field investigations, project personnel generated base maps for use in conducting site review from available GIS files.

Start-up Meeting

On July 16, 2018, project team members from Panamerican, WJE, and LSHLA met on site with park and regional National Park Service personnel to initiate work on the CLR. Deborah Slaton of WJE joined the meeting by teleconference. Others participating in the meeting included:

Southeast Regional Office of the National Park Service

- David Hasty, Senior Historical Landscape Architect / Contracting Officer's Representative
- Margaret Frisbie, Cultural Landscapes Program

San Juan National Historic Site

- Félix López, Cultural Resources Program Manager
- Eric López, Park Historian

Panamerican Consultants, Inc.

- Kelly Nolte, Historian / Project Manager
- Armando Martí, Historian

Liz Sargent HLA

- Liz Sargent, Historical Landscape Architect
- Jen Trompetter, Landscape Architect

Research sources available to the project team were discussed during the meeting, including park planning documents, maps and drawings, aerial photographs, and natural resources. Specific issues of interest were conveyed to the project team by the NPS for consideration as part of the CLR, including:

- Visitor use
- Tying the park's resources to the larger community
- Development along the park's boundaries and effects on viewshed
- Proper management and preservation policies regarding historic structures
- Maintaining the cultural landscape while balancing natural resource issues
- Effects of severe weather events on the landscape

Following the start-up meeting, the team conducted field investigations. Eric López accompanied the group on an overview tour of the park.

Field Investigations

CLR project team members conducted field investigations on July 16–20, 2018, documenting resources associated with El Morro Esplanade through photography, annotations to available mapping, and notes regarding the location, materials, and condition of landscape features (Figure 6). Team members also met with park personnel to gain insight into maintenance practices and concerns to be considered as part of the project and learned about the Cannon Conservation Center housed in Santa Elena Guardhouse.



FIGURE 6. Team members documenting the cultural landscape of Parcel B.

Historical Landscape Documentation and Site Physical History

Project team members also conducted research at the park during the July 2018 site visit, collecting electronic mapping and document files related to the history of the region and the park with the assistance of Eric López and Félix López.

Preparation of historical landscape documentation followed review of all available materials. The documentation is organized chronologically into a series of historic periods, illustrated with historic photographs, maps, and diagrams illustrating change over time.

Period Plans

Supporting the historical landscape documentation is a series of period plans that depict the site at snapshot moments in history. The period plans were drawn at a consistent scale and rendered similarly to facilitate comparison of site development over time. The period plans were prepared consistent with the GIS mapping data provided by the NPS.

Existing Conditions Documentation

The project team prepared existing conditions documentation for the park based on a compilation of base mapping, data collected during field investigation, and review of park planning documents, park files, and other relevant cultural and natural resource documents provided by the NPS. The existing conditions documentation is conveyed in chapter three of the CLR as cross-referenced narrative, graphic, and photographic information organized in accordance with the framework established in the National Park Service's *A Guide to Cultural Landscape Reports: Contents, Process, and Techniques*. A section describing the environmental and cultural context for the esplanade introduces the existing conditions documentation chapter. This is followed by resource descriptions arranged by the following landscape characteristics:

- Natural systems and features and responses to natural resources
- Land uses
- Spatial organization
- Circulation
- Cultural vegetation
- Buildings and structures
- Views and vistas
- Small-scale features
- Known and potential archeological resources

For each landscape characteristic, the team prepared an inventory of feature typologies or individual features. For each landscape feature or typology, the team assessed its condition according to the categories of Good, Fair, Poor, and Unknown. The condition ratings were annotated as possible to include specific condition-related observations made in the field that help to justify the ratings.

Evaluation of Significance

The CLR includes a National Register-level significance evaluation. The evaluation was based on existing National Register documentation for the park, which is a National Historic Landmark. The evaluation included in the CLR is consistent with the guidance provided in the National

Register Bulletin *How to Apply the National Register Criteria for Evaluation*.

Comparative Analysis of Historic and Existing Conditions

To better understand the relationship between the existing landscape and the character of the landscape during the period of significance identified in the CLR, the project team prepared a comparative analysis of historic and existing landscape conditions by landscape characteristic. The three primary goals of the comparative analysis were to:

- Understand which features survive from the period of significance;
- Establish the basis for an integrity assessment; and
- Provide an understanding of the similarities and differences between historic and existing conditions that would contribute to the development of a well-grounded treatment plan for the cultural landscape.

The analysis narrative is illustrated with comparative photograph pairs that compare historic with existing conditions within the study area, and other graphics.

Identification of Character-Defining Features

As part of the development of the comparative analysis of historic and existing landscape conditions, the CLR identified the character-defining qualities and characteristics of the cultural landscape. Character-defining qualities are the prominent or distinctive aspects or characteristics of a cultural landscape that contribute significantly to its physical character.

The comparative analysis also identifies individual features contributing to the significance of the historic landscape. Contributing features are those surviving from the period of significance with integrity that can be tied to the site's associated historic contexts. The CLR also identifies noncontributing features, which are those that originated after the period of significance, have lost integrity, or are not associated with significant historic contexts for the historic landscape. Finally, the CLR discusses historic features of importance that are no longer extant. These are discussed as missing features.

Assessment of Integrity

In a CLR, the integrity of a historic landscape is evaluated to determine whether the characteristics and features that defined it during the period of significance are present, retain their historic qualities, and convey their historic associations. The CLR assesses the overall integrity of the park in accordance with the seven aspects—location, design, setting, materials, workmanship, feeling, and association—discussed in the National Register Bulletin, *How to Apply the National Register Criteria for Evaluation*.

Treatment Plan

The CLR culminates in a treatment plan that provides preservation strategies and specific recommendations for the long-term management of the cultural landscape based on its significance, existing condition, and use. The CLR treatment plan also includes a discussion of the overall management objectives for the historic landscape as documented in planning studies or other management documents. The treatment plan is supported by the identification of implementation projects that prioritize and coordinate treatment recommendations into a series of discrete tasks. The implementation projects are conveyed in a format similar to the PMIS so that they can be easily transferred to FMSS work orders, where applicable.

The treatment plan specifically addresses the management issues and concerns identified by the park and region during the kick-off meeting.

Summary of Findings

El Morro Esplanade is a component of the larger San Juan City Walls system as well as the Old San Juan Historic District, which has been designated a

National Historic Landmark. The esplanade is also part of San Juan National Historic Site, which together with the earlier fortifications of La Fortaleza are included in the World Heritage List. The National Register nomination currently in progress indicates that the historic district that comprises San Juan National Historic Site is significant under Criteria A, C, and D, in the following areas of significance: Military History, Maritime History, Architecture, Ethnic Heritage – Hispanic, Social History, Entertainment/ Recreation, and Archeology - Historic, Non-Aboriginal. The nomination identifies the El Morro Esplanade Historic Landscape as a contributing site. The period of significance currently identified in the draft nomination in progress is 1540–1970.

Based on review of historic periods of development and consideration of change over time within the landscape, El Morro Esplanade retains sufficient integrity to the period of significance to convey its historic associations. Within the broad, expansive period of significance, El Morro Esplanade underwent several changes that reflect the evolution of Spanish defensive strategies as well as later US military occupation and use of the property as part of Fort Brooke.

Under Spanish administration, the property evolved from a small outpost during the early sixteenth century to a First Order defensive emplacement in the late eighteenth century. The esplanade remained an integral part of the El Morro defensive complex, serving as the glacis, or sloped terrain that exposed an enemy to a clear field of fire from Castillo San Felipe del Morro. The esplanade also served as a military parade and a training ground for troops. These uses, and the open landscape that supported them, continued with a relatively consistent character and composition over several centuries. Over time, some of the secondary circulation routes have changed, while a knoll that existed at the east end of the esplanade was excavated, and the soil used to fill a ravine associated with the northwestern portion of the open space near El Morro. Several buildings have come and gone, while others built beginning in the late eighteenth century survive today. Additionally, the expansive views and vistas, turf ground cover, open space, and central road corridor, along with three historic buildings, and the framework of the north and west city walls and El Morro structure survive with sufficient integrity to convey their historic associations. The integrity of the property for the Spanish occupation period remains high.

The greatest changes that occurred within the esplanade took place during US military occupation between circa 1898 and 1940. While a few examples of these changes survive today, the majority have been removed and are no longer extant. Integrity to the US military occupation period is thus much diminished. With the removal of the US Army developments, which entailed changes to patterns of spatial organization, views, buildings and structures, circulation, small-scale features, and land uses, El Morro Esplanade has been generally returned to the open space system and character present during the Spanish era of administration.

Qualities where integrity is diminished to a degree include materials and setting. Integrity of materials has been diminished through the introduction of different grass species that serve as the ground-cover milieu and the paving of El Morro Road with concrete. Integrity of setting is diminished through the addition of the promenade along Norzagaray Street, including the pedestrian promenade, and the replacement of military land uses with interpretive and recreational uses.

Numerous cultural landscape features survive at El Morro Esplanade to support an understanding of the property and its use during the period of significance. These include patterns of spatial organization, views and viewsheds, the walls and bastions, San Antonio and Santa Elena Guardhouses, El Polvorín, Casa Rosa, El Morro Road, San Agustín Road, Casa Rosa Road, the Dutch Monument, and “The Borinqueneers” Monument. To ensure protection of the many contributing landscape features, the CLR includes a treatment plan that presents a preservation strategy for long-term management of El Morro Esplanade.

Based upon the goals for the property set forth by the GMP, the HSR/CLR (1991), and park and regional National Park Service personnel, which identify the need for changes to the cultural landscape to meet current and projected future interpretive, functional, and management goals, **rehabilitation** is recommended by the CLR as the most appropriate overarching treatment approach for El Morro Esplanade. Because rehabilitation is defined as the act or process of making possible a compatible use for a property, this approach allows for protection of the site's historic character and resources while carefully addressing the need for limited enhancement of interpretive opportunities and circulation routes, sustainability, expanded access for all visitors to more of the park resources, and the improvement of visitor amenities. As part of rehabilitation treatment, stabilization, protection, and preservation of historic and natural resources are assumed even when new uses are accommodated.

Specific treatment recommendations and guidelines outline specific actions and protocols for addressing such issues as stormwater management and drainage, vegetation management, visitor management and safety, signage and interpretation strategies, and universal accessibility. The CLR also provides guidelines for implementing the specific recommendations.

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Developmental History



FIGURE 7. Castillo San Felipe del Morro (El Morro) Esplanade, 2013. (Source: San Juan National Historic Site, Puerto Rico)

Introduction

The esplanade for *Castillo San Felipe del Morro* (El Morro) was part of an open defensive perimeter, known as a glacis, situated between the fort and the settlement at San Juan. A total of twenty-three acres from the original glacis remains as part of the El Morro Esplanade within the San Juan National Historic Site (Figure 7). The esplanade is considered an integral component of the "cultural, historical, and architectural ensemble of the San Juan fortifications," and it is a primary attraction at the National Historic Site today.[26]

The El Morro Esplanade was part of an area of land that comprised the glacis, a sloped area in front of the fort which was kept clear of obstacles since it was used for sweeping fire from the fort at an attacking force. Some early plans of the

26. Crisson et al., 4 and 5.

fortification call this area *el Campo del Morro* (the esplanade of El Morro), while early twentieth-century documents call it the "parade ground," an entirely different use than its original purpose.[27] Today, this large, grassy, open area is simply called the "Esplanade."[28] This report will use that terminology.

Construction began on El Morro in 1539, and the fortification was expanded, refined, and maintained by the Spanish until 1898 when it fell to the US Army as a consequence of the war for Cuban independence which led to the Spanish-American War. El Morro and the esplanade, as well as the entire Spanish military fortification then encircling the city of San Juan, were used by the US Army to support its installation, the San Juan Military Reservation, later renamed Fort Brooke. By the 1950s, the US Army began to question the strategic importance of its presence in San Juan and decided to close Fort Brooke. In 1961, the Department of the Army transferred El Morro, the North Wall, San Cristóbal, and certain adjacent lands to the National Park Service. In 1966, the Department of the Army declared all lands under its jurisdiction at Fort Brooke as excess.[29] As part of this process, portions of the area that had been El Morro Esplanade were divided into three parcels of land: Parcels A, B, and C (Figure 8).

In this report, Parcel A, land that is within the boundary of the National Historic Site, is the focus of this study, but it also includes Parcels B and C, which are managed by the Commonwealth of Puerto Rico (Commonwealth). Parcel A, the National Historic Site Esplanade, is

> defined on the northwest by the scarped walls and dry moat of el Morro, on the west by a steep embankment and the defensive walls of Batería de San Fernando; followed by the curving parapet walls of Bastion de Santa Elena; and ending on the south and west by the angular parapet walls of Bastion de San Agustín—a portion of which are today called Casa Rosa and the Casa Rosa scarped wall.[30]

Open land is scarce in San Juan, and the esplanade is now used by residents and visitors alike as a large, open park. The NPS stages all types of activities on El Morro Esplanade such as a kite-flying festival and battle reenactments. Esplanade visitors picnic, fly kites, play games, and enjoy the day on this open, grassy area (Figure 9).

The esplanade is a part of the San Juan National Historic Site; it is a contributing resource to the San Juan National Historic Site National Register of Historic Places nomination.[31] It is included in the 2015 boundary adjustment as part of the "La Fortaleza and San Juan National Historic Site in Puerto Rico" United Nations Educational, Scientific, and Cultural Organization (UNESCO) World Heritage Site (1983).[32] Since 2013, the park is also part of the Old San Juan District National Historic Landmark.

27. A parade ground is a place where soldiers practice marching and have parades.
28. Ibid., 45.
29. Department of Interpretive Planning Harpers Ferry Interpretive Center and San Juan National Historic Site, *San National Historic Site Long Range Interpretive Plan* (NP: National Park Service, Department of the Interior, September 2006), 7.
30. Crisson et al., 2.
31. The San Juan National Historic Site National Register of Historic Places nomination is currently in draft stage, but it is considered, for the purposes of this report, at the request of the NPS, a completed document, and the NPS agrees with its research and findings. Within the nomination, the esplanade is named the "The El Morro Esplanade Historic Landscape."
32. F. C. Gjessing and Loretta Schmidt, National Register of Historic Places Inventory-Nomination Form: San Juan National Historic Site, July 12, 1973, and UNESCO, World Heritage List – La Fortaleza and San Juan National Historic Site, accessed January 2019, https://whc.unesco.org/en/list/266.

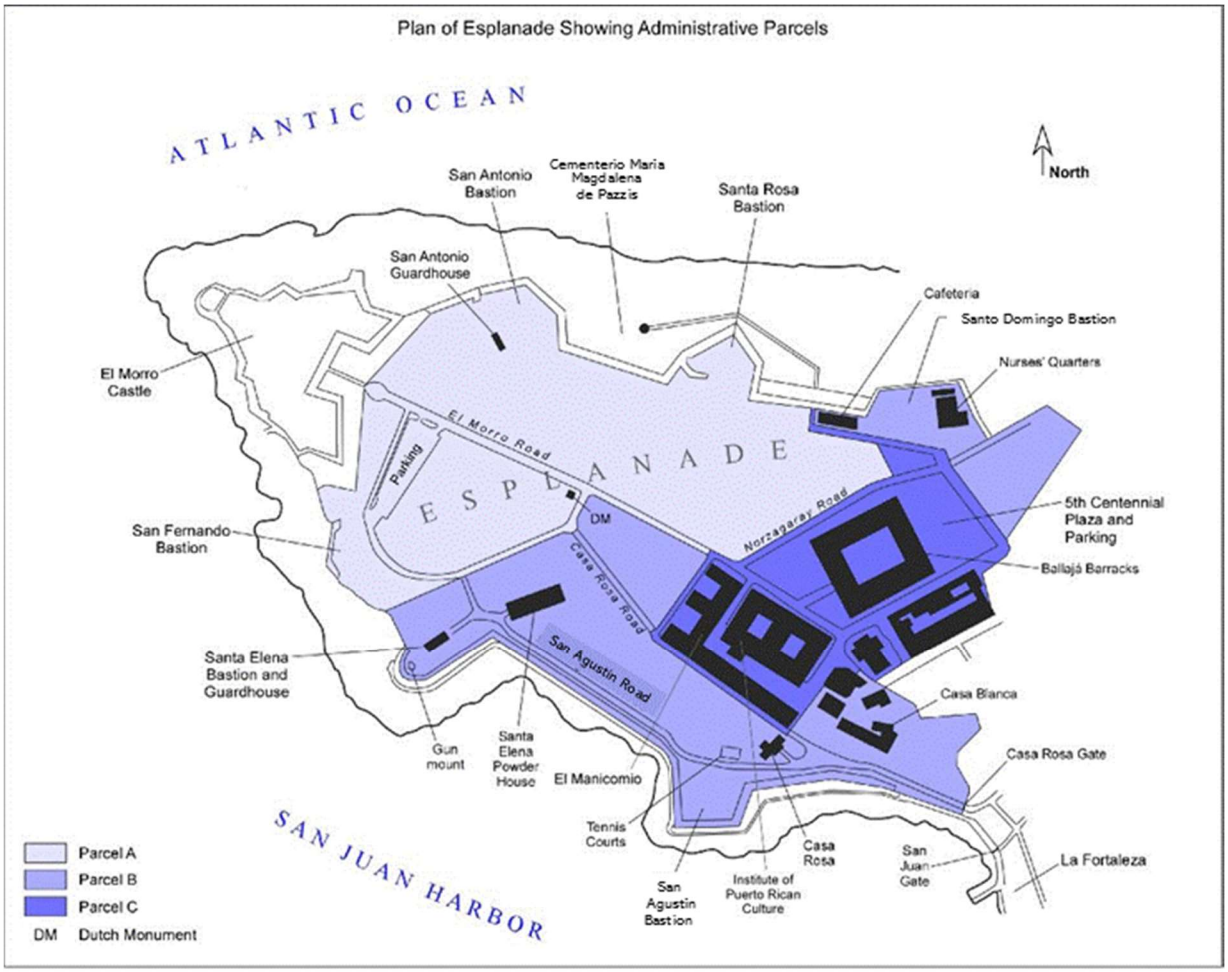


FIGURE 8. Esplanade Administrative Parcels Map (1991), based on "Existing Conditions Map," Figure 14, *El Castillo de San Felipe del Morro Cultural Landscape Report* (1991:26). This map features some resources that are no longer on the esplanade. These have been retained to aid in understanding the changes to the esplanade.



FIGURE 9. National Park Service Annual Kite Flying Contest on the esplanade, circa 2015. (Photograph Laurie Smith, National Park Service)

Esplanade Historical Background and Context

Puerto Rico's archeological record indicates some degree of human habitation of the island began as early as 4,900 BCE (Before Common Era), although permanent settlement may not have begun until centuries later. Its early inhabitants likely hailed from one, or a combination of, nearby parts of North and South America, such as Florida, the Yucatan, and Venezuelan coastal areas. Archeologists typically divide the succeeding millennia into three broad time periods that are largely based on technological and demographic changes: the Lithic / Archaic, Early Ceramic, and Late Ceramic periods.[33]

The Lithic / Archaic period, which lasted until about 800 BCE, is the time before which people

33. See, e.g., Michele H. Hayward and Michael A. Cinquino, "Caribbean Prehistoric Archaeology," in *Encyclopedia of Global Archaeology*, ed. C. Smith (Cham, Switzerland: Springer, 2020).

began producing pottery. Their tools included projectile points, axes, mortars, pestles, blades, net weights, and scrapers that were made from stone, shell, bone, and coral – a suite of implements that imply a range of tasks like hunting, fishing, plant processing and collection, and wood-working. Although people practiced some degree of agriculture, their subsistence practices mostly focused on hunting, fishing, and the collection of floral materials, all with a heavy reliance on marine resources. Their settlements were small and probably occupied for short periods of time, although there is evidence that some locations were inhabited repeatedly.[34]

The Early Ceramic period, which lasted from circa 800 BCE to CE 600 on Puerto Rico, began with the beginning of widespread use and manufacture of pottery, a development that may have accompanied a second large influx of populations from North and / or South America. The archeological record contains evidence for significant diversification of technology and settlement types. In addition to the adoption of pottery and the continuing use of tool classes from the Lithic / Archaic, people made textiles and elaborate jewelry. They practiced full-time agriculture that sometimes included the construction of terraces, and they continued to hunt and fish. Their settlements – which included large villages, farmsteads, and camps – were primarily along the coast, although some people began to live along inland river valleys.[35]

Finally, the Late Ceramic period, which lasted from CE 600 to the time of contact with Europeans, was generally a time of increasing settlement and population density across the island, as well a period of continued diversification of technology and settlement types. Some villages were larger than at earlier times and had plazas bounded by stones or earthen embankments (some with petroglyphs [images carved or pecked into stone]). While the largest settlements were still along the coast and wide river valleys, a few were established on inland foothills. People also employed specialized production sites for marine resources, salt, and cotton. While inter-island trade continued to play a role in Puerto Rico's economy (as it had done to varying intensities in earlier times), there was an intensification of intra-island trade and communication through the period. However, trade in exotic, high-value materials and goods from other islands and even continental contexts, continued. Finally, a level of social stratification that included a class of "chiefs" developed during the Late Ceramic and the island was possibly divided into several chiefdoms.[36]

When Christopher Columbus arrived in Puerto Rico in 1493 (then known to its residents as *Boriquén*), the island's inhabitants referred to themselves as Arawak / Taíno. These groups were harshly oppressed during the governorship of Juan Ponce de León in the early sixteenth century and nearly the entirety of the population perished in those years.[37]

Throughout most of the sixteenth century, Spain was the unrivaled master of the oceans with a mighty navy which brought the wealth of its conquests in the Americas back to Spain. As expected, Spain's conquests and new-found wealth did not escape the attention of its European rivals. The Spanish navy and its New World lands were constantly probed and tested for weaknesses by its rivals who sought to pick off any piece of wealth.

By 1533, Spain, as a way of maintaining its control of the New World, began to fortify the small island that is now Puerto Rico. Puerto Rico was the first

34. Ibid.
35. Ibid.
36. Ibid.; Michael Coe, Dean Snow, and Elizabeth Benson, *Atlas of Ancient North America* (New York: Facts on File, 1986), 160-162.
37. Coe et al., 161; Robert H. Fuson, "The Columbian Voyages," in *North American Exploration*, vol. 1, *A New World Disclosed*, ed. John Logan Allen (Lincoln: University of Nebraska Press, 1997), 173; Robert S. Weddle, "Early Spanish Exploration: The Caribbean, Central America, and the Gulf of Mexico," in *North American Exploration*, vol. 1, *A New World Disclosed*, ed. John Logan Allen (Lincoln: University of Nebraska Press, 1997), 209-210.

major island in the Atlantic Ocean with sufficient water, shelter, and supplies that Spanish sailing ships approached after the voyage from Europe by way of Africa's west coast. It was an especially good place for large ships because the island had a deep-water port that could be defended easily.[38] The first small fortification constructed by the Spanish, La Fortaleza, was quickly replaced by El Morro, which was begun in 1539. El Morro was created at the northwestern tip of the island projecting into the Atlantic Ocean. The supremacy of the castillo was tested by attacks by the English in 1595 and 1598 which were repelled. In 1625, the Dutch attacked by land, invading the nascent city of San Juan, and ransacking and burning it. This attack was also ultimately defeated.

As a result of the Dutch incursion, it was decided that a city wall should be erected, and a second fortification should be created to protect El Morro and the city from land invasion. The second fortification, *Castillo San Cristóbal*, and the city wall were begun in 1634.[39] In 1765, King Charles III of Spain declared San Juan a Defense of the First Order and approved a plan designed by Field Marshal Alexander O'Reilly and executed by Chief of Engineers Thomas O'Daly and Juan Francisco Mestre that began an ambitious plan of remodeling and recreating San Juan's defenses.[40] By the end of the eighteenth century, the wall around San Juan was completed, and the fortifications of El Morro and San Cristóbal looked much as they do today.

Period of significance. The National Register of Historic Places nomination has determined that the San Juan National Historic Site and its contributing resources, the esplanade being one, have a period of significance beginning in 1539, the beginning of construction at El Morro and ending in 1970, "the typical 5-year cut off [sic] date for eligibility for listing on the NRHP."[41] The 1991 Cultural Landscape Report divided the analysis of the esplanade into two time periods, 1540-1898, the Spanish Period, and 1598 – 1961, the American Period.[42] While the new National Register of Historic Places nomination extends the period of significance nine more years, the division of the analysis of the landscape into these two broader categories is valid. During the Spanish Period, the esplanade was created and maintained as a glacis, but during the American Period, this large, relatively flat piece of land underwent significant change from a glacis even as it was retained for military purposes. Given the clear break between the Spanish and American Periods, this report will discuss and analyze the esplanade landscape within two overarching periods: 1539-1898, the Spanish Period, and 1898-1970, the American Period. Since the esplanade did not change significantly until after the Spanish relinquished control of it, it seems most expedient to discuss the former glacis within these two periods.

History of El Morro Esplanade

As the Spanish Empire expanded into the Americas, it became important for the Spanish fleet to find and maintain safe harbors there. The island of Puerto Rico, initially referred to as *San Juan Bautista* (St John the Baptist), was the first such place Spanish ships reached after they sailed from Africa's west coast.

Spanish Occupation circa 1500-1898

The island that is now Puerto Rico was first visited by Christopher Columbus in November 1493 on his second voyage to the New World. He found the island occupied by the Taíno Indians; possibly as many as 50,000 Taíno lived on the island in many scattered villages. The Taíno were friendly to Columbus, and they made the mistake of showing him the location of gold nuggets in the river and indicated he could as much as he wanted.

38. National Park Service, *San Juan* [brochure] (N.P.: San Juan National Historic Site, Puerto Rico, US Department of Interior, National Park Service, n.d.).
39. Berkowitz et al., I, 21.
40. Berkowitz et al., III, 21.
41. Teresa Dujnic Bulger, *National Register of Historic Places Registration Form, San Juan National Historic Site, San Juan, Puerto Rico*, Richard Grubb & Associates, Inc., Cranbury, NJ, draft, May 1, 2020.
42. Crisson et al., 44-45.

Columbus named the island San Juan Bautista, and he called the town, *Puerto Rico* (Rich Port). These designations would eventually be switched.[43]

By 1508, the Spanish began colonizing the island. Soon thereafter, they began clashing with the Taíno, who the Spanish began to enslave without official sanction. The natives had considered the Spanish gods at first, but when they were able to kill a Spanish expedition leader, the Taíno revolted. The unsuccessful uprising led to the deaths of 6,000 natives and the dispersal of many of them into the mountains away from Spanish control.[44] In 1613, enslaved Africans were brought to the island, and in 1614, Spain granted the settlers permission to marry the native Taíno.[45] The island, which had now become Puerto Rico, and the town, San Juan, continued to grow in importance for the Spanish Empire.

After the first defenses at the entrance to the port at San Juan were destroyed by a hurricane, the Spanish needed to construct stronger defenses to protect the settlement against attacks by Caribe Indians and pirates. In response, the Spanish Crown authorized the establishment of a fortress on a rocky promontory fronting the entrance channel into the bay at San Juan in 1533. By 1537, construction of *La Real Fortaleza de Santa Catalina* (Royal Fortress of Saint Catherine), "La Fortaleza," began as San Juan's first defensive fortification. To this point, houses were individually constructed as defensive units, and La Fortaleza was built on a bluff overlooking San Juan harbor just below Casa Blanca, the former fortified home of the family of Juan Ponce de León, the first governor of San Juan / Puerto Rico.[46]

Concerns were soon raised by the inhabitants that La Fortaleza would be insufficient to protect the colony as the site was problematic from the beginning, and before La Fortaleza was completed, a second more formidable fortification was erected on the rocky northernmost point on the island, *Castillo San Felipe del Morro*. The fort was built on *el morro* (the bluff) overlooking both the Atlantic Ocean and San Juan Bay, a more strategic location that provided a broader view of the approach by sea. This location would enable the Spanish to respond to the threat and establish artillery to attack the invaders sooner than if artillery was positioned at the mouth of the harbor.[47] Despite the establishment of the fortified position, no army was based on site; the harbor was anticipated to be protected by a neighborhood militia of local residents, officers of the Crown, and *vecinos*,[48] who did not immediately have access to artillery or ammunition.[49]

The original El Morro was much smaller, probably more of a tower than the massive fortification it became. Nevertheless, it was located some distance from the town, and the area around the fort was kept open. Baltazar Vellerino de Villalobos's 1592 *Luz de Navegantes*, a guide for pilots and sailors navigating in the West Indies, showed El Morro and the open land between it and the town (Figure 10).[50] The geographical and architectural elements within the map are not to scale, but the small hill called *la Altura del Calvario* (Calvary Hill) in the vicinity of the present-day *Cuartel de Ballajá* (Ballajá Barracks) can be clearly seen, marked with the three crosses

43. Magley Rivera, "Puerto Rico's History," Welcome to Puerto Rico!, 1992, accessed January 28, 2019, http://welcome.topuertorico.org/history.shtml.
44. Rivera, n.p.
45. Ibid.
46. Berkowitz et al., III, 5.
47. Jorge A. Rodríguez López Juan M. Rivera Groennou, Juan A. Rivera Fontán, and Loderay I. Bracero Marrero, SARQGIS LLC, *Archaeological Assessment Phase 1A-1B, Santa Elena Gunpowder Magazine Retaining Wall Project, San Juan National Historic Site. San Juan, Puerto Rico* (San Juan, Puerto Rico: National Park Service, September 2018), 22-23.
48. Vecinos were residents who owned property within the city limits. Property was defined as land, slaves, or buildings constructed of masonry.
49. Rodríguez López et al., 23.
50. Baltazar Vellerino de Villalobos, *Luz de Navegantes* (1592), plate XVI, in Aníbal Sepúlveda Rivera, *San Juan: Historia ilustrada de su desarrollo Urbano: 1508-1898* (San Juan, 1989), 61.

of Calvary. The large church complex in the front, left foreground of the drawing is the Convent of Santo Domingo, and La Fortaleza is on the right side of the island, with firing lines indicated into the bay (refer to Figure 10). The ravine, which will figure prominently in changes related to El Morro for the next several centuries, can be seen beginning at the left, northeast, side of Calvary Hill and wandering off to the northside of the island. A path had been created from the fort into the open area, but it seems to end just short of Calvary Hill. What appears to be the beginning of a possible west wall shore defense can be seen immediately south of El Morro as indicated by a small cannon. Although this map appears in a collection published in 1592, it does not include work that was begun in 1588.



FIGURE 10. A 1592 navigational map showing Puerto Rico. Note El Morro, the fortress tower (lower right), and what is now the esplanade stretching between the fortification and the town. (Source: Sepúlveda Rivera, 61)

A 1588 defensive plan conceived for King Philip II of Spain was executed by Juan de Tejeda and the Italian engineer Juan Bautista Antonelli for shore defenses. This plan took into consideration the rugged terrain of the harbor and placed walls and attached defenses, such as bastions, in those areas that were deemed susceptible to attack.[51] These defenses worked against an English attack led by Sir Francis Drake in 1595, but they proved less reliable against another English attack in 1598.

The 1588 defensive plan was significant, but it did not address all the site's problems. Antonelli changed the configuration of the castle and began the construction and the reinforcement of existing wall structures along the west edge of the island. The fort was

> given a bastioned front facing the land, a long scarp wall connecting two semi-bastions, from which the land was defended by direct, flanking cross-fire. An open moat served as an obstacle to the enemy and a drawbridge was constructed over it to communicate the castle with its surroundings . . . a ravelin was the outerwork and there was a glasis [sic] whose slope provides a protective trench for the fortification.[52]

El Morro became a polygonal shape as opposed to the original tower structure, and the unstructured land extending between the village and the fort became the fort's glacis.

Unfortunately, the fortifications proved useless just three years later during the attack by Sir George Clifford, the Third Earl of Cumberland, who approached by land from the unfortified eastern side. Cumberland held the city for three months in 1598, until dysentery drove his solders out of the field, leaving behind a ransacked ruin.[53]

The Spanish quickly began work repairing and refortifying El Morro and portions of the West Wall, but they did not create north, south, or east walls. The Dutch under the direction of General Boudewijn Hendricksz (sometimes Hendrikszoon or Balduino Enrico to the Spanish) attacked, ransacked, and burned San Juan in a month-long siege in 1625. General Hendricksz sailed into the harbor, past the gun fire of El Morro and the new harbor fortification, El Cañuelo, and attacked the fort by land across the glacis. Ultimately, General

51. Berkowitz et al., I, 11.

52. Tamara Blanes Martin, "Comparative Study of the Works of the Antonellis: El Morro Castle, San Juan; El Morro Castle, Havana; and El Morro Castle, Cartagena de Indias," in *Third International Symposium of Historic Preservation on Puerto Rico and the Caribbean*, May 9-13, 1994, San Juan, Puerto Rico (San Juan, PR: San Juan National Historic Site, National Park Service, 1996), 43-44.

53. Berkowitz et al., III, 11.

Hendricksz and his crew were driven from the island, barely escaping (Figure 11).[54]



FIGURE 11. *The Recapture of San Juan in Puerto Rico* [oil painting] by Eugenio Cajés, 1634-1635, Museum del Prado (in the public domain) features Juan de Haro y Sanvítores, governor of Puerto Rico, directing the battle against the Dutch as they are driven from San Juan in 1625.

Hendricksz's map of the engagement illustrated the state of the Spanish fortifications and the elements of the esplanade at that time (Figure 12). The general's map was foremost a plan of land attack as executed by his troops, and the rest of the map is essentially the general's reconnaissance observations.[55]

When General Hendricksz landed his force, comprising 17 ships and 800 troops, he immediately began to formulate a plan for the capture of El Morro, which included the then traditional practice of establishing *vallum* or a type of earthwork rampart usually topped by a wood palisade with an outer ditch.[56] The general's map as printed by Johannes de Laet in 1644 shows the location of the vallum as "C" (refer to Figure12). One of the vallum extended across the glacis, north to south, in a "V"-shape effectively blocking the town (with its square labeled "K") from the castle. At the center of this vallum is the letter "D" which marked the rallying point for Dutch troops and a battery.[57]

Another series of vallum lay to the west, connecting to a water source immediately outside the castle walls marked "B." This vallum ran to the very edge of the north side of the glacis.

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54. Revolvy, Battle of San Juan 1625, accessed March 21, 2019, https://www.revolvy.com/topic/Battle%20of%20San%20Juan%20(1625), and Eugenio Cajés, *The Recapture of San Juan in Puerto Rico* [oil painting], 1634-1635, Museum del Prado (in the public domain).
55. Johannes de Laet, "Grondt-Teeckening Vande Stadt en Kasteel Porto Rico." Leiden: Bonaventeur and Abraham Elsevier, 1644. The John Carter Brown Library, Providence, RI, accessed September 21, 2020, https://jcb.lunaimaging.com/luna/servlet/detail/JCBMAPS~1~1~2172~109590003:Grondt-teeckening-vande-Stadt-en-Kastel
56. R. A. Van Middeldyk, edited by Martin G. Brumbaugh, 1903, *The History of Puerto Rico From the Spanish Discovery to the American Occupation*, D. Appleton and Company, New York: 123 and 125.
57. The 1644 figure contains two map keys, one in Dutch, which is part of the original map and was probably created by General Hendricksz' cartographer, and one below the map in Latin, which was not a part of the original map and was likely prepared by de Laet. Unfortunately, the keys do not always reflect the same information. For instance, "C" in the original map key is "onse approachen," *our approach*, and in the 1644 key is "nostrorum vallum," *Dutch (our/their) rampart / fortification / breastwork*. These are seemingly quite different interpretations of what "C" represents. If "C" represents ramparts – earthen works with ditches – then it is vital to know since these works would leave archeological traces. Importantly, why would the two keys differ? According to the *Oxford English Dictionary* (1986), by 1633 the term "approaches" was commonly used in military jargon to indicate "entrenchments or other works whereby besiegers draw closer to the besieged" as the vallums shown on the map. Perhaps by 1644, de Laet decided to be more precise and call the "approaches" "vallums" since vallums are a very specific type of earthwork. For the modern reader, however, it is not clear that "approaches" and "vallums" are a type of entrenchment.

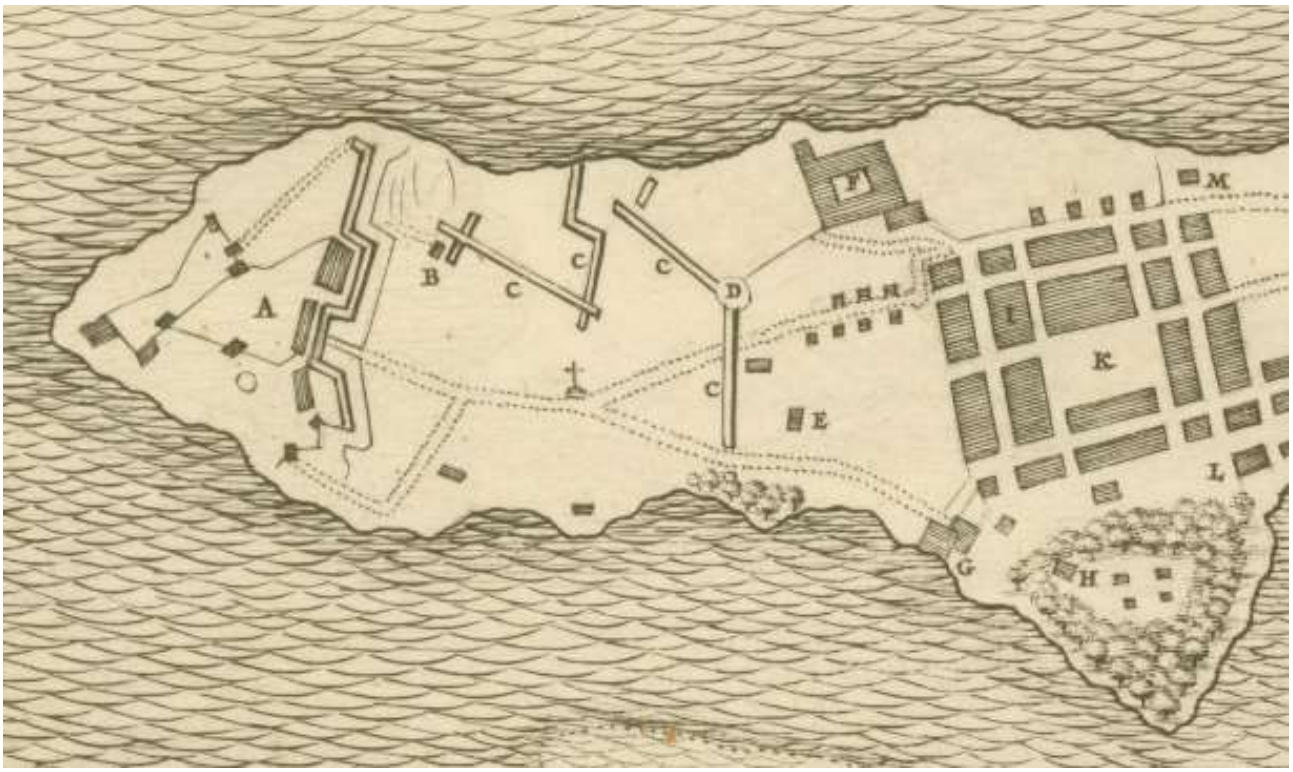


FIGURE 12. Detail of General Hendricksz's reconnaissance map of San Juan showing details of the esplanade circa 1625. (Source: de Laet 1644)

El Morro Esplanade, featured as a long, treeless glacis on the map (refer to Figure 12), had a path leading from the town, which is indicated with a "K," and this path was joined immediately south of Calvary Hill by a path from "G," the "Governor's House," and La Fortaleza. Past Calvary Hill, marked by a mound with a cross, but before the moat, a path veered to the west and along the western edge of the fortifications, presumably along *El Baluarte de Santa Elena* (Bastion of Saint Helena; "Santa Elena"), although a bastion was not indicated on this map. There was also a path or a wall leading from Santo Domingo Convent, "F," into the town and a path from the convent to the glacis to its sign, "D."

Features on the esplanade include Calvary Hill as previously discussed. A well, "B" ("*versch-waterput*"), was shown outside the fort's walls on the northside near the ravine that was indicated by several lines leading to the water's edge. At the north edge of the esplanade was Santo Domingo Convent indicated by "F" ("*Dominican klooster*"). It is interesting to note that General Hendricksz used the monastery's sign, indicated by "D" ("*Capelleken*," chapel sign), as a meeting or rallying point within the glacis.[58] The south edge of the glacis towards town was marked by a several buildings. One in particular, "E" ("*Groot huys*," large or big, or tall house), was highlighted on the map. Two buildings appeared on the west edge of the glacis without any indication as to their use. One was directly off the path leading to Santa Elena and was probably related to some aspect of maintenance for that battery. The second building was probably related to *La Batería San Gabriel* (Battery of Saint Gabriel), although the battery was not marked on the map.

58. The archaic Dutch words used on the map have been a source of difficulty in understanding some of the elements on the esplanade. In particular, the word "Capelleken" has been translated by others with several different meanings. "Little White Chapel," referencing perhaps one of the first items constructed on the esplanade, one of the translations is *la Capilla del Calvario* (the Chapel of Calvary). In any event, something is on the esplanade that deals with a chapel, and this location was a rallying or meeting point for the Dutch.

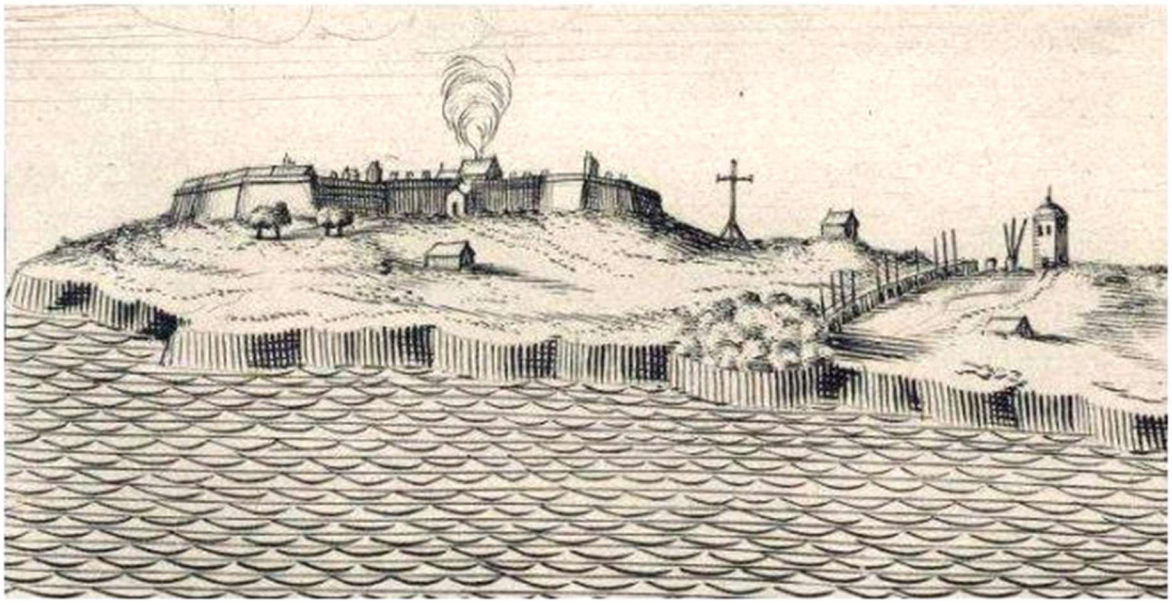


FIGURE 13. South edge of the El Morro glacis looking north, 1625. The Dutch vallum, which appears as a line of tall pickets emerging from a copse of trees and brush, marches across the glacis past the "tall house" to the north side of the plan effectively severing the link between El Morro and the town. Note Calvary Hill marked by the cross standing between the vallum and the castle. It is an interesting representation of the castle from the bay side. (Source: Johannes de Laet, 1644, *History of the Deeds of the Commission Company of the West Indies*, translation from F. Geigel-Sabat, 1934, Balduino Enrico, *Siege of the City of San Juan, Puerto Rico by the Dutch Fleet*, Barcelona, Spain, Ed. Araluce, in Manuel Minero, 2016, *Attack on San Juan de Puerto Rico by the Dutch in 1625*, Museo de Mar, San Juan, Puerto Rico)

In 1644, de Laet produced an engraving of General Hendricksz's drawing of the north-south vallum (Figure 13). This drawing clearly shows "C," the vallum, as a line of pickets infilled with some material, probably small tree limbs, as was traditionally done, and the barely discernable ditch or trench on the west side of the erected vallum. The "tall house" ("E") is clearly seen in the right middle ground, and in the middle of the drawing is Calvary Hill, marked by a single cross. The south end of the vallum ends in a small copse of trees as indicated on the larger map (refer to Figure 12). It is interesting to note a stand of trees was shown on the south side of the castle between the castle walls and the edge of the land.

The glacis, as a whole, however, in both the map of the engagement (refer to Figure 12) and the drawing of the vallum (refer to Figure 13), was portrayed as a treeless, almost featureless geographic feature with uneven topography. Trees were on its more extreme southwestern edge, and trees were indicated south of the Governor's house ("G"). A small tree stand was shown outside the south castle walls, but it was sparsely grouped. The glacis was servings as intended, a firing field.

Although the Dutch were finally routed and almost did not escape the bay alive, General Hendricksz's attack sent a chill through the Spanish administration. In response to the Dutch attacks and the increasing threat posed by pirates and corsairs in the Caribbean, King Philip IV of Spain, recognizing the strategic importance of San Juan, poured money into city's defenses. Plans were then made to fortify the city by building a system of forts connected by walls. The plans built on an earlier proposal by Captain Diego Menéndez Valdés in 1587 to include curtain walls in addition to artillery batteries. As implemented beginning in the 1630s, the system included a continuous curtain wall between El Morro and La Fortaleza, following the edge of the promontory, which would establish a formidable vertical obstacle to attack given the precipitous drop between the promontory and the rocky shoreline. The wall was also to continue along the south side of the city. All told, the wall was to measure

approximately 10,000 feet in length around the southern and western part of the city between El Morro and the highlands of San Cristóbal.[59] The curtain walls facing the bay were completed by 1639. Three artillery positions were located within this part of the system—San Agustín, San Fernando, and Santa Elena.[60] It was at this time that Santa Elena and San Agustín Bastions were established atop the promontory, presenting the form of a ravelin. In addition to these improvements, El Cañuelo at the harbor entrance was rebuilt, and San Cristóbal was begun.[61] However, after this period San Juan languished

During the first half of the eighteenth century, Puerto Rico was almost forgotten as a result of an alliance between the Spanish and the French Bourbon monarchies that produced a period of calm for Spain. This period of calm was broken in 1763 at the conclusion of the Seven Years War with renewed belligerency from Great Britain. Charles III, King of Spain, initiated a series of reforms and declared San Juan a "Defense of the First Order" in 1765 to block English incursions.[62] In order to protect his “foundation of true wealth,” Charles approved a far-reaching plan for improvements to the fortifications at San Juan. The plan, created by Field Marshal Alexander (Alejandro) O'Reilly and executed by Chief of Engineers Thomas (Tomás) O'Daly and Juan Francisco Mestre, forever changed the character of the city of San Juan.[63]

The O’Reilly plan strengthened and upgraded all the existing fortifications and built the final, north, wall. The plan created San Juan’s famous “Defense-by-Depth” system, making it one of the strongest fortified cities in the Caribbean.[64] This plan also essentially gave the Spanish military control of the city by placing the responsibility for city construction and growth outside the walls in its hands.[65] The execution of the plan ultimately led to the complete enclosure of the city by walls by the end of the eighteenth century.

The changes to El Morro and by extension the esplanade were dramatic. The fort became a massive defensive complex supported and augmented by huge walls topped with bastions and heavy fire power. El Morro itself was guarded on its eastern and northern flanks, its land side, by San Cristóbal with its extensive outer works. Field Marshal O’Reilly had sets of maps created for the reconstruction of the fort showing the glacis.[66]

O'Reilly recognized the importance of the topography of the glacis. In a partial description of the esplanade, he noted that the fort sat at a higher elevation than Santo Domingo Convent, located at the eastern end of the glacis. O'Reilly observed that the terrain at the center of the esplanade was uneven, but it would not be too difficult to improve for defensive purposes. He stated that the composition of the esplanade was three to four feet of sand over hard clay. He noted the existence of a hill, Calvary Hill (refer to Figures 10 and 12), as well as the presence of a ravine, which began just east of Calvary Hill and opened toward the Atlantic Ocean. The ravine was described as 660 feet long, 120 to 180 feet wide, and 10 to 18 feet deep. O’Reilly proposed lowering Calvary Hill to improve the defensive capabilities of El Morro. He believed that the ravine's proximity to the hill was advantageous as earth taken from the hill could be dumped into the ravine, and the ravine itself would then be made level ground.[67]

A map drawn by Ramón de Villalonga under orders from engineer Thomas O’Daly was completed between 1772 and 1776 and showed some of the changes envisioned by O’Reilly (Figure 14).[68] Calvary Hill was no longer extant, but the ravine was prominently featured and was

59. Rodríguez López et al., 30.
60. Ibid., 31-33.
61. Berkowitz et al., III, 11.
62. Ibid., 21.
63. Ibid.
64. Ibid.
65. Ibid., 23.
66. Ibid.
67. Torres-Reyes, "La Plaza de PR, 1765-1777."
68. Ramón de Villalonga, *Regional Plano San Juan, Museo Naval, Madrid, Spain*, 1772-1776, Number XXII-A-9, in Sepúlveda Rivera, 126.

still quite large in this map. A formation of some type was shown immediately north of the ravine, but it is not clear what this formation represents. A large hole or depression was depicted on the eastern edge of the glacis close to where El Morro Road now intersects Norzagaray Street. A small building appeared on the depression's southwest edge. The land was still not level, and two pathways still crossed its eastern-southern ends.

At the time of the completion of this map, El Morro Esplanade was still a large, open, treeless area. Work to level the area and to enclose it was underway so that El Morro was not so easily attacked by land as it was in 1625.

The major change to the esplanade was that its north, south, and west edges were now becoming fortified. The west and south edges were heavily fortified with walls as well as Santa Elena and San Gabriel Bastions. The North Wall was partially complete. The walls complemented and accentuated the steep slopes at the base of the promontory as an obstacle to a potential enemy attack, extending as sheer masonry structures for 20 feet or more along the edge of the promontory, with an additional 4 feet or so of parapet above the esplanade. The parapet walls were designed to provide cover and concealment for the soldiers manning artillery at the openings in the wall known as embrasures. These and other walls in the system featured stormwater-management systems designed to channel and conduct flow through openings in the walls. The openings, referred to as scuppers, were set at intervals along the interior face of the bastion and curtain walls. Paved channels and grass swales often directed the flow toward the openings. There were openings left through the walls at the base of many firing steps where stormwater could be channeled to exit the esplanade.



FIGURE 14. Major changes to El Morro Esplanade during the refortifying of San Juan by Alexander O'Reilly are shown in this detail from the 1772-1776 *Plan of San Juan*. (Source: Ramón de Villalonga in Sepúlveda Rivera, 126)



FIGURE 15. As shown in 1792, the esplanade had become a true fortification glacis as shown in this detail from Juan Francisco Mestre's map. (Source: *Manuscrito por Juan Francisco Mestre,* Servicio Histórico Militar Núm. 5795, Madrid)

By 1792, the esplanade was a true fortification glacis (Figure 15).[69] A map by Juan Francisco Mestre showed the ravine had been filled and Calvary Hill had been removed. The large depression or hole at the southeast end was also gone. The ravine and Calvary Hill appear to have been marked on the map, not as landforms but likely as indicators of depressions, rough spots, or changes in elevation on the plain. Elevation changes remained but none were as significant as those shown on earlier maps.

The 1792 map indicated several pathways across the glacis with new paths in a circuit around the plain so that all the bastions and walls were reachable. The walls, except for a small area on the west near the fortress, were now completed around the glacis; the wall added *Batería de San Fernando* (Battery of Saint Fernando, San Fernando). The North Wall now has *El Baluarte de San Antonio* (Bastion of Saint Anthony, San Antonio), *El Baluarte de Santa Rosa* (Bastion of Saint Rose, Santa Rosa), and *El Baluarte de Santo Domingo* (Bastion of Saint Dominic, Santo Domingo). By 1792, a powder house, or polvorín, had been erected near Santa Elena Bastion.

By 1792, only two buildings were shown on the glacis; both of them were associated with Santa Elena and were used for storage, probably for explosives that were dangerous to store within the bastions or El Morro itself. There is one named building on the southeast edge of the glacis, but its name is not clear on the map.

In 1797, the new fortifications were tested by naval and land assaults by British forces under the

69. Mestre, in Sepúlveda Rivera, 129.

direction of General Sir Ralph Abercromby and Admiral Henry Harvey. Harvey's ships were sighted off San Juan on April 17, 1797, and they sailed into the harbor on April 18. From April 18 until May 2, 1797, the British blockaded San Juan Harbor and proceeded to principally bombard San Gerónimo, a small defensive battery on Boquerón beach, and the San Antonio Bridge connecting the island to the mainland. The battering of San Gerónimo and the bridge was almost continuous, on some days it was exceptionally heavy. Repairs were constantly carried on the bridge and bastion.[70]

The British landed German and impressed French soldiers, but they never gained a foothold.[71] The Spanish, calling in reserves from the countryside, kept the British ships occupied without them ever scoring a victory. On the evening of April 30, the fleet began slipping away under cover of darkness, and by May 2, all the British had left. General Abercromby later described the siege and his withdrawal.

> After every effort on our part we never could sufficiently silence the fire of the enemy, who had likewise entrenched themselves in the rear of those redoubts . . . The only thing left was to endeavor to bombard the town from a point to the southward of it, near to large magazine abandoned by the enemy. This was tried for several days, without any great effect on account of the distance. It appearing therefore no act of vigor on our part, not that any combined operation between land and sea service could in any manner avail. I determined to withdraw and reembark the troops, which was done on the night of April 30 with the greatest order and regularity.[72]

The fortifications proved their worth. They would continue to be improved and upgraded until the end of the Spanish period in 1898.

Sometime during the latter part of the eighteenth century, a counter-mining gallery—tunnel—was constructed under the glacis. The extent of the tunnel into the glacis is unknown, but the entrance to the gallery is extant in the outer wall of the moat, the counter scarp, near the eastern corner. The gallery is believed to have been like those at San Cristóbal.[73]

The counter-mining gallery system was supposedly part of the military defenses of the fort; however, it is not documented in any of the historic plans. Nevertheless, Ángel Rivero Méndez in his book *Crónica de la Guerra Hispano-Americana en Puerto Rico* [Chronicle of the Spanish-American War in Puerto Rico] stated that prior to 1898,

> The entire *glacis* of el Morro was permanently counter-mined with principal branchlines, that allowed for a person to walk upright, and other lateral [lines] that ended in mining bast holes, and allowed travel on the knees. . . .A large part of the subterranean [tunnels] were blocked two years before the [1898] war, during the installation of the Ordonez rifles. It was very dangerous to travel along these tunnels, not only due to the excessive humidity, but due to the thousands of *guavas*, horrible-looking spiders, which inhabited the tunnels.[74]

At the end of the eighteenth century, the Spanish had created a walled and heavily fortified city in San Juan. The Spanish military was in control of the city, and construction was completed at their discretion. The esplanade had become a true fortress glacis and would be maintained that way until 1898.

70. Maria M. Alonso and Malagros Flores, *The Eighteenth Century Caribbean & the British Attack on Puerto Rico in 1797: With Chronicles* (National Park Service, 1997), 176-206.
71. Ibid., 188.
72. Ibid., 206.
73. Crisson et al., 20.
74. Ángel Rivero Méndez, *Crónica de la Guerra Hispano-Americana en Puerto Rico* [reprint] (San Juan: Instituto de Cultura Puertorriqueña, 1972),5, in Crisson et al., 21.



FIGURE 16. Detail from Plan of the Plaza of San Juan Bautista, Puerto Rico, 1861. (Source: Park Archives, SJNHS ARJT4C2601 1861)

In 1821, August Plée (1786 – 1825), a French Naturalist, traveled extensively in the United States and Puerto Rico, sketching and cataloging flora and fauna. From 1821-1823, Plée was in Puerto Rico sketching military installations, ports, and towns.[75] During this period, he drew the esplanade showing a single palm tree growing near the moat and sallyport of El Morro.[76] Plée's notes and specimens are preserved at the Musée d'Historie Naturelle in Paris, where they were discovered nearly a half-century ago by Professor Gilbert Chinard of Princeton.[77]

By 1861, the glacis has been filled in and leveled (Figure 16).[78] A large depression that had been recorded by at least one other map (refer to Figure 14) was shown at the eastern end of the glacis. At the southwestern end of glacis, a dirt depression or pit was illustrated. The depression may have been part of a mining operation that was active throughout the eighteenth and nineteenth centuries. Speculation as to the location of this

75. Park Rouse, "A French Botantist, August Plee [sic], Sketched Virginia's Ports in 1821," *Daily Press*, July 12, 1989, accessed June 1, 2020, https://www.dailypress.com/news/dp-xpm-19890712-1989-07-12-8907120051-story.html.
76. Crisson et al., 20.
77. Ibid.
78. Detail of *Plan of the Square of San Juan Bautista, Puerto Rico*, 1861, in Sepúlveda Rivera, 158.

mining operation has been ongoing.[79] Nevertheless, this map marked the first time the formation had appeared on maps, and the mining that had occurred on the esplanade during the nineteenth century could account for this.

There was just one pathway through the glacis and that was straight through the middle of it on what will become El Morro Road. On the west side of that road, about where Calvary Hill once stood, is now the Dutch Memorial to those who fought during the siege of 1625. Certainly, pathways to the various bastions must have existed, but these were not shown on the map.

The biggest change in the glacis was the encroachment of buildings on its eastern and southern edges. While there had always been a scattering of small houses along the edge of the glacis, the houses at this time had been replaced by military and governmental buildings. By the 1860s, maps indicated that roads were being formalized east of El Morro Esplanade that provided access to *El Cuartel de Ballajá* (or the Ballajá Barracks), *El Asilo de la Beneficencia* (the Welfare Asylum), built circa 1841, and *El Manicomio* (the Insane Asylum) built in 1854. *Calle de Cementerio* (Cemetery Road) and an associated tunnel that extends beneath the North Walls were added to provide access to *Cementerio Santa María Magdalena de Pazzi*s by 1864.

The new Ballajá Barracks was erected into the glacis, forming a new edge. The Santa Elena guard and powder house were still on the western edge of the glacis and remained there for the next 150 years.

An 1897 Department of the Interior map of San Juan, which was then partially updated in 1940, showed the city still walled and all the Spanish military buildings on and surrounding the esplanade (Figure 17).[80] Spanish planners had begun to encroach on the glacis on the east and south sides. By this date, the military had placed *Pabellones Militares* (military pavilions), probably barracks, headquarters, and mess halls, just north of El Manicomio. At the San Agustín Bastion, several new, associated military pavilions also sprang up, and there was a scatter of small buildings between Santa Elena and San Agustín Bastions. The Dutch Monument received a new base and appeared to be within a fence. An area close to San Fernando Bastion was fenced off, and it is not clear whether this change was part of the 1897 map or the later edited map. This area appeared to be vacant.

During the late nineteenth century, the Spanish established a concrete coastal defense battery on the promontory overlooking San Juan Harbor to the south of El Morro as part of an effort to modernize the complex. Known as *Batería de San Fernando*, the structure was used to emplace Ordóñez cannon, a type of gun designed by Spanish Army artillery officer Salvador Díaz Ordóñez. Other structures include a massive retaining wall located behind El Polvorín built in conjunction with the powder magazine, and a stone wall that follows Casa Rosa Road near the former guardhouse.

The 1897 map also identified the central road leading to El Morro as simply *Camino Afirmado* (confirmed path). The wall between San Antonio and Santa Rosa Bastion was now called *Galería de Nichos* (gallery of the niches) and seemed to have acquired a more substantial wall section. The name probably relates to the wall of burial crypts, niches, below in the Cementerio Santa María Magdalena de Pazzis (see Figure 17 for a view of the cemetery and the wall crypts). It is not clear if the new gallery was part of the old 1897 map or was a new addition.

79. Crisson et al., 19.

80. Detail from *Plano del Recinto Amurallado de la Ciudad de San Juan, P.R, 1897* (updated 1940), accessed March 21, 2019, https://www.geoisla.com/2018/07/plano-de-san-juan-antes-del-derribo-de-las-murallas-en-1897-1940/). The map shows the addition of three US military quarters at the entry to El Morro but no other US military additions.

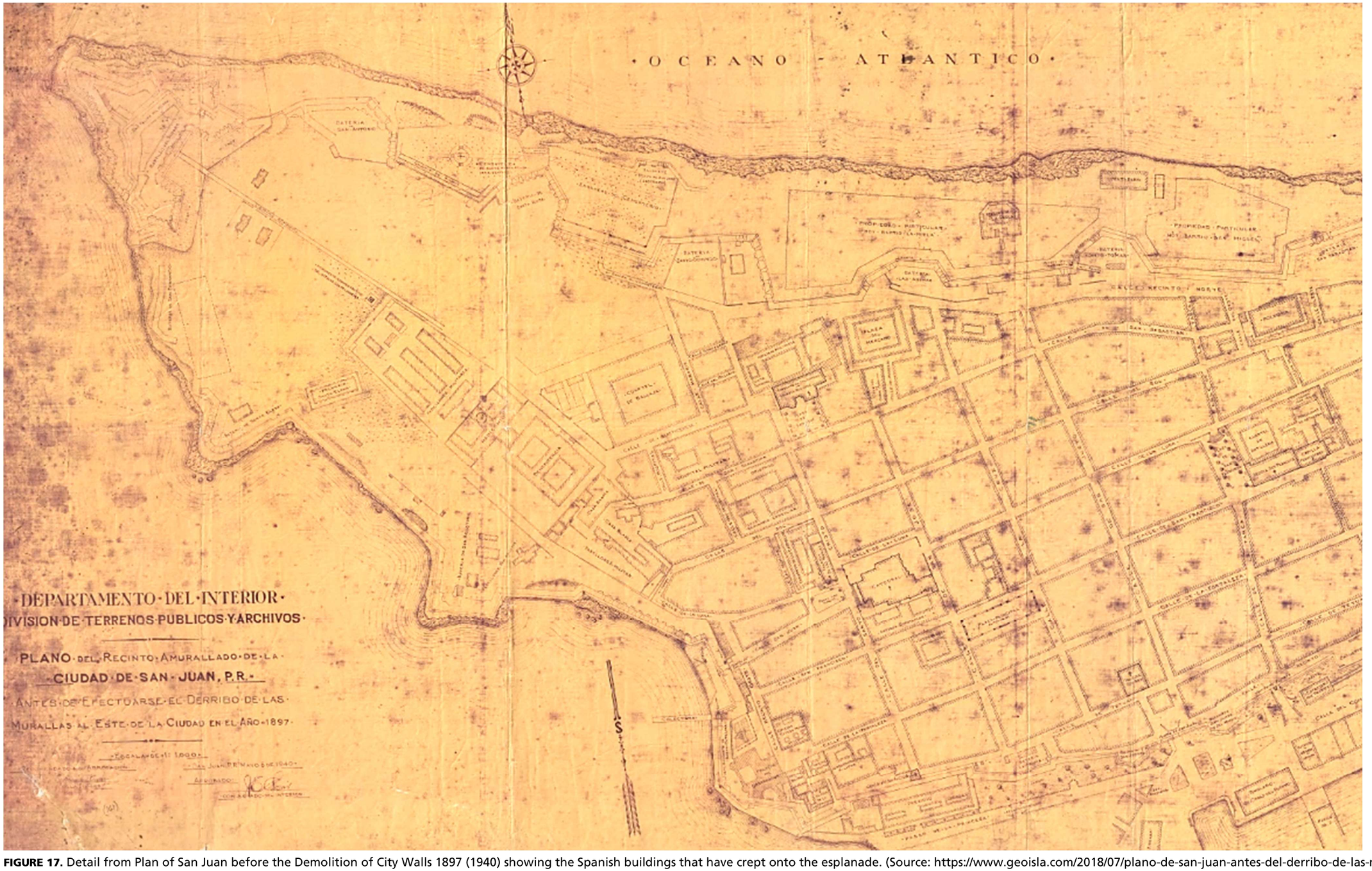


FIGURE 17. Detail from Plan of San Juan before the Demolition of City Walls 1897 (1940) showing the Spanish buildings that have crept onto the esplanade. (Source: https://www.geoisla.com/2018/07/plano-de-san-juan-antes-del-derribo-de-las-murallas-en-1897-1940)



FIGURE 18. Detail from map by F. Roldán, *Levantado Por el Cuerpo de Ingeniéros Militares: Plano de la Plaza de San Juan, 1889*. (Source: Park Archives, SJNHS, ARJT4C262)

A Spanish map by F. Roldán illustrated the completed walled fortification of San Juan in 1889 (Figure 18).[81] The esplanade as depicted on maps from 1861 and 1897 had changed little, except that the dirt depression on the southwest edge of the glacis has been removed. The large depression on the eastern edge of the glacis was still there. The powder magazine at Santa Elena appeared to be fenced, and the Santa Elena Guardhouse had become "L"-shaped. The Cementerio Santa María Magdalena de Pazzis was situated on the shore below the north wall between San Antonio and Santa Rosa Bastions. Named for a long defunct fortification, the area of *La Perla*, where the new cemetery is located, had been in the process of being settled for almost a decade by the time this map was created, despite the area being just outside the city walls.[82]

In 1897, after more than forty years of discussions between military authorities and civilians, the East Wall and a portion of the South Wall were demolished so the city of San Juan could expand to the east, the only direction in which there was land.[83] There had been no military attempts to seize San Juan or the island for more than one hundred years, and Spanish administrators believed in the Spanish military's ability to defend the city. Then, in early May 1898, the US fleet arrived offshore.

It is somewhat surprising the Spanish military at San Juan did not consider US military power as a possible threat to their island holdings in the Caribbean. The United States now had a new, all-steel warship navy and had long expressed a desire to see a trans-isthmus canal built in South America

81. F. Roldán, *Levantado Por el Cuerpo de ingenièros Militares: Plano de la Plaza de San Juan, 1889* (San Juan National Historic Site, ARJT4C262).
82. Berkowitz et al., I, 42.
83. Berkowitz et al., III, 29.

as a result of the California Gold Rush.[84] The United States had extensive business investments in Cuba and had adopted sympathetic views toward Cuban independence from Spain as early as 1895 during the unsuccessful José Martí-led revolution.[85] American policymakers also had become much more militarily belligerent and had expressed ideas of extending American economic interests into the Caribbean and Central and South America. Further, the American press was not afraid to rabble rouse for military causes. These events seemed to have escaped the attention of the Spanish military planners in San Juan to their detriment.

The arrival of the American fleet at San Juan was a consequence of the United States declaring war on Spain on April 25, 1898, after the mysterious explosion of the *USS Maine* in Havana Harbor, Cuba. The United States did not limit itself to fighting just in Cuba in its declaration of war, expanding its reach to include the Philippines, Guam, and Puerto Rico. The assault of Puerto Rico was certainly inevitable since it was a Spanish-held Caribbean Island just 661.56 nautical miles away from Cuba.[86]

Rear Admiral William T. Sampson believed that the Spanish fleet of Rear Admiral Pascual Cervera y Topete would be sheltering at San Juan, and he was determined to engage and defeat the Spanish admiral. Admiral Sampson also wanted to completely demolish the Spanish fortifications at San Juan, which served as a watering, coaling, and safe haven for all Spanish ships.[87] He hurriedly gathered the monitors *Terror* and *Amphitrite*, unprotected courier *Detroit*, the battleships *Iowa* and *Indiana*, armored cruiser *New York* (Sampson's flagship), protected cruiser *Montgomery*, torpedo boat *Porter*, armed tug *Wompatuck*, and supply ship *Niagara* to serve as his fleet.[88] When they arrived at San Juan after an arduous trip from Cuba, the Spanish fleet was not there as anticipated. Nevertheless, Admiral Sampson decided to bombard and destroy the fortifications of San Juan.

The bombardment began at 5:00 am on May 12, 1898, and continued until 8:30 am. The US fleet concentrated its fire on El Morro and San Cristóbal, but the rough seas made their aim difficult. German Admiral Hermann Jacobsen wrote of the engagement:

> The guns in the fortifications [at San Juan] are all medium caliber and their piercing power is not such that a single hit could be expected to cause serious injury to a modern ship. The losses on the American side were one dead and seven wounded. The number of American projectiles fired is out of proportion to the material damage caused by them. Many shells are said not to have exploded. Of course, the fortification works were injured to some extent, but not one of the guns was put out of action. A few of the buildings visible at a great distance, like the [Ballaja] barracks, the jail, the hotel Inglaterra, and few private residences, suffered from the bombardment. Many projectiles fell into the harbor. Some of them

84. Smithsonian Museum of American History, "A New Navy, A New War [Spanish-American War]," *Price of Freedom: Americans At War*, nd, accessed September 22, 2020, https://amhistory.si.edu/militaryhistory/printable/section.asp?id=7.
85. Library of Congress, "The Spanish-American War: The United States Becomes a World Power," *Historical Background,* nd, accessed January 2, 2020, https://www.loc.gov/teachers/classroommaterials/primarysourcesets/spanish-american-war/pdf/teacher_guide.pdf; and David McCullough, *The Path Between the Seas: The Creation of the Panama Canal, 1870—1914* (New York: Simon & Schuster, 1977), 698.
86. The distance between Cuba and Puerto Rico is 1,226.2 km (761.81 miles, 661.55 nautical miles).
87. US Naval History and Heritage Command, "Introductory Essay: Spanish-American War," Documentary Histories, nd, accessed January 3, 2020 https://www.history.navy.mil/research/publications/documentary-histories/united-states-navy-s/bombardment-of-san-j.html.
88. Ibid.

> even reached the little town of Catano, on the other side of the harbor.[89]

While the bombardment and blockade of San Juan was occurring, the United States decided to undertake a land action as well. On July 25, 1898, US ground forces landed in Guánica, Puerto Rico, and began a march across the country toward San Juan. Some towns offered heavy resistance, but most were gladdened by the presence of American soldiers (and the departure of the Spanish). In just thirteen days, US forces occupied twenty-three of seventy Puerto Rican towns and cities.[90] The invasion was cut short, however, when President William McKinley and French Ambassador Jules Cambon, acting for the Spanish, signed a treaty ending the war. The United States took formal possession of Puerto Rico on October 18, 1898.[91]

Admiral Jacobsen's report was accurate; there was little damage done to the Spanish fortifications at San Juan. El Morro and San Cristóbal were both engaged in combat but suffered only slight damage. One of the breech-loading rifles in San Antonio Bastion, North Wall, was knocked out after a US shell opened a breech block and tore it off its hinges.[92] The walls did take some shells and holes filled the esplanade (Figure 19 and Figure 20). Nevertheless, while the estimated 1,300 US projectiles fired did little damage to the infrastructure of the fortifications and the city, they inspired terror and havoc among the citizens of San Juan and ultimately wounded fifty-seven people and killed seven.[93]

While the heavy artillery fire did little damage to El Morro and some barracks buildings, areas of the esplanade, including the broad open ground plain, were left cratered by the landing and exploding of artillery shells.[94] Photographs of the aftermath of the shelling indicated the extent of the damage, including piles of rubble and dislodged earth as well as craters.[95] In 1899, the US Army began to regrade the esplanade and fill the holes created by artillery shells.[96] An area north of El Morro Road was regraded, and obstructions in the sewer line were removed to address drainage problems.

89. Hermann Jacobsen, *Sketches from the Spanish American War by Commander Jacobsen* (Washington, DC: Office of Naval Intelligence, War Notes No. III; Government Printing Office, 1899), n.p.
90. Clemente, n.p.
91. Berkowitz et al., III, 41.
92. Ibid.
93. Ibid.
94. Crisson et al., 19; from Edwin C. Bearss, *San Juan Fortifications 1898–1958* (National Park Service, 1984), 9.
95. Crisson et al., 19; from Rivero Méndez,1972, 501. Historic photographs referenced in Berkowitz were not available for use in this document at the time of the preparation of the 75 percent draft.
96. Crisson et al., 18; from Bearss, 106.

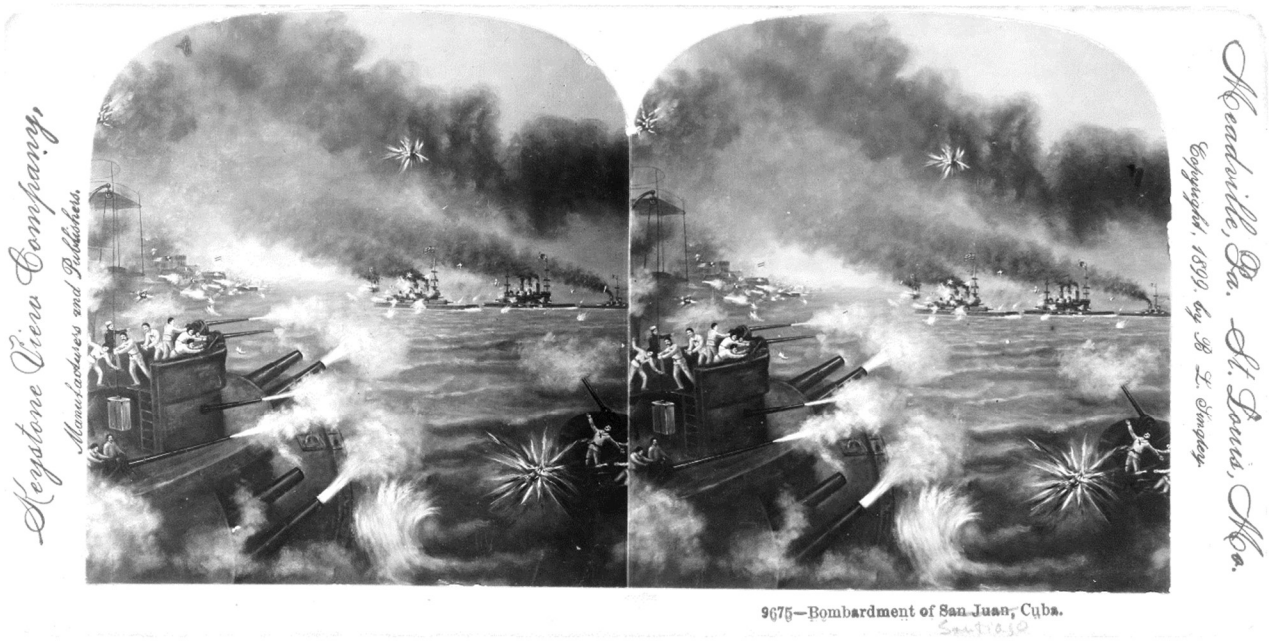


FIGURE 19. "The bombardment of San Juan, Cuba {i.e., Puerto Rico]," Keystone View Company, 1898 (Source: Library of Congress, Keystone View Company, circa 1899, LC-USZ62-104742)



FIGURE 20. *"Morro" Castle Wall struck by a 13-inch shell from Sampson's guns, San Juan, Puerto Rico,* Stereoscope Card. (Source: Library of Congress, Stromeyer & Wymann, August 22, 1899, LC-USZ62-117179)



FIGURE 21. Photograph showing the esplanade of El Morro on the bluff above the Cementerio Santa María Magdalena de Pazzis between 1880 and 1901. (Source: Frank and Frances Carpenter Collection, Library of Congress, LC-USZ62-117414, Circa 1880 – 1901)

US Army Use 1898-1961

Upon taking formal possession of Puerto Rico, the US Army immediately began to make plans for moving into the former Spanish fortifications. Within five months of occupying San Juan, the army began a full-scale review and evaluation of all the Spanish fortifications. Work was approved to regrade and to fill in the holes on the esplanade.[97]

A photograph of Cementerio Santa María Magdalena de Pazzis, located on the shore below the North Wall between San Antonio and Santa Rosa Bastions, taken between 1880 and 1901 showed the El Morro Esplanade above it (Figure 21).[98] The esplanade appears as one long, open, unobstructed glacis. However, this condition was about to change dramatically.

By 1901, the US Army had made dramatic changes to El Morro Esplanade by essentially eliminating the large open space as a glacis. From the advent of the occupation by the US Army in 1898 through its continued use until 1961, the esplanade's open space and flat land was exploited for expansion by the army. The army set the tone for how the esplanade would be used in a 1903 map (Figure 22).[99]

By 1903, quarters for officers were located immediately outside the land entry to El Morro. The quarters on the northside of El Morro Road were probably used for the ranking officer, and the two on the west were used for other officers.[100] At

97. Crisson et al., 19.
98. Bird's-eye view of the cemetery outside the city wall, San Juan, Puerto Rico, Frank and Frances Carpenter Collection, (Library of Congress), LC-USZ62-117414, Circa 1880 – 1901, accessed December 5, 2018.
99. Detail of US Army Quartermaster Corps, *Plat for Cemetery*, 1903 (San Juan National Historic Site, Puerto Rico)
100. Crisson et al., 30.

the eastern edge of the esplanade, a series of temporary barracks and guardhouses were erected. Although not indicated, the northside of the esplanade between El Morro and Ballajá Barracks was set aside as a drill field and parade ground in 1900.[101]



FIGURE 22. Detail of US Army Quartermaster Corps, Plan for Cemetery, 1903, showing early changes made to the esplanade by the US Army. (Source: Park Archives, SJNHS)

To update their new acquisition, which it referred to as the San Juan Military Reservation, the US Army added new sewage and plumbing systems to El Morro in 1899.[102] In 1901, they added electricity to the fortification and the three new quarters located immediately outside. Electrical wires and light fixtures attached directly to wooden utility poles on the esplanade were installed by San Juan Light and Transit Company to provide service to both the quarters and the fort.[103] Three arc lights were installed for El Morro Road.[104]

The esplanade was also first used by the army for the grazing of domestic animals. Wooden post fences topped by a single flat board, which appear to have been painted white, crisscrossed the area by 1905. The fences defined areas immediately adjacent to living quarters, forming paddocks for the grazing animals.[105]

By 1905, El Morro Road had been rebuilt to address artillery damage. The margins of the road were ditched and the road itself crowned to promote good drainage. The entire length of El Morro Road was paved with asphalt, and an adjacent concrete sidewalk was created as was a gutter extending the length of the road and curbs on the road.

It was also during the early twentieth century that the *Pabellones Militares* was repurposed as a yellow fever hospital, and an incinerator was built 60 feet south of the El Polvorín retaining wall to dispose of the belongings of infected individuals due to the contagious nature of the disease.

During World War I, the US Army sought to modernize the coastal defenses of the military reservation. In 1917, it added a concrete gun emplacement structure within Santa Elena Bastion to protect San Juan Harbor from German incursions. Designed to support a 4.72-inch Armstrong rifle mounted *en barbette*, the emplacement was supported by a nearby concrete ammunition locker or bombproof. Other additions to the El Morro Esplanade landscape included the construction of four infantry barracks near the El Morro moat along El Morro Road.

101. Ibid., 32.
102. Ibid., 33.
103. Ibid., 31-32
104. Ibid.
105. Ibid.



FIGURE 23. El Morro Esplanade about 1931 showing the swimming complex, the baseball diamond, and golf course prior to the construction of the quarters complex on the west side of the plain. Note the row of trees along El Morro Road that have been recently planted. The reasons for the notations in ink on the photograph are unknown. (Source: Park Archives, SJNHS)

On October 11, 1918, the largest earthquake in Puerto Rican history, the San Fermín earthquake, occurred causing 116 deaths and losses estimated at $4 million, two times the annual budget of the entire island at that time.[106] The earthquake was centered in the northwestern portion of the island where it caused severe damage. In San Juan, it caused damage to some historic buildings. The West Wall between Santa Elena and San Agustín, which encloses the southwest portions of the esplanade, was partially collapsed because of the shaking, and then was rebuilt to prevent cliff erosion.[107]

El Morro Esplanade was perfect for the development of recreational activities and venues, an important part of any US military installation (Figure 23). During the first thirty years of use, the army installed a swimming pool near the San Antonio Bastion, using the guardhouse and ramp there as part of the swimming complex (1930-1931); a nine-hole golf course that used the moat at El Morro, several bastions, and most of the esplanade (1907-1911); and a baseball diamond with dugouts (by 1923) at the southeastern end

106. Seismic Network, "Earthquake of 1918 [Puerto Rico]," Seismic Information, Online Puerto Rico, accessed August 30, 2020, http://www.prsn.uprm.edu/English/information/quake1918.php.

107. Crisson et al., 136.

near Norzagaray Street.[108] This recreational complex was augmented by a three-story Officers Open Mess (by 1934) at the site of the former Commanding Officer's quarters near the entry of El Morro on the northside of El Morro Road.

Since it was a flat, open space, the esplanade also was targeted for the expansion of military housing. The expansion of housing, including the creation of a new road network to service the area, meant that some terracing and sodding on the western side of the esplanade occurred.[109] Old San Juan had long been an overcrowded area with living space at a premium, which was one of the many reasons for opening the East Wall and a portion of the South Wall. This overcrowding did not ease with the addition of the US Army and its many attendant needs. By the World War II era, the esplanade was part of the renamed Fort Brooke (1943) and had quarters covering most of its western half (Figure 24).[110] A cafeteria (built before 1934) and a Bachelor Officer's Quarters (the Nurses' Barracks) (built after 1934) were also constructed on the south, eastern-most edge of the esplanade at Santo Domingo Bastion. Road systems were installed in the new esplanade housing area, and old systems were enlarged and improved to access new construction.

As the esplanade underwent transformation from glacis to a recreation and living area, the vegetation also underwent changes. As glacis, the plain had been covered in rough, natural growth without any trees. This arrangement had served the Spanish well, but after the US Army moved in, their needs were dramatically different. At first, the rough grass and open plain were useful for grazing animals, but almost immediately, trees were planted around living quarters, and began to line areas on El Morro Esplanade. Australian pines (*Casuarina equisetifolia*) and palm trees (*Cocos nucifera*) lined El Morro Road, Casa Rosa Road, and Santa Elena Road. Trees were planted around the swimming pool, the North Wall, and the West Wall around the San Fernando Bastion.[111]

With the introduction of golf to the esplanade in 1907, the grazing of animals ceased since a special grass was planted to enable the proper rolling of the ball. A Bermuda grass, which spread quickly, was planted, holes and sand traps were created, and it can reasonably be assumed that some earthmoving was completed to create the proper rolling surface. The planting of Bermuda grass and the meticulous care of the grounds meant that the esplanade now looked like a lawn and was maintained as such.[112]

The esplanade was maintained in this lawn-like fashion until the army left in 1961, and the tradition of maintaining it as a lawn continues today. When the nine-hole army course opened in 1907, it was the first golf course in Puerto Rico, and it remained the only one until 1919 when the Condado Vanderbilt Hotel, El Condado sector, opened. The greens on the Condado course were made of sand unlike those of the esplanade (Figure 25). The El Morro course, as it came to be known, was still a significant part of golf history in Puerto Rico, as sponsored tournaments were held there into the 1960s. The cover of the *9th Annual Golf Championship, 1962* tournament booklet featured a woman playing golf on the El Morro course.[113] Most golf courses maintained at tournament-level play are irrigated; however, it is not clear whether or not the El Morro course was irrigated.

108. Ibid, 32, and Jamie Monge, *History of Golf in Puerto Rico* (NP: n.d.), 1.
109. Crisson et al., 136.
110. US Department of the Interior, NPS, Division of Architecture, *Master Plan Topographic Base, Map of San Juan, Puerto Rico, San Juan National Historic Site* [Reduced size] Field Office San Juan, November 27, 1953 (San Juan National Historic Site, NHS-SJ-2058).
111. Crisson et al., 31.
112. Ibid.
113. Monge, 5 and 43.



FIGURE 24. Detail from a 1953 NPS map of San Juan National Historic Site showing the esplanade fully developed by the US Army. (Source: Park Archives, SJNHS, NHS-SJ-2058)



FIGURE 25. Teeing off from a green atop a bastion on the El Morro course which required the ball to fly over open water. (Source: Park Archives, SJNHS, 69GU1287)

Although the United States did not enter the first World War until 1917, the first actual American shot fired during that conflict occurred on March 21, 1915, by the Puerto Rican Infantry from the Santa Rosa Battery of El Morro. The US Congress authorized the creation of a body of native troops in the US territory of Puerto Rico on March 2, 1899. On June 30, 1901, the Puerto Rico Regiment of Volunteer Infantry was organized. This regiment was attached to the US Army in May 1908. In March 1915, the German supply ship *Odenwald* was attempting to leave San Juan Harbor to resupply German U-boats which had been terrorizing shipping in the Atlantic Ocean. Captain (later Lieutenant Colonel) Teófilo Marxuarch in command of the infantry ordered his unit to open fire on the ship. The *Odenwald* was forced back into the harbor, and the ship and

its supplies were seized by the United States. Later, the Jones-Shaforth Act of 1917 was passed making Puerto Ricans statutory citizens of the United States.[114]

In June 1920, the Puerto Rico Regiment of Volunteer Infantry was reorganized as the 65th Infantry Regiment, popularly known as "The Borinqueneers" for the original Taíno Indian name for Puerto Rico (Borinquen). Although this unit had the honor of firing the first US shot during the war from El Morro, little actual change occurred at the installation, and it appears that nothing changed on the esplanade. The war motivated a defensive reactivation of the San Juan fortification and the updating of some weaponry. Three modern gun emplacements and guns, one on Santa Elena Bastion on the southwestern edge of the original glacis, were added to protect the harbor. The Santa Elena Bastion gun was never used.[115]

The Interwar Years, 1919-1942, were especially busy for the army at the San Juan Military Reservation. In 1934, First Lady Eleanor Roosevelt visited Puerto Rico as part of a fact-finding tour on poverty in the United States' possessions of the Virgin Islands and Puerto Rico.[116] During this time she also toured the Army garrison at San Juan. Everything that Mrs. Roosevelt did was of extreme interest to the public and was politically charged. Therefore, probably not by coincidence, NPS officials were sent to investigate the significance of the San Juan fortification. The report which documented the condition of the San Juan walls found the fortification to be of "national significance but in danger of succumbing to systemic dilapidation and decay."[117]

During the late 1930s, the army spent considerable time and money rehabilitating and restoring portions of the original Spanish fortification. The walls, sentry boxes, embrasures, steps, bastions, and practically every part of the original fortification were analyzed, photographed, and explored. The tunnels of both El Morro and San Cristóbal were of interest to the Army Corps of Engineers. Tunnels honeycombed both fortresses and connected outlying areas. Across time, these tunnels had filled with debris, been abandoned, or been partially or totally destroyed.[118]

In 1939, the counter-mining tunnel at El Morro that opened in the eastern wall of the moat and went under the glacis came under scrutiny. The Corps of Engineers broke through the door blocking the tunnel opening, and "after considerable excavation it was found that the tunnel was completely destroyed. It was decided to refill the excavation and close the entrance."[119] This would seem to confirm Rivero's claim that the tunnels had been destroyed before the Spanish-American War. In the account by Bearss of the Corps of Engineers' discovery of the destroyed counter-mining tunnel, he noted a long-held belief that the original tunnel led from the moat of El Morro to San Cristóbal. "Such was not the case. There is no evidence that there was a tunnel connecting El Morro and San Cristóbal."[120] The extent of the counter-mining tunnel into the glacis could not be determined.

During the 1930s, the army continued to expand its presence exponentially. As tensions in Europe increased during the late 1930s, the army was deeply involved in restoration of portions of the Spanish fortification, and it, as well as other US military operations, had expanded to well beyond

114. History, "March 2, 1917, Puerto Ricans become US Citizens and are Recruited for the War Effort," This Day in History, accessed June 12, 2020, https://www.history.com/this-day-in-history/puerto-ricans-become-u-s-citizens-are-recruited-for-war-effort.
115. Ibid.
116. International News Service, "First Lady's Visit Disturbs Some on Isle," March 1, 1934.
117. Appropriation requests, Lieutenant Colonel Ward (San Juan NHS Archives: US Army Ordnance and Artillery File, 1933), 256, in Berkowitz et al., III, 50.
118. Bearss, 257-296.
119. Ibid., 276.
120. Ibid.

the original boundaries of the old fort. In 1937, the United States, hoping to stay neutral during the impending conflict, went into "Protective Mobilization," a period of heightened manufacturing and war preparation activity. During this period, restoration work continued within the San Juan Military Reservation, however, in late 1939, work began on upgrading and adding onto the harbor defenses.[121]

In December 1941, after the Japanese bombed the naval station at Pearl Harbor, the United States declared war and updated all its plans for the reservation.[122] The dry moat of El Morro Castle, at the westernmost edge of the esplanade was used for the location of both a Caribbean Defense Command subterranean "man-hole-type" control post [123] and a Navy "splinter-proof, reinforced concrete," "man-hole type" general surveillance subterranean structure.[124] The Navy general surveillance and Army control post both used antennas located within the casemates of El Morro. In 1943, the Army renamed the reservation Fort Brooke.

The 65th Infantry Regiment saw action throughout Europe, especially in France and Germany. Several Purple Hearts were awarded posthumously to members of the 65th Regiment.[125] During the Korean War, "The Borinqueneers" served in numerous engagements in Korea during that war in the early 1950s.

On September 4, 1948, a cooperative agreement was completed between the US Department of the Interior and the Department of the Army (DoA) enabling the Secretary of the Interior to officially establish a portion of Fort Brooke as the San Juan National Historic Site. The Secretary of Interior established the park on February 14, 1949. In 1949, the park, as established, was not as large as it is today, and it did not include all the portions of the wall that it does today.[126]

By the end of World War II, the Army had taken full advantage of the open, flat esplanade for its construction needs, and the glacis of the ancient fortification of El Morro was gone. Nevertheless, the National Park Service, which was occupying a section of Fort Brooke as the San Juan National Historic Site, became concerned about the Army's propensity to build on every open space which blocked the view of large portions of the historic fortification. The Park's Superintendent, David S. Jones, initiated a dialog between the Region and the army about the problems with the locations of the buildings, some of which had been constructed after the NPS and the Army had reached an agreement about suspending the army's expansion into sensitive areas.[127] The park wanted the buildings eliminated, and its planners selected photographs and created a map documenting the problems (Figure 26 and Figure 27).[128] The map depicted the obstacles on the esplanade as including the pool complex, the Officers Open Mess, the cafeteria, the Nurses' Barracks complex, and a small building north of the San Fernando Bastion. Certainly, all these buildings and the associated trees prevented the esplanade from being a true glacis as it was originally conceived. The army cited a lack of funding to accomplish the requests, and Superintendent Jones's concerns hit a roadblock until the 1960s.

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121. Bearss, 343-345.
122. Ibid., 356.
123. Ibid., 367.
124. Ibid., 369-370.
125. LTC Gilberto Villahermosa, "Honor and Fidelity," Official Army Report on the 65th Army Regiment in the Korean War, US Army Center of Military History, September 2000, http://www.valerosos.com/HonorandFidelity3.html#World_War_II (accessed September 1, 2020).
126. *San Juan National Historic Site Long Range Interpretive Plan,* 7.
127. David S. Jones, Memorandum re: Buildings Sited on the Historic Walls of San Juan Puerto Rico to Director, Region One, May 11, 1951. accessed January 10, 2019, https://www.geoisla.com/2018/10/mapa-y-fotos-de-edificios-obstruyendo-las-fortificaciones-del-viejo-san-juan-1951/.
128. View of cafeteria and Nurses' Barracks, 1951, accessed January 10, 2019, https://www.geoisla.com/2018/10/mapa-y-fotos-de-edificios-obstruyendo-las-fortificaciones-del-viejo-san-juan-1951/.



FIGURE 26. Photograph showing the obstruction of Santo Domingo Bastion and a portion of the North Wall by the cafeteria (the low building) and the Nurses' Barracks (the tall building). Note palm trees lining the steps to the cafeteria, the entry gate to Fort Brooke, and the administrative building related to entry next to the gate. The sixth hole and portions of the ninth hole are also visible. Also note the small houses and buildings that still line a portion of Norzagaray Street. (Source: https://www.geoisla.com/2018/10/mapa-y-fotos-de-edificios-obstruyendo-las-fortificaciones-del-viejo-san-juan-1951/)

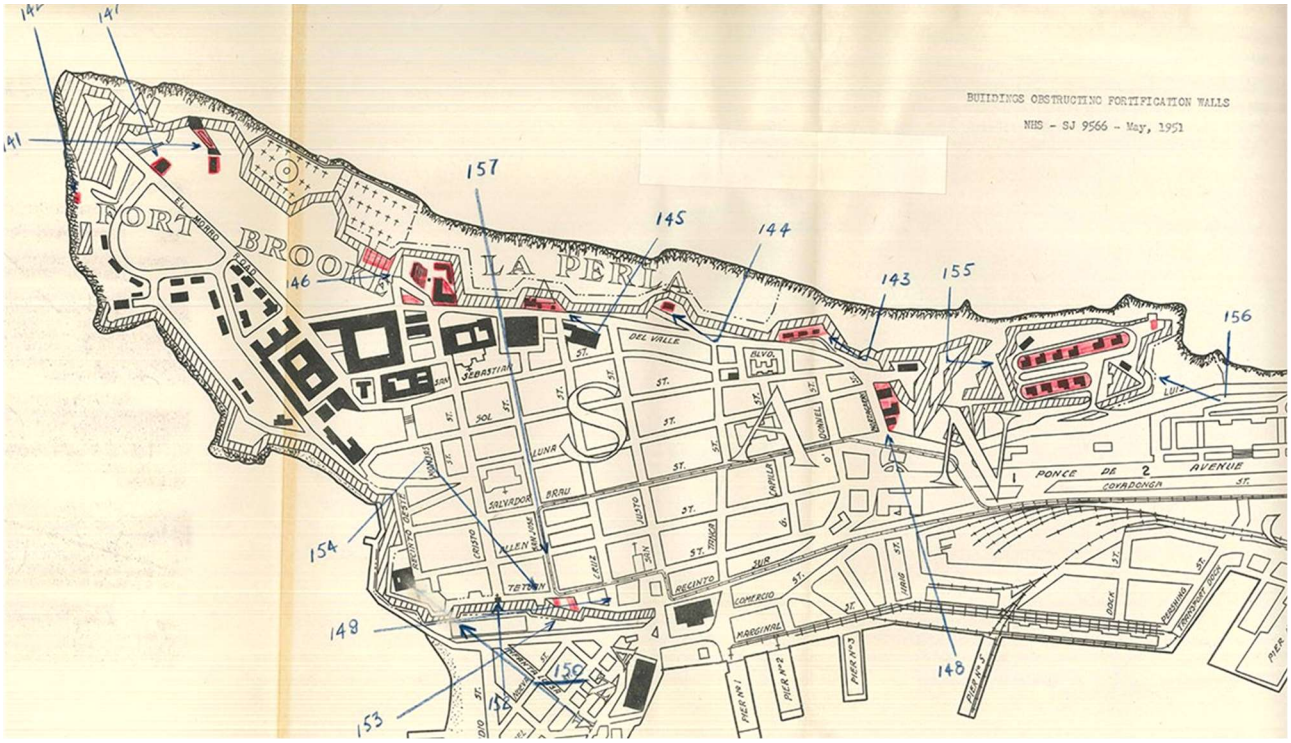


FIGURE 27. Detail of Buildings Obstructing Fortification Walls, showing the obstructions on the esplanade, May 1951. (Source: Park Archives, SJNHS, NHS-SJ-9566, https://www.geoisla.com/2018/10/mapa-y-fotos-de-edificios-obstruyendo-las-fortificaciones-del-viejo-san-juan-1951/)

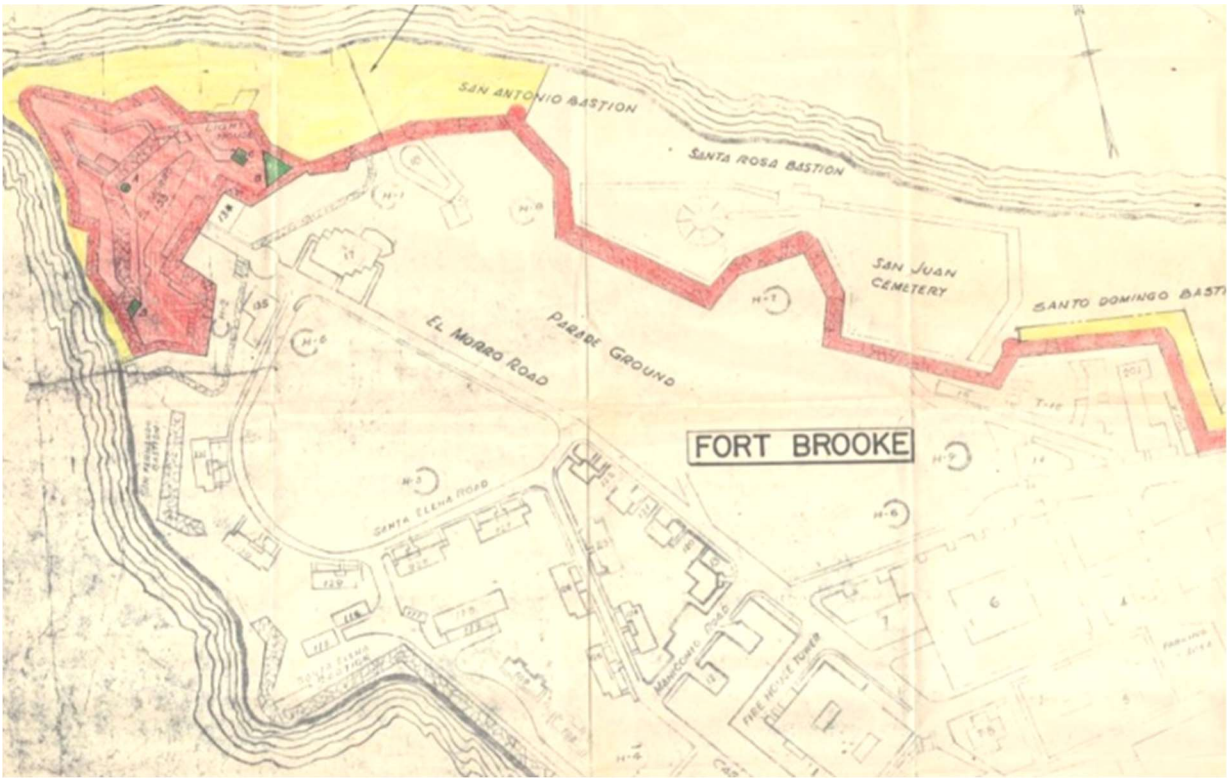


FIGURE 28. A portion of a map of the real estate part of Fort Brooke for transfer to the Department of the Interior, showing the areas to be transferred to the NPS in 1961. At this time, El Morro Esplanade was not transferred. (Source: US Army Corps of Engineers, San Juan Area, US Army Engineer District Jacksonville, September 22, 1960, revised September 5, 1961 from Park Archives, SJNHS, 20141212130416073)

As the army was citing a lack of funding for the removal of the buildings and for alterations of its construction policies at Fort Brooke, it was also looking at leaving the installation. Security concerns and changes in strategic policy within the Department of Defense caused a shift in focus to the threat from the Soviet Union and the growing Cold War between the United States and the Soviet Union. These policies did not include the West Indies. Cuba was perceived as a minor threat that could be effectively handled from installations within the continental United States. As a result, the army decided to vacate Fort Brooke, a costly installation to support with its many historic Spanish fortifications and divide its properties in San Juan between the National Park Service and the Commonwealth of Puerto Rico. The last soldiers left Fort Brooke in 1958, and between 1961 and 1966, the army divested itself of its property in San Juan (FIGURE 28).[129]

In the first divestiture, shown here in the area surrounding the esplanade only (refer to Figure 28), the army transferred to the NPS all the areas marked in red. These areas included the entire North Wall with the Bastions of San Antonio, Santa Rosa, and Santo Domingo as well as the fortification of El Morro.[130] It is not clear when the

129. Crisson et al., 5, and Real Estate Part of Fort Brooke for Transfer to Department of Interior, US Army Corps of Engineers, San Juan Area, US Arm Engineer District Jacksonville, September 22, 1960, Revised September 5, 1961 (San Juan National Historic Site, Puerto Rico).

130. In total, the 1961 transfer included all the north wall including Bastions Santo Tomás and San Sebastián, the entire San Cristóbal Complex with a portion of San Cristóbal retained, and the wall circling the outer works of La Princesa.

NPS began to remove the buildings blocking the views of the wall. In 1966, the last of the Fort Brooke land was transferred and divided between the NPS and the Commonwealth of Puerto Rico (see the Introduction to this section for a discussion of how the esplanade was divided; refer to Figure 8, Esplanade Administrative Parcels). At this time, the northside of El Morro Esplanade, ostensibly known as the Parade Ground, although it is doubtful a parade had occurred there in the previous fifty years, and the area roughly north of Santa Elena Road was transferred to the NPS.

National Park System Use 1966-present

The period between 1966 and 1991 does not seem to be well recorded in the park's files. However, by 1991, the date of the completion of the Berkowitz et al. HSR and the Crisson et al. CLR, many changes had occurred to the esplanade. These changes included:

- The addition of a forty-car parking area on Santa Elena Road near the entry to El Morro
- The only roads remaining on the plain were El Morro, San Agustín, Santa Elena, Casa Rosa, and the southeastern edge bound by Norzagaray Street
- Most the US Army buildings had been torn down from Parcels A and B along the West Wall
- All the trees had been removed
- The only buildings / structures remaining on the plain were the following: the Santa Elena Powder Magazine, the Santa Elena Guardhouse, the San Antonio Guardhouse (which has been converted to a restroom), and the Dutch Monument on Parcel A, and the cafeteria and the Nurses' Barracks on Parcel B along the North Wall
- Potable water, electrical lines, telephone lines, and gas, sewer, and storm drains lined the sides of El Morro Road
- The esplanade itself had been filled, and the ground was relatively smooth with a slope toward its south and east and was covered with a mixture of grass types[131]

These alterations continued into the 1990s. Circa 1992-1995, the National Park Service removed Santa Elena Road and reconstructed San Agustín Road after removing the fill added in the 1930s.[132]

After removing Santa Elena Road, the National Park Service filled the resulting depressions where the road base had been. The fill material, however, later settled, and the National Park Service added additional material in 1997 to help address stormwater management. The fill was borrowed from modern deposits north of Santa Elena Guardhouse where the northwest bastion wall was being stabilized by the US Army Corps of Engineers.[133]

El Morro Esplanade remained in this configuration until 1998, when the parking area formerly off Santa Elena Road at El Morro Road was removed (Figure 29; refer to Figure 23).[134] El Morro Road is no longer covered in macadam, but it is now surfaced in a cement-type material producing the illusion of dusty pathway. Santa Elena Road is no longer a looped road off El Morro Road. At the beginning of El Morro Road is

131. Crisson et al., 34-54.
132. Pantel, del Cueto & Associates, Guyanabo, Puerto Rico, *Archaeological Assessment, Santa Elena Powder Magazine, Upgrade of Electrical Infrastructure at Masonry Workshop, Visitor and Training Area, San Juan National Historic Site, San Juan, Puerto Rico,* Prepared for Division 16 Engineering Corp. (2014),, 53.
133. Ken S. Wild, *Report on Archeological Investigations Conducted at Parcel B, San Juan, Puerto Rico,* SEAC Accession Number 1135 & 1158; SAJU Accession Numbers 128, 113, and 107 (Tallahassee, Florida: National Park Service, February 1998), 8.
134. Jack E. Boucher, *Aerial view, looking up the Calle del Morro to the fort entrance - Castillo de San Felipe del Morro, Northwest end of San Juan, San Juan, San Juan Municipio, PR,* 1998, Library of Congress, HABS PR,7-SAJU,6—144.

a lantern-style standing light fixture (Figure 30).[135] In that same year, grading was conducted around the San Fernando and Santa Elena Bastions to address stormwater issues at the sites and on the esplanade.[136]



FIGURE 29. View of the esplanade, 1998, as an open glacis. (Source: Jack E. Boucher, 1998, Library of Congress, HABS PR,7-SAJU,6—144)

A children's play area occupies the terraced slopes of the hillside along San Agustín Road near San Agustín Bastion. The play area was developed and designated in the early 1990s. As part of the designation of the play area, the *Instituto de Cultura Puertorriqueña* (Institute of Puerto Rican Culture) planted twenty-five ceiba (*Ceiba pentandra*) trees for commemorative purposes.[137] These trees expanded an existing grove of trees evident in photographs of the area during the US military occupation period.



FIGURE 30. View of the esplanade showing El Morro Road, 1998. (Source: Jack E. Boucher, 1998, Library of Congress, HABS PR,7-SAJU,6—76)

By 1998, the esplanade was once again open in its original glacis style. The ringing walls and bastions were no longer obstructed, and its eastern edge and parts of the southern edge were defined by roads and buildings as was the original glacis throughout most of its history.

Once the NPS became the steward of a significant portion of the original Spanish fortifications in San Juan, archeological work was begun, including several explorations on the original glacis. In 1987, construction-related trenching triggered archeological research on El Morro's Esplanade.[138] The excavations found ceramics spanning 300 years of manufacture and deposits to depths of more than two feet below ground surface.[139]

In 1994, Southeast Archeological Center (SEAC) archeologists discovered three layers of historic roads along the current alignment of El Morro Road.[140] The previous roads and alignments we

135. Jack E. Boucher, *View looking toward entrance from the north side of the El Morro Road - Castillo de San Felipe del Morro, Northwest end of San Juan, San Juan, San Juan Municipio, PR,* 1998, Library of Congress, HABS PR,7-SAJU,6—76.
136. National Park Service*, San Juan National Historic Site Superintendent's Annual Narrative* (1998), 7.
137. Wild, *Report on Archeological Investigations*, 8.
138. Roy W. Reaves, "Trip Report, SAJU and VIIS, 8/30/87–9/12/87," United States Government Memorandum from Research Archeologist, Reaves, to Chief Southeast Archeological Center, September 29, 1987. Project No. H2215 (SER-OSE). On file at the Southeast Archeological Center, Tallahassee, FL (Report No. SEAC-00758) in Bulger, Section 8 :188.
139. Ibid.
140. Ken Wild, "Trip Report on Archaeological Investigations Conducted at San Fernando Bastion," 1–7; Ken Wild "Memorandum, El Morro Road," cited in Bulger, Section 8 :188.

identified from samples taken along the length of the present road. The earliest and deepest road correlated with a road present on a 1792 map of Old San Juan (see Figure 15).[141] Earlier road surfaces found included brick bat paving with stones lining the road, and mortared stone paving with a plastered surface. This information was used to design a new El Morro Road that protected the historic surfaces below and simulated the historic scene of the road which bisected the El Morro Esplanade.[142]

The continued archeological potential of the El Morro Esplanade is highlighted by the findings of a Ground Penetrating Radar (GPR) survey undertaken in 2001. On the south side of El Morro Road, the survey revealed evidence for United States-period roads, utilities, and buildings, and detected Spanish-period features. On the north side of El Morro Road, several building sites not associated with the army were detected,[143]

In 2013, the retaining wall between El Morro Esplanade and El Polvorín collapsed as a result of the root system of the seagrapes undermining the wall. The NPS removed this vegetation in the Spring of 2020. In 2016, grass swales directing water to catch basins connected to PVC pipes emptying beyond or below the walls were added above Santa Elena Bastion, south of El Polvorín, as well as within San Agustín Bastion to prevent further damage to the walls. With the esplanade once again a large open space, activities sponsored and approved by the NPS have taken advantage of the plain. Organized events such as military reenactments, kite festivals, craft fairs, and concerts are held on a regular basis. Other activities such observing the solar eclipse of August 21, 2017, were also supported. All these activities bring visitors to the esplanade, but do not involve making changes such as digging within the grounds.

On September 20, 2017, Category 4 Hurricane Maria struck Puerto Rico just a few weeks after Hurricane Irma had hit the island. The San Juan National Historic Site had closed in anticipation of the hurricane. Wind gusts were measured at 95 mph at Luis Muñoz Marin International Airport.[144] The day after Maria, the entire island was without power and water, and this situation would remain that way for months.[145] The hurricane damaged parts of the original Spanish fortification wall, and El Morro did not reopen until late November.

Beginning on December 28, 2019, and continuing sporadically through 2020, the southwestern part of the island of Puerto Rico was struck by an earthquake swarm, including eleven that were stronger than magnitude 5. The strongest and most damaging of this sequence was a magnitude 6.4 quake that occurred on January 7, 2020.

141. Wild, "Memorandum, El Morro Road," cited in Bulger, Section 8 :188.
142. Wild, "Trip Report on Archeological Investigations Conducted at San Fernando Bastion," 1–7, in cited Bulger, Section 8 :188.
143. Nickel, Archaeological GPR at San Juan National Historic Site, 6-8, in cited Bulger, Section 8:189.
144. Ibid.
145. Brian Donegan, "Puerto Rico is now the largest blackout in US history," The Weather Channel, October 26, 2018, accessed August 30, 2020, https://weather.com/news/news/2017-10-26-puerto-rico-day-36-largest-blackout-united-states-history.

Castillo San Felipe del Morro Esplanade Timeline

By 1511 — *La Capilla del Calvario* (the Chapel of Calvary; "Little White Chapel") is on the area that will become the esplanade.

1537-1540 — *La Real Fortaleza de Santa Catalina* (Royal Fortress of Saint Catherine; "La Fortaleza"), constructed facing San Juan Harbor, first chosen as San Juan's defensive fortification.

1539 — *El morro* (the bluff), the rocky northernmost point on the island was chosen for *Castillo San Felipe del Morro* (El Morro) as the new defensive fortification.

1588 — A defensive plan conceived by King Philip II of Spain was executed by Juan de Tejeda and Italian engineer Bautista Antonelli to strengthen shore defenses using western defenses only.

1595 — English attack by Sir Francis Drake repelled.

1598 — George Clifford, the Third Earl of Cumberland, attacked the city's unprotected eastern front and occupied it until he was forced to abandon it because disease was decimating his troops.

1599 — Rebuilding defenses undertaken, including the refortification of El Morro and the repair of the far easterly defenses, but no work was begun on the north, south, or east sides of the city.

1625 — Dutch General Boudewijn Hendricksz attacked and ransacked San Juan.

A Dutch map showed a "large well," perhaps a cistern, on the esplanade in the vicinity of the present San Antonio Bastion, a north-facing bastion just east of El Morro.

The Dutch map also showed the esplanade barren of trees while the surrounding areas had much vegetation.

1630-1660 — General Hendricksz's lesson was not lost on King Philip IV of Spain who recognized the strategic importance of San Juan and poured money into its defense. La Fortaleza and El Morro were rebuilt; city walls on all sides constructed; *El Cañuelo* at the harbor entrance was rebuilt; *Castillo San Cristóbal* was begun.

1678 — Sketch map of El Morro and San Cristóbal by Luis Venegas Ossorio did not show trees on the esplanade.

1739 — Renewed construction began on El Morro.

1765 — Charles III declared San Juan a Defense of the First Order and approved a plan designed by Field Marshal Alexander O'Reilly and executed by Chief of Engineers Thomas O'Daly and Juan Francisco Mestre that began an ambitious plan of remodeling and recreating San Juan's defenses.

O'Reilly noted the presence of a small hill, *la Altura del Calvario* (Calvary Hill), in the vicinity of the present-day *Cuartel de Ballajá* (Ballajá Barracks).

He also noted the presence of a ravine, which began just east of the hill and opened toward the Atlantic Ocean.

1770	Field Marshal O'Reilly proposed placing a ravelin – a triangular fortification – in front of the entry gate to El Morro; it was not completed.
1772	Military barracks and a stable were in the area that later became the site of the Welfare Asylum, used today as the headquarters of the Institute of Puerto Rican Culture.
1774–1782	The Chapel of Calvary was demolished, and the rubble was used for the construction of the hospital known as *La Concepción* (the Immaculate Conception).
By 1775	A quarry *(el Calvario)* was opened on the esplanade for use in supplying materials for the construction of the esplanade at San Cristóbal; it is not clear if the quarry was the ravine or the hill identified in 1765.
By 1776	A small building was located at the extreme southeast quadrant of the esplanade close to the present Norzagaray Street.
1783	The small building of 1776 and the stable and military barracks of 1772 were no longer standing.
1787	An earthquake occurred damaging some parts of El Morro.
	A small cluster of buildings, unknown use, was sited near the old tennis courts.
Circa 1790	El Morro as it stands today was completed.
By 1792	The soil from the leveling of Calvary Hill was used to fill the nearby ravine noted by Field Marshal O'Reilly in 1765.
1793	A ravelin was again proposed for the entry gate to El Morro but not completed.
1797	A British attack led by Sir Ralph Abercromby was foiled.
Late Eighteenth Century	
	A counter-mining gallery (tunnel) was constructed (there may have been more) with an entrance at the outer wall of the moat (the counter scarp) near the eastern corner of the moat at El Morro. It is believed that tunnels undermined the entire esplanade until 1896 when they were filled-in because they were dangerous.
1814	Municipal Cemetery established outside the north city wall near El Morro below the esplanade.
1821	Sketch of the esplanade by French naturalist Auguste Plée illustrated one single palm tree growing near the moat and sallyport of El Morro.
1823	San Juan experienced a smallpox epidemic.
	A 1998 archeological assessment determined that a burial site dating to the 1823 smallpox epidemic was situated in the present-day Manicomio Road and the former Welfare Asylum (Institute of Puerto Rican Culture). No documentary evidence has been found to confirm the existence of a cemetery here.
1830	In the Caribbean, only Puerto Rico and Cuba remained under Spanish rule.

By 1861	The center road, now called El Morro Road, across the esplanade became the most prominent road.
	Norzagaray Street was constructed at the eastern end of the esplanade.
	The southern end of the ravine on the esplanade was filled.
	Dutch Monument was on the esplanade.
1876	Earthquakes rocked the city of San Juan.
By 1897	The San Antonio Guardhouse was constructed on the esplanade near the San Antonio Battery.
1897	A yellow fever hospital was constructed on the esplanade.
	The entire section of the south wall from the San Justo Gate eastward was demolished to open the city.
By 1898	Residential structures crowded the eastern edge of the esplanade north of the Ballajá Barracks.
1898	
	May 12 –August 15; The US Navy sailed into San Juan harbor, bombarded, and began a blockade of the city during the intervention of the United States in the Spanish–Cuban War. United States launched a land offensive that was cut short when President William McKinley and French Ambassador Jules Cambon, acting for the Spanish, signed a treaty ending the war.
	Bombardment left many holes in the esplanade since American gunfire was directed at El Morro and San Cristóbal.
After 1898	The Dutch Monument was modified by the addition of a square masonry base.
1899	The bomb holes on the esplanade were filled, and the area was regraded.
	Area north of El Morro Road was regraded, and obstructions in the sewer line were removed to alleviate drainage problems.
1901	Three Officers' Quarters were built near the entrance to El Morro: two on the southside of El Morro Road and one on the northside, Commanding Officer's Quarters, of the road.
	Electricity was brought to El Morro and the Officers' Quarters by wooden poles erected by San Juan Light and Transit Company.
	New water supply system was created.
By 1905	As a result of the bombing in 1898 a large portion of El Morro Road was significantly damaged. When the road was improved, a project was devised to realign the ditches flanking it and to use dirt and gravel taken from them to build up a crown on the road in order to improve drainage (Berkowitz et al., 22). This was completed by 1905.
	The northside of El Morro Road was lined with eighteenth- and nineteenth-century artillery projectiles, mainly mortar bombs, painted white.

A photograph shows a single palm tree growing by the Commanding Officers Quarters on the northside of El Morro Road.

Wooden fence posts topped by a single flat board crisscrossed the esplanade. They were used to define areas immediately adjacent to living quarters and to form paddocks for grazing animals.

A solid masonry wall almost seven feet high enclosed the Yellow Fever Hospital; gates were on the westside and northside.

A low metal fence surrounded the Dutch Monument.

Electrical power extended from the Commanding Officer's Quarters to the northeast side of the esplanade.

1907-1911 A nine-hole golf course, the first in Puerto Rico, was added the esplanade.

1910-1911 The entire length of El Morro Road was paved with asphalt, and an adjacent concrete sidewalk was created as was a gutter extending the length of the road and curbs on the road.

A turnaround in the road was built near the sallyport of El Morro.

By 1913 A one-story, wood-frame building probably built by the US Army was in front of and approximately centered on the northside of the Ballajá Barracks.

An eight-foot stepped masonry wall with a central gate connected the San Antonio Guardhouse and the bastion.

1918 World War I caused the reactivation of the San Juan fortifications.

Earthquake caused damage to some historic buildings.

1923 An approximately 300-foot diameter depression, function unknown, was located southwest of El Morro Road, and was encircled by the present-day Santa Elena Road.

A photograph showed a few mature palm trees growing around the three 1901 quarters at El Morro's entrance.

A fence no longer surrounded the Dutch Monument.

By 1923 Animals were probably no longer grazed on the esplanade.

A baseball diamond and dugouts were added to the eastern end of the esplanade.

Installation of a nine-hole golf course resulted in the planting of different grass; a Bermuda type was chosen.

With the installation of the golf course and the planting of a different, non-native grass, the remaining esplanade took on the characteristics of and looked like a large lawn.

1930-31 Two new paved roads were constructed on the southwest side of El Morro Road. Casa Rosa Road followed the track of the old southern route from the harbor, and Santa Elena Road was

an entirely new road that formed a loop southwest off El Morro Road. The work probably included the reconstruction of Manicomio Road, as well.

Military housing was built along Casa Rosa and Santa Elena Roads on the westside of the esplanade.

Terracing and sodding occurred near the San Agustín Battery related to the new road network.

Yellow Fever Hospital was removed and replaced with three Officers Quarters and a Post Headquarters.

A swimming pool was built north of the Open Mess.

A new wall was built to the north and east to enclose the pool.

The nearby San Antonio Guardhouse was rehabilitated as a pool house with a patio.

Twenty-four streetlights were installed on the southwestern side of El Morro Road serviced by two "subway-type" transformer manholes.

A new water and sewer system were installed in El Morro with pipes encircling the fortification.

Before 1934 The nineteenth-century residential structures north of the Ballajá Barracks were demolished to make room for the construction of the Nurses' Quarters.

By 1934 The old paths serving the south bastions developed into a single artery, Bay Road (now San Agustín Road).

The two 1901 Quarters buildings on the southside of El Morro Road near the fort were razed.

The third 1901 structure near the fort, the Commanding Officer's Quarters, on the northside of the road was rebuilt or replaced by a three-story Officers' Open Mess.

Australian pines (*Casuarina equisetifolia*) and palm trees (*Cocos nucifera*) lined El Morro, Casa Rosa, and Santa Elena Roads.

Groups of palm trees were also planted near the swimming pool, along the north city walls, and along the west edge of the esplanade near San Fernando Bastion.

The view from El Morro onto the esplanade was completely blocked by buildings and trees.

1934 First Lady Eleanor Roosevelt visited Puerto Rico. Shortly thereafter, an NPS official came to the island to investigate the significance of the San Juan fortifications. The NPS found the fortifications to be nationally significant but in danger of succumbing to systemic dilapidation and decay.

After 1934 Cafeteria and Post Exchange (PX) were constructed in the area by the Nurses' Quarters. This area had once been nineteenth-century housing.

Before 1939 Gas is supplied to El Morro, and the lines may remain in the ground.

1941-1945 World War II

1948	September 14; A cooperative agreement was completed between the US Department of the Interior and the Department of the Army enabling the Secretary of the Interior to officially establish a portion of Fort Brooke as the San Juan National Historic Site.
1949	February 14; Secretary of the Interior established the San Juan National Historic Site.
1951	The National Park Service begins a campaign to move or eliminate buildings, primarily US Army structures that are blocking the city walls.
By 1957	Views between the south half of the esplanade and the fort were substantially obscured.
1957	Use of the northside of the esplanade as a parade ground was stopped.
1958	Last US troops left Fort Brooke.
1960	A site plan showed the existence of a cistern, extant, in the area south of El Morro Road, near the sallyport, construction date unknown.
1961	The Army transferred El Morro, the north wall, San Cristóbal, and certain adjacent lands to the NPS.
After 1961	A small garden, style and types of plantings unknown, was completed around San Agustín Bastion.
	A forty-car, triangular-shaped, paved parking lot was located near the fort off El Morro and Santa Elena Roads.
1966	The Army declared all lands under its jurisdiction at Fort Brooke as excess; thus beginning the transfer of the remainder of its land in San Juan to the Commonwealth of Puerto Rico and the NPS.
1971	The swimming pool was removed and area filled.
	San Antonio Guardhouse was changed from the pool house to a public restroom.
1973	National Register of Historic Places nomination completed for San Juan National Historic Site which now included the nomination of 1958 and the 1968 for La Fortaleza. The esplanade was not named.
1976	New Cooperative Agreement between the Commonwealth of Puerto Rico and the Department of the Interior defined the various areas of jurisdiction and responsibility for areas in and around El Morro Esplanade.
	Parcels – A, B, and C – were established with Parcel A, the esplanade, remaining within the boundaries of the National Historic Site.
After 1982	The ornamental eighteenth-century and nineteenth-century artillery projectiles that lined the northside of El Morro Road were removed.

1984 San Juan National Historic Site, composed of the city walls and gates, San Cristóbal and its outer works, El Morro including the esplanade and La Fortaleza (owned by the Puerto Rican government), was included in the World Heritage List of UNESCO.

1987 Construction-related trenching on the esplanade led to an archeological exploration that revealed ceramics spanning 300 years of manufacture and deposits to depths of more than two feet below ground surface.

1989 Archeological assessment determined that a dry well or sewer existed at the east end of the esplanade near Norzagaray Street; the date of the creation of this feature is not known.

Same assessment determined that a burial site dating to an 1823 smallpox epidemic was in the present-day Manicomio Road and the Institute of Puerto Rican Culture (the former Welfare Asylum). No documentary evidence has been found to confirm the existence of a cemetery here.

Hurricane Hugo caused damage to the National Historic Site.

The small garden at San Agustín Bastion was destroyed.

By 1990 Potable water was supplied to El Morro by an underground line that paralleled El Morro Road.

Telephone and electric service and sewer and storm drains run the length of El Morro Road underground.

Newer sewer lines run south from the fort through the parking area, along San Agustín Road, toward the San Agustín Bastion, to the Santa Rosa Gate.

Newer underground sewer and storm drains were also located along Manicomio Road.

Light fixtures were located near the tennis courts and along Casa Rosa and San Agustín Road, within Parcel B.

An above-ground electric utility pole was located along Manicomio Road.

By 1991 A children's play area, tennis courts, steps, ramps, low walls, and remnants of the 1960s garden areas were located east of the Powder Magazine in Parcel B.

The Commonwealth helicopter pad was also located in Parcel B, southeast of the Powder Magazine.

A chain-link fence, partially concealed by the vegetation on the west bank, ran north from the Santa Elena Bastion and the San Fernando Bastion to the moat of El Morro to prevent visitors from falling down the cliff.

Forty-car parking area was added to Santa Elena Road near the entry to El Morro.

Only roads left on the esplanade were El Morro, San Agustín, Santa Elena, Casa Rosa, and the southeastern edge was bound by Norzagaray Street.

Most of the US Army buildings were torn down from Parcels A and B along the west wall.

All trees have been removed.

Only buildings / structures remaining on plain are Santa Elena Powder Magazine, the Santa Elena Guardhouse, the San Antonio Guardhouse, which had been converted to a restroom, and the Dutch Monument, on Parcel A, and the cafeteria and the Nurses' Barracks on Parcel B along the north wall.

Potable water, electrical lines, telephone lines, and gas, sewer and storm drains line the sides of El Morro Road.

The esplanade itself was filled and the ground was relatively smoothed with a slope toward its south and east end and was covered with a mixture of grass types.

1991 Completion *of Historic Structures Report, The Fortifications of San Juan Historic Site* (Berkowitz et al., three volumes). It included a Cultural Landscape Report (Crisson et al.) that was meant to stand as an individual report, which summarized all known work completed on the esplanade to that date.

1992 The NPS removes Santa Elena Road and reconstructs San Agustín Road after removing the fill added in the 1930s. This task is completed by 1995.

1994 SEAC archeologists discovered three layers of historic roads along the current alignment of El Morro Road. The information on road alignment and surfaces was used to design a new El Morro Road that protected the historic surfaces below and simulated the historic scene of the road which bisected the El Morro Esplanade.

1997 The former location of Santa Elena Road is refilled after old fill settled.

By 1998 The forty-car parking area was removed from former Santa Elena Road at El Morro Road.

Lantern-style standing lights were at southeastern end of El Morro Road.

Nurses' Barracks and cafeteria were removed along north wall.

El Morro Esplanade was now open in its original glacis-style.

2001 A Ground Penetrating Radar study on the south side of El Morro Road revealed evidence of US-period roads, utilities, and buildings, and detected Spanish-period features and on the north side of El Morro Road, several building sites not associated with the army were detected.

2013 The retaining wall between El Morro Esplanade and El Polvorín collapsed as a result of the root system of the seagrapes undermining the wall.

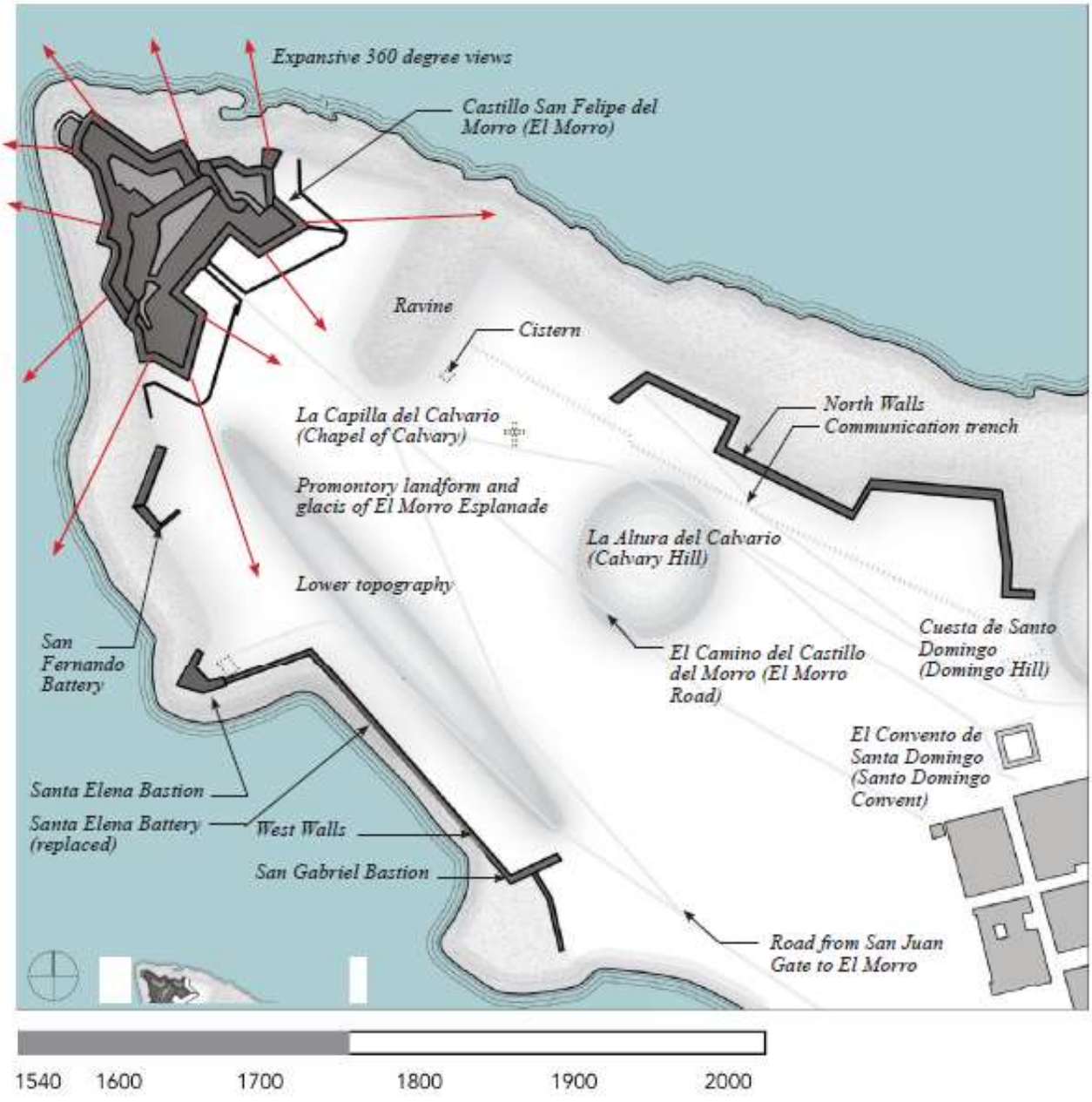
2016 Grass swales to direct water to catch basins connected to PVC pipes emptying beyond or below the walls are added above Santa Elena Bastion, south of El Polvorín, as well as within San Agustín Bastion to prevent further damage to the walls.

2017 September 20; Hurricane Maria, on the heels of Hurricane Irma, is the largest hurricane to ever hit Puerto Rico. It caused extensive damage throughout the island closing the park for three months.

2020-2021 Sea grapes were removed from the hillside above El Polvorín and replaced with a safety fence. About the same time, sea grapes were planted to either side of San Agustín Road south of Santa Elena Bastion.

2019-2020 The southwestern part of the island of Puerto Rico was struck by an earthquake swarm, including eleven that were stronger than magnitude 5. The strongest and most damaging of this sequence was a magnitude 6.4 quake that occurred on January 7, 2020.

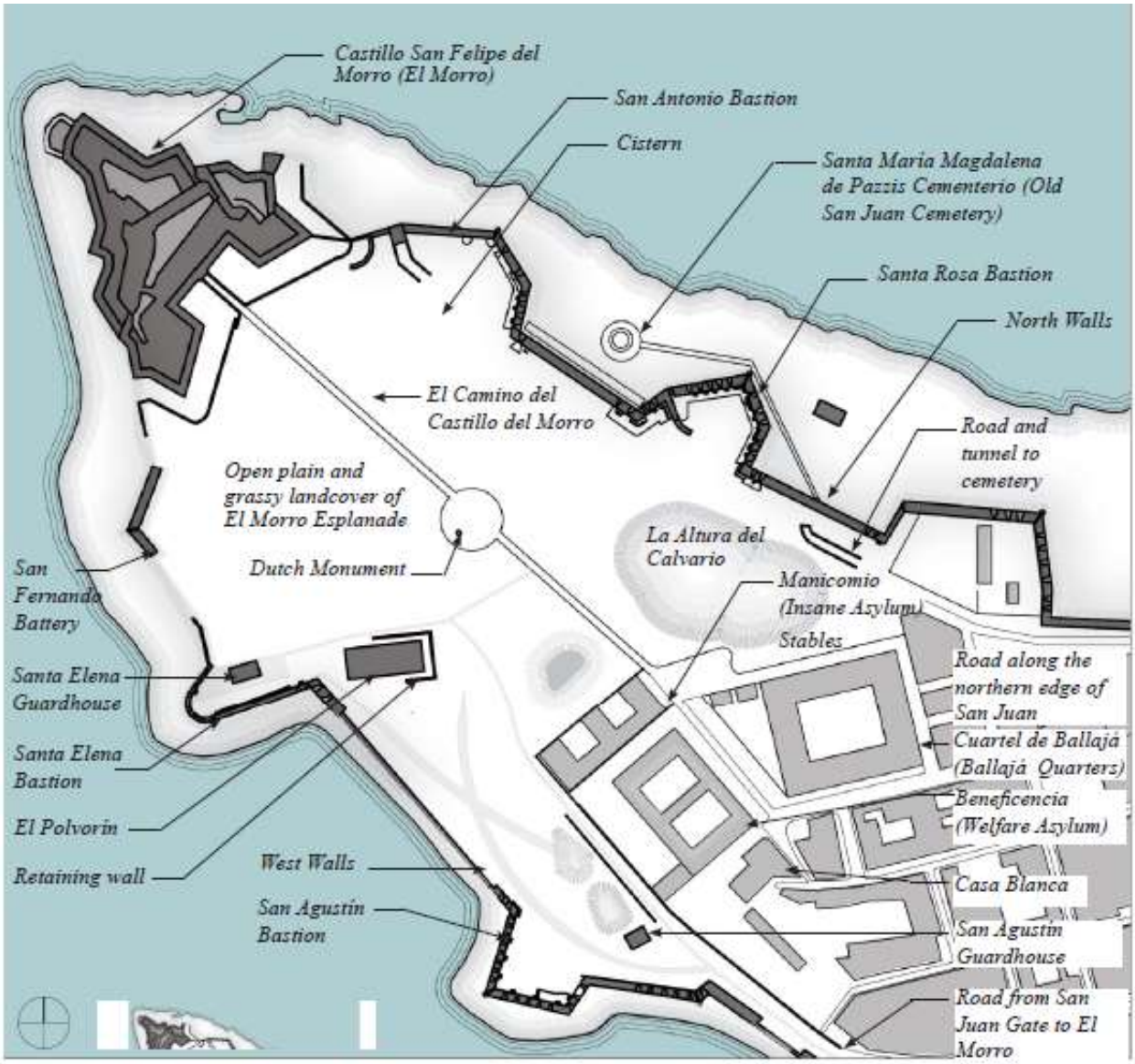
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Sources:

- "Grondt-Teeckening Vande Stadt en Kasteel Porto Rico," 1625.
- "Plano General de la Plaza de San Juan de Puerto Rico," 18th century.
- "Plano en que se manifiesta con la mayor exactitud el Castillo del Morro de San Juan de Puerto Rico," Alexander O'Reilly, 1765.

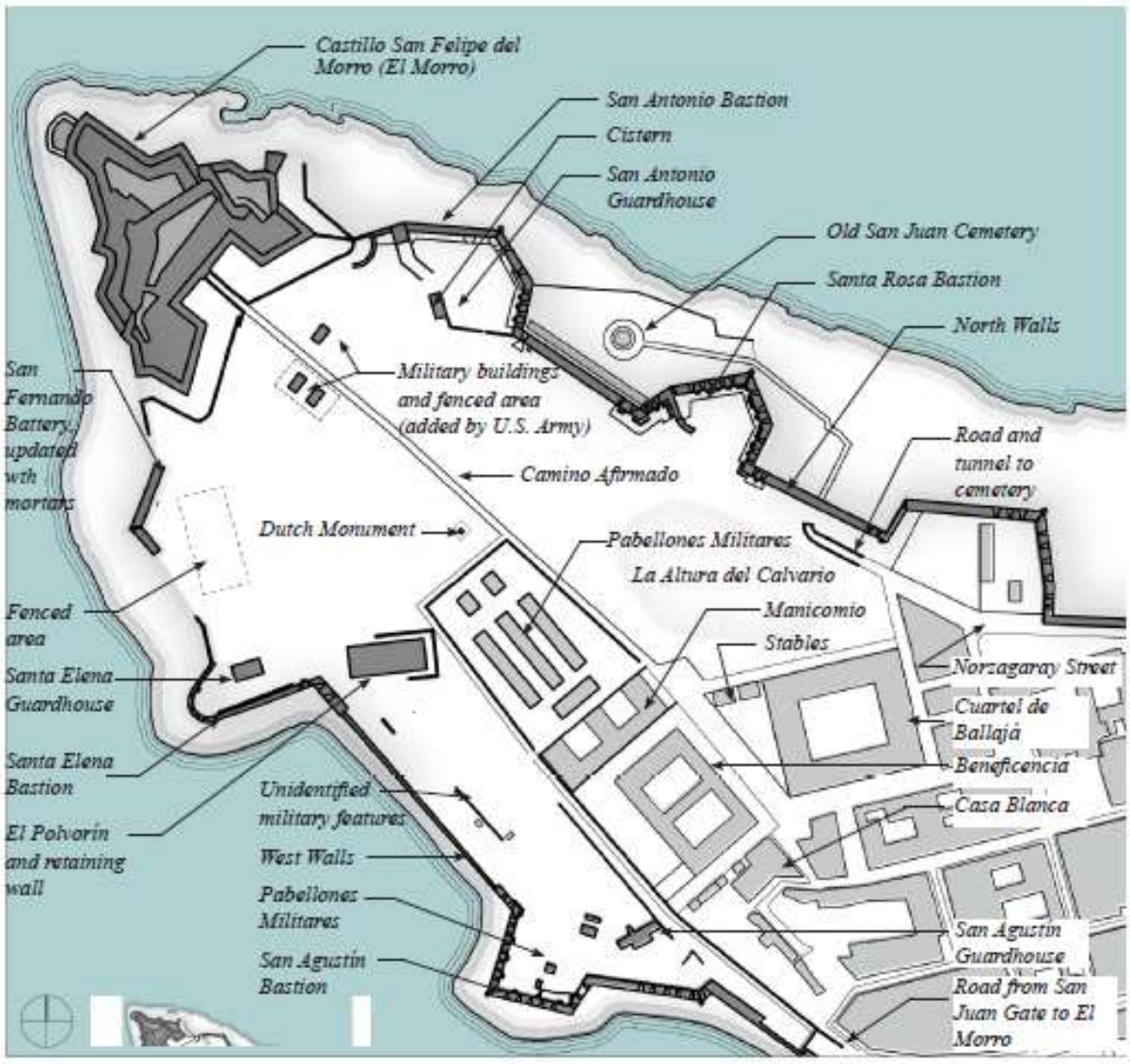
FIGURE 31. Period Plan: Circa 1539-1760.



Sources:

- "Plano en que se manifiesta con la mayor exactitud el Castillo del Morro de San Juan de Puerto Rico," Alexander O'Reilly, 1765.
- 1792 map from "San Juan," Aníbal Sepúlvedara.
- "Plano de la Ciudad de S. Juan de Puerto Rico," 1770 (Library of Congress).
- "Plano y Perfil que manifiesta el Proyecto de una Plaza," 1793.
- "Plano Geométrico del Puerto Capital de la Isla de Puerto Rico," 1794.

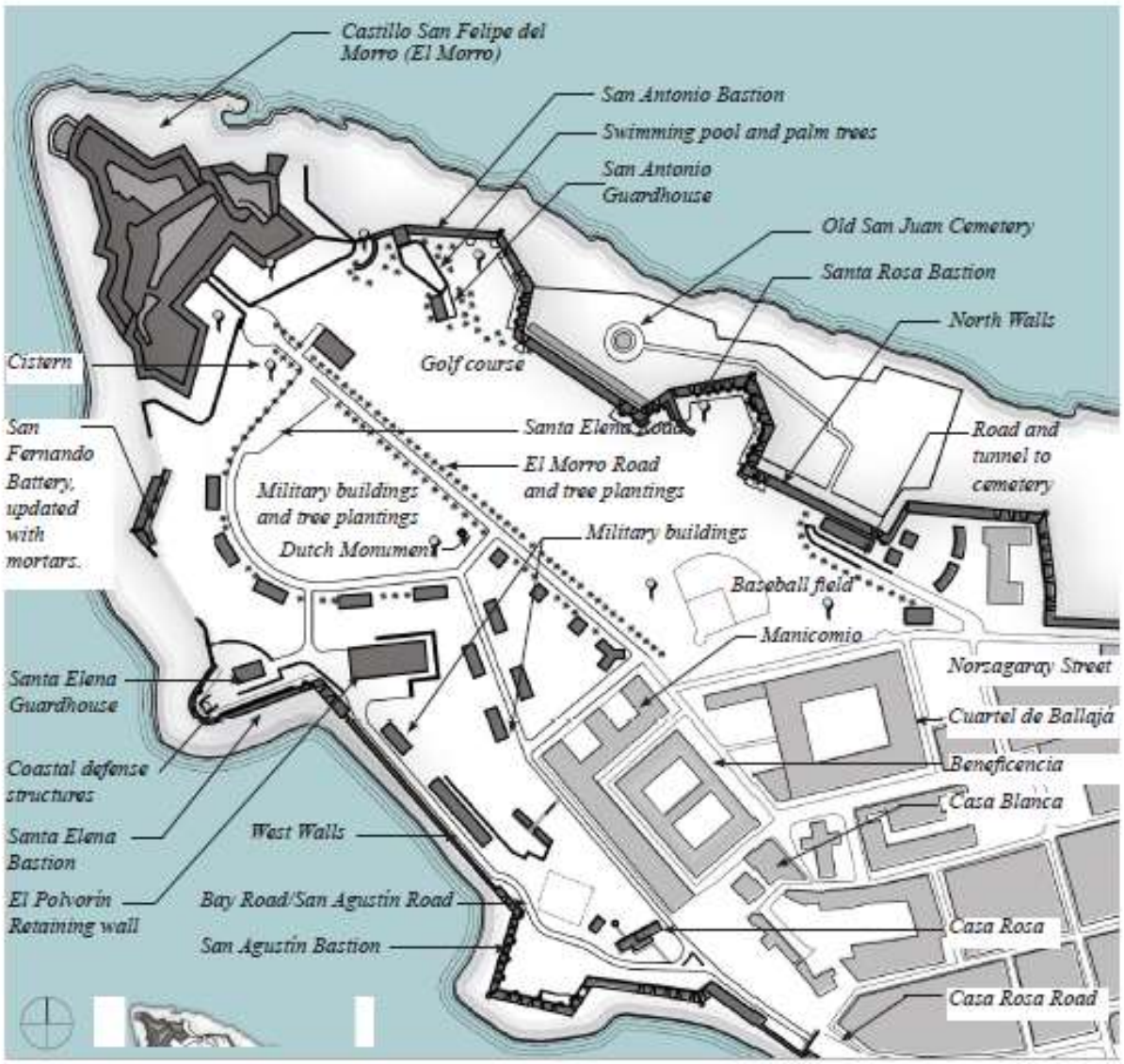
FIGURE 32. Period Plan: Circa 1760-1861.



Sources:

- Plan of City Plaza showing esplanade nd, 1861 revised 1887.
- Map of San Juan forts, 1861-1887.
- "Plano de la Plaza de San Juan de Puerto Rico, levantado por el Cuerpo de Ingenieros Militares," 1863.
- 1887 map from "San Juan," Anibal Sepúlveda.
- "1894 Plano de Puerto de San Juan de Puerto Rico con la representación de las obras ejecutadas desde 1807 hasta el 30 de Junio de 1894" (Library of Congress).
- Plan of Grounds and Buildings in the War Department, 1899.
- Naval Chart of San Juan de Puerto Rico, 1899.
- "Plano del Recinto Amurallado de la Ciudad de San Juan, PR," 1897, Departamento del Interior, División de Terrenos Publicos y Archivos.
- "Plano de Puerto de San Juan de Puerto Rico, levantado por el Cuerpo de Ingenieros Militares, para el estudio de las nuevas defensas de la misma," 1889.

FIGURE 33. Period Plan: Circa 1861-1898.



Sources:

- Military Reservation of San Juan Puerto Rico (and the city of San Juan), 1934.
- MP Land Status, 1953.
- Map of ca. 1960, El Morro and surroundings based on 1886 survey showing US Army development, ca 1930-1961.

FIGURE 34. Period Plan: Circa 1898-1961.

Existing Conditions Documentation

Introduction

This chapter describes, through narrative text, photographs, labeled base mapping, and analytical diagrams, the current conditions and extant landscape features associated with El Morro Esplanade.

The chapter consists of five sections. The first section—Environmental Context and Setting—places El Morro Esplanade within a regional and local context by discussing the larger systems that surround and encompass it. The second section—Cultural Context and Setting—describes regional elements such as major road corridors, planning and zoning districts, demographics, and local attractions that provide a cultural framework for El Morro Esplanade and San Juan National Historic Site. The third section—Landscape Systems and Features—describes El Morro Esplanade to convey the overall sense of place and the way in which individual features relate to one another and the property. The fourth section—Landscape Character Areas—identifies the two land bays that comprise El Morro Esplanade: Parcel A and Parcel B. The fifth and final section—Existing Conditions Documentation by Parcel—describes each of the individual landscape features within each of the two areas.

Feature descriptions are organized by landscape characteristic, which are defined as the tangible and intangible aspects of a property that collectively convey its historic character and aid in the understanding of its cultural importance. Landscape characteristics range from large-scale patterns and relationships to site details and materials. The landscape characteristics used to document existing conditions at El Morro Esplanade include:

- **Natural systems and features**. Natural systems and features are the environmental resources and qualities that have influenced the development and physical form of a landscape. They include landform and topography, soils, water resources, as well as attendant native plant communities.
- **Responses to natural resources.** Responses to natural resources are the physical connections between the built and natural environment, such as the siting of buildings and structures and the use of native materials in construction, which connect cultural and environmental aspects of the landscape.
- **Land uses.** Land uses include the principal activities in a landscape that form, shape, and organize it because of human interaction.
- **Spatial organization.** Spatial organization is the three-dimensional rendering of physical forms and visual associations in a landscape, including the articulation of ground, vertical, and overhead planes that define and create spaces.
- **Circulation.** Circulation represents the patterns, features, and applied material finishes that constitute the systems of movement in a landscape.
- **Cultural vegetation.** Cultural vegetation includes the deciduous and evergreen trees, shrubs, vines, ground covers, and herbaceous plants that have been introduced in a landscape by cultural activities.
- **Buildings.** Buildings are elements constructed primarily for sheltering any form of human activity in a landscape.

- **Structures.** Structures are elements constructed for functional purposes other than sheltering human activities.

- **Views and vistas.** Views are generally defined as being expansive and panoramic prospects, whether naturally occurring or designed, while vistas are deliberately designed views often meant to orient the gaze to a linear feature or a particular focal point.

- **Small-scale features.** Small-scale features are the elements providing detail and diversity for both functional needs and aesthetic concerns in a landscape. Utilities are addressed as part this landscape characteristic.

- **Known and potential archeological resources.** These are the traces, or deposited artifacts in a landscape, evidenced by the presence of either surface or subsurface features.

Environmental Context and Setting

Situated in the northeastern Caribbean Sea, Puerto Rico is the easternmost island of the Greater Antilles archipelago that includes Cuba, Jamaica, Hispaniola, and the Cayman Islands (refer to Figure 2). Puerto Rico lies along the juncture of the Caribbean and North American tectonic plates and is prone to stresses caused by interaction between the plates. The island is also located less than 100 miles south of a deep depression in the Earth's crust, a submarine feature of the Atlantic known as the Puerto Rico Trench. This depression descends to more than five miles below sea level and represents the deepest point in the Atlantic Ocean. The tectonic forces that created the Puerto Rico Trench occasionally cause earthquakes in Puerto Rico.[146]

The island of Puerto Rico is composed of Jurassic to Eocene volcanic and plutonic rocks overlain by younger Oligocene to recent carbonates and other sedimentary rocks. The oldest rocks are approximately 190 million years old (Jurassic) and are located at Sierra Bermeja in the southwest part of the island. Karst geology, which is prone to the establishment of caverns and sinkholes, is also present on the island.

Mainland Puerto Rico is generally mountainous and hilly. Nearly one-quarter of the island is marked by steep slopes. The Caguas Basin in the Loíza River Valley south of San Juan is the largest of several basins in the mountains that provide level land for settlements and agriculture.[147] The mountains are the easternmost extension of a tightly folded and faulted ridge that extends from the Central American mainland across the northern Caribbean to the Lesser Antilles.[148] Cordillera Central is Puerto Rico's highest mountain range, exceeding 3,000 feet in height in many locations. The lower lying areas, as well as the foothills that characterize the northwestern part of the island contains many examples of karst features.

Although none of Puerto Rico's rivers are large or deep enough for navigation, several of the rivers that flow northward have been harnessed to generate hydroelectric power, to provide irrigation for agricultural fields, and to feed municipal water supplies.

Precipitation mainly falls on the north-facing slopes of the mountains and flows from the interior toward the north and west coasts via several rivers, including the Río Grande de Loíza, Río Grande de Arecibo, Río Grande de Añasco, and Río de La Plata. Along the southern coast, where river water is diverted for agricultural irrigation, most of the rivers remain dry except following a rainfall.

146. *Encyclopaedia Britannica*, "Puerto Rico," accessed January 13, 2019, https://www.britannica.com/place/Puerto-Rico.
147. Ibid.
148. Ibid.

Many of the soils in the San Juan area have formed in place from the weathering and erosion of bedrock, including plutonic rocks, principally granodiorite and quartz diorite, as well as extrusive volcanic rocks, such as lava and tuff. Soil forms rapidly in the San Juan area because of the warm tropical climate. This warm climate is favorable throughout the year for rapid chemical and physical reactions. Soils also form from aggregate sedimentary rock such as breccia, as well as from dune deposits, swamp and marsh deposits, and blanket pre-weathered deposits; the tropical climate also accelerates the decomposition of organic material from plants and animals and for other soil forming processes.[149]

Throughout the island of Puerto Rico, plant life is abundant and varied. There are several tropical rainforests on the north side of the island. Thorn and scrub vegetation characterizes the drier south side. Throughout the island, native vegetation has been impacted over centuries by agricultural uses and through the harvesting of coastal forests for lumber. Much of the vegetation on the island today includes introduced species. Near Old San Juan, most of the vegetation is of cultural derivation; little of the island's naturally occurring vegetation survives due to the extent of manipulation that has occurred to support urban, residential, and agricultural uses.

The wildlife that inhabits Puerto Rico includes both native and introduced species. More than 200 bird species are regular residents or visitors to Puerto Rico. Animals are limited to nonpoisonous snakes, lizards, and the coquí frog. Problematic invasive species include the West Indian mongoose, iguana, and boa constrictor.

Puerto Rico's climate is tropical, with little seasonal variation. Local conditions, however, vary due to differences in elevation and exposure to rain-bearing winds. The mountains in Puerto Rico divide the island into two climatologically distinct regions. The northern two-thirds of the island has a relatively humid climate, whereas the southern one-third of the island is semi-arid.

Although temperatures vary little throughout the year, they are generally warmest in August and coolest in January and February. Daily temperatures throughout the year average 78 degrees Fahrenheit, although the average is slightly lower within the higher elevations of the northern part of the island. High humidity often makes the temperatures seem higher.

The predominant weather generator is the northeast trade wind that brings heavier rainfall to the north coast, while the south coast lies within a rain shadow created by the mountains. San Juan averages 60 inches of rain per year, while El Yunque Peak to the east receives an average of 180 inches. In contrast, Ponce, on the south coast, receives only 36 inches of rainfall per year. Although rainfall occurs throughout the year, the rainiest period is May through December. Hurricanes are most prevalent in the Atlantic between June and November, and often pass over the island, wreaking havoc. The effects of Hurricane Maria in 2017 continue to be felt on the island as of this writing in 2020. Other hurricanes known to have heavily impacted the island over the past century or so occurred in 1899, 1928, 1932, 1956, 1989, and 1998.

Cultural Context and Setting

Puerto Rico is an unincorporated territory of the United States. Old San Juan (Viejo San Juan), a district of Puerto Rico's capital at San Juan, is the island's oldest settlement. Old San Juan is a popular destination for local and international tourists. The city occupies the Isleta de San Juan, a 3-square-mile island situated off the north coast of Puerto Rico (Figure 35). The small island is connected to the mainland and modern city of San Juan by three bridges. The waterbodies that surround the 615-acre island include the Atlantic Ocean to the north; San Juan Bay (Bahía de San Juan) to the west; and Vajo de Manglar Bay (Bahía de Vajo de Manglar) to the southwest, respectively. San Antonio Canal (Caño de San Antonio) separates Isleta de San Juan from the

149. Rafael A. Boccheciamp, *Soil Survey of San Juan Area of Puerto Rico* (Washington, DC: US Department of Agriculture Soil Conservation Service, November 1978), 67.

modern city of San Juan (Figure 36). The San Juan metropolitan area hosts the largest industrial and processing center on the island of Puerto Rico, with facilities for petroleum and sugar refining, tobacco processing, brewing, and rum distilling. San Juan is also the island's financial capital with many US banks and corporate offices, or distribution centers represented. Shipping is another important component of San Juan's economy.

El Morro Esplanade is part of San Juan National Historic Site, a unit of the US National Park System. San Juan National Historic Site protects elements of the fortification system initially built by the Spanish beginning in the sixteenth century to defend the city. Components of the park include Fort San Juan de la Cruz (Fortín San Juan de la Cruz), also known as El Cañuelo, that is located on Isla de Cabras at the western end of the entrance to San Juan Bay; San Cristóbal Castle (Castillo San Crístóbal); El Morro Castle (Castillo San Felipe del Morro); and several sections of the city wall systems, including numerous bastions (Figure 37).



FIGURE 35. Site context and location map. (Source: Google Earth with labels added by LSHLA)



FIGURE 36. Map of the Isleta de San Juan and the location of El Morro Esplanade. (Source: Google Earth with labels added by LSHLA)

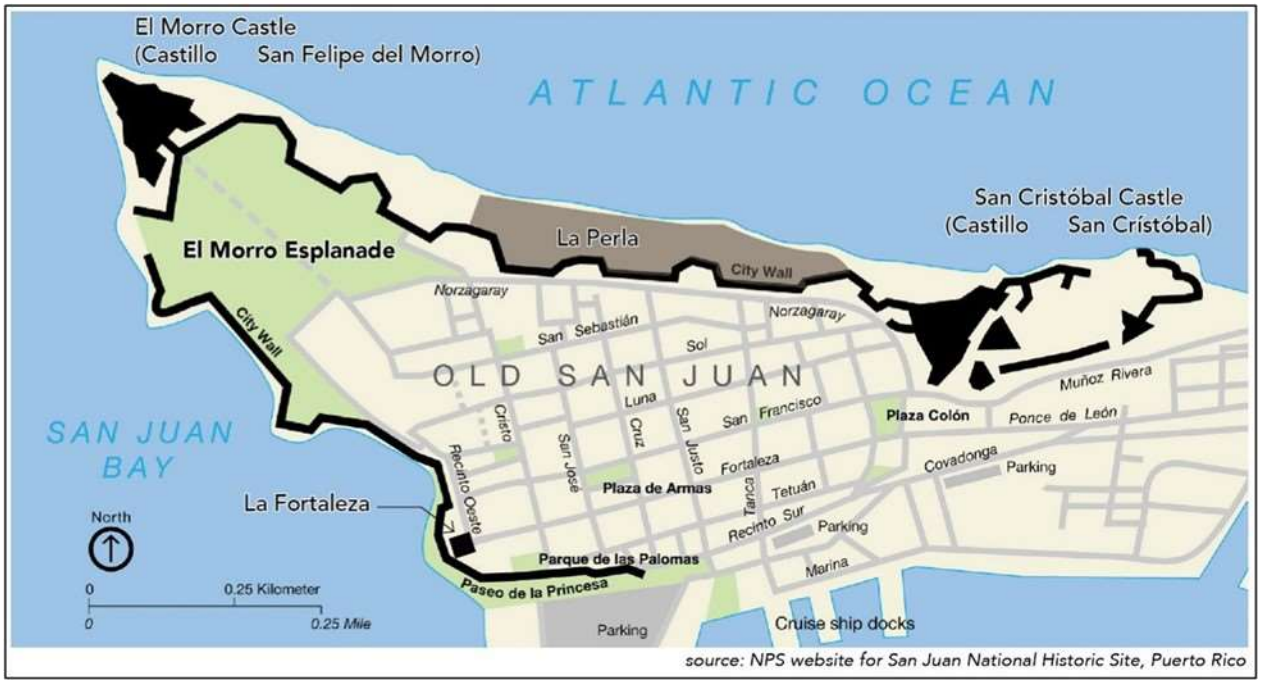


FIGURE 37. Map of San Juan National Historic Site, illustrating the locations of the city walls, El Morro, San Cristóbal, and La Fortaleza—the official residence of Puerto Rico's Governor. (Source: National Park Service with labels added by LSHLA)

The city wall system remains largely intact, except for a section of 7,000 yards south of San Crístóbal which was removed during the late nineteenth century to allow for expansion of the city. Surviving wall segments extend along the high ground overlooking the Atlantic Ocean and San Juan Bay shorelines for a total distance of 2-1/2 miles. The walls are massive structures built from calcareous sandstone laid up as rubble masonry and parged with lime plaster. Most wall sections are composed of broad parapets pierced with embrasures that could be fitted with artillery to fire on an advancing enemy.[150]

San Juan National Historic Site was designated in 1949 for the surviving evidence of fortifications established to defend San Juan Harbor and the fleet that Spain used to control trade within the Caribbean region beginning in the early to mid-sixteenth century. Much of the land associated with the park was transferred from the US Army to the National Park Service and the Commonwealth of Puerto Rico in 1961. The park was administratively listed in the National Register of Historic Places in 1966, with documentation prepared in 1973. El Morro Esplanade, however, was not adequately documented as part of the nomination. In 1983, San Juan National Historic Site was designated a World Heritage Site. El Morro Esplanade, however, was excluded from the area designated. In 2013, San Juan National Historic Site was designated a National Historic Landmark (NHL). El Morro was included within the boundary of the designated property. Following the NHL designation, the boundary of the World Heritage Site was adjusted to include El Morro Esplanade in 2016.

Included in the World Heritage Site with San Juan National Historic Site is La Fortaleza, the official residence of the Governor of Puerto Rico. La Fortaleza was the first fortification built in San Juan Harbor in 1533. The property is owned and administered by the government of Puerto Rico. It is the oldest executive mansion in continuous use in the New World.

The UNESCO web site includes the following description of the outstanding universal value of the World Heritage Site:

> La Fortaleza, along with the later fortifications of Castillo San Felipe del Morro, Castillo San Cristóbal and San Juan de la Cruz (El Cañuelo), and a large portion of the original San Juan City Wall, were built between the 16th and 20th centuries to protect the city and the Bay of San Juan. They are characteristic examples of the historic methods of construction used in military architecture over this period, which adapted European designs and techniques to the special conditions of the Caribbean port cities. La Fortaleza has served as a fortress, an arsenal, a prison, and residence of the Governor-General, and today as the seat and residence of the Governor of Puerto Rico.
>
> These fortifications, which retain the general appearance of advanced 18th-century defense technology, clearly illustrate both a transfer of technology from Europe to America over a long period and its adaptation to the topography of a strategically significant yet difficult tropical site. Reflecting Italian Renaissance, Baroque, and French Enlightenment designs, the defenses express successive techniques and technologies in fortification construction. The varied examples of military architecture from the 16th to 20th centuries in the fortifications of San Juan are evidence of the imperial struggles that defined the development of the Americas. As one of the first as well as one of the last of the numerous seats of power in Spain's American empire, these structures are now potent symbols of the cultural ties that link the Hispanic world.[151]

150. National Park Service, "Description of the Site; San Juan National Historic Site," Drawing 393/60068-5606.

151. United Nations Educational, Scientific, and Cultural Organization (UNESCO), World Heritage List: "La Fortaleza and San Juan National Historic Site in Puerto Rico," Available at https://whc.unesco.org/en/list/266/ (accessed March 30, 2020).

Sitewide Landscape Systems and Features

El Morro Esplanade is an integral component of the cultural, historical, and architectural ensemble of the San Juan City Wall system of fortifications established by the Spanish beginning in the sixteenth century.[152] El Morro Esplanade (CRIS HS #091728)[153] and El Morro Castle **occupy** a promontory at the northwestern end of Isleta de San Juan that rises some 35 feet above the shoreline. The promontory is edged to the north, west, and south by walls that mediate the dramatic topographic drop to the shoreline, edged in turn by the waters of the Atlantic Ocean and San Juan Bay.

Much of El Morro Esplanade is characterized by a large open greensward that slopes gently upward toward the dramatic form of El Morro, a fortress established by the Spanish during the sixteenth century to defend control of the harbor. The fortress crowns the rocky western tip of Isleta de San Juan, referred to as Punta del Morro, with commanding views in all directions. El Morro Esplanade was maintained as part of the defensive system supporting El Morro. The smoothly graded sweeping expanse of the open green space constitutes a glacis, used as part of military complexes to expose attackers to fire from a defended position such as El Morro. El Morro Esplanade also served as a parade ground and support space for Spanish military needs until 1898. Thereafter, the US Army similarly used El Morro Esplanade for various military purposes as part of Fort Brooke until the base was decommissioned and the property ceded to park purposes in 1961.

The walls that edge El Morro Esplanade were built during the seventeenth, eighteenth, and nineteenth centuries as part of the Spanish defensive system for San Juan. The walls connect El Morro with San Cristóbal to the east and San Juan Gate near La Fortaleza to the southwest. They are divided into segments referred to as the North, West, and South Walls. El Morro Esplanade is edged by a portion of North and West Walls. In addition to straight curtain walls, the North Walls that fall within the El Morro Esplanade project area include Santa Rosa and San Antonio Bastions, while San Fernando Battery, and Santa Elena and San Agustín Bastions are associated with the West Walls that frame the project area.

Adjacent to, but below El Morro Esplanade topographically to the north, is Santa María Magdalena de Pazzis Cemetery (Old San Juan Cemetery). The project area is edged to the west and southwest by Paseo del Morro, a recreational walk that hugs the shoreline at the base of the promontory and city wall system.

The CLR project area is divided into two parts—Parcel A and Parcel B (Figure 38). Although both are owned by the Commonwealth of Puerto Rico, the National Park Service has administrative rights to Parcel A. For Parcel B, the National Park Service enters into project-specific agreements with the Commonwealth. Two historic buildings located within Parcel B—Santa Elena Guardhouse and El Polvorín—are also administered by the NPS.

The overall character of Parcel A is derived from the sweeping open space that extends northwest from Norzagaray Street to El Morro, and between the North and West Walls. The grassy open space gently rises in a westward direction, with a change in elevation of at least 15 feet. The space is bisected by El Morro Road, a paved circulation route that leads to the entrance into El Morro.

152. Berkowitz et al., III (CLR), 4.

153. The CRIS number refers to the National Park Service Cultural Resources Inventory System, which was established to replace three earlier numbering systems for archeological features (ASMIS), cultural landscape features (CLI), and historic classified structures (LCS).



FIGURE 38. El Morro Esplanade CLR Project Area illustrating the relationship between Parcels A and B. (Source: LSHLA)

Parcel A is edged to the north by two curtain walls and Santa Rosa and San Antonio Bastions, and to the south by San Fernando Battery. Landscape features located within Parcel A include San Antonio Guardhouse (CRIS HS #091732), built in 1897, that now serves as a park bookstore; a monument commemorating the Dutch attack on El Morro in 1625 and a second monument honoring the 65th Infantry Regiment, "The Borinqueneers," who contributed to the Korean War in 1950–1953; wayside exhibits; site furnishings such as benches, drinking fountains, and trash receptacles; regulatory signage, and lighting. A World War II-era coastal defense structure—Batería de Santa Elena—also sits within El Morro Esplanade south of El Morro near San Fernando Battery.

The walls that frame Parcel A fall outside the El Morro Esplanade CLR project area. They are addressed herein, however, as a key structuring element of the esplanade that defines the interior open space and reinforces visitor understanding of historic military defenses. Old San Juan Cemetery to the north of El Morro Esplanade is accessed from two roads. One of these—Cemetery Road (Calle del Cementerio)—passes through El Morro Esplanade before extending beneath the North Walls via a tunnel.

Parcel B is located to the southeast of Parcel A. It is edged to the north by steeply sloped topography associated with the promontory, and to the south by segments of the West Walls. In addition to curtain wall segments, there are two bastions associated with Parcel B—Santa Elena and San Agustín. Two historic buildings are located at the western end of Parcel B near Santa Rosa Bastion—El Polvorín (CRIS HS #091738) and Santa Elena Guardhouse (CRIS HS #091739). Both these buildings support National Park Service operation of San Juan National Historic Site. El Polvorín, a powder house built in 1787, features a rehabilitated interior used for park maintenance administration, while Santa Elena Guardhouse, also built in 1787, supports a historic artillery conservation center. These facilities are accessed from a road that extends into the park from Old San Juan referred to as San Agustín Road. Santa Elena Bastion also contains concrete military structures associated with twentieth-century US military coastal defenses. These facilities are not open to the public. A gate located at the northwestern end of San Agustín Road controls access to the area administered by the National Park Service near Santa Elena Bastion.

To the southeast of the gate is a heliport used by the Governor of the Commonwealth of Puerto Rico. The margins of San Agustín Road are used for parking by employees of the Commonwealth, including those working at La Fortaleza. A small guardhouse located along the road may support control of parking use of the area.

Further southeast is a small playground that abuts tennis and basketball courts, and a small utility structure. These features sit at the base of a hill below the School of the Visual Arts. The playground can be accessed via a concrete staircase from Casa Rosa Road to the north. The playground is set within a grove of mature shade trees.

Located further to the southeast across San Agustín Road from San Agustín Bastion, is Casa Rosa, built in 1897 as San Agustín Guardhouse. Associated with Casa Rosa is an outbuilding, wishing well, walks, walls and fences, and garden features. Casa Rosa is accessed via a concrete walk that leads west from the intersection of Casa Rosa Road and San Agustín Road. The walk passes through a gate in a perimeter fence and wall system.

Parcel B continues southeast, following the road corridor and adjacent sidewalk to Casa Rosa Gate, a structure that spans the road and is painted the same blue as La Fortaleza. This section of Parcel B contains benches, trash receptacles, utility poles, telephone boxes, and other utility features.

Sitewide Condition Assessment

Field investigations conducted on behalf of this CLR yielded information about the condition of the landscape features that fall within the project area.

Overall, the El Morro Esplanade landscape appears to be in good condition. Specific examples of condition issues of concern noted in the field, which will be addressed in the CLR treatment plan, include:

- The grass has been killed, and the soil become compacted in places that experience heavy visitor use. These places typically occur at key entry points into the esplanade from the adjacent Norzagaray Street promenade (Figure 39); near benches, waysides, and trash receptacles; and along the edges of the curtain walls and bastions, particularly in front of the embrasures and access routes to sentry boxes.
- There is often quite a bit of trash on the ground due to the constant presence of high

winds. Even when trash receptacles are appropriately used, they can quickly become full. Loose material is picked up by the winds and deposited throughout the esplanade. Kite flying is a popular activity that results in bits of string and broken kite parts contributing to the trash littering the esplanade. Kites are also often found lodged in trees.

- Vegetation often takes hold and grows within crevices of the wall system. This can dislodge stonework and allow moisture to infiltrate the walls, causing deterioration.
- Maintenance of vegetation along the margins of the walls has led to deterioration of the stone where mowers and string trimmers have damaged the masonry.



FIGURE 39. View east of the compacted and eroded soil near the northeast entry into El Morro Esplanade from the Norzagaray Street pedestrian promenade.

- The playground area exhibits highly compacted soils and evidence of erosion (Figure 40). This is likely due to the sloped topography and active use of the area.
- Stormwater is flowing in quantities that exceed the capacity of drain systems within the southern walls of San Agustín Bastion. Sandbags and erosion control fabric are in evidence to divert flow and arrest erosion.
- The concrete walks and terraces outside of Casa Rosa are cracked and broken, particularly behind the building.
- Portions of the woven wire perimeter fencing associated with Casa Rosa have been removed and are currently being stored on the concrete walks and terraces.



FIGURE 40. View south along the concrete walk leading through the playground and the highly compacted soil within the area.

- The steeper slopes of El Morro Esplanade are exhibiting evidence of erosion and slumping.
- Soil compaction and erosion is evident along the east side of San Antonio Guardhouse, particularly where visitors regular walk to enter the building.
- Soil erosion is occurring along the edge of the moat at El Morro, and to the south and west of the fortress where visitors regularly walk. A social trail has become etched into the turf in this area.
- Soil erosion is also evident in association with the areas used for parking east of Santa Elena Guardhouse.
- The area at the base of the wayside exhibit about kite flying along El Morro Road is compacted and subject to erosion.
- Soil compaction and erosion is also occurring around the Dutch Monument, around trash receptacles at the park sign base, around the walls of the tunnel leading to Old San Juan Cemetery (Figure 41), and at the base of the wall that edges the Norzagaray Street promenade.



FIGURE 41. View southeast along the Cemetery Road tunnel of the nearby compacted and eroded ground.

- One of the wayside exhibits facing the Norzagaray Street promenade is missing its interpretive panel.
- The park identity sign is also missing.
- The hillside behind Casa Rosa is occupied by homeless persons that sleep in tents.
- The sentry boxes require regular cleaning due to people urinating in them. The odor is difficult to remove.
- The West Walls have been rehabilitated for safety through the installation of guardrails. There are rust stains where the guardrails tie in at the edges of the embrasures.
- Visitors often leave graffiti on the walls. The National Park Service is very diligent in removing the graffiti.
- The areas where turf reinforcements have been added are exhibiting erosion and compaction, and the reinforcements are protruding from the ground.
- The soil of the esplanade is composed of 3 to 4 feet of sand over hard clay. Drainage can be challenging when water that infiltrates the sand layer hits the clay and hard pan and moves laterally. This can lead to spongy areas.
- Cats, both feral and discarded pets, are a regular presence within El Morro Esplanade (Figure 42), particularly within Parcel B. An organization known as Save-A-Gato cares for the cats. Impacts from the cats include encounters with visitors, and the smell of urine and feces.
- Iguanas are nesting within the slopes of the promontory near El Morro and along the margins of Parcel B. The iguanas dig holes to lay their eggs and for access purposes, causing erosion.



FIGURE 42. View northwest of cats lounging on the stone wall at Casa Rosa.

Parcel Landscapes

Refer to Figure 38 – Project Area and Parcel Boundaries.

For the purposes of organizing the documentation of existing conditions as well as later sections of the CLR, the project area has been divided into two discrete areas. Descriptions of the landscape features present within the project area are conveyed below in association with each parcel.

Parcel A

Overview Description

Parcel A comprises the broad open green space atop the promontory that occupies the land between El Morro and Norzagaray Street, and segments of the North and West Walls. The landscape consists of several tangible landscape resources, as well as intangible qualities and associations. The features that comprise the landscape are individually described below in terms of their size and materials and are grouped by landscape characteristic.



FIGURE 43. Overall Natural Systems and Features. (Source: LSHLA)

Natural Systems and Features and Responses to Natural Resources

Refer to Figure 43 – Overall Natural Systems and Features and Figure 44 – Overall Responses to Natural Resources.

Promontory landform. Much of El Morro Esplanade occupies the high ground of a promontory landform that characterizes the northwestern end of Isleta de San Juan. The promontory rises steeply above the shoreline by as much as 35 feet.



FIGURE 44. Overall Responses to Natural Resources. (Source: LSHLA)

Open plain of the Esplanade (Figure 45). The predominant feature of the El Morro Esplanade is the broad open plain set atop the promontory southeast of El Morro. Approximately 23 acres in size, the expansive open plain is primarily maintained in turf lawn, and thus it is visually comprehensible. The open plain is framed to the north and south by segments of the North and West Walls. The land slopes up from the entrance to El Morro Road toward El Morro, rising approximately 25 feet along the length of the road. The land also slopes downhill from El Morro Road toward the North Walls as well as toward the West Walls. The North Walls sit between 20 and 30 feet below El Morro Road. Within Parcel A, the West Walls are set at a higher elevation, and set approximately 20 feet or less below the height of El Morro Road. Both El Morro to the

northwest, and Old San Juan to the southeast, rise above El Morro Esplanade.[154]

Grading of the glacis to improve defense. The current topographic character of the open plain reflects its former use as a glacis for El Morro. The gently and continually sloped ground was engineered to support fort defenses such that artillery positions would be afforded a clear field of fire without gaps or obstructions.



FIGURE 45. View southeast across the open plain of El Morro Esplanade from the edge of the moat at El Morro Castle. (Source: LSHLA; all photographs by authors unless otherwise indicated)

Walls and bastions along the edge of the promontory (Figure 46). The walls and bastions that edge the open plain of El Morro Esplanade represent the response of Spanish military engineers to the promontory landform and adapting it for use as a military defense emplacement. The walls, built by the Spanish between 1634 and 1835, follow the edge of the promontory landform. They were designed to provide a clear field of fire for artillery emplaced behind them. The steep slopes of the promontory hillside coupled with the massive masonry walls were designed to serve as an obstacle to an attacking military force. The walls form a continuous edge to the northeast and northwest. However, there are gaps in the West Wall system to the south of El Morro where the terrain forms a natural cliff-like barrier and walls were unnecessary.



FIGURE 46. View northwest across Santa Rosa Bastion towards El Morro illustrating the way in which the bastions edge the promontory on which El Morro Esplanade is sited.

Stormwater management: use of drains, culverts, swales, scuppers, gutters, and paved channels to control stormwater (Figure 47, refer to Figure 44). Drainage structures channel and direct stormwater from the esplanade through openings in the perimeter walls or merlons, and bastions. Many of the drains were established by Spanish engineers in response to the threat of flooding and the potential for stormwater to undercut and destabilize the walls. These systems are described in more detail under Structures below.



FIGURE 47. View northeast along a paved channel and arched opening that directs stormwater through the North Wall merlons at Santa Rosa Bastion.

154. Detailed topographic information was not available at the time this study was prepared. This information should be updated to reflect actual conditions should a survey be prepared.

Use of cisterns to collect and store freshwater. At least three cisterns are associated with Parcel A. The first two are located south of El Morro. One is below metal doors that protect an elevator that goes down to the cistern space that is currently used as a storage facility of the Facilities Division. Next to the storage area is another cistern that continues to be used as such. The third cistern is located south of Santa Rosa Bastion. A wooden bracing system has been built by the NPS to help support the structure from the inside. A metal cover has been placed on top as a lid. The cover is covered with earth and grass, and it is not marked aboveground(Figure 48). These cisterns were associated with military use of the area and of the need to collect and store freshwater as there were no other sources nearby.



FIGURE 48. View into the cistern south of Santa Rosa Bastion. (Source: NPS)

Siting of El Morro Road along a ridgeline leading to El Morro. El Morro Road follows a clear ridgeline within the central open space of the broad plain that characterizes Parcel A. The ridgeline divides Parcel A into two parts. El Morro Road is also sited along this elevated ridgeline.

Use of turf reinforcement pavers to control erosion (Figure 49). Several examples of turf reinforcement pavers are present within Parcel A. The pavers are composed of grids of concrete set within the turf at high use locations such as at the base of benches. They are also present on the hillside connecting Parcels A and B north of Santa Elena Guardhouse and El Polvorín to provide traction for maintenance vehicles. These pavers were added by the NPS in response to the challenges associated with soil compaction and erosion in areas of heavy use.



FIGURE 49. View north toward turf reinforcement pavers used to control erosion at the base of a bench outside the park bookstore landing.

Land Uses

Commemorative (Figure 50). The Dutch Monument and "The Borinqueneers" Monument both constitute commemorative land uses associated with Parcel A of El Morro Esplanade.



FIGURE 50. View southwest of the Dutch Monument, an example of a commemorative land use within El Morro Esplanade.

Recreational (Figure 51). Visitors to El Morro Esplanade enjoy recreational activities such as walking, picnicking, and kite flying.



FIGURE 51. View southeast along El Morro Road of visitors enjoy recreational activities such as walking within El Morro Esplanade.

Commercial. San Antonio Guardhouse currently serves as a bookstore and curio shop operated by Eastern National. This constitutes a commercial land use.

Museum/interpretive/educational (Figure 52). Museum/interpretive/educational land uses associated with El Morro Esplanade include the provision of interpretive information on wayside exhibit panels.

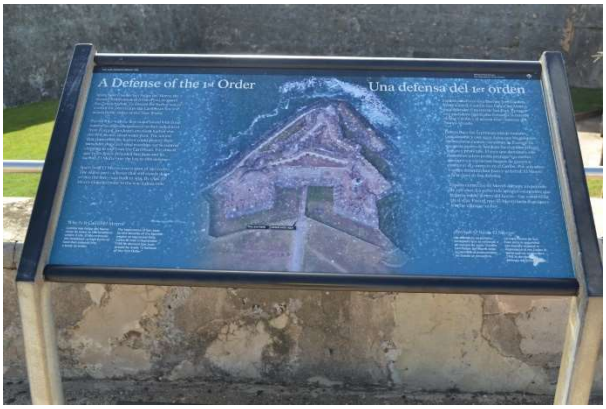


FIGURE 52. One of the wayside exhibits located within Parcel A near El Morro that serves a museum/interpretive/educational land use.



FIGURE 53. Overall spatial organization. (Source: LSHLA)

Spatial Organization

Refer to Figure 53 – Spatial Organization.

Broad open space of El Morro Esplanade (CRIS HS #091728) (Figure 54). El Morro Esplanade forms the landward approach to El Morro. The esplanade is a broad, vast, relatively level greensward bisected by El Morro Road and framed by the defensive wall system built by the Spanish between the seventeenth and nineteenth centuries. El Morro Esplanade extends between the urban grid of Old San Juan that begins at Norzagaray Street and the dry moat of El Morro, as well as segments of the North and West city walls.

Spatial edge formed by defensive walls and bastions (Figure 55). El Morro Esplanade is edged by segments of the North and West Walls built as a defensive system by the Spanish between the seventeenth and nineteenth centuries. The

walls enclose the interior open space as a linear system of curtain walls with several polygonal outwardly projecting bastions.



FIGURE 54. View northwest across the broad open space of El Morro Esplanade.



FIGURE 55. View north across the open space associated with Santa Rosa Bastion and the way in which the walls contain space within the esplanade.

Road and tunnel corridor to Old San Juan Cemetery (Figure 56). Cemetery Road is a public thoroughfare that passes through the northeastern portion of El Morro Esplanade before entering a tunnel that extends beneath the North Walls to Old San Juan Cemetery. Neither the tunnel nor Cemetery Road fall within the project area. However, these features form a linear space within El Morro Esplanade.



FIGURE 56. View northwest along Cemetery Road and the tunnel leading to Old San Juan Cemetery.

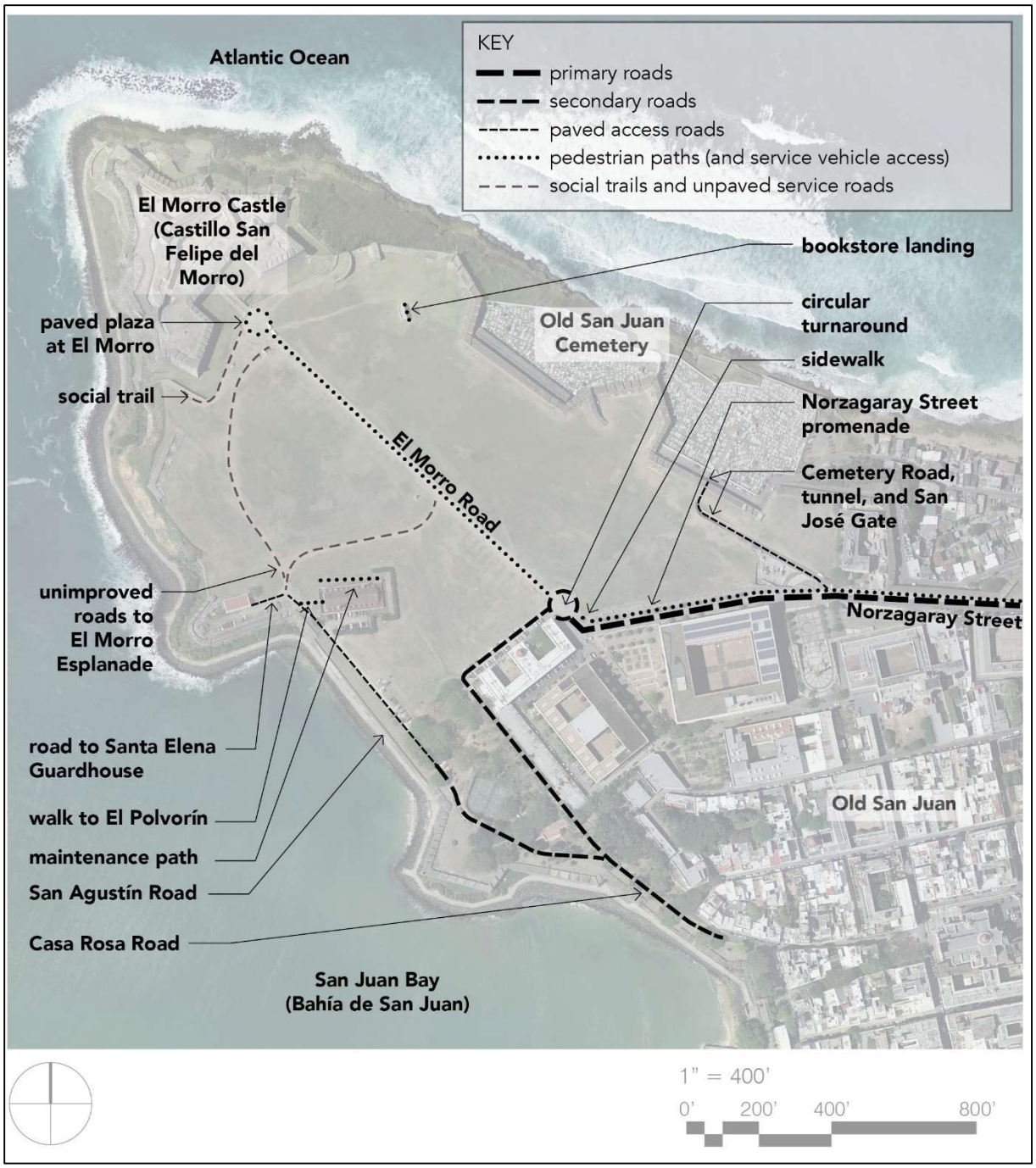


FIGURE 57. Overall circulation.

Circulation

Refer to Figure 57 – Overall Circulation.

Vehicular Circulation

El Morro Road (CRIS HS #091730 Shadow) (Calle del Morro) (Figure 58). El Morro Road extends northwest from a circular turnaround at Norzagaray Street to the sallyport of El Morro. The sallyport is reached via a bridge that spans the dry moat east of El Morro. El Morro Road follows a ridgeline through the center of El Morro Esplanade. The road is surfaced with exposed aggregate concrete. It provides universal access to El Morro and is used by pedestrians and park vehicles. It is closed to private vehicle use. A pair of green-painted metal bollards support a chain used to limits vehicular access to El Morro Road. There is a paved plaza at the northwest end of El Morro Road near the entrance to El Morro.



FIGURE 58. View southeast along El Morro Road showing the primary travel route edged by flush curbing, and the abutting additional 4-foot-wide paved route, also edged by flush curbing.

The road itself extends for approximately 1,100 feet and is 20 feet wide. Within the 20-foot expanse, approximately 15 feet form a primary travel route that is edged by 6-inch-wide flush curbs to either side. The primary travel route is edged along the northern side by a second 4-foot-wideconcrete pavement, also edged by a 6-inch-wide nearly flush concrete curb.

El Morro Road is accessed either from the circular turnaround or a sidewalk that connects the route with the Norzagaray Street promenade.

Norzagaray Street (Calle Norzagaray; Figure 59). Norzagaray Street edges El Morro Esplanade to the east and southeast. As it edges El Morro Esplanade, Norzagaray Street is a one-way route paved with concrete brick pavers and edged by 1-foot-high concrete curbs. Green painted metal bollards are sited along the margins of the road behind the curbs to prevent cars from parking or accessing the adjacent pedestrian walks and promenade. Norzagaray Street provides access to the circular turnaround at El Morro Road before continuing to intersect Beneficencia Road.



FIGURE 59. View northeast along Norzagaray Street, which is paved with concrete brick and edged by concrete curbs. Green painted metal bollards line the street to prevent cars from parking along the road and accessing the adjacent pedestrian (left) promenade.

Cemetery Road and tunnel beneath North Walls (Figure 60). Cemetery Road extends northwest from Norzagaray Street near its intersection with Calle de Cristo. Cemetery Road is a narrow asphalt-paved corridor that cuts across the northeast corner of El Morro Esplanade. The road is edged to either side by concrete walls as it descends below the grade of the esplanade to a concrete tunnel that passes beneath the North Walls to reach Old San Juan Cemetery. As noted above, the road and tunnel fall outside of the CLR project area.



FIGURE 60. View southeast along Cemetery Road.

Circular turnaround at Norzagaray Street (Figure 61). At the southeastern end of El Morro Road is a circular vehicular turnaround entered from Norzagaray Street. The turnaround allows for passenger drop-off at El Morro Road. The turnaround is composed of an 18-foot-wide

asphalt-paved travel route that encircles a central island. The road, which is surfaced with concrete pavers, is edged by 6-inch-wide, 1-foot-tall, concrete curbs. Stormwater is directed into drop inlets covered with metal grates at the edge of the curb. Concrete walks edge the circular turnaround. Sited along the margin of the walks are an exposed aggregate concrete drinking fountain, several concrete benches, light poles, trash receptacles, and street signs.



FIGURE 61. View southeast across the circular turnaround used to drop off visitors at El Morro Road.

Unimproved roads to El Morro Esplanade from Parcel B. A grass two-track serves maintenance access from El Polvorín and Parcel A. The two-track arises from the northwestern terminus of San Agustín Road and divides into northwestern and southeastern route. At the intersection with San Agustín Road, the two track is edged by wood bollards that support a rope access control feature. Adjacent to the bollards are a "No Bicycling" sign and dog-waste-bag dispenser and receptacle. Turf reinforcement pavers have been used to stabilize the two track where it spans the steep slope that divides Parcels A and B (Figure 62 and Figure 63).



FIGURE 62. View north along the unimproved road that leads to Parcel A from San Agustín Road.



FIGURE 63 View north of the turf reinforcement pavers used to protect the slope from further erosion where the unimproved road leads to Parcel A.

Pedestrian Circulation

Norzagaray Street pedestrian promenade (Figure 64). Edging Norzagaray Street to the north is a pedestrian promenade that overlooks El Morro Esplanade. The promenade features a wide sidewalk surfaced with a pattern of decorative brick pavers, tile, and bands of concrete, planters, green-painted bollards, and plantings of palm trees. The promenade is edged to the north by a 3-1/2-foot-tall concrete wall. The wall is inset with metal light poles set on concrete bases. Openings in the wall lead to landings and stairs that serve as overlooks and access points for visitors to experience El Morro Esplanade. Concrete trash receptacles also edge the wall at intervals along the promenade.



FIGURE 64. View northeast along the Norzagaray Street pedestrian promenade and one of the landings and stairs providing access to El Morro Esplanade.

Sidewalk leading to El Morro Road. A 5-foot-wide concrete sidewalk leads from the Norzagaray Street promenade to the walk that edges the circular turnaround at the southeast end of El Morro Road.



FIGURE 65. View southeast across the paved plaza near El Morro.

Paved plaza near El Morro (Figure 65). The paved plaza at the northwest end of El Morro Road is circular and paved with concrete scored with a radial pattern that forms pie-shaped wedges that meet in a circular pattern at the center. The concrete is edged by a 6-inch flush concrete curb. Two concrete benches are sited along the outer edge of the plaza. The plaza is edged to the northwest by a masonry wall and metal safety railing associated with the El Morro dry moat. Wayside exhibits, a bike rack, and a dog-waste bag dispenser are located along the eastern margin of the wall. From the plaza, visitors can access a bridge that crosses the dry moat and connects visitors to the sallyport.

Bookstore landing (Figure 66). The San Antonio Guardhouse located near the opening of San Antonio Bastion serves as a park bookstore and curio shop for visitors. A paved landing edges the principal façade of the building and is used by visitors to enter the bookstore. The landing measures 8 feet 7 inches in width. It is paved with square red clay tile arranged in a diagonal pattern and edged by another band of tile. Concrete benches and trash receptacles are sited along the edge of the landing. The ground around the paved landing outside the bookstore has been subjected to heavy use and is compacted and eroded.



FIGURE 66. View south across the bookstore landing.

Social trail south of El Morro (Figure 67). An earthen social trail leads around the southwest corner of El Morro. This trail, which has become deeply etched into the grass surface, leads to a high point where it is possible to view the entrance to San Juan Bay.



FIGURE 67. View northwest along the social trail south of El Morro.



Figure 68. Overall Cultural Vegetation. (Source: LSHLA)

Cultural Vegetation

Refer to Figure 68 – Overall cultural vegetation.

Turf lawn. Much of El Morro Esplanade is maintained in turf lawn. The turf is composed primarily of Bermuda grass, Manilla grass (*Zoysia matrella*), and Mascarene grass (*Zoysia tenuifolia*).[155] The turf grasses also include a variety of weed species.

Palm trees along Norzagaray Street. Palm trees line Norzagaray Street as part of the design of the Norzagaray Street promenade. The trees are in planters.

155. San Juan Historic Site Turf Report. No date, no author.



FIGURE 69. Overall buildings and structures. (Source: LSHLA)

Buildings

Refer to Figure 69 – Overall Buildings and Structures.

San Antonio Guardhouse (CRIS HS #091732) (Figure 70). San Antonio Guardhouse is located within the northern part of El Morro Esplanade on the declining slope below El Morro. It edges San Antonio Bastion to the south. The Spanish built the guardhouse in 1897 to control access to San Antonio Bastion and the storehouse there. Although "designed as pavilions for two chiefs," it was later used to store artillery.[156] The US Army later rehabilitated the structure in support of the military base as part of the San Juan Military Reservation in 1930–1940.

156. Bearss, 1984, 47, 290.



FIGURE 70. View northwest toward San Antonio Guardhouse.

The guardhouse has a rectangular plan and measures 42 feet 6 inches long by 16 feet 5 inches feet wide. The Classical-revival style building is edged by a tile landing to the east along the full width of the principal façade. The building has a stone foundation, rubble brick masonry walls clad with stucco, and a low-slope roof with parapet. The symmetrical façade features many decorative details including a base plinth that projects 4 inches from the main portion of the building, corner quoins, a projecting cornice that wraps the entire building, and window trim consisting of quoins at the jamb and arched hood with expressed voussoirs. All window and door openings have segmental arches.

The main entrance is centered on the east elevation. It has a vertically oriented wood plank door. The door opening is flanked by window openings with wood-framed louvered casement windows. There are two window openings with louvered casement windows on the west elevation and one window opening with louvered casement windows centered on the north and south elevations. Two roof scuppers are located below the cornice at the east elevation of the building.

Structures

Refer to Figure 69 – Overall Buildings and Structures.

North and West Walls (North Walls CRIS HS #006065; West Walls CRIS HS #006068) (Figure 71). El Morro Esplanade is edged to the northeast, north, west, and southwest by segments of the San Juan City Wall system built for defensive purposes by the Spanish between the seventeenth and nineteenth centuries. The walls are the parapets or ramparts—vertical barricades built to protect military personnel stationed within the defenses from incoming fire and to serve as an obstacle to an assailant.



FIGURE 71. View southeast along the North Wall curtain wall east of Santa Rosa Bastion and one of the firing steps or banquettes that edge the wall.

The walls include linear or straight sections and polygonal outward projections of the wall referred to as bastions. Straight sections of wall that connect two bastions are known as curtains. Set within the walls are embrasures. These slotted openings were used to fire artillery without exposing the soldiers to incoming fire. Wall segments between the embrasures are referred to as merlons. The walls that edge the esplanade are tied to a more substantial structural wall system that extends to the base of the steep sides of the promontory. Behind the wall are paved landings, steps leading to raised platforms referred to as banquettes. These were used as positions for firing artillery.

The outer part of the parapet wall is referred to as the scarp; these areas of the wall are also typically battered, and sometimes shored up with buttresses.

The walls generally stand approximately 4 to 5 feet in height above grade. They are constructed from a mix of cut limestone, rubble masonry, and brick, and with crushed limestone or mortar binding agents used to coat and protect the outer surface. Red brick is used along the sloped top of the walls as they face El Morro Esplanade. The walls are thick and extend for several feet deep. They also extend downward to span the slope of the promontory upon which El Morro Esplanade sits, to a lower bench at the shoreline level. The weight of the walls helps to anchor them in place. They were also built with a battered profile for added stability.

Several of the bastions have a sentry box or garita that sits at the intersection of two faces of the bastion.

El Morro Esplanade is edged by segments of both the North and West Walls of the city wall system. The North Walls include two curtains and two bastions: Santa Rosa and San Antonio Bastions. The West Walls also include two curtains as well as three bastions and batteries: San Fernando, Santa Elena, and San Agustín (both Santa Elena and San Agustín are addressed below under Parcel B).

Set within the North Walls at the western end are two segments that contain interior storage space. The eastern storage space is set within a section of wall that extends into El Morro Esplanade from Santa Rosa Bastion (Figure 72). The extension, referred to as El Morro Bunker, has a plaque that reads "Copelands Corner," a reference to the golf course established on the esplanade by the US Army. Along its façade, three arched wooden doors provide access to the interior space. This is currently used for the storage of maintenance equipment and history props. The second storage space is located at the terminus of the North Walls where they meet the outer defenses of El Morro (Figure 73). It is used by the Facilities Division as a lime treatment and storage area for the material to be used in restoration projects.



FIGURE 72. View west of the wall extension at Santa Rosa Bastion referred to as El Morro Bunker.



FIGURE 73. View east toward San Antonio Bastion, with the storage shelter in foreground.

The segments of the North Wall that edge the esplanade include a curtain wall east of Santa Rosa Bastion, a curtain wall between Santa Rosa and San Antonio Bastions, and the two bastions. The curtain wall to the east of Santa Rosa Bastion overlooks Old San Juan Cemetery. The wall features a three-step banquette at the east end (refer to Figure 72). The banquette is composed of a concrete platform, while the steps are brick. A triangular concrete block is located at the base of the steps. Adjacent to the banquette is an arched opening in the wall that allows the passage of drainage. A 2-foot-tall knee wall edges the parapet to the west of the banquette. Two embrasures are set in the wall at the eastern end near the banquette. Further west are ruins of structures that may have served as gun ramps. The western end of the parapet also features two embrasures, arched drainage openings, two banquettes, and a paved landing. There is a single trash receptacle located along the wall in this area.

Santa Rosa Bastion (Baluarte de Santa Rosa) (refer to Figure 72) extends from the North Walls at the eastern end of the El Morro Esplanade. The grassy plain of the esplanade extends into the interior space of the bastion, which comprises four wall sections. Each face of the bastion contains several embrasures: Three embrasures are set into each of the eastern wall segments, while five embrasures are set into the northwest wall. An additional section of the wall sits beyond the wall extension with the storage structure. This section features three embrasures. It is set at a higher elevation where the ground plane rises. A concrete sentry box occupies the further extension of the bastion at the intersection of the east and west faces. The wall sections are edged to the rear by banquettes, a brick knee wall, and paved landings. Steps provide access to the elevated banquette platforms. The step risers are brick and concrete, with concrete corners. The banquettes and firing steps are surfaced with a combination of concrete and red and white paving blocks. The paved landing is rough patched concrete approximately 16 feet wide. There are also arched and square drain openings that convey water through the banquettes and the wall to prevent undercutting and ponding. Stormwater is collected in shallow trenches through the grading of the turf and the paved areas. These direct the water into the stone and brick openings in the wall. A bronze plaque that measures 1 foot 8 inches by 1 foot and identifies Santa Elena Bastion is mounted to the wall directly above one of the drainage structures. A bronze plaque is also set into the end of the wall of the structure that extends into the bastion space. The plaque reads "Copeland's Corner / This plaque is in honor of / Rosie Copeland who during the / years has done so much for the / success of El Morro golf / El Morro Golf Club / 1962." The plaque measures 1 foot 6 inches by 10 inches.

Visible through the embrasures is Old San Juan Cemetery to the north. Views are also afforded of the Atlantic Ocean and coastline, and other segments of the city wall system. Two trash receptacles are set within the bastion, one along the northeast face, and the second in the face located behind the wall extension structure.

Within Santa Rosa Bastion, there are patches of lower and taller grass and areas where the grass has been lost to visitor access and compaction. Some sections of the trench system have become filled with silt or overgrown with vegetation, impeding the flow of stormwater.

The curtain wall between Santa Rosa and San Antonio Bastions features two embrasures at the west end, a banquette edged by three stone steps, the remains of a ramp, and a paved landing. The western end of the curtain features an additional embrasure, as well as an arched structure that allows for the drainage of stormwater and a paved area behind the embrasure edged by wing walls.

San Antonio Bastion (Baluarte de San Antonio) (Figure 74) is located east of El Morro and west of Santa Rosa Bastion. San Antonio Guardhouse sits just west of the opening into the bastion. Like Santa Rosa Bastion, the bastion has four faces, although the form of the projection is wider and less regular. Turf lawn extends into the interior space from El Morro Esplanade and continues to the edge of the paved landings, banquettes, or wall system. The banquettes along the eastern wall segments are accessed via steps. Along the north-facing wall, which includes all the embrasures, the banquettes are edged by ramps. A sentry box sits at the intersection of the northeast and northwest faces. Two stormwater drainage structures allow water to pass through the wall. A single concrete park trash receptacle is located within the bastion space.



FIGURE 74. View north of San Antonio Bastion.

Ruinous structures are also present within the bastion as foundation outlines on the ground. One is a raised circular structure. Another features semi-circular paving aligned with the sentry box access way. West of the sentry box, the grade along the wall rises, partially burying a third semi-circular structure that abuts the wall. Beyond the wall, the grade continues to rise to the storage structure at the west end of the North Walls. Beyond are features associated with El Morro, with a platform where visitors can stand to gain expansive views of the esplanade and surrounding areas, including the community of La Perla. Many of these features, as well as the Old San Juan Cemetery, are also visible from San Antonio Bastion.

The only segment of the West Walls that edge the esplanade includes San Fernando Battery and the remains of gun emplacements for Ordóñez cannon. These gun emplacements constitute one of the final alterations the Spanish made to the bastions to accommodate better artillery. Additional segments are discussed below as part of Parcel B.

San Fernando Battery (Figure 75) is located south of El Morro. The small L-shaped outerwork designed to fire toward the mouth of San Juan Bay. It sits atop a nearly vertical cliff and is in ruinous condition. It is built of coursed, dressed limestone masonry with earthen fill and stucco coating. The battery was present by 1765 and altered in 1787.

In 1888, the battery was modernized to accommodate contemporary artillery. A concrete artillery platform fronted by a low concrete wall was built to emplace four breech-loading mortars designed to fire *en barbette*. Each gun emplacement is marked by a central iron pintle and arched limestone tracks (Figure 76). The artillery, known as Ordóñez cannon, were designed by Salvador Díaz Ordóñez, an artillery officer in the Spanish Army. The parapet for the earlier battery was lowered and associated embrasures removed from the earlier battery to facilitate firing of the new guns.

The section of the wall that edges the esplanade is clearly visited often. There is evidence of soil compaction, erosion, and wearing of the grass at the base of the wall. Erosion is also evident near the entry into San Fernando Battery.



FIGURE 75. View northwest of the historic remains of San Fernando Battery.



FIGURE 76. View south across the late nineteenth century gun emplacements of the battery.

Drainage Structures

Refer to Figure 79– North Walls Drainage Structures.

Drainage structures are part of the original design of the North and West Walls, including openings that extend directly through the merlons, as well as openings built into the banquettes or firing steps that also serve to collect water and direct it through the merlons. Most of the drainage structures present within Parcel A are part of the Spanish engineering.

Within Parcel A, drainage structures are in association with both curtain walls and bastions within the North Walls. These structures include arched openings that extend directly through the

walls and smaller openings that pass beneath the banquettes and firing steps, where they exit through the wall in a way that is not visible from the esplanade. Along the curtain wall east of Santa Rosa Bastion there are two arched openings and one opening associated with a banquette. Within Santa Rosa Bastion, there is one large arched opening. Each of the banquettes includes at least one smaller opening beneath it. There is also one large arched opening along the curtain wall between San Antonio and Santa Rosa Bastions, as well as openings to either side of one of the banquettes. Within San Antonio Bastion there are openings beneath the banquettes only on the southeast face of the polygonally shaped bastion.

Norzagaray Street pedestrian promenade walls and railings (Figure 77). The pedestrian promenade along Norzagaray Street is edged to the west by a concrete wall system composed of a low stone wall topped by decorative metal railings. The wall features stone columns spaced approximately 16 feet on center. Alternating columns support metal light poles. The light poles and the metal railings are painted forest green. Near the intersection with El Morro Road, the wall ends at a pair of landings and wide, shallow stairs that provide access to El Morro Esplanade.



FIGURE 77. View northeast of the Norzagaray Street pedestrian promenade and the walls and safety railings.

Wall and safety railings at El Morro dry moat (Figure 78). At the edge of the dry moat that surrounds El Morro to the east is a system of low concrete walls and metal safety railings that protect visitors from falling into the moat below.

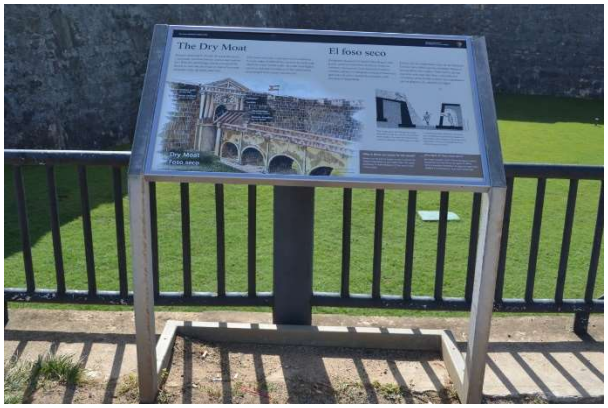


FIGURE 78. View northwest of the wall and safety railings overlooking the dry moat at El Morro.

Left blank intentionally



FIGURE 79. North Walls drainage structures. (Source: LSHLA)

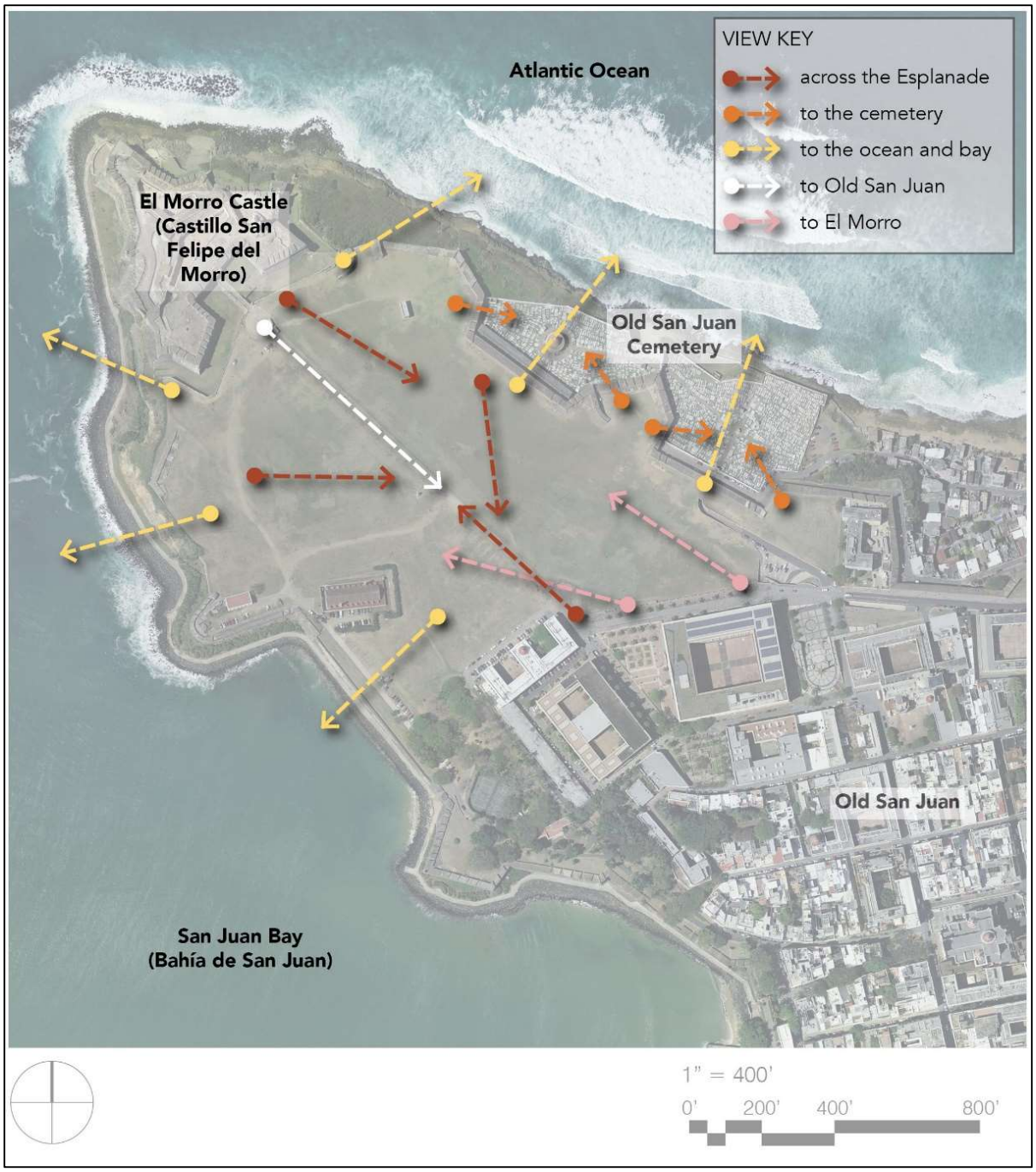


FIGURE 80. Overall views and vistas. (Source: LSHLA)

Views and Vistas

Refer to Figure 80 – Overall Views and Vistas.

Views across the expansive open space of El Morro Esplanade (Figure 81). Views across the expansive open space of the esplanade are afforded from many vantage points throughout the grassy open plain as well as from El Morro Road and the pedestrian promenade along Norzagaray Street.

Views to Old San Juan Cemetery from North Wall embrasures (Figure 82). Views are afforded of the adjacent Old San Juan Cemetery to the north through embrasures in the North Walls.



FIGURE 81. View south across the expansive open space of the esplanade.

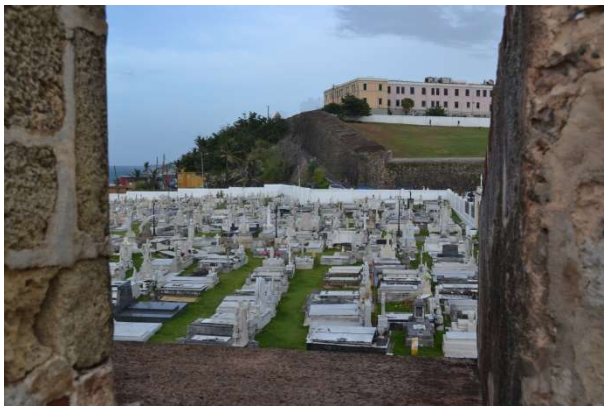


FIGURE 82. View east toward Old San Juan Cemetery through one of the North Wall embrasures.

Views of the Atlantic Ocean from North Wall embrasures and esplanade. Views to the Atlantic Ocean are also afforded from the embrasures associated with the North Walls (Figure 83).

Views to San Juan Bay are afforded from El Morro Road, expanses of El Morro Esplanade to the south of the road, and across and through the embrasures of the West Wall system.



FIGURE 83. View northeast of the Atlantic Ocean from the North Walls.

Views to San Juan Bay and Old San Juan from the esplanade (Figure 84). Several large institutional buildings are located to the east of El Morro Esplanade. These sit on high ground and often prominently visible from the open space of El Morro Esplanade. Also visible from the esplanade promontory is San Juan Bay to the south and west.



FIGURE 84. View southeast toward Old San Juan from Santa Rosa Bastion.

Views to El Morro from the Norzagaray Street pedestrian promenade (Figure 85). From the promenade along Norzagaray Street, views are afforded across the open plain of El Morro Esplanade. These views are anchored by El Morro to the northwest.



FIGURE 85. View northwest across El Morro Esplanade from a landing along the Norzagaray Street pedestrian promenade looking toward El Morro.



FIGURE 86. Parcel A small-scale features. (Source: LSHLA)

Small-scale Features

Refer to Figure 86 – Parcel A Small-scale Features.

Commemorative Features

Dutch Monument (*Monumento Commemorativo del Sitio de los Holandeses*)(CRIS HS #091729 Shadow) (Figure 87). The Dutch Monument, located to the south of El Morro Road near its southeastern terminus, commemorates the Dutch siege of San Juan and El Morro in 1625. The monument was erected to commemorate the 200th anniversary of the battle, the lives lost, and the valor of Juan de Amézquita, Captain of the Puerto Rican forces during the conflict. Although the date of origin is not known, it appears on maps of El Morro Esplanade by 1861. The monument was sited to represent the westernmost Dutch trenches built during the siege of El Morro.[157]

The commemorative feature is a square limestone monument constructed on a three-stepped platform that conveys the appearance of a small mausoleum. The monument features pediment roof details, engraved images of military helmets,

157. Crisson et al., 20.

and a truncated fluted column at the apex. It includes a broken column symbol traditionally associated with memorials and gravestones erected for individual's whose lives were cut short.

"The Borinqueneers" Monument. "The "Borinqueneers" Monument is also located to the south of El Morro Road and near the southeast end of the route. The monument is a small bronze plaque set within a block of granite that features a polished top surface and rusticated edges. The granite block is set on a concrete base (Figure 88).

The plaque reads "Dedicated to the men of the 65th Infantry Regiment United States Army for their Valor and Patriotism during the Korean War 1950–1953." The plaque includes the same text in Spanish and features the seals of the US Army and the 65th Infantry Regiment US Army Unit Crest. The monument was erected in 2000.

Bronze plaques marking Copeland's Corner and Santa Rosa Bastion. Bronze plaques marking Copeland's Corner and Santa Rosa Bastion are bolted onto the face of the walls where they are displayed (Figure 89).



FIGURE 87. View northwest of the Dutch Monument located to the south of El Morro Road.



FIGURE 88. View west of "The Borinqueneers" Monument, located at the southeast end of El Morro Road.



FIGURE 89. Bronze plaque marking Copeland's Corner at Santa Rosa Bastion.

Site Furnishings

Trash receptacles. Concrete trash receptacles are in several locations within El Morro Esplanade. These locations generally occur along popular routes used by visitors to move through the landscape, such as locations at the circular turnaround at Norzagaray Street, in association with the plazas at the northwest end of El Morro Road, near the Dutch Monument, outside the bookstore, along the North Walls, within the North Wall bastions, and adjacent to the tunnel associated with the road to Old San Juan Cemetery. All the receptacles are of a similar design. Park personnel fabricate the trash receptacles in the maintenance shop and are a park standard. The trash receptacles are fashioned from exposed concrete cubes that measure 2 feet in each dimension. The concrete has chamfered channels at 6 inches and 1 foot 8 inches above the ground (Figure 90). They are hollow in the center

to hold a metal trash collection barrel. Each receptacle is covered with brown plastic cover that measure 1 foot 4 inches. The covers have doors set in the front that swing open to allow visitors to place trash inside. Most of the trash receptacles are singly arranged. However, there are also some double receptacles. Two of these is located near the circular turnaround (refer to Figure 61).



FIGURE 90. View of one of the park standard trash receptacles located within Santa Rosa Bastion.

Backless benches. Within Parcel A, benches are located along the margins of the landings at either end of El Morro Road and outside the bookstore. The benches are concrete slabs, U-shaped in form, that are fabricated by park personnel in the maintenance shop and constitute a park standard. The benches have chamfered edges, a polished top, and an exposed aggregate finish elsewhere. Turf reinforcement pavers have been placed in the ground in front of the benches at the bookstore and the paved plaza near El Morro (refer to Figure 49) to protect against erosion. The ground around many of the benches is compacted and eroded (Figure 91).



FIGURE 91. One of the park standard concrete backless benches located to the south of El Morro Road near the circular turnaround.

Dog-waste-bag dispenser and receptacle. Located along the wall and safety fencing that mark the edge of the El Morro dry moat, near the three wayside exhibits described above, is a trash receptacle, bike rack, and dog-waste-bag dispenser and waste receptacle (Figure 92). The dog-waste-bag dispenser and receptacle is a green plastic box mounted on a metal pole. The waste receptacle has a plastic liner that can be changed by park staff.



FIGURE 92. View southwest of a dog-waste-bag dispenser, trash receptacle, and bike rack along the edge of El Morro dry moat.

Bike rack (refer to Figure 92). The bike rack is a metal-hoop feature painted black that is founded in the ground with poles.

Drinking fountain (Figure 93). Located along the sidewalk that links the Norzagaray Street promenade with El Morro Road is an exposed aggregate drinking fountain.



FIGURE 93. View east of the drinking fountain located near the entrance to El Morro Road.

Lighting at along the circular turnaround (Figure 94). Metal light poles are located along the margins of the circular turnaround at the entrance to El Morro Road. The lighting features metal bases with classical detailing, and historic-style lanterns. The pedestrian promenade along Norzagaray Street features similar lighting.



FIGURE 94. View southeast of one of the light poles located along the circular turnaround at the entrance to El Morro Road.

Signs

Identity sign base (Figure 95). Located to the north of the paved route of El Morro Road near the circular turnaround is a low rectangular concrete slab. The slab formerly supported the park identity sign, missing at the time fieldwork was conducted on behalf of the CLR. The National Park Service indicates that it plans to replace the sign.



FIGURE 95. View northwest of the identity sign base located to the north of El Morro Road.

Wayside exhibits. Within Parcel A, there are five wayside exhibits. The waysides provide information in both English and Spanish. The waysides are located along El Morro Road, with one interpreting the popularity of kite flying on the esplanade (Figure 96) and another the Dutch Monument. Three others are located along the wall and safety fencing near the El Morro dry moat. These are titled "A Defense of the 1st Order," "For Your Safety," and "The Dry Moat." There is also an empty wayside exhibit frame and carrier located at the east end of the Norzagaray Street promenade (Figure 97).



FIGURE 96. View west of the wayside exhibit that interprets the popularity of kite flying.



FIGURE 97. View northwest of the empty wayside exhibit carrier located at the eastern landing associated with the Norzagaray Street pedestrian promenade.

"No Bicycling" signs. Located near the San Antonio Guardhouse within El Morro Esplanade, and along the two-track maintenance road leading to Parcel A from El Polvorín, are small signs mounted on metal posts that read "No Bicycling" (Figure 98).



FIGURE 98. View east of a "No Bicycling" sign located near San Antonio Bastion.

Regulatory signs at the entrance to El Morro Road (Figure 99). Regulatory signs are posted at the entrance to El Morro Road near the circular turnaround. These signs indicate the speed limit of 5 miles per hour and access is for authorized vehicles only. The two signs are mounted on a single pole on the southern side of the road in a cluster of features that include trash receptacles, benches, light poles, and bollards used to control access to the road when the park is closed.



FIGURE 99. View northwest of the regulatory signs at the entrance to El Morro Road.

Access Control Features

Bollards and chain access control. Metal bollards located to either side of El Morro Road near its entrance can be used to mount a metal chain to limit access to the road when the park is closed (Figure 100).



FIGURE 100. View northwest of the bollards and chain used to control vehicular access to El Morro Road.

Fencing at San Fernando Battery. At the time fieldwork was conducted on behalf of this project a black-coated chain-link fence approximately 4 feet in height lined the edge of the steep slope behind San Fernando Battery to protect visitors from falling. In 2020-2021, the fence was replaced with a new structure built of concrete columns and stainless-steel bars. (Figure 101).



FIGURE 101. View north along the new fence that protects visitors from accessing the steep cliffs west of San Fernando Battery. (Source: NPS)

Fencing above El Polvorín. A similar fence is located atop the hill at the western edge of El Morro Esplanade overlooking El Polvorín also to protect visitors from falling. This fence replaced an earlier sea grape planting in 2020-2021.

Bollards along Norzagaray Street. Green metal bollards line Norzagaray Street to prevent vehicles from driving or parking on the adjacent pedestrian promenade. The bollards are fluted with a circular base and cap (Figure 102).



FIGURE 102. View northeast of the bollards along Norzagaray Street.

Utility Features

Vault cover. A pair of metal covers serve as the doors of an elevator that goes down to a cistern currently used as a storage area by the Facilities Division. The metal covers are south of the circular plaza near El Morro (Figure 103).



FIGURE 103. View northeast across the vault cover associated with a cistern south of El Morro.

Manholes. Manholes are in association with the Norzagaray Street pedestrian promenade and the circular turnaround at El Morro Road.

Known and Potential Archeological Resources

Circular brick structure. Adjacent to the tunnel leading to Old San Juan Cemetery is a circular brick structural remnant (Figure 104).



FIGURE 104. View southeast of the circular brick structure located alongside the Cemetery Road tunnel.

Brick foundation ruins. Located along the North Walls at the end of Santa Rosa Bastion is a brick foundation ruin (Figure 105).



FIGURE 105. View west of brick foundation ruins located within San Antonio Bastion.

Remains of a cistern and an associated structure at Bastion Santa Rosa. The cistern and associated structure were inadvertently discovered in the 1990s when heavy equipment was placed near them, resulting in damage to these features.[158]

Buried refuse deposits east and northeast of the San Fernando Battery. At least two deposits from the mid-to-late nineteenth century were identified during restoration work at the bastion in the 1990s.[159]

Remains of unidentified structures, a cistern, and an eighteenth-century road fragment at the San Fernando Battery. The features were identified during 1990s construction at the bastion.[160]

Potential Archeological Resources. There is potential for as-yet-unidentified archeological resources to be present across Parcel A. Remains

158. National Park Service, San Juan National Historic Site Superintendent's Annual Narrative (1997), 10.
159. US Army Corps of Engineers, Jacksonville District, *Request for Proposal, Cultural Resources Services for (1) Two Archaeological Data Recovery Areas at San Juan National Historic Site, El Morro, PR and (2) Sites VB-27 and VB-32, Municipio de Vega Baja for the Río Cibuco Flood Control Project, Vega Baja, PR, amended January 29, 1993*; Michele Helene Hayward Merkling and Michael A. Cinquino Argana, Panamerican Consultants, Inc., Buffalo, New York, *Archaeological Investigations at Castillo de San Felipe del Morro, Old San Juan, Puerto Rico*, prepared for the US Army Corps of Engineers, Jacksonville District (1997). The 1992 investigation at the San Fernando Battery was conducted by David McCullough and is discussed in Hayward Merkling and Cinquino Argana, 105–107. The deposits are also briefly discussed in National Park Service, San Juan National Historic Site Superintendent's Annual Narrative (1997), 9.
160. National Park Service, San Juan National Historic Site Superintendent's Annual Narrative (1997), 9.

may include those related to the Little White Chapel; cisterns; the Dutch approaches; the several buildings that formerly stood southeast of the Castillo; historic roads; and unrecorded tunnels. Additionally, although no Precolumbian sites have been found at El Morro, they are present in nearby parts of San Juan and may certainly also be present in Parcel A.[161]

161. Carlos Solis Magaña, *Colonial Archaeology of San Juan de Puerto Rico: Excavations at the Casa Rosa Scarp Wall, San Juan National Historic Site, Puerto Rico*, Office of Archaeological Research, Report of Excavations 52 (Moundville, Alabama: University of Alabama, 1988); Agamemnon Gus Pantel, Jalil Sued-Badillo, Anibal Sepúlveda, and Beatriz del Cueto de Pantel, *Archaeological Investigations into the History, Urbanism and Architecture of Barrio Ballajá from Precolumbian Times through to the Twentieth Century* (San Juan, Puerto Rico: Foundation of Archaeology, Anthropology and History of Puerto Rico, 1986); and Pantel, del Cueto & Associates, Guaynabo, Puerto Rico, *Archaeological Assessment, Santa Elena Powder Magazine, Upgrade of Electrical Infrastructure at Masonry Workshop, Visitor and Training Area, San Juan National Historic Site, San Juan, Puerto Rico,* Prepared for Division 16 Engineering Corp. (2014), 62.

Parcel B

Overview Description

Parcel B is located to the south of Parcel A, and it is generally set topographically below the broad open plain of El Morro Esplanade. Parcel B is maintained in mown turf like Parcel A, but also contains tree plantings, groves of trees, and ornamental gardens. Three buildings are located within Parcel B: Santa Elena Guardhouse, El Polvorín, and Casa Rosa. The first two are used by the National Park Service for maintenance operations and a center for historic artillery conservation. El Polvorín, built as a powder house by the Spanish in 1787, is the largest of the three buildings. It has been rehabilitated for park maintenance operations. To the west of El Polvorín is Santa Elena Guardhouse, also built by the Spanish in 1787. It currently houses the National Park Service Cannon Conservation Workshop. The guardhouse and an adjacent World War II gun emplacement are set within Santa Elena Bastion, a projection of the West Walls.

The building and other landscape features associated with Parcel B are accessible via San Agustín Road, which leads northwest into the park from Old San Juan. San Agustín Road intersects Casa Rosa Road to the southeast of Casa Rosa. The road is gated southeast of Santa Elena Guardhouse and El Polvorín to limit public access to the park maintenance operations. Southeast of the gate, the road is edged by a heliport, employee parking, a gatehouse, playground, and tennis and basketball courts. The playground is shaded by a grove of mature trees. A concrete sidewalk connects the playground with the tennis and basketball courts to the southeast as well as Casa Rosa Road to the north via a flight of concrete steps. These steps ascend the steeply sloped topography to the north of Parcel B. Tree plantings, curbs and a retaining wall, cobra lighting, signage, and site furnishings also edge San Agustín Road. On the hill above the tennis and basketball courts is a small utility building.

San Agustín Road also parallels segments of the West Walls, including San Agustín Bastion and the curtain wall between San Agustín and Santa Elena Bastions. Northeast San Agustín Bastion is Casa Rosa, originally built by the Spanish circa 1861 as San Agustín Guardhouse. Surrounding Casa Rosa are a woven wire fence, a stone wall, plantings, a wishing well, walks, and paved terraces. Casa Rosa faces the intersection of San Agustín Road and Casa Rosa Road. Parcel B extends southeast along Casa Rosa Road to Casa Rosa Gate, which extends across the road below Casa Blanca.

Natural Systems and Features and Responses to Natural Resources

Refer to Figure 43 – Overall Natural Features and systems and Figure 44 – Overall Responses to Natural Resources.

Walls and bastions along the edge of the promontory. As within Parcel A, Parcel B is edged by defensive walls and bastions built by the Spanish to fortify the natural promontory landform of the northwestern corner of the Isleta de San Juan.

Stormwater management: use of drains, scuppers, gutters, and paved channels to control stormwater. Drains, scuppers, gutters, and paved channels control stormwater in association with the curtain walls and bastions within Parcel B. Many of these were part of the original Spanish design and engineering of the wall system. Where sections of the wall failed during the early twentieth century, the US Army incorporated new drainage systems when the walls were rebuilt. These include concrete gutters behind the curtain wall between Santa Elena and San Agustín Bastion. Older features include bastion gutter systems, openings associated with scuppers, and arched openings that discharge through the merlon walls like those described in Parcel A (Figure 106). Specific stormwater management structures are discussed below in the Structures section.



FIGURE 106. One of the arched openings that directs stormwater through the West Wall merlons. This structure is located at the northwest end of San Agustín Bastion where it meets the curtain wall.

Terraced and graded topography (Figure 107). Parcel B sits at a lower elevation than much of Parcel A. The landform within Parcel B descends toward the edge of the promontory as a series of slopes and terraces. The heliport sits on one of these terraces, as does the playground.



FIGURE 107. View southeast across the terraced and graded topography near the heliport.

Stormwater management: use of berms, swales, catch basins, drop inlets, and pipes to control stormwater. The National Park Service has introduced additional stormwater management systems to protect against flooding within Parcel B. These systems include berms that direct stormwater to a catch basin, where it is piped out of the wall that are located on the hillside above Santa Elena Bastion (Figure 108), near the heliport (Figure 109), within San Agustín Bastion (Figure 110); and drop inlets along San Agustín Road that capture stormwater and convey it through pipes out through the wall near El Polvorín, within Santa Elena Bastion (Figure 111), and near San Agustín Bastion; and berms directing water to several catch basins within San Agustín Bastion. Specific stormwater management structures are discussed below in the Structures section.



FIGURE 108. One of the catch basins used to control the flow of stormwater within Parcel A. This catch basin is located uphill from Santa Elena Bastion.



FIGURE 109. Another of the catch basins used to capture overland flow of stormwater. This structure is located on one of the terraces southeast of El Polvorín.



FIGURE 110. View of a berm and catch basin used to capture stormwater within San Agustín Bastion.



FIGURE 111. One of the drop inlets that captures stormwater within Santa Elena Bastion and conveys it through the wall.

Land Uses

Maintenance. El Polvorín serves as the primary maintenance operations center for San Juan National Historic Site. The historic integrity of the building was protected when it was adapted for use as a maintenance facility through the construction of a new wall system within the interior.

Conservation. Santa Elena Guardhouse currently serves as the office and work area for the Cannon Conservation Workshop, which provides material conservation services for historic artillery and ammunition to the park. In addition to the building interior, the open space associated with Santa Elena Bastion is used for conservation projects.

Recreational. The playground and tennis and basketball courts provide recreational venues for visitors and city residents.

Transportation. The heliport is associated with a transportation land use.

Spatial Organization

Refer to Figure 53 – Spatial Organization.

Spatial edge formed by defensive walls and bastions (Figure 112). Parcel B is edged to the southwest by sections of the West Walls built by the Spanish between the seventeenth and nineteenth centuries. The West Walls edge Parcel B to the southwest, while sloped topography contains the space to the northeast.

The West Walls range in height from 3 to 5 feet. They include sections of curtain walls and the projections of Santa Elena and San Agustín Bastions.



FIGURE 112. Spatial edge formed by the city walls and bastions.

The space associated with Santa Elena Bastion is edged by Santa Elena Guardhouse, a rectangular building that faces southeast. The building is edged on three sides by a covered portico with arched openings. A shade structure extends west from the end of the building. Located to the southwest and west of the building are three concrete military defense structures added during World War II. These include a low gun emplacement and two modest building. To the east of Santa Elena Guardhouse, the space has been enclosed with a chain-link fence used to protect stored historic artillery.

San Agustín Bastion is more open and accessible. The center of the bastion is marked by a raised turf

landing, a portion of which is shaded by several mature trees.

El Polvorín complex. El Polvorín is set within a level space formed by a retaining wall at the edge of the sloped terrain that defines part of the boundary between Parcels A and B. The retaining wall forms an "ell" (Figure 113) The space between the building and the retaining wall is relatively narrow to the north, and slightly wider to east. The wall has been restored since fieldwork was conducted on behalf of the CLR. Pavers have also been added to the grass shown in the photograph to facilitate access by golf carts. To the south of El Polvorín is a two-bay parking area for park personnel.



FIGURE 113. View east of El Polvorín and the retaining wall that edges the complex to the north and east. (Source: NPS)

San Agustín Road corridor (Figure 114). San Agustín Road extends between Casa Rosa and the edge of Parcel A. The road occupies a linear corridor framed by adjacent tree plantings, terraced topography, a gatehouse, parking, walks, lighting, and utility features, as well as the system of Jersey barriers that surround the heliport.



FIGURE 114. View northeast along the San Agustín Road corridor.

Tennis and basketball courts (Figure 115). Located southeast of the playground at the edge of San Agustín Road is a fenced space that contains tennis and basketball courts divided by chain-link fencing. The courts are edged to the north on the uphill side by a concrete retaining wall. A sidewalk edges the courts along San Agustín Road. There are also overhead cobra lights along the margins of the fenced space.



FIGURE 115. View north across the tennis court.

Casa Rosa residential landscape (Figure 116). Southeast of the recreational courts is Casa Rosa, originally built by the Spanish as San Agustín Guardhouse. Casa Rosa is the focal point of a landscape that features walls, fences, walks, plantings, and outbuildings. The building faces the intersection of Casa Rosa and San Agustín roads. The front and side yards are edged by woven wire fencing, while the northern margin of the property along Casa Rosa Road is edged by a stone wall. A walk leads through a gate in the fence. Ornamental plantings frame the front yard. The rear yard is wooded. Set within the rear yard are concrete and

stone walks and landings, a wishing well, and an outbuilding. The outbuilding faces San Agustín Road. This building currently supports a feral cat adoption program. Parking edges the road near the outbuilding.



FIGURE 116. View north toward Casa Rosa.

Grove of trees. A grove of mature trees forms a shady enclave on the hillside east of San Agustín Road to the northwest of the tennis and basketball courts.

Playground (Figure 117). The playground occupies a terrace between the hillside north of Parcel B and San Agustín Road. Set within the grove of trees, the playground features play equipment, picnic tables, benches, a concrete walk, trash receptacle, and a drinking fountain. Low retaining walls form level areas for the play structures and picnic tables.



FIGURE 117. View southeast toward the playground.

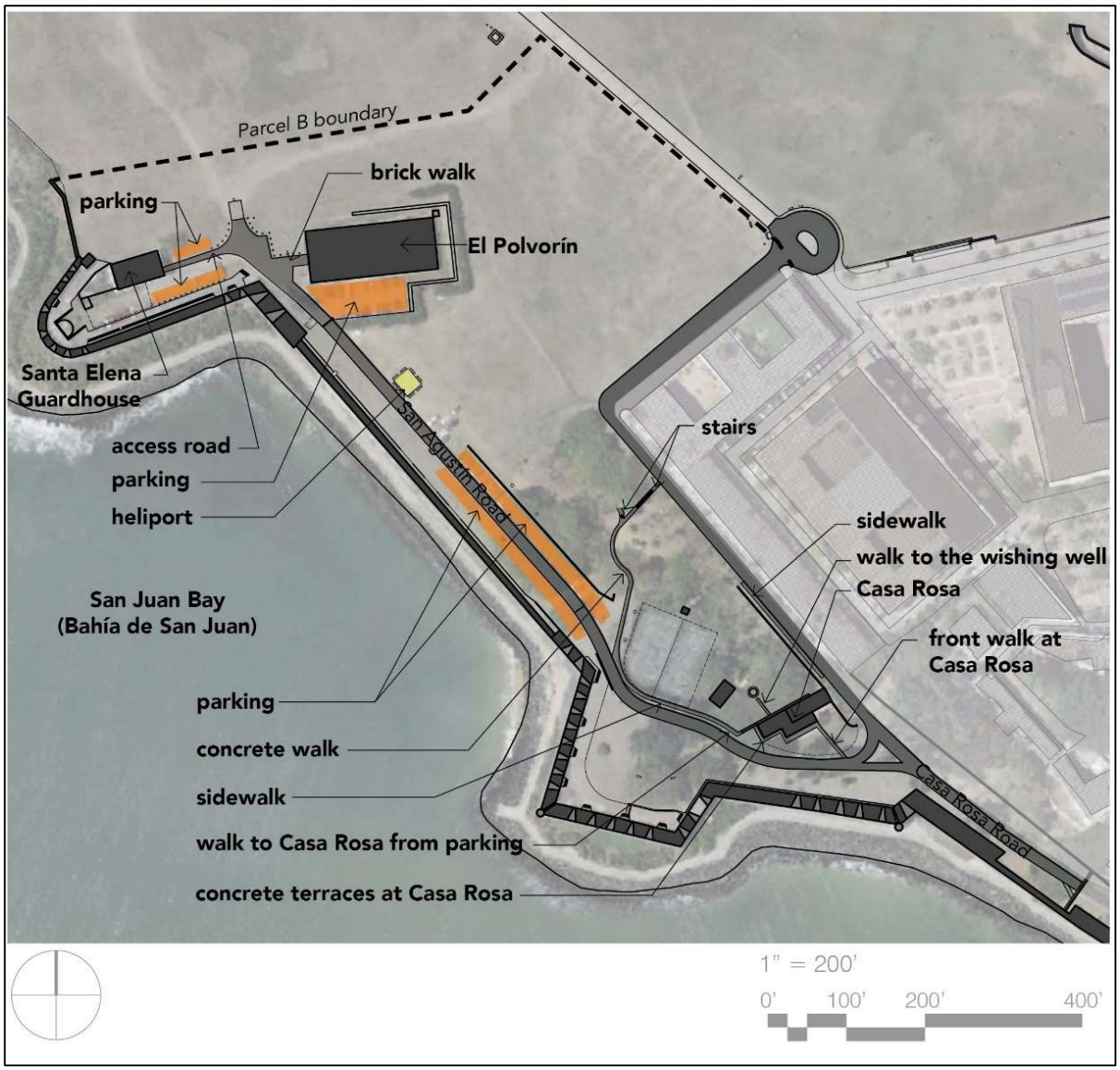


FIGURE 118. Parcel B circulation. (Source: LSHLA)

Circulation

Refer to Figure 118 – Circulation, Parcel B Enlargement.

Vehicular Circulation

Casa Rosa Road (Figure 119). Casa Rosa Road extends to the north of Casa Rosa, providing access to the Puerto Rico School of the Visual Arts located near the end of Norzagaray Street. Casa Rosa Road extends south to Caleta de las Monjas in Old San Juan. Casa Rosa Road is a two-way, asphalt-paved route that measures approximately 18 feet in width. It is edged by concrete curbs painted yellow. Light poles, some of which are no longer operational, and trees also edge the road. A speed bump crosses the road near its intersection with San Agustín Road. The curtain wall south of San Agustín Bastion frames the road south of Casa Rosa. The road passes through Casa Rosa Gate below Casa Blanca. The gate is painted the same blue color as La Fortaleza.



FIGURE 119. View southeast along Casa Rosa Road.

San Agustín Road (Figure 120). The principal circulation feature associated with Parcel B is San Agustín Road, which extends from Casa Rosa to Santa Elena Guardhouse and El Polvorín. The northwestern section of the two-way road is paved with concrete, while the remainder is paved with asphalt. The concrete section measures 16 feet in width, while the asphalt section is approximately 20 feet wide. The concrete section is edged by turf lawn, and the margins are used for parking. The asphalt section is edged by concrete curbing painted yellow. Grass swales and a 2-foot-wide concrete gutter also edge the road to the southwest, while a concrete sidewalk edges a portion of the road to the northeast. A stone retaining wall is associated with the road near the tennis and basketball courts. Mango trees, defunct lighting, and utility poles and features also edge the road. There is a speed hump across the road near San Agustín Bastion.



FIGURE 120. San Agustín Road.

Parking along San Agustín Road. Parking occurs along the margins of San Agustín Road in an informal fashion to the northwest of the tennis and basketball courts. Head-in parking is also available in front of the unidentified building west of Casa Rosa.

Access road to Santa Elena Guardhouse (Figure 121). Extending southwest from San Agustín Road is a narrow tile and exposed aggregate road that leads to Santa Elena Guardhouse. The road is surfaced with turf, hard-packed earth, and gravel. A shade tree overhangs the northwestern side of the road.



FIGURE 121. View northeast along the access road to Santa Elena Guardhouse.

Parking at Santa Elena Guardhouse. Both sides of the access road to Santa Elena Guardhouse are used for parking. Wood bollards linked by rope surround the parking areas. A 6-inch-high raised curb defines the parking area along the southern wall of Santa Elena Bastion.

Parking south of El Polvorín (Figure 122). South of El Polvorín is a level area edged to the east by the steeply sloped hill at the margin of Parcel A used for park personnel parking. The parking area is surfaced with pervious pavement. Set within the parking area are several manholes. Concrete wheelstops edge the parking area to the south. An electrical transformer protected by concrete bollards is located at the eastern end of the parking area.

Golf cart access north of El Polvorín. Pavers edge Polvorín to the north to allow for golf cart access to the area between the building and the retaining wall to the north.



FIGURE 122. Parking south of El Polvorín.

Heliport (Figure 123). Located north of San Agustín Road and south of El Polvorín on a terrace overlooking the road is a heliport. The heliport serves the Governor of Puerto Rico, who resides nearby at La Fortaleza. The heliport is a square area edged by a concrete slabs and containing turf lawn. Concrete slabs form the letter "H" in the center. The concrete slabs are painted yellow for visibility. Jersey barriers surround the heliport.



FIGURE 123. View southwest toward the heliport.

Pedestrian Circulation

Brick walk to El Polvorín. El Polvorín is accessed via a brick walk that extends from San Agustín Road to the front door of the building.

Front walk at Casa Rosa (Figure 124). A concrete walk leads to the portico of Casa Rosa from the intersection of San Agustín Road and Casa Rosa Road. The walk measures 3 feet 6 inches in width. It is accessed through an ornamental metal gate set within the woven wire fencing that edges the front yard of Casa Rosa.



FIGURE 124. View northwest toward the south elevation of Casa Rosa. The entrance gate is visible in the foreground.

Walk to the wishing well. A walk composed of concrete edging inset with stepping stones leads to a wishing well located to the rear of Casa Rosa. This informal walk is in deteriorated condition.

Walk to Casa Rosa from parking along San Agustín Road. A narrow, 2- to 3-foot-wide concrete walk leads from parking spaces along San Agustín Road to a flight of stairs at the south side of Casa Rosa. The stairs and walk connect to the portico in the front of the house.

Concrete terraces edging Casa Rosa (Figure 125). Concrete terraces edge the southern and western façades of Casa Rosa. The terrace to the south of the building is narrow, broken, and in poor condition. It is accessed via two concrete stairs from a nearby parking space. The eastern of the two stairs has six risers, each 6 inches in height and 2 feet wide. The western stair has nine risers and is 3 feet 6 inches wide. Metal bollards are set to either side of the stair near the base. The concrete landing is 7 feet 3 inches wide. It leads around the western side of the building to a 7-foot 6-inch-wide terrace. This terrace is edged by a third concrete stair that narrows from top to bottom. It has six risers, each 6-1/2 inches high, and six 1-foot treads. The landing rises 4 feet off the ground. The woven wire fence that surrounds the side yard has been removed in this area and is stacked against the concrete terrace.



FIGURE 125. View northwest along one of the concrete terraces edging Casa Rosa.

Stairs leading to the playground (Figure 126). At the north end of the playground, the concrete walk connects to a concrete stair leading up the steep slope to Casa Rosa Road. The stair is edged to either side by cheekwalls and metal handrails. A second short flight of concrete stairs is located near the base of the hill. This flight is curved in form and features four risers.



FIGURE 126. View northeast of the straight (right) and curved (left) flights of concrete stairs.

Concrete walk leading to and through the playground and past the tennis and basketball courts (Figure 127). A 5-foot-wide concrete walk leads through the playground. It is edged to either side by concrete curbing near the north end. Stairs lead to the walk from a parking area along San Agustín Road to the south. The concrete walk associated with the playground extends to San Agustín Road where it continues to provide access to the tennis and basketball courts. Concrete benches are located along the sidewalk in front of the tennis and basketball courts. Trees and utility poles extend through the sidewalk (Figure 128).



FIGURE 127. View southeast of the concrete walk leading to and through the playground.



FIGURE 128. View northwest along the sidewalk in front of tennis and basketball courts.

Sidewalk along Casa Rosa Road. A 3-foot-wide concrete sidewalk edges a portion of Casa Rosa Road above Casa Rosa.

Cultural Vegetation

Refer to Figure 68 – Cultural Vegetation.

Turf lawn (Figure 129). Turf lawn characterizes much of the area around Santa Elena Bastion, El Polvorín, and San Agustín Road, as well as San Agustín Bastion. Turf lawn is similar in character and composition to Parcel A, except for the lack of the fine and short zoysia grass related to former golf course greens.



FIGURE 129. View along San Agustín Road where the margins are maintained in turf lawn.

Sea grape planting. In 2020-2021, after completion of field investigations for this project, the park planted rows of sea grapes to either side of San Agustín Road along the curtain wall between Santa Elena and San Agustín Bastions (Figure 130).



FIGURE 130. View north along San Agustín Road with the new sea grape plantings. (Source: NPS)

Grove of mature shade trees (Figure 131). A grove of mature trees occupies the terraced landform northeast of San Agustín Bastion. The trees provide shade for those using the playground.



FIGURE 131. View southeast of the grove of shade trees.

Trees within San Agustín Bastion. There are three mature and one younger tree located within the central open turf area behind the San Agustín Bastion walls. These trees are an African cloth-bark tree (Laurel Africano) (*Ficus nekbuda*), a seagrape (Uva de Playa) (*Coccoloba uvifera*), a Dominican mahogany (Caoba Dominicana) (*Swietenia mahagoni*), and a holywood lignum-vitae (Guayacán)(*Guaiacum sanctum*).

Tree, shrub, and herbaceous ornamental and shade plantings at Casa Rosa (Figure 132). Ornamental trees, shrubs, vines, and flowering border plants are associated with the front, side, and rear yards of Casa Rosa.



FIGURE 132. View of some of the ornamental and shade plantings in the front yard of Casa Rosa.

Trees along Casa Rosa Road and ornamental plantings in the roadway triangle of Casa Rosa and San Agustín Roads (Figure 133). The triangle at the intersection of Casa Rosa Road and San Agustín

Road is planted with trees and ornamental ground covers.



FIGURE 133. Ornamental plantings in roadway triangle.

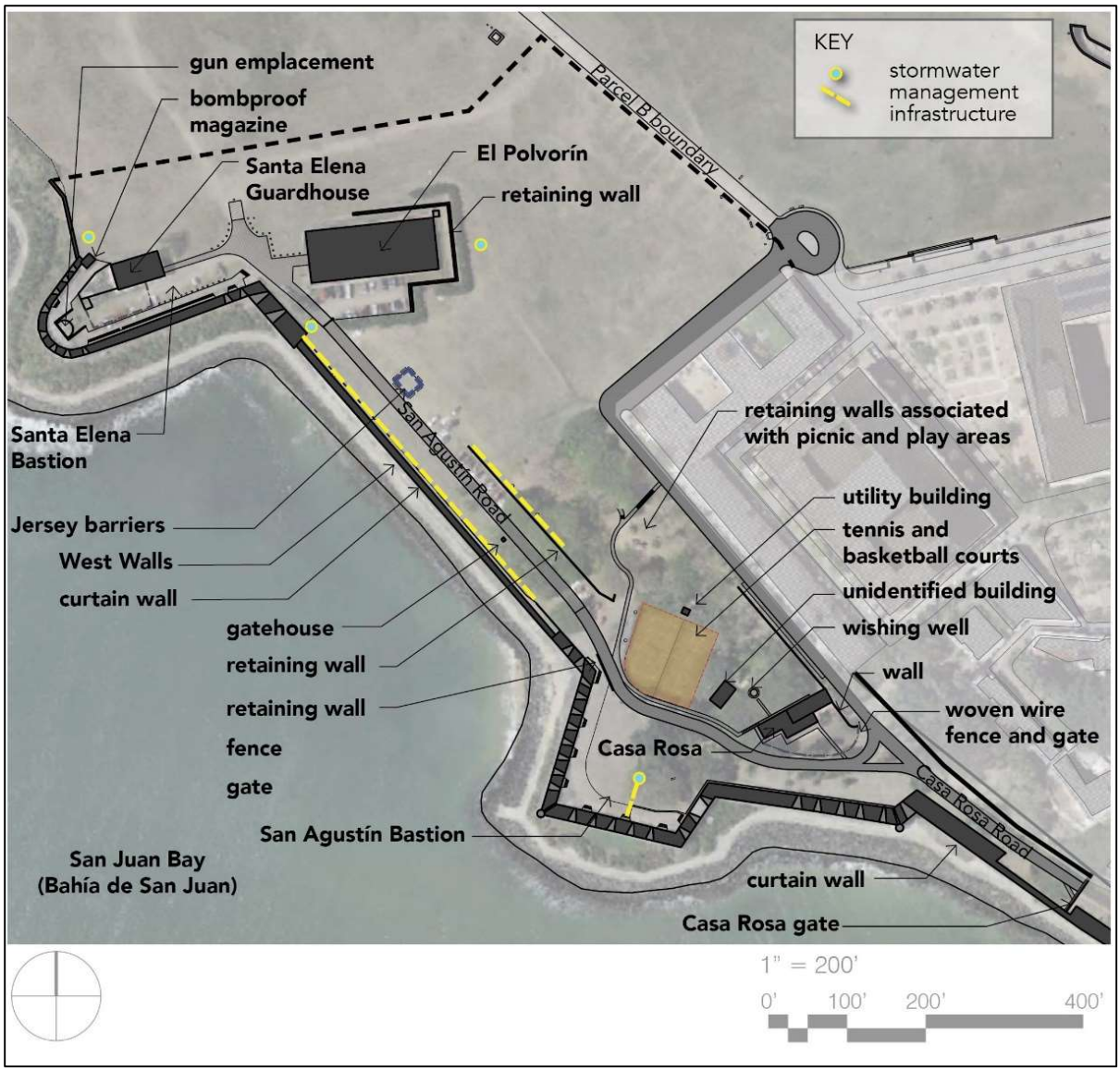


FIGURE 134. Parcel B buildings and structures. (Source: LSHLA)

Buildings

Refer to Figure 134 – Buildings and Structures, Plan Enlargement.

El Polvorín (Santa Elena Powder Magazine) (CRIS HS #091738) (Figure 135). El Polvorín de Santa Elena is located south of the broad open expanse of El Morro Esplanade at the base of a steeply sloped hill and retaining wall system. The building was constructed in 1787 by the Spanish as a powder magazine. The National Park Service rehabilitated the building between 1990–1995 to accommodate use as the maintenance headquarters for San Juan National Historic Site.

El Polvorín is surrounded by a perimeter wall measuring approximately 73 wide and 176 feet long. The wall is constructed of rubble masonry brick and stone with a stucco finish. It is 8 feet 9 inches tall and capped with a gabled coping. Garitas or sentry boxes, measuring approximately 6 feet in diameter, are located at the northeast and southwest corners of the wall and have domed roofs. A wood double door consisting of vertically oriented wood plank is centered on the west elevation and provides access to a forecourt.

The powder magazine building measures approximately 48 feet wide by 150 feet long. It is a gable roof structure oriented on an east–west axis with hip-roofed dormers: ten along the north

elevation and ten along the south elevations, which each project approximately 6 feet from the otherwise rectangular plan. Dormers measure approximately 6 feet wide and are spaced approximately 8 feet apart. The building has rubble brick masonry wall construction clad with stucco, and brick foundation walls. The gable roof structure appears to consist of clay brick or tile with a limewash applied over the top. The outline of the underlying brick structure is visible through the limewash. The building is accessed from a wood plank walk that extends from the perimeter wall gate to the main entrance of the building, centered on the west elevation. The entrance has large wood plank double doors mounted to the exterior side of the wall opening and an aluminum-framed storefront entrance mounted to the interior side of the wall opening. There is a circular window opening with wood louvers centered at the end gable of the west elevation. A rectangular window opening is located at the east end gable. At the north, east, and south elevations, the area between the building and perimeter wall has been covered with corrugated sheet metal.



FIGURE 135. El Polvorín.

Santa Elena Guardhouse (CRIS HS #091739) (Figure 136). Santa Elena Guardhouse is located within the central open space associated with Santa Elena Bastion. The building was constructed in 1787 by the Spanish. It currently serves as the Cannon Conservation Workshop where historic military armaments are being conserved. The site of the guardhouse is surrounded by a chain-link fence.

The guardhouse is a one-story building with a rectangular plan measuring 69 feet by 34 feet. The building has a stone foundation, brick masonry structure clad with stucco, painted pink, and a low-slope roof with parapet. The south elevation is the primary entrance elevation and includes a covered portico that extends the full length of the facade and is 11 feet wide. The portico features a projecting cornice that extends across the south elevation and wraps the portico portion of the building on the east and west elevations. Applied pilaster, painted white, divide the portico into bays; one at the east elevation, six at the south elevation, and one on the west elevation. Each bay features a semi-circular opening and a stringcourse located at the springline of the arch. The portico has brick and concrete paving.

The south elevation of the building enclosure has three segmental arch door openings aligned with alternating openings in the covered portico. The openings have 8-inch-wide stucco trim and a brick stoop with vertical tongue-and-groove wood plank double doors. Window openings are also segmental arched with stucco trim. The openings have either wood-framed paired casement windows or louvered windows. Security bars are located within the window opening, on the exterior side of the window, and are attached to the jamb. There is one window opening on the east end west elevation and three window openings on the north elevation. Roof scuppers are located along the top of the wall and indicate the position of the roof.



FIGURE 136. Santa Elena Guardhouse.

Extending from the west façade of the building is a non-permanent shade and protective cover structure composed of a steel frame supported by steel posts. Sheet metal rests atop the frame,

creating a canopy that is used to provide a covered workspace. Surrounding the space is a chain-link fence with barbed wire. Portions of the canopy are missing because of Hurricane Maria. The structure will be removed after the cannon conservation project is completed.

Casa Rosa (San Agustín Guardhouse) (refer to Figure 132). Casa Rosa is a two-story building that has an irregular T-shaped plan derived from a series of additions and alterations. The main portion of the building was constructed by 1861. The building has rubble masonry walls clad with stucco, painted fuchsia, and low-slope roofs with parapet. The main entrance of the building is located on the southeast elevation and consists of a one-story portico measuring approximately 47 feet long and 13 feet wide. The portico features a projecting cornice, a stringcourse, and applied pilasters that divide the elevations into bays; four bays at the southeast elevation and one bay on the northeast and southwest elevations. Each bay has a semi-circular opening. Door openings accessed from the portico have segmental arches and wood-framed double doors with transom.

There are wings to the northeast and southwest. The southwest wing is one story, and the northeast wing is two stories. The southwest wing features a projecting cornice and rectangular window openings with trim and projecting window hoods. The cornice aligns with the stringcourse of the adjacent portico. The northeast wing has a projecting cornice that wraps around all elevations at the top of the building. Like the southwest wing, it also has rectangular window opening with projecting hoods and a projecting stringcourse that extends above the first-floor windows and aligns with the stringcourse of the portico, indicating that the upper floor may have been a later addition. At the northeast elevation of the wing, there is a Juliet balcony and a stepped parapet. The northwest wing is a one-story wing with a small projecting cornice and rectangular window openings with sills that project 1 inch beyond the face of the adjacent wall. A concrete walk is located at the front of the building and extends to a raised land that wraps around the southwest wing of the building. Typical windows throughout the building are wood casement windows with louvered panels and an upper glass light. The roof of the northwest and southwest wings is accessible as a balcony.

Unidentified building west of Casa Rosa (Figure 137). An unidentified building located behind Casa Rosa and adjacent to the tennis and basketball courts edges San Agustín Road. Parking is afforded in front of the building, which serves as an adoption facility for feral cats. The building has a mostly rectangular plan measuring 22 feet wide by 32 feet long. The building has a concrete slab on grade foundation with concrete masonry unit (CMU) and reinforced concrete walls covered with a cementitious parge coat painted fuchsia.

The building has a low-slope roof consisting of a concrete roof slab that extends 16 inches beyond the building on the northeast elevation and has an integral gutter. The main entrance is located on the southwest elevation. It includes two hinged door openings and a projecting concrete hood clad with terra cotta pan tile that extends most of the building elevation. The door at the north end of the elevation is constructed of plywood and the door at the south end is aluminum. Three louvered windows are at the southeast elevation, and two window openings are at the northwest elevation, one that has been infilled with a fan. Each opening has a projecting concrete hood above. At the northeast elevation, there is an infilled door opening.



FIGURE 137. Unidentified building.

Utility building (Figure 138). Located behind the tennis and basketball courts on the hillside is a small utility building that houses electrical

equipment. The structure measures 11 feet 1 inch in width and 8 feet 10 inches in length. It is constructed of reinforced concrete walls and a concrete hip roof. The edge of the hip roof extends approximately 6 inches beyond the face of the walls and has an integral drip edge. The walls are painted yellow and the roof is painted green. Window openings, measuring 4 feet wide by 1 foot 6 inches tall, are located along the top of the wall on the north and east elevations. They have concrete sills and have been infilled with CMU. The main entrance is located on the west elevation. It is a steel door set in a wood frame. The door measures 3 feet wide and is 6 feet 6 inches tall.



FIGURE 138. View of the utility structure located along the back of the tennis court.

Gatehouse adjacent to San Agustín Road (refer to Figure 114). A modest plywood gatehouse edges San Agustín Road southeast of the heliport. The structure measures 4 feet 2 inches square and features a single entry facing the road, windows on each of the other sides, and a gable roof. The gatehouse is used by parking control personnel.

Structures

West Walls (Figure 139). The West Walls extend along the southern margin of Parcel B for its entire length. Set within the West Walls are Santa Elena and San Agustín Bastions. The linear section of wall between the Santa Elena and San Agustín Bastions has collapsed and been rebuilt. (This section of the wall was described in 1913 as "the San Agustín break," as it was already beginning to fail at that time.) Portions of the wall are deep and contain embrasures, while other sections, such as near San Agustín, are narrower



FIGURE 139. View northwest along the curtain wall between Santa Elena and San Agustín Bastions that is part of the West Walls.

The wall begins north of Santa Elena Bastion. This segment was likely constructed circa 1783–1800. It is composed of stone masonry with an ashlar bond pattern with a mix of large and small stones and red and gray renders.[162]

The segment that extends between Santa Elena and San Agustín Bastions includes rebuilt and original segments. The rebuilt sections date to the twentieth century and are narrow concrete structural walls with stone veneer. Other sections date to the late eighteenth century and are stone masonry. Behind the northern end of the wall, a concrete gutter directs stormwater flow to drains located to the northwest and southeast. To the northwest, the flow enters a large storm drain scupper structure that directs the water through the wall. Flow to the southeast exits through two outfalls. One is a pipe that has been extended through the wall. The other is a large scupper set within the final merlon north of San Agustín Bastion.[163]

The West Walls continue south of San Agustín Bastion past Casa Rosa and Casa Blanca to the end

162. The Collaborative Inc., *Santa Elena and San Agustín Bastion and Associated Fortification Walls: Condition Assessment*—Volume 1 (National Park Service, 2014), 8.
163. Ibid., 10-11.

of the CLR project area. The wall was built in the mid-to-late eighteenth century. It includes a stone masonry structural wall and a stone masonry wall with concrete back up, and it contains five embrasures. The ground slopes to the southeast. Stormwater flows downhill alongside the wall to a small catch basin. The water is directed through the wall in two, 8-inch polyvinyl chloride (PVC) pipes. Near Casa Rosa, the wall is constructed of masonry tied to concrete backing. It features a sentry box. The section to the south of Casa Rosa was built in the nineteenth century. It is a concrete structural wall with stone veneer. Eight embrasures are located along the wall, which ends at a sentry box. A drainage pipe and a rectangular opening allow stormwater to pass through this section of the wall.[164]

Santa Elena Bastion (Figure 140) is an outward projection of the West Walls built circa 1797. It lies opposite El Polvorín. Set within the space is Santa Elena Guardhouse, as well as concrete gun emplacement and armament storage structures added in support of coastal defense needs during World War II. Also set within the interior space of the bastion is a fenced area that contains a work yard associated with military armament conservation. A portion of the work yard is protected under a temporary metal roof.



FIGURE 140. Santa Elena Bastion.

The bastion is formed by three stone masonry walls. The north face is 60 feet long and has five embrasures. The front face has three embrasures. The south face is approximately 240 feet in length. It has three embrasures, one small scupper, one large scupper, a 12-inch drainpipe, and rectangular openings for drainage.[165] Set within the embrasures is concrete-filled plastic tubing, 6 inches in diameter, which extends across the openings and is bolted into the wall at the top and bottom to form protective guard rails. The tubing is painted black.

Behind much of the south wall is a 192-foot-long concrete and brick banquette accessed by brick stairs. A single small banquette is located along the western wall, accessed by two brick and concrete steps. Where there is no banquette, there is a knee wall with brick edging. A banquette at the northwest end is accessed by a ramp rather than steps. This section of wall has a finish coat of stucco with evidence of signatures marked into the surface. A bronze plaque is located on the wall identifying the bastion by name.

San Agustín Bastion (Figure 141) extends westward from the West Walls south of Santa Elena Bastion and west of the tennis and basketball courts. It is composed of three battered wall segments that delineate a central open space composed of an elevated turf knoll, likely built circa 1781. The western wall measures 192 feet in length, the southern face extends for 194 feet, and the east face is 82 feet long. San Agustín Bastion contains a single concrete sentry box. There is also a large concrete circular structure outlined in the pavement near the passage to the sentry box, also in brick.



FIGURE 141. San Agustín Bastion.

164. Ibid., 12.

165. Ibid., 9.

The bastion walls are approximately 4-1/2 to 5 feet tall by 15 feet wide. They are constructed of a mixture of brick, stone, and concrete. The walls are edged to the interior by trapezoidal banquettes that abut the wall base, and paved landings behind. The banquettes vary in dimensions but are generally about 4 feet deep and 12 feet long where they meet the wall, and 8 feet long where they meet the steps. Two steps that measure approximately 1 foot in width and 7-1/2 inches in height lead to the banquettes. Between the banquettes, there is a knee wall 2 feet 5 inches above the base that runs the entire interior perimeter. The top of the knee wall is brick, as are the embrasure openings. A brick band marks the edge and sides of the banquette, while the corners and base are concrete. Eight embrasures mark the top of the western wall; five embrasures are located along the southern wall, and three embrasures are in the eastern wall. All these openings afford views to San Juan Bay. The embrasures contain guardrails installed by the National Park Service to protect the safety of park staff and visitors. The guard rails used within the bastion are consistent with those used in the embrasures of Santa Elena Bastion. Rust stains mark some of the locations where the tubes and wall meet.

The grassy area contains four trees, two concrete benches, and a trash receptacle. Many feral cats have taken up residence within this area. Swales with catch basins are located within the grassy knoll to capture water and disperse it away from the walls. These were added in 2016.

The National Park Service maintains the landing behind the bastion walls by removing silt. The current landing is 9 feet wide to the edge of the central turf space, which rises 6 to 7 feet above the landing.

Drainage structures

Refer to Figure 145– North Walls Drainage Structures.

There are numerous examples of drainage structures associated with the West Walls within Parcel B. They are individually discussed by wall section below.

Within Santa Elena Bastion, there is a swale on the hill that directs flow to a gutter system that edges the interior of the northwestern portion of the wall. The gutter flows southwestward to a rectangular opening in the wall that discharges the water through the wall. The southern portion of the wall includes a drop inlet at the western end connected to an opening in the wall that discharges through a scupper. To the east of the inlet is a gutter that extends the length of the wall interior. The flow is discharged through a large scupper located about 15 feet to the east. Near the end of the gutter, which extends to the northeastern terminus of the bastion wall, there is a rectangular opening that discharges additional gutter flow. This opening also handles water collected in a drop inlet near El Polvorín that is conveyed beneath the road via an 8-inch PVC pipe and daylights at the northeastern end of Santa Elena Bastion. The water flows into the gutter and out through the rectangular opening. There is fourth opening in the southern wall of the bastion. This is located several feet to the southwest of the rectangular opening. It conveys water carried in a 12-inch PVC pipe from the hillside above.

The curtain wall between Santa Elena and San Agustín Bastions has been rebuilt following collapse of portions of the wall during the early twentieth century. Behind the wall is a narrow concrete gutter that conveys stormwater to four openings in the wall (Figure 142).



FIGURE 142. View southeast of the concrete gutter that carries stormwater behind the curtain wall between Santa Elena and San Agustín Bastions. The water flows to a drop inlet and is piped beneath the walk that edges the shoreline. The pipe conveys stormwater from the catch basin on the hillside near the heliport.

One of these openings is located at the northwestern end of the wall, near the intersection of the wall with Santa Elena Bastion. This is a large concrete scupper (Figure 143) that sits well below the adjacent grade and is edged by stone retaining walls. The National Park Service has erected wood fencing over a portion of the scupper for safety.



FIGURE 143. Large scupper that discharges water from a concrete channel that edges the curtain wall between Santa Elena and San Agustín Bastion.

The second opening is located southeast of the large scupper. It also conveys flow piped beneath the road from the catch basin near the heliport.

The third opening is a pipe that carries water from the gutter through the wall across the road from the playground.

The fourth opening is an arched brick aperture or scupper that extends through the merlon near the intersection of the curtain wall with San Agustín Bastion (refer to Figure 106).

Within San Agustín Bastion, there is a gutter system that extends behind both the western and southern faces of the walls (Figure 144). From these gutters, water flows beneath openings in the banquettes to rectangular openings in the walls. Three of these openings occur within the western wall. Silt builds up within the gutters and covers the concrete landing behind the walls periodically. Within the southern wall, there is a large scupper that passes through the wall near the center. The only other opening is near the intersection of the southern and eastern walls. The large scupper, which includes a brick headwall and channel, carries stormwater from a 12-inch PVC pipe that picks up stormwater from a drop inlet at the edge of the road to the north. Swales edged by berms also capture stormwater within the center of the open space associated with the bastion. Catch basins covered with metal grates are placed at regular intervals within the base of the swale. Although there is no gutter system on the east face, there is a square opening through the wall at the floor level in the southeast corner of the bastion.[166] At the northeast corner of the bastion there is evidence of drainage problems. Sandbags have been placed at the embrasure openings along the eastern face of the bastion to intercept stormwater runoff.

166. Ibid., 15.



FIGURE 144. View of the gutter along the western wall of San Agustín Bastion.

Along the curtain wall southeast of San Agustín Bastion, stormwater generally flows over the walls and through the embrasures within the section just east of San Agustín Bastion. The only opening is to the east, where a small scupper extends through the wall just west of Casa Rosa Gate.



FIGURE 145. West walls drainage structures. (Source: LSHLA)

Retaining wall behind El Polvorín (refer to Figure 129). An approximately 20-foot-tall retaining wall edges El Polvorín to the east, helping to form the level precinct for the building. The wall also extends along the north and south and tapers in height until it meets grade. The exposed face of the wall has a steep slope, indicating that the wall may increase in width toward the bottom. The top of the wall is approximately 12 inches deep. The wall is constructed of a variety of masonry materials including red clay brick, stone, concrete, and mortar. It appears that the masonry has been covered with a cementitious parging. The upper 3 feet of the wall appear to have been rebuilt.

Wall along Casa Rosa Road (Figure 146). A stone wall that is both retaining and free-standing marks the edge of the Casa Rosa property along Casa Rosa Road. The wall ranges from 1 foot 9 inches to 2 feet wide, and 15 inches to 3 feet 6 inches in height. The southern end of the wall is shaped as a half circle.



FIGURE 146. View south of the wall along Casa Rosa Road.

World War I-era coastal defense gun emplacement (Figure 147). Set just behind the West Walls of Santa Elena Bastion is a concrete gun platform and an adjacent concrete structure that were added during World War I to protect San Juan Harbor. It was designed to support a 4.72-inch Armstrong rifle mounted *en barbette*. The gun emplacement was built to sit on a platform large enough to provide space for the gunners to work. The structure was also designed to take care of the reaction from the discharge of the gun through construction of a blast apron and filling in front of the parapet wall. The gun emplacement is a concrete structure consisting of a platform, blast wall, and ammunition locker. The platform is approximately 5 feet 6 inches above One of these openings is located at the grade and mostly circular in plan with a diameter of 20 feet 6 inches. It is surrounded to the north, west, and south by a blast wall. At the west side, the wall is 4 feet 6 inches deep and 5 feet 6 inches above grade. The north and south walls are 1 foot 8 inches deep at the west end and taper is height and wall depth toward the east. There is a concrete stair between the gun emplacement platform and south blast wall. To the east of the gun emplacement platform is a concrete ammunition locker that measures 9 feet by 8 feet 3 inches and is 5 feet tall. It is accessed from a steel door.



FIGURE 147. World War I-era coastal defense gun emplacement.

World War I bombproof magazine (Figure 148). Located east of the World War I-era gun emplacement and north of Santa Elena Bastion is a concrete structure that may have served as a bombproof magazine. The structure has a rectangular plan measuring 18 feet 4 inches by 11 feet 4 inches that is partially set into the adjacent hillside. The structure is 7 feet 7 inches tall and has a vaulted roof. The building has a stone foundation and rubble masonry walls clad with a cementitious parging. The main entrance is located on the southeast elevation and includes two segmental arch openings with steel-framed access doors.



FIGURE 148. Bombproof magazine.

Tennis and basketball courts (Figure 149). Located along San Agustín Road north of San Agustín Bastion are two recreational courts with fine asphalt surfacing. They include a basketball court and a tennis court. The courts are separated and surrounded by chain-link fencing. Gates provide access to the courts from the concrete walk that extends along the western edge of the courts toward the playground area, and the concrete sidewalk that edges the courts along San Agustín Road. The northern edge of the courts is formed by a concrete retaining wall. The northeast corner of the wall is taller and may function as a backboard. The wall measures between 10 and 15 feet in height and is 9 inches thick. It has a painted stucco finish. The tennis court features a central net supported by metal bollards, while the basketball court has hoops at either end supported with metal arms. There are also 6-foot-long wood slat benches chained to the inside of the fence, and a painted CMU structure in the south corner that may have served as a referee stand.



FIGURE 149. Tennis and basketball courts.

Retaining wall along San Agustín Road (Figure 150). South of the tennis and basketball courts, San Agustín Road is edged and supported by a concrete and mortared stone retaining wall. The wall is 6 inches wide at the top, ranges in height from 2 to 3 feet, and is battered on the outer edge to a width of 1 foot 6 inches.



FIGURE 150. Retaining wall along San Agustín Road.

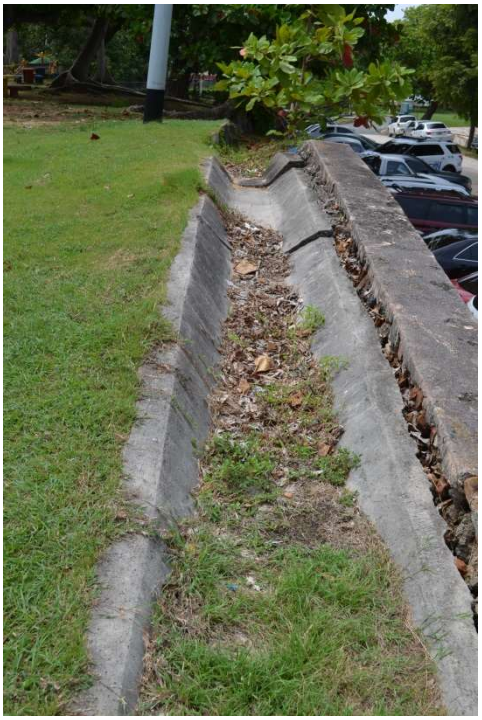


FIGURE 151. View southeast along the concrete channel behind the retaining wall near the playground.

Retaining wall that parallels San Agustín Road (Figure 152). The parking along the north side of San Agustín Road abuts a concrete, brick, and stone wall that retains the hillside. The 172-foot-long wall rises from 3 feet above grade to 11

feet in height at the highest point. The wall is 1 foot 4 inches wide. At the top are two cobra lights. A 3-foot-wide concrete drainage channel is located behind the wall at the top (Figure 151). Water collected in the channel is conveyed down the slope behind the wall to prevent the wall from being undercut. The wall slopes downward again toward the southeast. It continues parallel to the road in front of the playground area as a 5-foot-high stone wall. The wall is broken in places. A large pipe empties into a manhole through the wall.



FIGURE 152. View northeast of the retaining wall near the playground.

Casa Rosa Gate (Figure 153). Casa Rosa Gate is a stuccoed masonry structure at the southeastern end of Parcel B. The gate is painted the same blue color as La Fortaleza. The gate extends across the road between a retaining wall associated with Casa Blanca and the West Walls. It has vehicular and pedestrian entries. A pair of metal gates marks the vehicular entry. To the north is a sentry box. The pedestrian entry is to the south. The sentry box measures 3 feet 9 inches square. It is edged to either side by stuccoed wall segments. The wall ends in a square pillar at the edge of the road that marks the eastern side of the gate. The pier measures 4 feet 1 inch at the base and tapers to 3 feet 6 inches at the top through stacked blocks. The pier is matched to the west of the road. To the left of the pier is a 4-foot-wide opening that constitutes the pedestrian gate. It is edged to the west by a third pier that measures 3 feet 2 inches at the base and tapers to 2 feet 6 inches at the top. Another section of wall extends to the city wall system that measures 19 feet in length. A 3-foot-wide pier marks the end of the fence. It is topped with a 1-foot-square pylon.



FIGURE 153. View southeast along Casa Rosa Road toward the Casa Rosa gate.

Wishing well (Figure 154). Located behind Casa Rosa is a tile and brick wishing well. The wishing well is a geometric structure with perimeter walls, a sunken space inside, and a central well overhung with metalwork. Approximately 21 feet long, the outer wall is a low brick structure composed of two straight sides and two curved sides that measure 2 feet in width. A curved brick step provides access to the sunken area at the center at the southeastern corner. The sunken space beyond the wall measures 3 feet in width and surrounds a raised circular well 8 feet 4 inches in diameter. The well is surrounded by a 1-foot-wide brick coping. Inside the well is a 1-foot-5-inch-wide tile and brick patterned border. The outer coping is broken in some places. A broken stone path leads to the wishing well from Casa Rosa.



FIGURE 154. View southeast of the wishing well with Casa Rosa behind.

Jersey barriers (refer to Figure 123). Concrete Jersey barriers surround the heliport used by the Governor of Puerto Rico for travel. The barriers are painted green.

Low retaining walls associated with picnic table landings (Figure 155). Within the playground area, picnic tables and benches are set on areas leveled through construction of small retaining walls and concrete slabs.



FIGURE 155. View of one of the low retaining walls used to form a landing for the siting of a picnic table within the playground.

Views and Vistas

Refer to Figure 134 – Views and Vistas.

Views to San Juan Bay and Old San Juan from the West Walls (Figure 156). From most of Parcel B, views are afforded of San Juan Bay.



FIGURE 156. View of San Juan Bay from the West Walls in Parcel B.



FIGURE 157. Parcel B small-scale features. (Source: LSHLA)

Small-scale Features

Refer to Figure 157 – Small-scale Features, Parcel B.

Site Furnishings

Trash receptacles. There are three trash receptacles located within Parcel B. The trash receptacles are located within San Agustín Bastion and the playground area. The trash receptacles are exposed aggregate and measure 2 feet cubed with 4-inch chamfered channel detailing at 6 and 18 inches from the ground. The concrete receptacles are topped with plastic covers with swinging doors on the front. The plastic covers measure 16 inches in height. A can inside holds the trash until it can be retrieved by maintenance personnel.

Backless benches (refer to Figure 128). In addition to the benches located within the

playground, there are six park-standard concrete benches in Parcel B. Four benches sit on the concrete sidewalk between San Agustín Road and the tennis and basketball courts, while two are within San Agustín Bastion. These benches, fabricated by the National Park Service, measure 2 feet in width and are 6 feet long. The edges are chamfered. The seats are supported by a concrete leg at either end that is 5-1/2 inches wide.

Dog-waste-bag dispenser and receptacle (refer to Figure 119). A dog-waste-bag dispenser and receptacle are located at the edge of the unimproved road leading to Parcel A. The dispenser is like the one located in front of El Morro dry moat described as part of Parcel A.

Iron light poles without luminaires (Figure 158). Located along the road near San Agustín Bastion and along Casa Rosa Road near Casa Rosa are black-painted cast-iron light poles. These are missing their lanterns or luminaires.



FIGURE 158. Non-functional light poles.

Overhead cobra lights (Figure 159). Overhead cobra lights illuminate San Agustín Road and the tennis and basketball courts.



FIGURE 159. View southeast of the cobra overhead lights located along San Agustín Road.

Picnic tables and benches in the playground (Figure 160). The playground features four concrete picnic tables with benches. These features are set on leveled areas established using concrete pads or low retaining walls. The concrete tables and benches are painted primary colors. The tables measure 2 feet 6 inches in width and are 8 feet long, while the benches to either side are 1 foot wide and 8 feet long.



FIGURE 160. Picnic tables in the playground.

Benches with backs in the playground area (refer to Figure 127). Two metal benches with backs are sited along the walk leading through the playground area. These benches, which are painted red, face the playground equipment.

Backless benches in the playground area (Figure 1613). There are three concrete benches without backs located within the playground area. The benches are painted primary colors. They measure 1 foot 11 inches in width by 5 feet 10 inches in length.



FIGURE 161. Backless benches in the playground.

Playground equipment (refer to Figure 127). The playground area features a variety of playground equipment that includes climbing, slide, spinning, and swing structures. Much of the playground equipment is set within a level sand terrace edged by concrete curbing.

Drinking fountain in the playground (refer to Figure 161). A concrete drinking fountain painted primary red is located along the walk that leads through the playground. The drinking fountain, which is painted red, is near the concrete stair that leads up the hill to Casa Rosa Road.

Signs

Parking signage (refer to Figure 146). The parking areas along San Agustín Road are for official use by staff affiliated with La Fortaleza. Regulatory signage marks this restricted use.

Regulatory signage. Signs posted San Agustín Road include speed limit signs and signs that note to watch for cats.

Access Control Features

Woven wire fence and gate at Casa Rosa (refer to Figure 124). A woven wire fence supported by metal posts surrounds the front and side yards of Casa Rosa. The fence measures 4-1/2 feet in height. A gate occurs at the southwestern corner of the house where there is a flight of concrete stairs. The entrance walk to Casa Rosa passes through an ornate metal gate through the perimeter woven wire fence. The gate sits on tiered concrete bases that include a 1-foot 6-inch block, topped with a 1-foot 5-inch block above, and a 1-foot 3-inch block. The bases support square arrangements of four metalwork panels that form columns. The columns support arched metalwork inset with "Casa Rosa."

Fence associated with the work yard at Santa Elena Guardhouse (Figure 162). The work yard outside of Santa Elena Guardhouse is protected by a black chain-link fence and a locked iron gate. The fence is approximately 6 feet tall and topped with several strands of barbed wire on extensions of the posts that extend outward from the top rail.



FIGURE 162. Fence associated with historic artillery conservation.

Access control gate near the heliport (Figure 163). A contemporary metal arm gate limits access to the National Park Service enclave at the northwestern end of San Agustín Road from the remainder of Parcel B.



FIGURE 163. Access gate near heliport.

Wood bollards and rope (Figure 164). Bollards edge the northwestern end of San Agustín Road, the access road to Santa Elena Guardhouse, and the gutter and storm drain along the West Walls across from the heliport. These bollards are 6x6 wood posts connected by rope and used to limit the use of the road margins for parking.



FIGURE 164. Wood bollards and rope.

Utility Features

Manholes. Manholes are located at Casa Rosa and in the parking area associated with El Polvorín.

Power poles and lines. Power poles and lines are located along San Agustín Road.

Telephone box. A telephone box is located at the margin of San Agustín Bastion.

Fire hydrant. A fire hydrant is located outside Casa Rosa.

Electrical transformer. An electrical transformer is located at the north end of the El Polvorín parking area.

Known and potential archeological resources

Deposits related to the Yellow Fever Hospital. Materials related to the building and its demolition were identified during the alterations of the Casa Rosa Road in 1992 and during archeological work preceding repairs to a retaining wall at the Powder Magazine that was damaged during Hurricane Maria.[167]

A brick-and-mortar pillar at the playground area south of the School for Plastic Arts. The feature is from the Spanish era and was uncovered during a tree-planting project at the playground in 1995.[168]

A brick wall at the playground area southwest of the School for Plastic Arts. The wall is of undetermined age and was identified during the 1995 tree-planting project at the playground.[169]

A buried deposit of burned soil southwest of the School for Plastic Arts. The burned soil feature is likely from the Spanish era or earlier and could be associated with a smithy. It was identified

167. Ken S. Wild, *Report on Archeological Excavations Conducted at Parcel B, San Juan, Puerto Rico* (San Juan, Puerto Rico: San Juan National Historic Site, and Tallahassee, Florida: Southeast Archeological Center, 1998), 5; Jorge A. Rodriguez López, Juan M. Rivera Groennou, Juan A. Rivera Fontán, and Loderay I. Bracero Marrero, SARQGIS, San Juan, Puerto Rico, *Santa Elena Gunpowder Magazine Project, San Juan National Historic Site*. Prepared for San Juan National Historic Site (2018), 112.
168. Wild, *Report on Archeological Excavations*, 8, 11.
169. Ibid.

during the 1995 tree-planting project at the playground.[170]

A buried dry moat floor at the Powder Magazine. Part of the moat floor, which likely dates to the late eighteenth century, was identified during archeological work conducted before the installation of an electrical line at the magazine in 1994.[171]

A buried road surface fragment along the west side of the tennis courts. The road surface is from the colonial era and was found in a shovel test pit dug for a handicapped access ramp project in 1995.[172]

An artifact deposit northwest of the tennis courts. The deposit dates to the late eighteenth century and was identified in an archeological test unit excavated for the handicapped access ramp in 1997. It at least includes numerous bottle fragments.[173]

An artifact deposit east of the San Agustín Bastion. The deposit dates from 1784 to 1800 and is made up of refuse related to non-military activities from nearby parts of San Juan.[174]

Potential Archeological Resources. As at Parcel A, there is potential for as-yet-unidentified archeological resources to be present across Parcel B. Remains may include those related to the San Gabriel Bastion; nineteenth-century military buildings that formerly stood north of the San Agustín Bastion; historic roads; and unrecorded tunnels. Additionally, although no precolumbian sites have been found at El Morro, they are present in nearby parts of San Juan and may certainly also be present in Parcel B.[175]

170. Ibid.
171. Ibid., 11–14.
172. Ibid., 14–16.
173. Ibid.
174. Solis Magaña, n.p.
175. Wild, 11; Solis Magaña; Pantel et al.; Pantel, del Cueto & Associates, 62.

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Analysis and Evaluation

Evaluation of Significance

The National Register of Historic Places is the official list of the nation's historic places worthy of preservation. Authorized by the National Historic Preservation Act of 1966, the National Park Service's National Register of Historic Places is part of a national program to coordinate and support public and private efforts to identify, evaluate, and protect America's historic and archeological resources.[176]

Listing in the National Register of Historic Places is based on evaluation of the significance of the property using established criteria. The significance evaluation identifies the important historical associations of the property, and comments on its architectural, archeological, and social value as they relate to the National Register of Historic Places. A property's significance is tied to a discrete period of time in which its important contributions were made and to relevant national, state, and local historic contexts.

National Register Criteria for Evaluation

In order for a property to be eligible for inclusion in the National Register of Historic Places, it must possess significance under one of four criteria. The Criteria for Evaluation for listing in the National Register of Historic Places state:

> The quality of significance in American history, architecture, archeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:
>
> A. That are associated with events that have made a significant contribution to the broad patterns of our history; or
>
> B. That are associated with the lives of persons significant in our past; or
>
> C. That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
>
> D. That has yielded, or may be likely to yield, information important in prehistory or history.

In addition, the Criteria for Evaluation identify the following Criteria Considerations:

> Ordinarily cemeteries, birthplaces, graves of historical figures, properties owned by religious institutions or used for religious purposes, structures that have been moved from their original locations, reconstructed historic buildings, properties primarily commemorative in nature, and properties that have achieved significance within the past fifty years are not considered eligible for the National Register. However, such properties *will qualify* if they are integral parts of districts that do meet the criteria or if they fall within the following categories:

176. National Park Service, "National Register of Historic Places," accessed March 25, 2021, https://www.nps.gov/subjects/nationalregister/index.htm.

a. A religious property deriving primary significance from architectural or artistic distinction or historical importance; or

b. A building or structure removed from its original location but which is primarily significant for architectural value, or which is the surviving structure most importantly associated with a historic person or event; or

c. A birthplace or grave of a historical figure of outstanding importance if there is no appropriate site or building associated with his or her productive life; or

d. A cemetery that derives its primary importance from graves of persons of transcendent importance, from age, from distinctive design features, or from association with historic events; or

e. A reconstructed building when accurately executed in a suitable environment and presented in a dignified manner as part of a restoration master plan, and when no other building or structure with the same association has survived; or

f. A property primarily commemorative in intent if design, age, tradition, or symbolic value has invested it with its own exceptional significance; or

g. A property achieving significance within the past 50 years if it is of exceptional importance.[177]

National Register Significance of El Morro Esplanade

San Juan National Historic Site, together with La Fortaleza, was administratively listed in the National Register of Historic Places on October 15, 1966, under the National Historic Preservation Act. Following administrative listing, there have been several efforts conducted to prepare National Register documentation, including the following that relate to El Morro Esplanade:

- *National Register Nomination Zona Histórica de San Juan (San Juan Historic Zone)*, prepared by Luis M. Rodríguez Morales, Director, General Archives of Puerto Rico, Institute of Puerto Rican Culture, June 1971, signed, listed in the National Register on October 10, 1972 (NRIS 72001553).[178] Areas of significance are identified as Aboriginal: Historic, Architecture, Art, Commerce, Conservation, Military, Political, Religion/Philosophy, Theater, and Urban Planning. As was customary with the form used at the time of this documentation, the period of significance is broadly identified: the sixteenth, seventeenth, eighteenth, and nineteenth centuries. This nomination lists principal structures including Castillo San Felipe del Morro, Castillo San Cristóbal, the city walls, and other resources that are part of the National Historic Site (although El Morro Esplanade is not specifically mentioned).

- *National Register documentation for San Juan National Historic Site*, prepared by F. C. Gjessing, Architect, and Loretta Schmidt, Chief Park Historian, San Juan National Historic Site, June 12, 1973, unsigned (NRIS 66000930).[179] A signed version of this nomination has not been identified by the NPS at this writing, thus the 1973 documentation is considered a draft nomination. (See further discussion of National Register status of the National Historic Site, below.) Areas of significance are identified as Aboriginal: Historic, Architecture, Engineering, and

177. *Code of Federal Regulations*, Title 36, Part 60, "The National Register Criteria for Evaluation."

178. Luis M. Rodríguez Morales, Director, General Archives of Puerto Rico, Institute of Puerto Rican Culture, *National Register Nomination for Zona Histórica de San Juan (San Juan Historic Zone)*, dated June 1971, signed, listed in the National Register on October 10, 1972 (NRIS 72001553).

179. F. C. Gjessing, Architect, and Loretta Schmidt, Chief Park Historian, San Juan National Historic Site, *National Register documentation for San Juan National Historic Site*, dated June 12, 1973, unsigned (NRIS 66000930).

Military. As was customary with the form used at the time of this documentation, the period of significance is broadly identified: the sixteenth, seventeenth, eighteenth, nineteenth, and twentieth centuries are indicated. Specific dates of 1539–1945 are also noted as important.

The 1973 draft National Register nomination documentation for San Juan National Historic Site addresses the fortresses of El Morro and San Cristóbal, their outerworks, the city walls, the satellite forts of El Cañuelo and San Gerónimo, and associated structures. (El Morro Esplanade is again not specifically discussed, other than mention of the outworks in Section 8.) The nomination notes that the San Juan defensive system is one of the major Caribbean fortifications of the Spanish empire, and helped to protect Spanish interests in the New World.[180]

As noted in the nomination, the structures "... generally retain the character and appearance of the most advanced eighteenth century defense techniques that were applied to a difficult and unusual site."[181] The resources reflect both features of earlier origin, as well as military construction characteristic of the nineteenth and twentieth centuries.

- *National Register documentation for the Old San Juan Historic District*, prepared by Arleen Pabón-Charneco, Puerto Rico SHPO Consultant, 2012, listed in the National Register on July 30, 2012 (NRIS 12000465).[182] This documentation addresses the urban and residential resources of Old San Juan, but also includes the military walls and resources of the National Historic Site. The National Register web site indicates that the 2012 documentation is a boundary extension to the 1972 documentation (NRIS 72001553).

The 2012 National Register documentation lists El Morro Esplanade (also called Parque del Morro and Campo del Morro), as a contributing resource to the historic district.

The 2012 National Register documentation for the historic district cites eligibility under National Register Criterion C, and Criteria Considerations A, C, D, and E. The 2012 documentation also cites two areas of significance: Architecture, and Community Planning and Development. The 2012 National Register documentation summarizes the significance of the historic district as follows:

> The Distrito Histórico del Viejo San Juan / Old San Juan Historic District is the second oldest continuously inhabited European settlement in the Western Hemisphere. Conceived as the capital of the island of Puerto Rico and known for centuries as the *ciudad del puerto Rico* (the city of the rich Port [Rich port]), it is the oldest urban core in the island and the United States of America. Listed in the National Register of Historic Places in 1972, some of its components—the Castillo de San Felipe del Morro [sic], Castillo de San Cristóbal [sic], circuit of defensive walls, and Palacio de Santa Catalina—are considered part of the cultural heritage of humanity.[183]

The period of significance is given as 1519–1939 (see further discussion below), with specific dates of 1519, 1625–1700, 1812, and 1898 cited as important.

- *National Historic Landmark documentation for the Old San Juan Historic District*, also prepared by Arleen Pabón-Charneco, PR SHPO Consultant, September 24, 2012 (NRIS

180. Gjessing and Schmidt, Section 8.
181. Ibid.
182. Arleen Pabón-Charneco, Puerto Rico SHPO Consultant, *National Register documentation for the Old San Juan Historic District*, 2012, listed in the National Register on July 30, 2012 (NRIS 12000465).
183. National Register nomination documentation (2012), Section 7.

13000284).[184] The National Register web site indicates that the Old San Juan Historic District was designated as a National Historic Landmark on February 27, 2013.

The 2013 National Historic Landmark documentation describes the Esplanade (or Campo del Morro) as a:

> . . . huge open field . . . [with] impressive views of the Atlantic Ocean, the north coast, the entrance into the bay, the Isla de Cabras (Goats Island) and the main island of Puerto Rico. Historically, it was supposed to be mined and was literally the last chance of any successful defense since the Castillo de San Felipe [de] was the city's last line of defense. The Esplanade also served as a field for maneuvers.[185]

Similar to the 2012 documentation, the esplanade is identified as a contributing resource to the historic district.

The 2013 National Historic Landmark documentation cites eligibility under National Register Criteria A and C, and Criteria Considerations A, C, D, and E. In addition, the 2013 documentation cites National Historic Landmark Criteria 1 and 4, and Criteria Exception 1 (which pertains to properties owned or used by a religious institution).

The documentation also indicates significance under two NHL themes—I. Peopling Places, 6. Encounters, Conflicts, and Colonization; and III. Expressing Cultural Values, 5. Architecture, Landscape Architecture, and Urban Design—and the following areas: Architecture, Community Planning and Development, and Ethnic Heritage: Hispanic. The 2013 National Historic Landmark documentation summarizes the significance of the historic district as follows:

> The Old San Juan Historic District (Distrito Histórico del Viejo San Juan) in Puerto Rico is nationally significant under NHL Criterion 1 and Criterion 4 as one of the premier colonial cities in the United States and the nation's most important and complete Spanish urban center. It is significant because of its architectural history and as a reflection of Spanish culture and colonial history. Much of the southern and western portions of what is now the continental United States were once controlled by Spain; however, Puerto Rico was located on the northern fringe of Spain's massive American empire and documented historic sites predominantly offer insight about religious and military activities and settlement on their frontier, and the relationships and conflicts between the Native Americans and the Spanish.[186]

Further, the 2013 NHL documentation notes:

> The Old San Juan Historic District is nationally significant under NHL Criterion 1 as the only extant representation of an almost four hundred year old Spanish colonial city in the United States. It is the oldest city in the United States and the second oldest continuously-inhabited European settlement in the Western Hemisphere. Old San Juan's location in the heart of the Caribbean (the first area in America to be colonized and settled by Spain) provided the Spanish with a key port from which to establish their cultural, military, and political.

The period of significance is given as 1519–1898 (see further discussion below), with specific dates of 1625–1700 and 1812 cited.

Current National Register Status. Based on review of the above documentation, the resources of San Juan National Historic Site—including El Morro Esplanade—are addressed in the historic districts defined by the 2012 National Register

184. Arleen Pabón-Charneco, Puerto Rico SHPO Consultant, *National Historic Landmark documentation for the Old San Juan Historic District*, September 24, 2012 (NRIS 13000284).

185. Ibid., 38.

186. Gjessing and Schmidt, 81.

documentation and 2013 National Historic Landmark documentation.

In addition, National Register nomination documentation for the San Juan National Historic Site is currently underway by other authors.[187]

The current nomination describes the historic district as follows:

> San Juan National Historic Site is a well-preserved, complex of Spanish colonial masonry military fortifications, begun in 1539, and subject to continuous addition, reconstruction, and modernization efforts over the course of the seventeenth, eighteenth, nineteenth, and twentieth centuries. The last major construction campaign took place during the United States Army's use of the fortifications during World War II. The historic property occupies a large portion of San Juan Islet and spans the entrance to San Juan Bay to include the outpost, El Cañuelo, within its boundary. Castillo San Felipe del Morro comprises the fort of El Morro, the El Morro Esplanade, and San Antonio Guardhouse located to the east of the fort's dry moat. Castillo San Cristóbal comprises the fort of San Cristóbal, the Quarters Buildings along Norzagaray Boulevard, and the San Cristóbal Outworks which stretch out for more than 1,000 feet (305 meters) east of the fort. The Old San Juan City Walls run approximately 2.5 miles along the northern, western, and southern edges of the city of Old San Juan and comprise a discontiguous network of bastions, walls, gates, and batteries. El Cañuelo comprises the fort of El Cañuelo (or Fortín San Juan de la Cruz), located on the Isle de Cabras, on the west side of San Juan Bay.[188]

The nomination identifies 18 contributing buildings, 8 contributing sites, 57 contributing structures, and 1 contributing object, for a total of 84 contributing resources; no non-contributing resources are identified.[189] Within Castillo San Felipe del Morro, El Morro Esplanade Historic Landscape (CRIS CL #550129, HS #091728) is identified as one contributing site, with defining characteristics including both natural and designed components of the landscape.[190]

The nomination indicates that the historic district that comprises San Juan National Historic Site is significant under National Register Criteria A, C, and D, and under the following areas of significance:

- Military History
- Maritime History
- Architecture
- Ethnic Heritage – Hispanic
- Social History
- Archeology - Historic, Non-Aboriginal[191]

In the areas of Military History and Maritime History, the nomination notes that San Juan National Historic Site is significant at the national level under Criterion A, ". . . for its significance as a strategically important maritime and military base for two world powers, Spain and the United States of America," for the period 1539 through 1945.[192]

In the area of Architecture, the nomination notes that National Historic Site is significant at the national level under Criterion C ". . . as a well-preserved component of the system of colonial defensive architecture constructed by the Spanish Crown during the sixteenth through late nineteenth centuries and modified by the United States for its military defense system during the first half of the twentieth century," for the period 1539 through 1945.[193]

187. Teresa Dujnic Bulger, Richard Grubb & Associates, Inc., Cranbury, New Jersey, *National Register of Historic Places Registration Form, San Juan National Historic Site, San Juan, Puerto Rico*, final draft, January 6, 2021.
188. Ibid., Section 7-5–6. Note that Parcel B is not covered in the current draft nomination.
189. Ibid.
190. Ibid., Section 7-38–41.
191. Ibid., Section 7[8]–117.
192. Ibid., Section 8-120.
193. Ibid., 8-121.

In the area of Ethnic Heritage – Hispanic, the nomination notes that the National Historic Site is significant at the state level under Criterion A, ". . . for its association with Hispanic cultural history in Puerto Rico and its role as an unparalleled symbol of Puerto Rican identity," for the period 1913 through 1971.[194] The nomination also notes that the National Historic Site is significant at the state level in the closely related area of Social History, also under Criterion A, for the National Historic Site's ". . . association with the historic preservation movement in San Juan, which sought to protect the cultural heritage of Puerto Rico through preservation of the San Juan fortifications and other resources," for the period 1913 through 1971.[195]

Finally, in the area of Archeology - Historic, Non-Aboriginal, the nomination notes that the National Historic Site is significant at the national level under Criterion D with respect to Military History, Maritime History, Ethnic Heritage, Social History, and Architecture, for the period 1539 through 1971.[196] The nomination further notes that:

> Archeological deposits at the Park have both yielded and have the potential to yield information important to our understanding of Spanish and American military and maritime history in Puerto Rico and information relevant to the architectural development of the San Juan fortifications. Additionally, archaeological research has the potential to shed light on the patterns of everyday life, cultural interaction, and social relationships experienced by the inhabitants of the fortifications.[197]

World Heritage Listing

San Juan National Historic Site and the earlier fortifications of La Fortaleza were inscribed in the World Heritage List in 1983 as resources of outstanding universal value. The listing notes that the fortifications:

> . . . outstandingly illustrate the adaptation to the Caribbean context of European developments in military architecture from the 16th to 20th centuries. They represent the continuity of more than four centuries of architectural, engineering, military, and political history.[198]

The World Heritage List citation for the fortifications also notes:

> These fortifications, which retain the general appearance of advanced 18th-century defense technology, clearly illustrate both a transfer of technology from Europe to America over a long period and its adaptation to the topography of a strategically significant yet difficult tropical site. Reflecting Italian Renaissance, Baroque, and French Enlightenment designs, the defenses express successive techniques and technologies in fortification construction. The varied examples of military architecture from the 16th to 20th centuries in the fortifications of San Juan are evidence of the imperial struggles that defined the development of the Americas. As one of the first as well as one of the last of the numerous seats of power in Spain's American empire, these structures are now potent symbols of the cultural ties that link the Hispanic world.[199]

The boundary for 1983 World Heritage Listing for La Fortaleza and San Juan National Historic Site did not include the El Morro Esplanade. However, an update to the boundary completed in 2016 did include the esplanade (Figure 165).[200]

194. Ibid.
195. Ibid.
196. Ibid.
197. Ibid.
198. UNESCO World Heritage List, "La Fortaleza and San Juan National Historic Site in Puerto Rico," accessed January 2019, https://whc.unesco.org/en/list/266.
199. Ibid.
200. Stephen A. Morris, Chief, Office of International Affairs, National Park Service, letter to Mechtild Rössler, Director, World Heritage Center, UNESCO, re: La Fortaleza and San Juan National Historic Site boundary clarification, November 6, 2015.

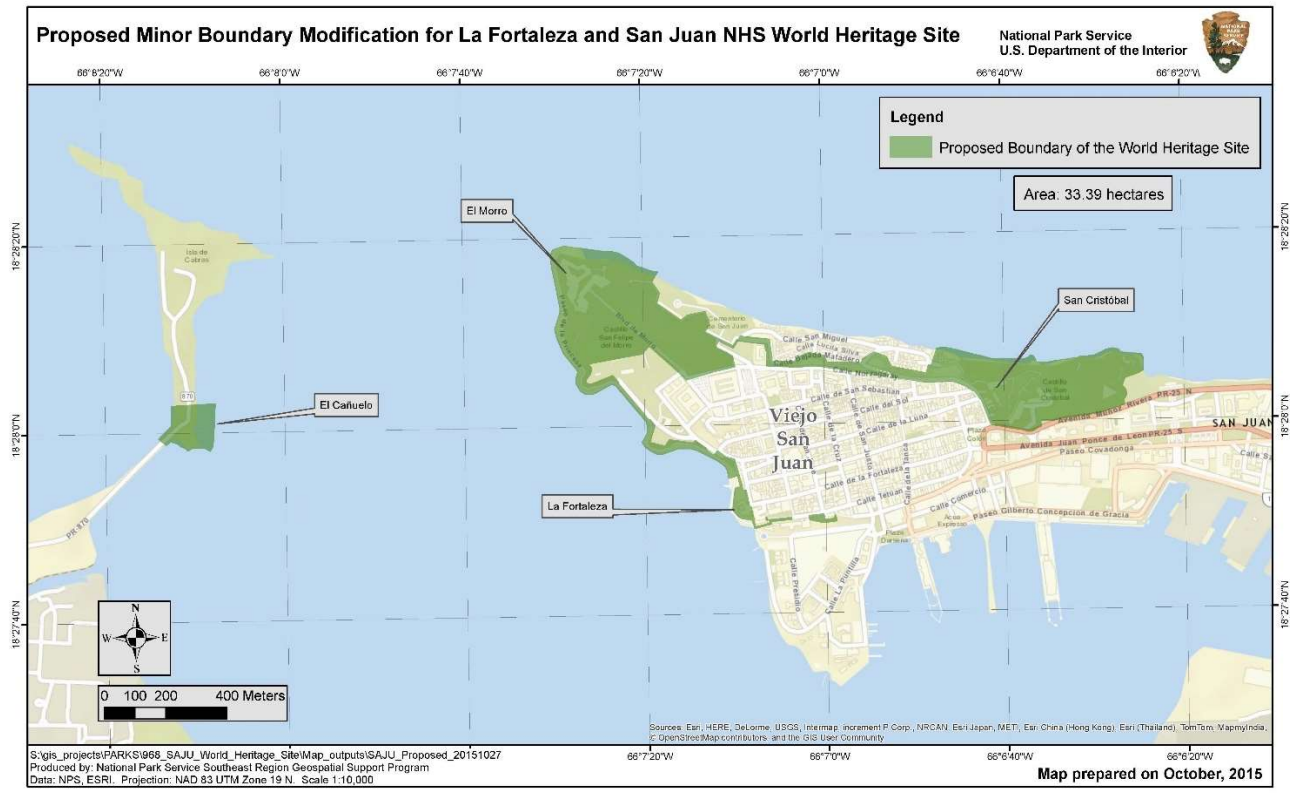


FIGURE 165. Map of the 2016 boundary adjustment to La Fortaleza and San Juan National Historic Site World Heritage Site that incorporated El Morro. (Source: National Park Service correspondence (2016) for Minor Boundary Modification, La Fortaleza and San Juan National Historic Site listing World Heritage List web site, https://whc.unesco.org/en/list/266/documents/, accessed September 2020)

World Heritage Listing requires official recognition of national significance by the country in which the property is located, which can be met by National Historic Landmark designation. (La Fortaleza is a designated National Historic Landmark, for example.) The criterion for official recognition of national significance for inclusion in the World Heritage List can also be met by designation as a unit of the US National Park System, which in itself provides official recognition of national significance. This issue is addressed by 36 CFR section 73.7(b) of the World Heritage regulations, as follows:

> (1) The property must be nationally significant. For the purposes of this section, a property qualifies as "nationally significant" if it is:
>
> (i) A property that the Secretary of the Interior has designated as a National Historic Landmark (36 CFR part 65) or a National Natural Landmark (36 CFR part 62) under provisions of the 1935 Historic Sites Act (Public Law 74-292; 49 Stat. 666; 16 U.S.C. 461et seq.);
>
> (ii) An area the United States Congress has established as nationally significant; or
>
> (iii) An area the President has proclaimed as a National Monument under the Antiquities Act of 1906 (16 U.S.C. 433).

For San Juan National Historic Site, the official recognition of national significance is addressed both by its status as a unit of the US National Park System and by its designation as a National Historic Site.[201]

201. The US Secretary of the Interior established the park in 1949 under provisions of the 1935 Historic Sites Act (see Federal Register: 14 Fed. Reg. 851 [February 25, 1949]), accessed March 2019, http://cdn.loc. gov/service/ll/fedreg /fr014/fr014037/fr014037.pdf; and Historic Sites

Period of Significance

The 1972 National Register nomination documentation for Old San Juan, which includes the fortifications, and the 1973 draft nomination documentation for San Juan National Historic Site, both address the period of significance of the property as extending from the sixteenth through the nineteenth/twentieth centuries.[202] The 1973 draft documentation also notes as "specific dates" the period 1539–1945, suggesting a more defined period of significance than the centuries identified for "period" on the form.[203] The 2012 National Register documentation for Old San Juan Historic District identifies the period of significance as 1519–1939, beginning with the founding of Viejo San Juan by Juan Ponce de León, and ending with "eve of World War II," characterized by the documentation's author as the end of the "Modern Period."[204] The 2013 National Historic Landmark documentation for Old San Juan Historic District identifies the period of significance as 1519–1898, noting that the period of significance for the historic district is defined by the centuries of Spanish rule from the founding of San Juan in 1519 until annexation of Puerto Rico as a territory of the United States in 1898.[205]

The 1985 General Management Plan for the National Historic Site identified the "historic period" as 1539–1961, from ". . . construction of El Morro in 1539 to transference of a major portion of the site to the Department of the Interior in 1961."[206]

The Historic Structure Report prepared for San Juan National Historic Site in 1991 identified five periods of significance for the site, as follows:

- Spanish I: circa 1539–1760, initiation of harbor defenses at el Morro, harbor walls, and city gate
- Spanish II: circa1760–1835, period of major development at el Morro, San Cristóbal, and the north wall
- Spanish III: circa 1835–1898, modernization and rehabilitation of defensive system and outworks
- American I: circa 1898–1940, construction of the el Morro Lighthouse
- American II: circa 1940–1961, construction of the World War II harbor defense system.[207]

Similar to the General Management Plan, the 1991 Historic Structure Report identified the beginning of the period of significance as 1539, with the beginning of construction of the fortifications, and the end of the period of significance, 1961, ". . . when the land contained within the former Fort Brooke Military Reservation (including the Esplanade) was conveyed to the U.S. Department of the Interior."[208]

With the respect to the cultural landscape, the Cultural Landscape Report portion of the 1991 Historic Structure Report noted two overarching periods of significance:

Act of 1935, 16 USC sec. 461–467, https://www.nps.gov/history/local-law/hsact35.htm.

202. Morales, 1972; Gjessing and Schmidt, 1973. As noted, these broad periods of significance comprising entire centuries are common in nomination documentation of the period because of the form used by the National Register at that time.
203. Gjessing and Schmidt.
204. Morales, Section 8.
205. Gjessing and Schmidt, 81.
206. *Final General Management Plan and Environmental Assessment* (San Juan National Historic Site, Puerto Rico, U.S. Department of the Interior, National Park Service, December 1984, with FONSI and Statement of Findings, September 1985), 26.
207. Berkowitz et al., I, 16. Note that the 1991 report, *The Fortifications of San Juan National Historic Site: Historic Structure Report*, consists of three volumes; the Cultural Landscape Report is included as part of Volume III.
208. Ibid., 48–49.

> The entire site history was reviewed to determine that two distinctly different types of landscape character existed, generally corresponding to the periods of Spanish and U.S. occupation. These two periods have been classified as Period I, circa 1540–1898, and Period II, circa 1898–1961.[209]

By circa 1540, the main defensive fortifications for the city had been relocated to the morro (rocky outcrop) that rises above the eastern side of the entrance to the bay. During the period of Spanish occupation, the esplanade was developed and maintained as an integral part of the military fortifications of El Morro and San Juan, with a key role in defensive military actions and also as a training ground. The 1991 Cultural Landscape Report considers this period to be of primary significance.

The 1991 CLR considers the latter period, corresponding to the US Army occupation from 1898 to 1961, to be of secondary significance, noting that the esplanade's ". . . significant historic landscape qualifies had already been established by 1898."[210] Also, during the latter period, the US Army effected a significant change in function for the esplanade, with the esplanade developed for military support activities including housing and recreation. The 1991 CLR also noted that during Period I the esplanade was open and undeveloped, without large structures or trees, and offering unobstructed views from the fort to the city. During the second period, from around 1930 to 1961, the US Army constructed roads and buildings and planted trees, creating a different landscape and more limited views from the esplanade.[211]

Regarding resources from the American period, however, the 1991 Historic Structure Report noted, "It has been determined that the American periods do not include any other resources that are known to be significant and to merit preservation."[212] The HSR identified any features reconstructed by the US Army or the National Park Service as "non-historic" or "non-significant," and the remnants of Fort Brooke to be ". . . insignificant and not worthy of preservation."[213] (The HSR later referred to World War II-era harbor defense features as ". . . of secondary significance by comparison with the Spanish II period features"; at different points in the recommendations narrative, the HSR indicated that these features should be preserved, may be rehabilitated, or may be considered for removal.[214])

For El Morro Esplanade, the 1991 HSR gave the primary period of significance as 1540–1898, also noting that the ". . . form and character of the Esplanade remained largely unchanged until circa 1930."[215]

The current National Register nomination identifies an overarching period of significance of 1539–1971.[216] The beginning date of this period is identified as when the Spanish first began construction of Castillo San Felipe del Morro, and the end date as the fifty years before the date of the nomination. Within this overarching period of significance, the nomination cites the following periods associated with the specific areas of significance identified for the historic district, as discussed below. (The nomination also notes several significant dates related to historical events, which establish the start and end dates for the period of significance associated with each area of significance.) The periods associated with the areas of significance are defined as follows:

- Military History, 1539–1945
- Maritime History, 1539–1945

  For Military History and Maritime History, the period of significance begins in 1539 with construction of the first Spanish defensive structure on the El Morro headlands, and ends with the conclusion of World War II, when military use of the fortifications by the US Army ended. The nomination acknowledges

209. Ibid., 48.
210. Berkowitz et al., III, 44–45.
211. Ibid.
212. Berkowitz et al., I, 16.
213. Ibid.
214. Ibid.
215. Ibid, 47.
216. Bulger, 8-119, 8-120.

that the US Army retained control of the fortifications until 1961, and further notes:

> ". . . during the period of significance, the fortifications of San Juan National Historic Site played an important role in the military strategy of Spain, and later the United States, in the defense of each country's control of the island of Puerto Rico, maritime traffic and commercial trade associated with the island and the Caribbean."[217]

- Architecture, 1539–1945

  For Architecture, the period of significance begins in 1539 with construction of the first defensive structure on the El Morro headlands, and concludes with completion of the architectural changes made by the US Army in preparation for World War II.[218]

- Ethnic Heritage – Hispanic, 1913–1971
- Social History, 1913–1971

  For Ethnic Heritage and Social History, the period of significance begins in 1913:

> . . . when a growing sense of Puerto Rican nationalist cultural identity and the increasing neglect of the fortifications on the part of the Army, led the territorial government of Puerto Rico to petition the United States Army for release [of] the fortifications to the "People of Puerto Rico." The site thereafter was subject of numerous Puerto Rican cultural preservation laws and local activism for historic preservation throughout the twentieth century."[219]

  The period ends fifty years before the date of the nomination. The nomination notes that this end date is used ". . . as scholarly research is not yet available with respect to the contemporary importance of the fortifications in modern Puerto Rican ethnic heritage and social history."[220]

- Archeology - Historic, Non-Aboriginal, 1539–1971

  For Archeology - Historic, Non-Aboriginal, the period of significance begins in 1539, with the earliest known historic occupation of the Park at the initiation of construction of Castillo San Felipe del Morro at the El Morro headlands. The period of significance ends fifty years before the date of the nomination.[221]

The current nomination encompasses the period of significance relevant to El Morro Esplanade, from 1539, with construction of the first Spanish defensive fortifications on the El Morro headlands, through 1971, fifty years before the date of the nomination.

217. Ibid., 8-120.
218. Ibid., 8-121.
219. Ibid., 8-121.
220. Ibid.
221. Ibid., 8-122.

Integrity Assessment

According to the National Register of Historic Places, integrity is the ability of a property to convey its significance and the authenticity of its historic identity as a result of the survival of physical characteristics present during the period of significance. Historic integrity is the composite of seven qualities or aspects, which include location, design, setting, materials, workmanship, feeling, and association. Historic properties either retain integrity or they do not. Retention of most of the qualities or aspects of integrity is necessary for a property to convey its significance. However, not all seven qualities need to be present for a property to retain integrity.

Overall Integrity

Based on review of the historic periods of development associated with El Morro Esplanade related to its use as a military installation, and consideration of the amount of change that has occurred over time within the cultural landscape, El Morro Esplanade is assessed as possessing all aspects of integrity for the circa 1539-1945 military period of significance, as well as the period of significance that extends to 1970 for the property's association with the local community. There are no features present that specifically relate to the significance of local community activities extending to 1970. El Morro Esplanade continues to convey its historic associations with both Spanish and US military defense activities that occurred over a more than 400-year period. Numerous historic landscape features survive from the military period of significance and contribute to help convey these historic associations.

As of 2020, the overall arrangement and character of historic features is more consistent with the Spanish era of military occupation. Many buildings, roads, plantings, sports facilities, and other features built during the US military occupation period of 1898–1945 were later removed, diminishing integrity of design, feeling, and setting. Because many of the features established earlier by the Spanish remained in use during the US military occupation period, and there remain several features established during the US military occupation period, El Morro Esplanade is assessed as possessing integrity for both periods.[222]

Other changes that impact integrity of feeling and setting are additions to the property and its environs that post-date the period of significance. Integrity of feeling has been impacted by the replacement of traditional military land uses with a public park and an area used by the Commonwealth of Puerto Rico to support the administration of La Fortaleza, the official residence and office of the Governor of Puerto Rico as a staff parking area and helipad for use by the governor. The Save-A-Gato organization that occupies a building west of Casa Rosa, and the many cats cared for by the organization that roam the eastern end of Parcel B, also impact the integrity feeling of the historic landscape. Integrity of setting is affected by the circa 1990s addition of a pedestrian promenade and streetscape features along the eastern edge of El Morro Esplanade at Norzagaray Street.

Integrity Assessment by Quality

Location

Location is the place where the cultural landscape was constructed or the landscape where the historic event occurred.

El Morro Esplanade continues to occupy the same location where first established circa 1539 as part of the military landscape designed to support the citadel of El Morro. El Morro Esplanade assumed its current form and configuration following the completion of the North and West Walls and grading to improve the field of fire and the glacis during the eighteenth century. Because of the important role that El Morro Esplanade played in the military installation, integrity of location is an

222. Evaluations of the significance of San Juan National Historic Site and El Morro Esplanade also sometimes divide the US military occupation period into two phases, including an early phase between 1898 and 1930, and a later phase between 1930 and 1961.

essential quality or aspect to consider in assessing integrity.

Integrity of location also relates to the ongoing existence of the components of both the North and West Walls, including the bastions, the guardhouses, as well as the elevated landform and topography of the promontory on which the installation was sited overlooking the entrance into San Juan Harbor. This elevated position and the associated commanding views of ships approaching the harbor afforded an advantage for coastal defenses that was important to both Spanish and US military forces. This remains true for the landscape associated with both Parcels A and B.

El Morro Esplanade retains integrity of location to both the Spanish and US military occupation periods of significance. This pertains to both Parcels A and B.

Design

Design is the combination of elements that create form, plan, space, structure, and style of a cultural landscape.

El Morro Esplanade also retains integrity of design due to the ongoing presence of historic patterns of spatial organization and the existence of built structures that also retain integrity. The historic North and West Walls and their bastions and guardhouses, as well as El Morro Road, San Agustín Road, and other evidence of the military installations established on the property support integrity of design and help to convey the historic associations of the property.

The key spatial relationships of El Morro and the North and West walls , bastions, batteries, and single controlled overland approach route—El Morro Road—to the landform and topography of the promontory at the northwestern tip of the Isleta de San Juan were designed by Spanish military engineers during the sixteenth century and refined during the eighteenth century when the installation was designated a Defense of the First Order. The arrangement of the landscape of El Morro Esplanade was also designed to contain a central open space used for military drilling and as a parade ground. The Spanish also designed and manipulated the landform and topography of El Morro Esplanade to serve as a smoothly sloped glacis where a clear field of fire could be maintained from the batteries at El Morro.

While most of these features reflect the work of Spanish military engineers, the US Army also contributed elements to the design of the military installation hat survive today. These include San Agustín Road, which provides access to the West Walls and bastions, and modern Endicott era gun emplacements to improve the coastal defenses protecting San Juan Harbor during World War I.

At the same time, many of the features built by the US Army as part of the San Juan Military Reservation between 1898 and 1943[223] and Fort Brooke after 1943 were removed following World War II.[224] Most of the buildings were removed by the US Army during the 1960s and 1970s, which

223. The San Juan Military Reservation was established over a 210.86-acre area in San Juan, Puerto Rico, acquired by the United States from Spain in the Treaty of Paris in 1898. This property was reserved by the United States Government for military purposes through an Act of 1903. From Pantel, del Cueto & Associates, 29.

224. The San Juan Military Reservation established by the US Army in Puerto Rico in 1903 was officially designated Fort Brooke in 1943. The base was named for Major General John R. Brooke, the first American military governor of Puerto Rico. The US Army transferred a portion of the reservation to the Department of the Interior as part of the establishment of San Juan National Historic Site in 1949 based on a cooperative agreement between the Department of the Interior and the Department of the Army. In 1961, 36.33 acres of the fortifications were transferred from the US Army to the NPS based on a proposal indicating that Parcel A would be retained by the agency, while Parcel B would be transferred to the Commonwealth of Puerto Rico. From Pantel, del Cueto & Associates, 40, 45.

occurred during the extended local community period of significance. Features removed included approximately twenty buildings and structures, Santa Elena Road that formed a loop south of El Morro Road as well as two short roads extending south from Santa Elena Road, fences, and tree plantings. The loss of these features diminishes the integrity of design of El Morro Esplanade for the US military occupation period that ends in 1945. At the same time, removal of these later additions to the landscape has served to enhance the integrity of the Spanish military occupation period by reestablishing historically important strategic viewsheds blocked by the US Army buildings.

Other changes that have been made since the end of the period of significance relate to contemporary park use. These include the removal of Santa Elena Road and a parking area near El Morro in 1992 based on the recommendations in the 1991 HSR/CLR, the widening and repaving of El Morro Road, removal of trees edging the road, and establishment of a large concrete plaza near the El Morro moat, and the addition of site furnishings and signage within Parcel A, and a playground, parking, and heliport within Parcel B. These additions also diminish the property's integrity of design.

El Morro Esplanade retains integrity of design to the Spanish military occupation period, and diminished integrity of design for the US military occupation period. This pertains to both Parcels A and B.

Setting

Setting is the physical environment of the cultural landscape.

El Morro Esplanade retains integrity of setting to both the Spanish and US military occupation periods of significance due to the limited changes that have occurred within the viewshed of the property since the end of the period of significance. Impacting integrity of setting to a degree are changes that have occurred along the margin of El Morro Esplanade at Norzagaray Street, and growth and development within San Juan visible primarily from the western margins of the property. The landscape visible to the north, west, and south remains of the La Perla community and Old San Juan Cemetery, both established during the period of significance, and the surrounding waters of the Atlantic Ocean and San Juan Harbor.

The pedestrian promenade and streetscape improvements associated with Norzagaray Street overlooking the southeastern end of El Morro Esplanade includes contemporary wall, bollard, tree, and lighting features that are contemporary and formal in character and design, presenting a vocabulary of materials and design not present historically. The impact of this change on the landscape of El Morro Esplanade is limited, however, due to the extent of the open space, and the elevated location of the improvements, which limits their visibility.

El Morro Esplanade retains integrity of setting to both the Spanish and US military occupation periods of significance. This pertains to both Parcels A and B.

Materials

Materials are the physical elements that were combined or deposited during the particular period(s) of time and in a particular pattern of configuration to form the cultural landscape.

Many of the historic buildings and structures located within El Morro Esplanade survive from the period of significance and retain their original building materials. El Morro Esplanade thus also retains of materials for both the Spanish and US military occupation periods.

Changes that occurred to historic materials during the period of significance include reconstruction of portions of the West Walls and several sentry boxes. The curtain wall between Santa Elena and San Agustín Bastions collapsed during the early twentieth century. It was rebuilt by the US Army using contemporary materials such as concrete to enhance stability and safety. The US Army also rebuilt several of the sentry boxes associated with the North and West Wall bastions during the 1930s to address deterioration of the structures.

The replacements incorporated some materials not included in the original sentry boxes.

Other changes impacting historic materials since the period of significance include the repaving of El Morro Road with concrete in the 1990s. Historic surfacing, which varied over the years, included earth, gravel, asphalt, and earlier iterations of concrete. The composition of the grass lawn that characterizes the majority of El Morro Esplanade has evolved over time. During the Spanish period, the open greensward was likely formed from field grasses. The current zoysia and Bermuda grasses were likely planted during the early twentieth century by the US Army. The grasses present today continue to reflect development of a golf course during in the 1930s, including shorter grasses where greens and tee boxes were located.

Contemporary introductions include concrete park benches and trash receptacles, metal signage, and concrete, plastic, and metal play equipment within the playground located within Parcel B that diminish integrity of materials.

Despite these changes, El Morro Esplanade retains integrity of materials to both periods of significance due to the ongoing presence of historic features that also retain integrity of materials. This pertains to both Parcels A and B.

Workmanship

Workmanship is the physical evidence of the crafts of a particular culture or people during a given period in history or prehistory.

The many built military features of El Morro Esplanade, such as the curtain walls, bastions, and guardhouses, continue to demonstrate integrity of workmanship to the Spanish military occupation period. As noted above, integrity of workmanship is diminished where changes have been made to historic features, such as the curtain wall between Santa Elena and San Agustín Bastions, rebuilt in 1925 and 1938-1939 after a section collapsed in 1918 following an earthquake, and the rebuilt sentry boxes. These changes reflect workmanship associated with engineering and historic preservation conducted during the US military occupation period.

Based on the surviving evidence of built features established during the period of significance, El Morro Esplanade demonstrates integrity of workmanship for the Spanish military occupation period. Integrity of workmanship is diminished for the US military occupation period. This pertains to both Parcels A and B.

Feeling

Feeling is a cultural landscape's expression of the aesthetic or historic sense of a particular time.

El Morro Esplanade retains integrity of feeling for the Spanish military occupation period due to the ongoing association of the property's use as a military defensive fortification complex, and the presence of strategic and well-built structures designed to enhance the advantage afforded by the promontory landform overlooking the entrance to San Juan Harbor. Impacting integrity of feeling are contemporary use of the site as a public park, and such additions as the playground, heliport, and park maintenance activities that postdate the period of significance.

Integrity of feeling for the US military occupation period is diminished as a result of the loss of the many features built to support San Juan Military Reservation and Fort Brooke during the first half of the twentieth century. The removal of numerous buildings, structures, fences, trees, and recreational facilities that characterized the space during the US military occupation period diminish the feeling associated with an active, bustling military base.

The surviving evidence of the eighteenth- and nineteenth-century walls and guardhouses, and the open space of El Morro Esplanade help to convey integrity of feeling for the Spanish military occupation period. Integrity of feeling for the US military occupation period is diminished by the loss of historic features and the addition of non-historic uses and activities. This pertains to both Parcels A and B.

Association

Association is the direct link between an important historic event or person and a cultural landscape.

El Morro Esplanade continues to convey its historical associations with coastal defense and defense of San Juan Harbor due to the existence of El Morro, the North and West Walls and the embrasures through which artillery could be fired, the three guardhouses, El Polvorín powder magazine, original and restored sentry boxes, and stormwater-management systems designed to protect the walls from deterioration resulting from flooding.

Integrity of association for the US military occupation period is diminished as a result of the loss of numerous features that supported an active military reservation during the first half of the twentieth century. Surviving evidence of US Army adaptations of the earlier Spanish military landscape, such as San Agustín Road and the concrete gun emplacements at Santa Elena Bastion and southwest of El Morro, help to convey these associations, however.

El Morro Esplanade thus demonstrates integrity of association for both the Spanish and US military occupation periods. This pertains to both Parcels A and B.

Comparative Analysis of Historic and Existing Conditions

Landscape Characteristics

Historic landscapes comprise a combination of both tangible and intangible landscape characteristics that survive from an identified National Register of Historic Places-eligible period of significance. These features, individually and/or collectively, are essential to aid in the understanding of the importance of the place. At El Morro Esplanade, numerous landscape characteristics survive to convey a deep understanding between the place, its cultural uses, and environmental conditions. These characteristics include natural features and systems, responses to natural resources, patterns of spatial organization, land uses, circulation features, cultural vegetation, buildings and structures, views and vistas, and small-scale features. Understanding the contribution of these characteristics to the property's historic significance is essential to the process of develop appropriate long-term management and treatment strategies that ensure protection of the resources and supports interpretation.

The section that follows is composed of a comparative analysis of historic and existing landscape conditions focusing on each of the landscape characteristics that comprise the El Morro Esplanade cultural landscape. The comparative analysis explores change over time within the cultural landscape, and identifies features originating during the period of significance that retain integrity (contributing resources), those postdating the period of significance, not associated with one of the significant historic contexts of the property, and those that have lost integrity (non-contributing resources). The comparative analysis also identifies features that were present historically but do not survive today. Knowledge of these missing historic features is of interest to the potential understanding of archeological features and to interpretive programming.

Natural Systems and Features and Responses to Natural Resources

Summary Analysis. The direct connection between military defensive strategies employed by the Spanish between circa 1539 when El Morro was first constructed, and the mid- to late nineteenth century when advances in technology rendered the defenses outdated, and the natural form of the land upon which the defensives are sited, remain clear and observable today.

The natural form of the elevated promontory at the northwestern tip of the Isleta de San Juan that overlooks the seaward approach to San Juan Harbor survives today and suggests the original

rationale for the siting of El Morro to command and control access militarily.

The broad sloped plain to the south/southeast of El Morro served as the glacis or managed field of fire for the artillery emplaced in the fortification facing the land approach. As such, the ground was manipulated to ensure a smooth, evenly graded slope where an attacking enemy could be clearly seen from El Morro. This area became known as Campo del Morro, or the El Morro field. Cutting across the open landscape was a single road providing access to the fortification. The road was sited along a high point or ridge located in the center of the promontory, and led to the sallyport, or fortified entrance into the fortified complex, controlled by a moat and bridge that could be lowered for crossing.

The edge of the promontory, which varies from cliff-like conditions to rocky slopes, was developed by the Spanish through the construction of massive masonry walls and bastions that extended above the grade of the esplanade to provide cover for soldiers manning artillery (Figure 166). Where the western edge of the promontory slopes below the upper esplanade, the Spanish terraced the landform to establish buildable sites for structures such as the Santa Elena powder magazine, herein referred to as El Polvorín, and artillery platforms and bastions.

Work conducted by the Spanish to establish the glacis of the esplanade included the lowering of high points, such as an elevated knoll referred to as Calvary Hill located within the southeastern sector of the upper esplanade, and the filling of low points and ravines, such as the area east of El Morro. The glacis of the esplanade today continues to demonstrate the careful work conducted by the Spanish to establish the glacis according to military engineering principles.

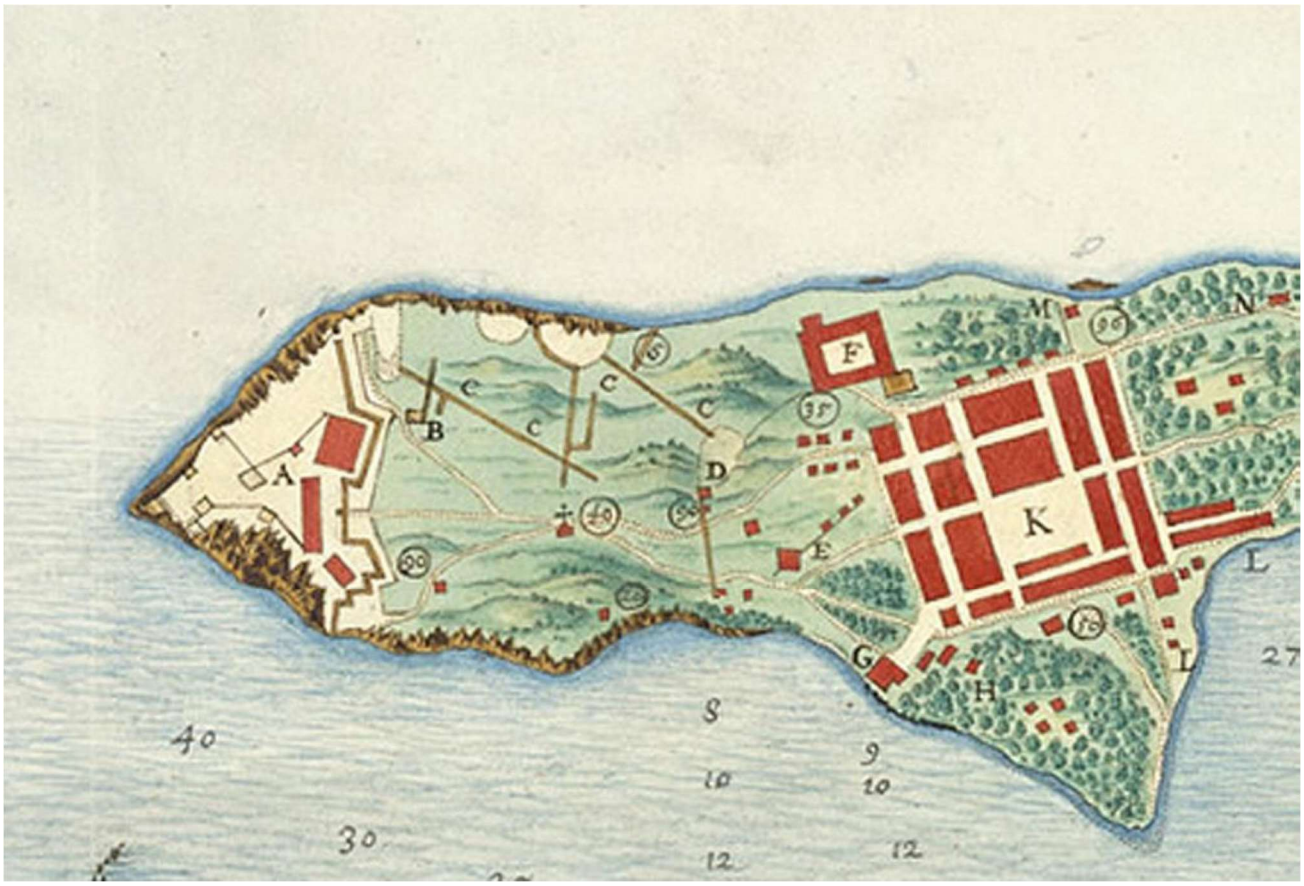


FIGURE 166. Circa 1625 Dutch map of San Juan showing El Morro Esplanade, El Morro (A), La Fortaleza (G), and several other early features of the military landscape. (Source: As reprinted in Rodríguez López et al., 30)

Management of the flow of stormwater, and protection of the perimeter walls from flooding and destabilization, was considered in the design of the structures by the Spanish. Segments of the walls where topography directs overland flow of stormwater were built with openings that allow the water to pass through and beyond the walls. Features indicated in the design of the walls by Spanish engineers generally included scuppers, or openings in the sides of walls, fed by earthen and masonry swales and channels.

During the early twentieth century, some sections of the West Walls began to fail, specifically the curtain wall located between Santa Elena and San Agustín Bastions. The US Army rebuilt the wall between 1925 and 1939 to include paved gutters and channels, scuppers, drains, culverts, and pipes. These coexist with additional drainage modifications added during the 1990s to address flooding that include earthen swales, drop inlets, catch basins, and pipes conveying stormwater through or beneath the walls. While several changes have been made to the West Walls to address stormwater management, the North Walls appear to retain their original systems and have not been updated.

Another historic response to natural resources that can be gleaned from analysis of the esplanade landscape is the use of cisterns to collect freshwater. Until the latter part of the twentieth century, there were no freshwater sources available for military use on the promontory. To address water supply needs, first the Spanish, and then the US Army, established cisterns to store drinking water below the open plain of the esplanade. One of the cisterns was located near present-day San Antonio Bastion, while another was south of El Morro and El Morro Road.

Historic Conditions. The promontory upon which El Morro and the esplanade sit is edged by steep slopes that fall away toward the Atlantic Ocean shoreline to the north and west and San Juan Bay to the southwest. The fortified structure of El Morro was in fact named for the landform upon which it sits—as "el Morro" means "promontory" or "headland" in Spanish. The Spanish built the defensive system to protect their interest in controlling the Harbor of San Juan, a deep port protected by surrounding landforms including the Islet of San Juan to the north and Cabras Island to the northwest. Work to develop El Morro, which began in 1539, followed establishment of a fortified position on the site of present-day La Fortaleza in 1521 in response to an anticipated attack on Puerto Rico by the French.[225]

After the first defensive structure at the entrance to the port at San Juan was destroyed by a hurricane, the residents of the Spanish colony in Puerto Rico asked the Crown to build additional defenses and a fortress to protect against attacks by Caribe Indians and pirates. In response, the Spanish Crown authorized the establishment of a fortress on a rocky promontory fronting the entrance channel into the bay at San Juan in 1533 that became La Fortaleza. By 1537, colonist Gonzalo Fernández de Oviedo began to raise concerns in a letter to the King of Spain that La Fortaleza would not be enough to protect the colony, but that an additional fortress would be needed on the north coast at the tip of the entrance into the port at San Juan for a broader view of the approach by sea to provide sufficient time to respond to the threat, and establish artillery able to attack sooner than at the mouth of the harbor.[226] The king responded in 1538 by providing the funds necessary to develop an additional defensive structure atop the promontory at the northwest tip of the isleta. Despite the establishment of the fortified position, no army was based on site; the harbor was anticipated to be protected by a neighborhood militia of local residents, officers of the Crown, and *vecinos*,[227] who did not immediately have access to artillery or ammunition.[228]

225. Rodríguez López et al., 22.
226. Rodríguez López et al., 23.
227. Vecinos were residents who owned property within the city limits. Property was defined as land, slaves, or buildings constructed of masonry.
228. Rodríguez López et al., 23.

During the mid-sixteenth century, additional defensive systems were built facing San Juan Harbor between La Fortaleza and El Morro. These were described by the governors of the island as follows:

> At the main anchorage, which runs from La Fortaleza to the Morro, a wall canvas three hundred steps long and six in brick width with low embrasures on top with the platforms and battlements. Two morros, the one at the entrance of the port of this city, under the other old one, which was there in masonry with seven embrasures. Another under the monastery of Santo Domingo, where there is a landing. On the beach and the ship's surface, seven bastions are so wide that a culverin cannot pass them, placed at a distance that occupy a lot of space on the beach with their embrasures . . . I have opened roads in the convenient places so that those on horseback could pass to go to watch and do overdrive, which has been very important for the defense of this city.[229]

Development of these fortifications in Puerto Rico was part of a larger effort conducted by the Spanish to safeguard their New World possessions, including Mexico and Peru, where precious gems, gold, and silver were being extracted, and to maintain their trade monopoly. The fortifications in Puerto Rico were part of broader efforts to protect various key harbors in the Caribbean and the Gulf of Mexico. The massive and comprehensive works at San Juan were intended to protect the strategic situation and economic potential of the colony, and the island of Puerto Rico, considered the "Key to the Indies." King Philip II (1556-1598) was instrumental in ordering and implementing a fortification plan for the island.[230]

In the design of the complex for defensive purposes, El Morro occupied a commanding position from which enemies approaching by sea could be quickly spotted and fired upon. The southern sector of the western end of the island became the focus of defensive systems due to its visual command of the entrance channel into the bay. This landscape was described in 1519 by Rodrigo de Figueroa as including expanses of sheer rock and cliffs as part of an overall configuration of terraces descending towards the rocky coastline of the bay.[231] Additional battery positions were added during the latter part of the sixteenth century. Plans for a defensive system were prepared by military engineers inspired by the work of Italian engineer Juan Bautista Antonelli and later implemented by Captain Diego Menéndez Valdés.[232]

By 1587, Valdés had overseen the establishment of two batteries facing the channel into the harbor, known as Santa Elena and San Gabriel. Santa Elena was built at the strategically important point southeast of El Morro referred to by name in a map prepared in 1575 by Juan Escalante de Mendoza. However, the first battery was located on the beach rather than on top of the promontory (Figure 167). San Gabriel occupied the position that would later be developed as San Agustín Bastion. Santa Elena was later rebuilt between 1591 and 1598 (Figure 168). At the same time, the governor of Puerto Rico replaced neighborhood militias with a permanent military garrison. Valdés also oversaw the transformation of El Morro into a bastioned citadel between 1589 and 1591. His work was soon expanded by Captain Diego Salazar, who established the fortification as a *hornabeque*, or hornwork.[233]

The urgency of establishing defenses for the San Juan increased at the end of the sixteenth century and early seventeenth century when the European powers with colonial interests—Spain, England, France, and Holland—began competing for territory and access to resources. Enemies of Spain began attacking Puerto Rico, including a 1595

229. Ibid., 24, from a letter from Governor Diego de Caraza to the king dated October 8, 1559.
230. Ibid., 27.
231. Ibid., 20.
232. Ibid., 27; Arleen Pabon-Charneco, *The Architecture of San Juan de Puerto Rico: Five Centuries of Urban and Architectural Experimentation* (New York, New York: Routledge, 2016).
233. Rodríguez López et al., 27–28.

effort by Francis Drake, and another in 1598 by George Clifford, both English. Following the attacks, the garrison was reinforced, and the defense works were repaired to address damages caused by the English by 1620. Despite these efforts, a 1625 attack by the Dutch under the command of Boudewijn Hendricksz succeeded in overrunning the defenses, and the Dutch would occupy San Juan for 39 days before burning the city.[234]



FIGURE 167. Map of San Juan, 1575, drawn by Juan Escalante de Mendoza. Reproduced by Murga Sanz in 1960. (Source: Rodríguez López et al., 25)



FIGURE 168. Evidence of the Santa Elena battery along the coastline below Santa Elena Bastion exists at the base of the curtain wall (right in image) and is visible along the Paseo del Morro.

Following the Dutch attacks, and in response to the increasing threat posed by pirates and corsairs in the Caribbean, the Spanish determined the need to improve the defenses associated with San Juan. Plans were then made to fortify the city by building a system of forts connected by walls. The plans built on an earlier proposal designed by Valdés in 1587 to include curtain walls in addition to artillery batteries. As implemented beginning in the 1630s, the system included a continuous curtain wall between El Morro and La Fortaleza, following the edge of the promontory, which would establish a formidable vertical obstacle to attack given the precipitous drop between the promontory and the rocky shoreline. The wall was also to continue along the south side of the city. All told, the wall was to measure approximately

234. Ibid., 27.

10,000 feet in length around the southern and western part of the city between El Morro and the highlands of San Cristóbal.[235] The curtain walls facing the bay were completed by 1639. They were built with parapets anchored to the cliffs themselves. Included within this part of the system were three key artillery positions—San Agustín, San Fernando, and Santa Elena.[236] It was at this time that Santa Elena and San Agustín Bastions were established atop the promontory, presenting the form of a ravelin (Figure **169**). These positions appear on a map prepared by Luis Venegas Osorio in 1678 (Figure **170**).

Enclosure of the esplanade to the north was not completed until after King Charles III of Spain declared San Juan a Defense of the First Order in 1765. The order reflected ongoing tensions and hostilities occurring among the European colonial powers, including the Seven Years War (1756-1763), and efforts being conducted by England to attack and capture Spanish territories in America and elsewhere.[237]

235. Rodríguez López et al., 30.
236. Ibid., 31–33.
237. Ibid., 35.

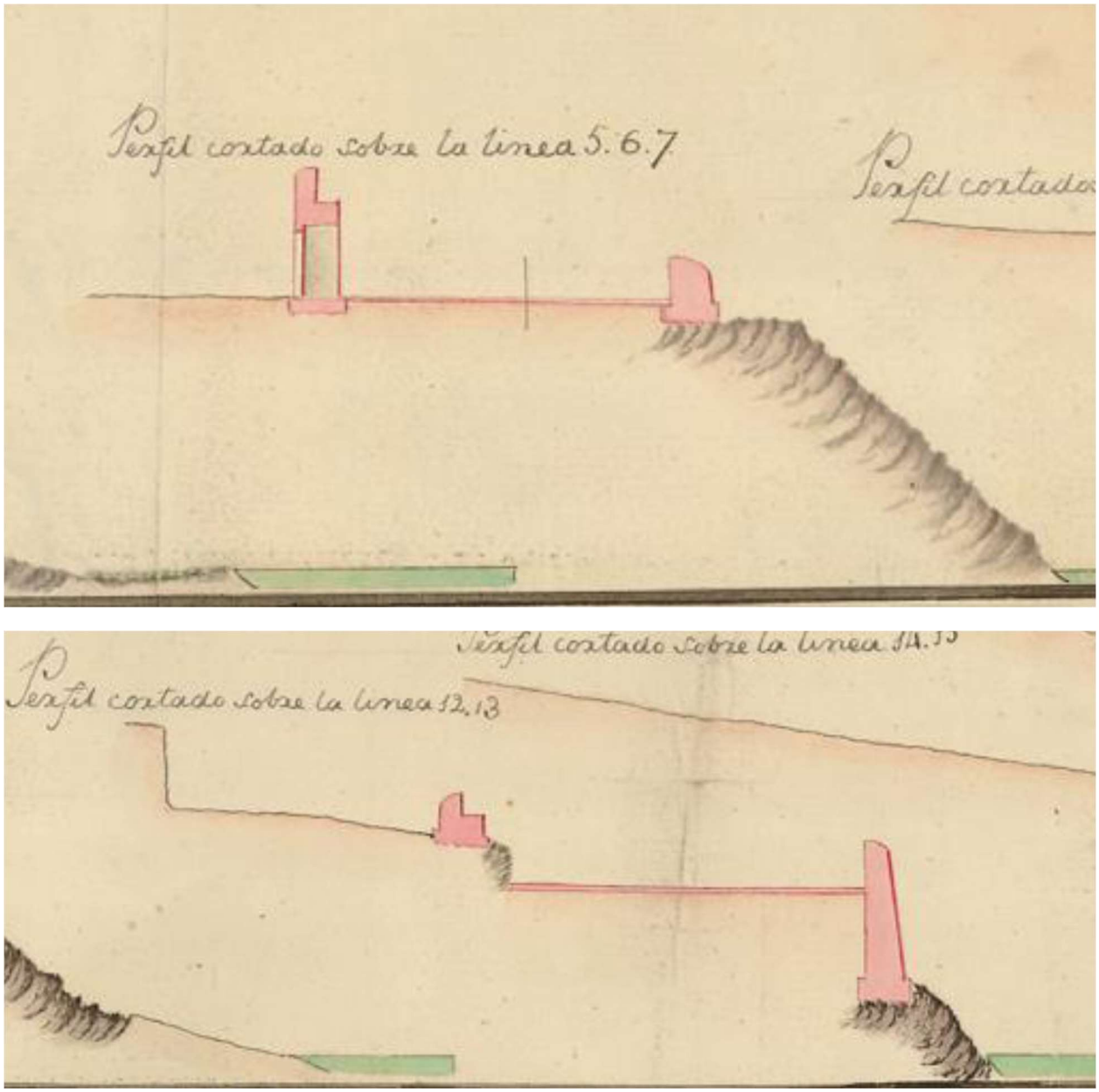


FIGURE 169. Sections drawn by Alexander (Alejandro) O'Reilly in 1765 showing the relationship between Santa Elena Bastion (top), and San Agustín Bastion (bottom) and the cliff of the promontory facing the channel leading to San Juan Harbor. (Source: Sepúlveda Rivera, 141)



FIGURE 170. Map of San Juan, 1678, drawn by Luis Venegas Ossorio. (Source: Spanish Archives Portal (PARES), State Archives, Madrid, AGI Santo Domingo, Número 074)

In response to the order, Field Marshal Alexander (Alejandro) O'Reilly, with Chief Engineers Colonel Thomas (Tomás) O'Daly and Juan Francisco Mestre, began to enhance the existing defenses and complete designs for a north wall system. Their work also included reworking the glacis.[238] The engineers were based nearby at Casa Blanca while they implemented O'Reilly's plans. It was O'Reilly who identified the need to rework the terrain at the center of the esplanade, which he described as 3 to 4 feet of sand over top of hard clay, for defensive purposes. To engineer the glacis, O'Reilly recommended removing a high point referred to as Calvary Hill (la Altura del Calvario), located in the vicinity of the present-day Ballajá Barracks, and filling a ravine that opened toward the Atlantic Ocean east of El Morro's outer walls (Figure 171). O'Reilly noted that lowering Calvary Hill would improve the defensive capabilities of El Morro, while considering the ravine, which he described as 660 feet long, 120 to 180 feet wide, and 10 to 18 feet deep, an advantageous and proximate place to move the earth[239]

Despite O'Reilly's recommendation, it appears that work to remove the hill would continue for several decades, and possibly as long as a century. It is possible that the ravine was not completely filled until the North Walls were finished in 1782. Work was already underway in 1775 when O'Daly indicated that 448 workers were busy excavating a quarry he referred to as "el Calvario" on the esplanade of El Morro.[240] Documents dating to the nineteenth century, however, continue to refer to both the hill and the ravine as quarries and describe ongoing efforts to move earth to establish a smooth and regularly sloped glacis. For example, a plan dated 1857 still labels the "Ravine of Ballajá Quarry."[241]

The North and West Walls that contain El Morro Esplanade were completed circa 1765–1782. The walls complemented and accentuated the steep slopes at the base of the promontory as an obstacle to a potential enemy attack, extending as sheer masonry structures for 20 feet or more along the edge of the promontory, with an additional 4 feet or so of parapet above the esplanade. The parapet walls were designed to provide cover and concealment for the soldiers manning artillery at the openings in the wall known as embrasures. These and other walls in the system featured stormwater-management systems designed to channel and conduct flow through openings in the walls. The openings, referred to as scuppers, were set at intervals along the interior face of the bastion and curtain walls. Paved channels and grass swales often directed the flow toward the openings. There were openings left through the walls at the base of many firing steps where stormwater could be channeled to exit the esplanade.

Santa Elena Bastion was described during this time as having become a true fort with a polygonal form composed of eleven sides and four projections facing the channel leading to the harbor, with a *hornabeque* closing the land side.[242] To reinforce this important position, O'Reilly proposed to site a storehouse for gunpowder, one of five to be erected within the wall system, nearby. By 1792, a powder house, or polvorín, had been erected near Santa Elena Bastion. Construction of the structure occurred to the east of the bastion where steep slopes connected the upper level of the esplanade with the lower tier of the promontory along the western shoreline. To establish a buildable site for the structure, the hill was excavated, and a large retaining wall built. Also built during this time was a guardhouse for Santa Elena Bastion, located just behind the walls. The completed system is shown on a map prepared by Juan Francisco Mestre in 1792 (refer to Figure 171).

238. Crisson et al., III, 18.
239. Ricardo Torres-Reyes, La Plaza de PR, 1765–1777 (San Juan, Puerto Rico: National Park Service, 1952), 94.
240. Ibid., 61.
241. Crisson et al., 19; from Antonio Daubón Vidal, "Archeological Assessment for the Proposed San Felipe del Morro Landfill Area" (Commonwealth of Puerto Rico: Public Building Authority, 1989).
242. Rodríguez López et al., 38.

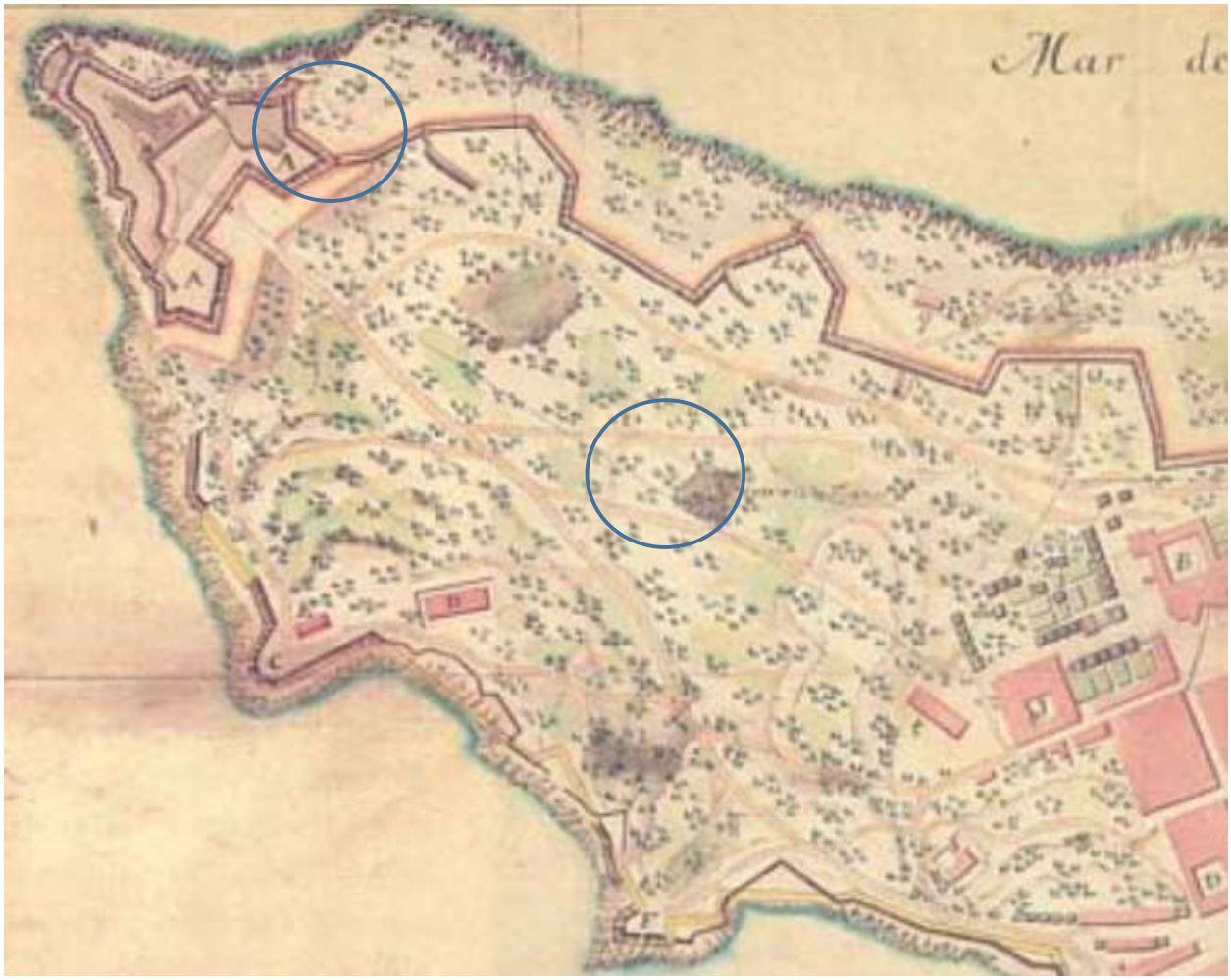


FIGURE 171. 1792 map prepared by military engineer Juan Francisco Mestre illustrating the ravine (blue circle upper left) and Calvary Hill (blue circle lower right) that were regraded by the Spanish to improve the effectiveness of the glacis associated with the land approach to El Morro. (Source: *Manuscrito por Juan Francisco Mestre,* Servicio Histórico Militar Núm. 5795, Madrid)

The improved defenses proved successful when the English under the command of General Sir Ralph Abercromby and Admiral Henry Harvey attacked but failed to capture San Juan in 1797.[243] Aside from repairs made to the curtain walls near Santa Elena Bastion, the system remained as completed circa 1782 well into the nineteenth century. However, reports by military authorities regularly cited problems and undercutting of the walls caused by stormwater, particularly on the western edge of the promontory where the steep slopes linking the upper esplanade with the West Wall system between Santa Elena and San Agustín Bastion were associated with fast moving and large quantities of overland flow during and after storm events.[244]

During the nineteenth century, several additions were made to the landscape of the esplanade. By 1861, a guardhouse had been erected near San Agustín Bastion. This later became known as Casa Rosa. Between 1851 and 1861, el Manicomio, a mental hospital, was built at the southeastern end of the open space along El Morro Road. At some point between 1862 and 1897, four Pabellones Militares or military pavilions, were built between el Manicomio and the Dutch Monument, another feature added to the esplanade landscape during the mid-nineteenth century. The complex was surrounded by a perimeter masonry wall. Inside were administrative buildings, barracks, kitchens,

243. Ibid., 35.

244. Ibid., 43.

and latrines.[245] By 1897, the Spanish had built a third guardhouse in association with San Antonio Bastion along the North Walls. Another change involved the establishment of a modern battery in the general vicinity of the historic San Fernando Battery located south of El Morro. This concrete platform and gun emplacement was constructed circa 1888 as part of a larger effort to modernize the island's coastal defenses. The gun platform was designed to emplace four breech-loading mortars designed to fire *en barbette* over the parapet wall of the earlier battery, which was altered through removal of the embrasures and lowering of the parapet wall.

Following the Spanish American War of 1898, Spain ceded Puerto Rico to the United States in the Treaty of Paris. During the war, the US Navy bombarded the Spanish defenses with artillery. The heavy artillery fire damaged areas of the esplanade, including El Morro, some barracks buildings, and the broad open ground plain. Where artillery shells hit and exploded, they left cratered areas behind.[246] Photographs of the aftermath indicated the extent of the damage, including piles of rubble and dislodged earth as well as craters.[247] In 1899, the US Army began to regrade the esplanade and fill the holes created by artillery shells.[248] An area north of El Morro Road was regraded, and obstructions in the sewer line were removed to address drainage problems. By 1905, El Morro Road had been rebuilt to address artillery damage. The margins of the road were ditched and the road itself crowned to promote good drainage. Between 1907 and circa 1923, portions of El Morro Esplanade were repurposed for recreation, with a baseball field established at the eastern end of the upper esplanade, and a series of golf tees and greens created throughout the open plain, which entailed the planting of special grasses and potentially some grading.

It was also during the early twentieth century that the Pabellones Militares was repurposed as a yellow fever hospital, and an incinerator was built 60 feet south of the El Polvorín retaining wall to dispose of the belongings of infected individuals due to the contagious nature of the disease.

During the early twentieth century, the US Army began to evaluate the condition of the walls and buildings associated with the system, quickly identifying some sections that were in a potentially precarious state, such as the curtain between Santa Elena and San Agustín Bastions that was regularly undercut by ocean waves while also being subjected to stormwater on the uphill side.[249]

During World War I, the US Army, like the Spanish had done in the 1890s, sought to modernize the coastal defenses of the military reservation, constructing a concrete gun emplacement inside Santa Elena Bastion and an associated concrete powder magazine in 1917. Other additions to the El Morro Esplanade landscape included the construction of four infantry barracks near the El Morro moat along El Morro Road.

The curtain wall between Santa Elena and San Agustín Bastions partially collapsed following an earthquake in 1918. The US Army began a series of repairs in 1925 (Figure 172) that included extensive grading of the slopes behind the wall, the addition of riprap, and reconstruction of the collapsed section of wall.[250] To address the sloped terrain to the inside of the curtain wall, the US Army excavated more than 20 feet of fill and terraced the sloped hillside, including the land between El Polvorín and the present-day playground, to control the flow of stormwater from the upper level of El Morro Esplanade (Figure 173). This work continued through 1939, and eventually included an improved drainage system that featured concrete gutters, drains, and

245. Ibid., 46.
246. Crisson et al., 19; from Edwin C. Bearss, *San Juan Fortifications 1898–1958* (National Park Service, 1984), 9.
247. Crisson et al., 19; from Rivero Méndez, 1972, 501. Historic photographs referenced in Berkowitz were not available for use in this document.
248. Crisson et al., 18; from Bearss, *Historic Structure Report,* 106.
249. Rodríguez López et al., 49.
250. Ibid., 51.

pipes or openings that direct the flow of stormwater through the walls.



Figure 53. 1925. Wall curtain reconstruction works. In tbe background the incinerator chimney. (SJNHS 77CDJ-8). Cited in Pantel del Cueto, 2014: 33.

FIGURE 172. View of curtain wall reconstruction underway, 1925. The incinerator is visible behind. (Source: Rodríguez López et al., 52)



FIGURE 173. 1939 photograph of Santa Elena Bastion and the adjacent curtain wall following construction with the terraced hillside visible beyond. (Source: Rodríguez López et al., 56)

In 1931, the US Army prepared a plan for substantive changes to be made to El Morro Esplanade to improve the military reservation. The plan, titled "San Juan, Puerto Rico Preservation of Historic Forts Santa Elena Section," recommended removal of the yellow fever hospital and incinerator and the infantry barracks built along El Morro Road in 1903, and the addition of new roads and officer's residences and other features. As a result, eight new residences were built at the site of the former yellow fever hospital and five additional residences were built north of El Polvorín, along with new roads south of El Morro Road and connecting El Morro Road with the existing Casa Rosa Road.[251] One of the new roads was referred to as Santa Elena Road. This route formed a half-circle to the south of El Morro Road between the Dutch Monument and El Morro moat.[252] The road circumnavigated a 300-foot-diameter depression in the esplanade southwest of El Morro. The new military housing structures were built along the outer margins of the road.[253]



FIGURE 174. 1937 aerial photograph of El Morro Esplanade showing the completed improvements first proposed in a plan prepared in 1931. (Source: Pantel, del Cueto & Associates, 37)

The Bay Road, which already paralleled the West Walls by this time, was updated as San Agustín Road. The roadbed was elevated several feet above the earlier route. By 1937, these changes as well as the addition of two more buildings on the slope north of San Agustín Bastion, several buildings set within the bastion itself, and a nearby tennis court had been completed (Figure 174). Trees appear on the hillside north of the bastion, at the edge of the bastion, and in association with Casa Rosa at this time as well. Other changes included the addition

251. Ibid., 53.
252. Wild, *Report on Archeological Investigations* 5.
253. Crisson et al., 31.

of an aboveground swimming pool adjacent to San Antonio Guardhouse and adaptive use of the guardhouse as a bathhouse in 1931. The degree to which the esplanade was disturbed to establish the swimming pool is not currently known. Three cisterns are known to have been established to support operations associated with the military reservation at El Morro, which likely occurred during this time.

Few additions followed implementation of the 1931 plan. The military reservation was renamed Fort Brooke in 1943. In 1949, a portion of the property was transferred to the Department of the Interior and San Juan National Historic Site established. The US Army remained in possession of some sections of Fort Brooke until 1961. During the 1950s, the US Army altered the slope and a portion of the El Polvorín retaining wall south of the building to construct a twelve-car garage, which was attached to the south wall of the structure. Also during this period, the US Army built several new officer's residences along the curtain wall east of Santa Elena Bastion (Figure 175 and Figure 176).



FIGURE 175. 1951 aerial photograph showing the garage attached to the south wall of El Polvorín and the new officer's residences along the curtain wall east of Santa Elena Bastion. (Source: Pantel, del Cueto & Associates, 41)

After the US Army transferred Fort Brooke to the Department of the Interior in 1961, the National Park Service prepared a Master Plan for Fort Brooke in 1968 that indicated Parcel A would be administered by the agency while Parcel B would be transferred to the Commonwealth of Puerto Rico. The plan identified the need to remove most of the buildings constructed by the US Army in the 1930s.[254]



FIGURE 176. 1960s view of Parcel B. (Source: Pantel, del Cueto & Associates, 45, citing Park Archives, SJNHS Photograph 3309)

Since the 1960s, the NPS and Commonwealth of Puerto Rico have entered into several memoranda of agreement to address access and use of El Polvorín, as well as tree care and other issues. The garages were removed from the south wall of El Polvorín in the 1980s. During the late 1980s, several projects were conducted to level the esplanade and address stormwater management. These continued into the 1990s. Circa 1992-1995, the National Park Service removed Santa Elena Road and reconstructed San Agustín Road after removing the fill added in the 1930s.[255]

After removing Santa Elena Road, the National Park Service filled the resulting depressions where the road base had been. The fill material, however, later settled, and the NPS added additional material in 1997 to help address stormwater management. The fill was borrowed from modern deposits north of Santa Elena Guardhouse where the northwest bastion wall was being stabilized by the US Army Corps of Engineers.[256] Grass swales directing water to catch basins connected to PVC pipes emptying beyond or below the walls have been added above Santa Elena Bastion, south of El Polvorín, as well as within San Agustín Bastion to prevent further damage to the walls.

254. Rodríguez López et al., 58.
255. Pantel, del Cueto & Associates, 53.
256. Wild, 1, 5.

In 1994, grading was conducted to redirect stormwater management around El Polvorín to prevent flooding inside the building. [257]

To address erosion in areas of high visitor traffic and on steep slopes where service vehicles travel, the National Park Service also added turf reinforcement pavers. These areas include an area outside of San Antonio Guardhouse frequented by visitors due to its current use as a bookstore, and a maintenance service drive that connects Parcels A and B. The NPS has also installed a grass-crete paving system south of El Polvorín where the garage once stood to provide a stabilized parking area that allows for infiltration of stormwater.

Existing Conditions. El Morro occupies a high point at the terminus of the northwestern tip of the Isleta de San Juan that offers commanding views of the Atlantic Ocean to the north, as well as the navigable channel entry to San Juan Harbor to the northwest and west. The fortified structure of El Morro is edged to the southeast by El Morro Esplanade, designed to serve as the fort's glacis, an engineered component of the military defenses established by the Spanish. A system of walls frames the central open space along the edge of the promontory (Figure 177).

The primary topographical features of the El Morro Esplanade project area are the broad open plain that gently slopes upward toward the fort associated with Parcel A, the steep slopes of the promontory margins, punctuated by the North and West Walls that marks both Parcels A and B, and the terraced and declining topography associated with Parcel B.

The broad open plain of the esplanade within Parcel A is divided into two parts by a spine or ridgeline of higher ground followed by El Morro Road.



FIGURE 177. Contemporary view illustrating the relationship of the esplanade to El Morro, the promontory, and the perimeter walls and bastions established in response to the natural conditions.

Evidence of cultural responses to the natural features of the promontory landform include the manipulation of the esplanade to create the smooth glacis, the establishment of the walls as an obstacle to attack from below, and the various drainage systems that direct stormwater through the perimeter walls. A vault cover south of El Morro marks the location of a cistern developed to provide freshwater for the military complex before public utilities supplied this need.

Turf reinforcement pavers placed to prevent soil erosion are present at the base of benches outside the bookstore and near El Morro, and on the steeply sloped section of the maintenance service drive connecting Parcels A and B, while grass-crete paving is used for parking at El Polvorín to promote infiltration of stormwater.

Evaluation. (Refer to Figure 178 and Figure 179) Several natural features and systems, as well as cultural responses to natural resources, survive within the El Morro Esplanade landscape today. These include the landform of the promontory on which the esplanade and El Morro are situated, as well as the broad open plain and sweeping sloped greensward that extends between Norzagaray Street and El Morro. This natural landform and topography survives with a high degree of integrity and helps to connect the military defensive system established by the Spanish to the naturally

257. Pantel, del Cueto & Associates, 55.

defensible position at the northwest tip of the Isleta de San Juan.

The landform and topography, however, have also been manipulated for cultural needs through the construction of massive masonry walls along the margins of the promontory, and through the leveling of a rise within the esplanade—Calvary Hill—and the filling of a ravine during the Spanish military occupation period. Grading effected by the Spanish to lower high points and fill ravines contributed to the smooth glacis that exists today, broken into northern and southern sections by a spine occupied by El Morro Road. The existing broad open plain of the esplanade and its grading as a glacis to improve defense survive with a high degree of integrity to the Spanish military occupation period, with repair conducted by the US Army following artillery bombardment during the Spanish-American War.

The perimeter walls and bastions that contain the esplanade are further examples of responses to natural resources as an expansion of the Spanish defense of San Juan following declaration a Defense of the First Order. The walls and bastions served as an obstacle to attack as well as protection for the soldiers involved in manning artillery positions. The walls also survive with a high degree of integrity to the Spanish period, although there are some segments of the West Walls that underwent collapse during the early twentieth century that were later repaired or replaced by the US Army, most notable the curtain wall between Santa Elena and San Agustín Bastions (see the Buildings and Structures section for more detail).

The engineering of the walls and bastions by the Spanish incorporated drainage and stormwater-management systems that allowed water to flow through the walls and prevent ponding that might destabilize the walls. These systems remain in evidence and continue to function today. Where the US Army repaired and replaced sections of wall, there is evidence of a different approach to stormwater management that included the use of concrete and drain structures. These systems also survive with a good deal of integrity today (see the Buildings and Structures section for more detail).

Other evidence of Spanish and US military occupation period survives in the form of terraced hillsides and retaining walls within Parcel B, notably at El Polvorín, the hillside where the playground is located, and along San Agustín Road. These features also survive with moderate integrity where the buildings and structures they were designed to accommodate are no longer present.

Later stormwater-management systems added by the National Park Service post-date the period of significance. These include grass lined swales that direct water to catch basins, drop inlets, and PVC pipe.

Evidence of the military use of cisterns to store freshwater is also present. Two cisterns are known to exist underground beneath the esplanade within Parcel A. One is marked by a metal vault cover. The other has been filled with sand to protect it from collapse. Additional cisterns indicated as present during the US military occupation period have not been relocated.

Other responses to natural resources that postdate the period of significance are the use of turf reinforcement pavers to protect turf areas subject to heavy visitor use from erosion.

Natural Features and Systems, and Responses to Natural Features Contributing to the Historic Setting of El Morro Esplanade

- **Promontory landform** (natural feature; present by Spanish military occupation period)
- **Broad open sloped plain of the Esplanade** (natural feature; Spanish cleared of trees when establishing El Morro, Spanish military occupation period; buildings and road system added during US military occupation period but later removed)
- **Construction of batteries, bastions, and walls along the edge of the promontory** (circa 1560s–1782)

- **Grading of the glacis to improve defense** (circa 1775–1887)
- **Stormwater management: use of drains, culverts, swales, scuppers, gutters, and paved channels in association with bastions and curtain walls** (circa 1560–1782; with later adaptations and repair or replacement circa 1925-1939)
- **Use of cisterns to collect and store freshwater** (circa 1539-1898; 1898-1961)
- **Siting of El Morro Road along a ridgeline leading to El Morro** (circa 1539, continuing through US military occupation period)
- **Terraced and graded topography (Parcel B)** (circa 1930s)

Natural Features and Systems, and Responses to Natural Features that Do Not Contribute to the Historic Setting of El Morro Esplanade

Responses to natural resources that have been implemented by the National Park Service since the end of the period of significance in support of park management include the following:

- **Use of turf reinforcement pavers to control erosion** (post 1970)
- **Stormwater management: use of berms, swales, catch basins, drop inlets, and pipes to control stormwater** (post 1970)



FIGURE 178. Map illustrating contributing and non-contributing Natural Features and Systems associated with El Morro Esplanade. (Source: LSHLA)



FIGURE 179. Map illustrating contributing and non-contributing Responses to Natural Resources associated with El Morro Esplanade. (Source: LSHLA)

Land Uses

Summary Analysis. Land uses currently associated with El Morro Esplanade include commemorative, recreational, commercial, museum/interpretative/educational, maintenance, conservation, and transportation. Of these, only commemorative and recreational land uses survive from the period of significance.

Several historical land uses that characterized the landscape during the period of significance are no longer in evidence today. The most important of these is military. Military use of the landscape was supported by housing, hospital, supply and storage, services, and to a limited degree, agriculture.

Additional uses that have been introduced through the administration of San Juan National Historic Site and use of Parcel B by the Commonwealth of Puerto Rico include commercial, museum/interpretive/educational, maintenance, conservation, and transportation.

Historic Conditions. Throughout the period of significance—circa 1539 to 1945, with a local community period extending to 1970—the principal land use associated with El Morro Esplanade was military, including designation of certain areas as a parade grounds and drilling site. Other uses that supported military operations included housing, recreational, supply and storage, service, and agriculture or food production. These uses occurred within both Parcel A and Parcel B. El Morro operated as a multi-use open space used as a parade grounds and a place for soldiers to conduct military exercises, as shown in a photograph of Spanish troops on the hill overlooking El Polvorín during the late nineteenth century (Figure 180).

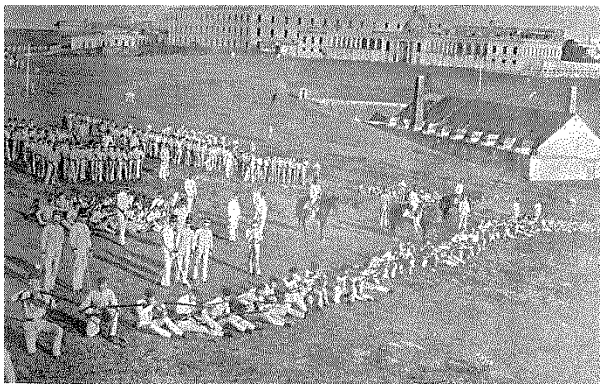


FIGURE 180. View southeast toward El Polvorín with Spanish soldiers conducting military exercises. (Source: from Pantel, del Cueto & Associates, 28)

The first example of a commemorative land use was the placement of the Dutch Monument on the esplanade along El Morro Road by 1861.

Agricultural land uses were associated with the grazing of livestock on the open grassy plain of the esplanade during the US military occupation period. Recreational uses were introduced by the US Army beginning circa 1907–1911 with the establishment of a baseball field. This was followed by creation of a nine-hole golf course by 1923, tennis courts within Parcel B by 1929, and a swimming pool near San Antonio Bastion by 1931.

Existing Conditions. Present-day land uses associated with Parcels A and B are primarily associated with National Park Service administration of San Juan National Historic Site. Land uses introduced by the National Park Service include commercial associated with a bookstore located within the San Antonio Guardhouse; museum/interpretive/educational related to wayside exhibits and ranger-led tours; maintenance housed in El Polvorín; and conservation associated with use of Santa Elena Guardhouse as a Cannon Conservation Workshop. A heliport that is used by Puerto Rico's governor is a transportation land use located within Parcel B administered by the Commonwealth of Puerto Rico.

Recreational land uses remain a part of the El Morro Esplanade landscape in the form of visitors enjoying walking, picnicking, and kite flying within the park (Figure 181). A playground located within

Parcel B, formalized in the 1990s, also constitutes a recreational land use administered by the Commonwealth of Puerto Rico.



FIGURE 181. Kite flying is a popular recreational land use associated with the esplanade today.

Commemoration continues to be associated with the Dutch Monument. A second monument, added in 2000 along El Morro Road near its intersection with Norzagaray Street, is "The Borinqueneers" Monument.

Evaluation. The commemorative and recreational land uses that survive from the period of significance within the El Morro Esplanade landscape contribute to the significance of the property's historic setting. However, many of the recreational activities in evidence today are newer introductions not consistent with the recreational activities present during the US military occupation period. The only surviving historic recreation feature is the tennis court within Parcel B established by the US Army by 1929.

All other current land uses postdate the period of significance and do not contribute to the historic setting of the esplanade.

Land Use Features Contributing to the Historic Setting of El Morro Esplanade

- **Commemorative** (by 1861)
- **Recreational** (circa 1907-1931)

Land Use Features that Do Not Contribute to the Historic Setting of El Morro Esplanade

- **Commercial** (post 1970)
- **Museum/interpretive/educational** (post 1970)
- **Maintenance** (post 1970)
- **Conservation** (post 1970)
- **Transportation** (post 1970)

Missing Features

- **Military** (both Spanish and US military occupation periods)
- **Housing** (both Spanish and US military occupation periods)
- **Supply and storage** (both Spanish and US military occupation periods)
- **Services** (both Spanish and US military occupation periods)
- **Agriculture** (US military occupation period)

Spatial Organization

Summary Analysis. The spatial organization associated with El Morro Esplanade present on the landscape today includes a general division into Parcels A and B, each of which offers a distinct sense of space due to the landform and topography characteristics. Parcel A is composed of a broad open sloped plain that rises toward the northwest and contains a central ridgeline. The land falls away from the ridgeline toward the edge of the promontory to the north and south where perimeter walls contain the space.

Parcel B is more linear in arrangement, composed of a lower space edged to the south and west by the West Walls and to the north and east by steeply rising topography that ends at the upper esplanade within Parcel A. San Agustín Road traverses the linear parcel and is edged to either

side by a series of developed clusters that occur to either side. Spatial organization within Parcel B is also affected by the presence of groves of trees and other plantings not present within Parcel A. Most of these spatial conditions were present by the end of the period of significance. The only exception is the playground that occupies the terraced slopes of the hillside along San Agustín Road near San Agustín Bastion. The playground itself was developed and designated in the mid-1990s. As part of the designation of the playground, the Institute of Puerto Rican Culture planted twenty-five ceiba (*Ceiba pentandra*) trees for commemorative purposes.[258] These trees expanded an existing grove of trees evident in photographs of the area during the US military occupation period.

The broad open sloped plain of Parcel A continues to reflect the character of the El Morro Esplanade, and its role as the glacis for El Morro, established during the Spanish military period of occupation. Over the course of four centuries, the Spanish cleared tree cover, leveled the ground plane, established low growing grasses, and built the perimeter wall system composed of curtains and outward extensions known as bastions. The city of San Juan established a cemetery at the base of the North Walls during the early nineteenth century that is readily visible from the esplanade. To address access, a road and tunnel were built through the wall by the 1860s. The road corridor cuts through the esplanade near the curtain wall east of Santa Rosa Bastion. Another important road association with spatial organization of the esplanade is El Morro Road. This route was established very early by the Spanish to reach the sallyport of El Morro. The road effectively divides the space of the esplanade into northern and southern sections.

Set within this landscape, the Spanish built three guardhouses and a powder magazine (El Polvorín). The guardhouses were each associated with a bastion—San Antonio, Santa Elena, and San Agustín. The guardhouses became anchors of their surrounding landscapes both visually and physically. A concrete artillery position was also built atop the promontory south of El Morro by 1898 by the Spanish to modernize coastal defenses in response to advances in military ships and weaponry.

US Army documents prepared in 1900 following transfer of Puerto Rico from Spain to the United States as part of the Treaty of Paris that ended the Spanish-American War, stated that "there was suitable open space between El Morro and the Ballajá Barracks for a drill ground," indicating that the US Army continued to use the esplanade for similar purposes after taking ownership of the property.[259] Photographs from the early twentieth century indicate that trees and lighting edged El Morro Road, while barracks buildings were added to either side of the road near the El Morro moat.

During the 1930s, the US Army developed much of the esplanade south of El Morro Road with new roads and buildings to accommodate housing and other uses. Only San Agustín Road survives from this period today, along with the terraced landform of the hillside to the north, rebuilt walls that had been subject to collapse, tennis courts, trees and other plantings, and a small building located west of Casa Rosa (originally the San Agustín Guardhouse). The road continues to structure the linear space of Parcel B today.

Additions that postdate the military use of the property include a playground and heliport on the hillside overlooking San Agustín Bastion and the curtain wall located between San Agustín and Santa Elena Bastions.

Today, Parcel A more generally reflects the Spanish military occupation period, while the parceled and terraced spatial organization of Parcel B includes aspects of Spanish period organization overlain with features added during the US military occupation period. With the removal of the US military occupation period features, the earlier open character of the Spanish period has been restored.

Historic Conditions. During the Spanish military occupation period, El Morro Esplanade

258. Wild, 8.

259. Crisson et al., 32.

was treated as a broad open space that supported defensive needs associated with the fortifications at El Morro. The ground plane was managed in low growing grasses, cut with roads and paths that linked key features, such as the El Morro sallyport with San Juan Gate. The only structures that appear on early maps of the esplanade are a small chapel and a cistern, along with a series of dispersed artillery batteries located facing the channel leading to San Juan Harbor.

In 1765, San Juan was declared a Defense of the First Order by King Charles III of Spain. To enhance the defensive complex, Spanish military engineers designed a comprehensive system of defensive walls along the north, west, and south margins of the city and the promontory that connected a series of forward sited projections or bastions that expanded the ability of artillery to fire in various directions. The walls, generally completed by 1782, established a sense of bounded interior space.

Slicing through the larger space of the esplanade from the earliest days of Spanish military occupation was a primary circulation route—El Morro Road—along a central ridgeline connecting the city with the sallyport of the fortified complex (refer to Figure 147).

The Spanish also built several buildings within the esplanade during the eighteenth and nineteenth centuries that created small enclaves of space within the larger whole. Surviving examples include San Antonio Guardhouse located to the south of San Antonio Bastion; El Polvorín located at the base of a retaining wall built to contain the steep slope of the hillside below Parcel A east of Santa Elena Bastion; Santa Elena Guardhouse set within Santa Elena Bastion; and San Agustín Guardhouse located northeast of San Agustín Bastion.

By the late nineteenth century, a cluster of buildings set within a walled precinct—the Pabellones Militares—had been built south of El Morro Road, between the Dutch Monument added by 1861, and el Manicomio, a mental hospital (Figure 182). The only other feature impacting spatial organization within the esplanade during the Spanish military occupation period was updating of San Fernando Battery with the addition of a concrete gun emplacement of contemporary design located near the ruins of the earlier masonry battery. By 1864, a new road had been built across the northeast portion of the esplanade to provide a connection to a tunnel leading beneath the North Wall curtain between Santo Domingo and Santa Rosa Bastions to Old San Juan Cemetery, located at the base of the North Walls (Figure 183). While these additions impacted the spatial feeling of the esplanade, overall, the space remained relatively open and undeveloped.

By 1905, the US Army had added three buildings near the sallyport leading to El Morro (refer to Figure 182), located to either side of El Morro Road, while the Pabellones Militares had been converted into a yellow fever hospital. An incinerator was later built south of El Polvorín to dispose of the possessions of those infected with the disease. The stack of the incinerator rose above the surrounding area and became an orientation aid. Additional buildings were built to the south and west of Casa Rosa, while accounts from this period describe the presence of fences to graze livestock as well, which would also have impacted spatial organization within the esplanade (Figure 184).

During World War I, the US Army worked to improve the coastal defenses around San Juan Harbor to address new weapons and boat technology. A concrete gun emplacement and bombproof were built within Santa Elena Bastion as one of several new structures added throughout the military reservation to address the threat posed by German U-Boats.



FIGURE 182. Map of 1901 showing the Pabellones Militares complex (encircled in blue), later adapted for use by the US Army as a yellow fever hospital. (Source: see Rodríguez López et al., 50)



FIGURE 183. Map of 1864 showing the completed arrangement of perimeter walls, central open space, linear element of El Morro Road dividing the Esplanade into north and south sections, Dutch Monument, El Polvorín, Santa Elena and San Agustín Guardhouses, and the road and tunnel providing access to Old San Juan Cemetery. (Source: Park Archives, SJNHS ARJT4C26_1 1861)



FIGURE 184. 1905 Quartermaster map showing the arrangement of buildings within the esplanade. (Source: Park Archives, SJNHS)

Spatial organization within the esplanade changed dramatically during the 1930s as the US Army implemented a plan prepared in 1931 to improve the military reservation. An officer's club was built to the north of El Morro Road, replacing the earlier structures near the El Morro sallyport, while a new road—Santa Elena Road—was built to the south of El Morro Road between the Dutch Monument and the officer's club (Figure 185). Trees planted to either side of El Morro Road and Santa Elena Road further divided the broad open space into smaller areas with unique identities. Five new quarters buildings were constructed along the outer edge of the road. In addition, eight buildings were added where the yellow fever hospital had previously stood between El Morro Road and Casa Rosa Road. Later, several additional buildings were added along the alignment of Bay Road, which paralleled the West Walls, but was improved and became known as San Agustín Road (Figure 186).



FIGURE 185. View of the Officer's Club built south of the El Morro dry moat, with the trees planted along El Morro Road visible beyond, undated, circa 1930s. (Source: https://www.geoisla.com/2018/10/mapa-y-fotos-de-edificios-obstruyendo-las-fortificaciones-del-viejo-san-juan-1951/)

Walls were also built near Santa Elena Guardhouse and in the vicinity of San Antonio Bastion, while within Parcel A was a large, fenced precinct located along the western promontory edge near San Fernando Battery, while another fenced precinct was developed within Santa Elena Bastion.

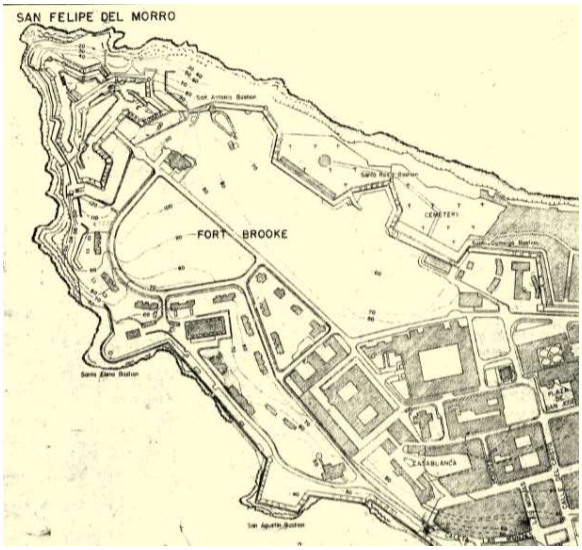


FIGURE 186. 1953 map of Fort Brooke showing Santa Elena Road and the numerous buildings located along the outer margins of the road. Quartermaster map showing the arrangement of buildings within the esplanade. (Source: Park Archives, SJNHS NHS-SJ-2058)

By the later 1930s, trees appear on aerial photographs of the esplanade along El Morro Road, Santa Elena Road, around El Polvorín, on the hillside north of San Agustín Bastion, and around Casa Rosa, the former San Agustín Guardhouse (refer to Figure 174). While much of Parcel B appears densely developed, the esplanade north of El Morro Road remains open along with the area encircled by Santa Elena Road. The open space north of El Morro Road was also used for recreational facilities that included an above-ground swimming pool connected to the San Antonio Guardhouse (Figure 187; refer to Figure 23), a nine-hole golf course, and a baseball field.

The US Army created a gate along Norzagaray Street at the northeastern corner of the esplanade to control access and entry, further conveying a sense of enclosure within the esplanade.



FIGURE 187. Bird's eye view of the esplanade with the swimming pool, golf course, baseball field, officer's club, treeline El Morro Road visible, circa 1930, but precedes construction of Santa Elena Road. (Source: Park Archives, SJNHS)

To establish Bay Road, the US Army conducted filling and grading in 1934. In 1938-1939, the road was rebuilt following repairs made to Santa Elena and San Agustín Bastions and the curtain wall between them, which included the addition of 4 feet of fill and a fence along the curtain wall for stormwater-management purposes. At the time, the firing steps associated with the south wall of Santa Elena Bastion were rebuilt.[260]

Although documentary evidence has not been located for preparation of this CLR, Casa Rosa was likely adapted for residential use by the US Army, with perimeter fencing and wall structures added along with ornamental plantings and a wishing well. These features altered the character of the guardhouse from a military to a residential landscape and established an intimate sense of enclosure.

In 1961, the US Army transferred Fort Brooke to the Department of the Interior. The National Park Service subsequently prepared a Master Plan for Fort Brooke in 1968 that indicated Parcel A would be administered by the agency and Parcel B would be transferred to the Commonwealth of Puerto Rico. The plan identified the need to remove most of the buildings constructed by the US Army in the 1930s.[261] These were removed during the 1960s and 1970s.

The NPS also removed the tree plantings along El Morro Road in 1992, based on preparation of an HSR/CLR in 1991, which dramatically altered spatial organization within the esplanade.

By 1998, a playground had been developed beneath the shade of the grove of trees within Parcel B, which was augmented with new tree plantings.[262] The playground replaced an older wood and steel playground set based on a memorandum of agreement between the National Park Service and the Commonwealth of Puerto Rico. The agreement indicated the Commonwealth of Puerto Rico planned to purchase and install a new playground in a location coordinated by both agencies.[263]

260. Pantel, del Cueto & Associates, 38.
261. Rodríguez López et al., 58.
262. National Park Service, San Juan National Historic Site Superintendent's Annual Narrative, 1998, 7.
263. National Park Service and Commonwealth of Puerto Rico, "Memorandum of Agreement between the Commonwealth of Puerto Rico and the US National Park Service San Juan National Historic Site to Place in Effect a Maintenance Plan for a Portion of the El Morro Esplanade," 1994.

Within Santa Elena Bastion, the National Park Service added a chain-link fence to protect work areas associated with the Cannon Conservation Workshop.

Existing Conditions. Primary elements of spatial organization within El Morro Esplanade today include the prominent form of the fortification that anchors the space at the northwest corner of the promontory and the system of walls and bastions that edge the space within Parcel A; and the linear space of Parcel B formed by the steeply sloped and terraced topography to then north and the West Walls and bastions to the south.

The perimeter of esplanade includes four curtain walls and three bastions—Santa Rosa, San Antonio, Santa Elena, and San Agustín—that extend outward from the curtain walls at the edge of the promontory, forming more enclosed interior spaces. Historic guardhouses edge Santa Elena, San Agustín, and San Antonio Bastions (Figure 188).

Within Parcel A, the esplanade is also visually edged to the southeast by large institutional buildings associated with Old San Juan, such as the *Escuela de Artes Plásticas*, *Asilo de la Beneficencia*, *El Manicomio*, I*nstituto de Cultura Puertorriqueño*, and the former *Cuartel de Ballajá* (now *Museo de Las Américas*). Within Parcel B, a grove of trees on the hillside, trees along San Agustín Road and within San Agustín Bastion, and ornamental plantings associated with Casa Rosa also help frame the linear corridor of space associated with San Agustín Road. The spatial configuration that includes the landform and topography allows for expansive views toward the harbor to the south, while steeply sloped topography and plantings edge the space within Parcel B to the north.



FIGURE 188. The esplanade today is generally a broad open plain of space anchored to the northwest by El Morro and edged by the North and West Walls. Bastions extend outward from the curtain walls, forming partially enclosed spaces sometimes edged by buildings such as San Antonio Guardhouse, shown.

Evaluation (Refer to Figure 190). Within the esplanade, spatial organization differs to a great degree between Parcel A and Parcel B. Parcel A is characterized by a large expanse of broad open space defined in part by El Morro, the North Walls, and large institutional buildings associated with Old San Juan. This spatial pattern was established by the Spanish and existed in this location for hundreds of years, although by the end of the Spanish military occupation period, a cluster of four buildings set within a perimeter wall were constructed between the Dutch Monument and el Manicomio that are no longer present today. A road and tunnel were also built through the northeastern corner of the esplanade to provide access to Old San Juan Cemetery by 1864.

Parcel B is more linear in form and character. Edged to the south by the West Walls, with expansive views towards San Juan Harbor, and to the north by the steeply sloped topography that descends from Parcel A, Parcel B is organized spatially as a linear open space edged to either side by nodes of cultural developments. The wall and bastion system and the three principal buildings that follow the promontory within Parcel B—Santa Elena Guardhouse, El Polvorín and associated retaining wall, and Casa Rosa—were all established during the Spanish military occupation period.

During the US military occupation period, numerous clusters of buildings, fenced precincts, and plantings were established within both Parcels A and B to support operation of the military reservation. Except for San Agustín Road, tennis courts, tree plantings, and hillside terracing within Parcel B, all these features have since been removed, suggesting diminished integrity of feeling, setting, design, and association for the US military occupation period, but reestablishment of these aspects of integrity for the Spanish military occupation period.

Later additions that have impacted patterns of spatial organization include a playground and heliport, both located within Parcel B. These postdate the period of significance, and do not contribute to the historic setting of El Morro Esplanade.

Spatial Organization Features Contributing to the Historic Setting of El Morro Esplanade

Parcel A

- **Broad open space of El Morro Esplanade (CRIS HS #019728)** (circa 1539)
- **Spatial edge formed by defensive walls and bastions** (circa 1560-1782)
- **San Antonio Bastion and Guardhouse complex (by 1897)**
- **Road and tunnel corridor leading to Old San Juan Cemetery** (by 1864)

Parcel B

- **Spatial edge formed by defensive walls and bastions** (circa 1560-1782)
- **Santa Elena Bastion, Guardhouse, and El Polvorín complex** (by 1792)
- **San Agustín Bastion and Guardhouse (by 1864)**
- **Tennis and basketball courts** (by 1929)
- **San Agustín Road corridor** (circa 1934–1939)
- **Casa Rosa residential landscape (circa 1930s)**
- **Grove of trees on hillside north of San Agustín Bastion** (by 1937)

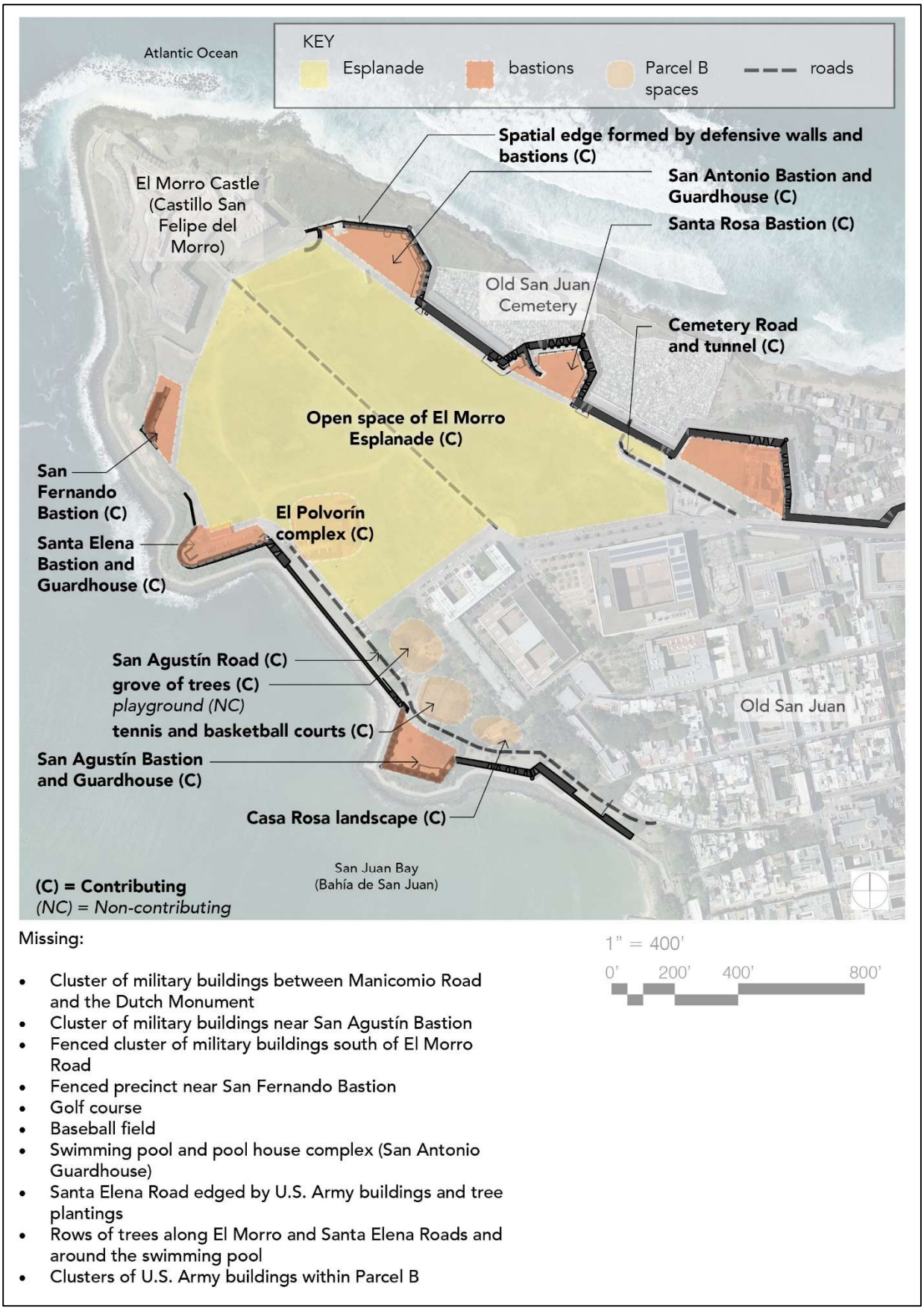
Spatial Organization Features that Do Not Contribute to the Historic Setting of El Morro Esplanade

Parcel B

- Playground (circa 1998)

Missing Spatial Organization Features

- **Cluster of military buildings between Manicomio Road and the Dutch Monument** (by 1897)
- **Cluster of military buildings near San Agustín Bastion** (by 1905)
- **Fenced cluster of military buildings south of El Morro Road** (by 1905)
- **Fenced precinct near San Fernando Battery** (by 1905)
- **Golf course** (1907–1911)
- **Baseball field** (by 1923)
- **Swimming pool and pool house complex (San Antonio Guardhouse)** (by 1931)
- **Santa Elena Road edged by US Army buildings and tree plantings** (1930s)
- **Rows of trees along El Morro and Santa Elena Roads and around the swimming pool** (1930s)
- **Clusters of US Army buildings within Parcel B** (1930s-1950s



Missing:

- Cluster of military buildings between Manicomio Road and the Dutch Monument
- Cluster of military buildings near San Agustín Bastion
- Fenced cluster of military buildings south of El Morro Road
- Fenced precinct near San Fernando Bastion
- Golf course
- Baseball field
- Swimming pool and pool house complex (San Antonio Guardhouse)
- Santa Elena Road edged by U.S. Army buildings and tree plantings
- Rows of trees along El Morro and Santa Elena Roads and around the swimming pool
- Clusters of U.S. Army buildings within Parcel B

FIGURE 189. Map illustrating contributing and non-contributing Spatial Organization Features associated with El Morro Esplanade. (Source: LSHLA)

Circulation

Summary Analysis. The route of Camino del Morro or El Morro Road, which passes through the center of Parcel A of the El Morro Esplanade property, is the oldest surviving circulation feature within El Morro Esplanade. The route was established with the El Morro fortification during the sixteenth century, and it has remained a part of the landscape ever since, although the width, surfacing, and edge conditions have varied through time. The road appears on the 1625 Dutch map (refer to Figure 166) as a primary route connecting the settlement of San Juan with El Morro. Routes connected to El Morro Road from the northeast as well as the southwest as shown on the 1625 map. The road intersecting El Morro Road from the southeast connected with San Juan Gate along the harbor.[264] The southern route is generally represented today by Casa Rosa Road. Norzagaray Street, which edges El Morro Esplanade today, does not appear in its current form until the twentieth century. In addition to these primary routes extending through the esplanade, there were several internal circulation routes that led to the individual artillery emplacements and batteries, sometimes connecting with El Morro Road. An additional form of circulation present in association with the North Walls during the eighteenth century were communication trenches, excavated walks that allowed for passage of soldiers behind the batteries without risking being fired upon. Little evidence of these routes survives today.

During the US military occupation period, several additional roads were established within El Morro Esplanade, most of which have since been removed. These included a broad loop road extending south from El Morro Road near the El Morro moat as far as the Dutch Monument. This road, built in the 1930s, was referred to as Santa Elena Road. The US Army also extended Casa Rosa Road northwest to connect with Santa Elena Road. By the late 1920s, the US Army had built a road paralleling the West Walls between Casa Rosa and Santa Elena Bastion known as Bay Road. During the 1930s, the road was improved and extended to Santa Elena Road. As part of the rebuilding of the curtain wall between Santa Elena and San Agustín Bastions, the road was altered at the western end through the addition of several feet of fill to address stormwater-management needs (Figure 190; refer to Figure 27).

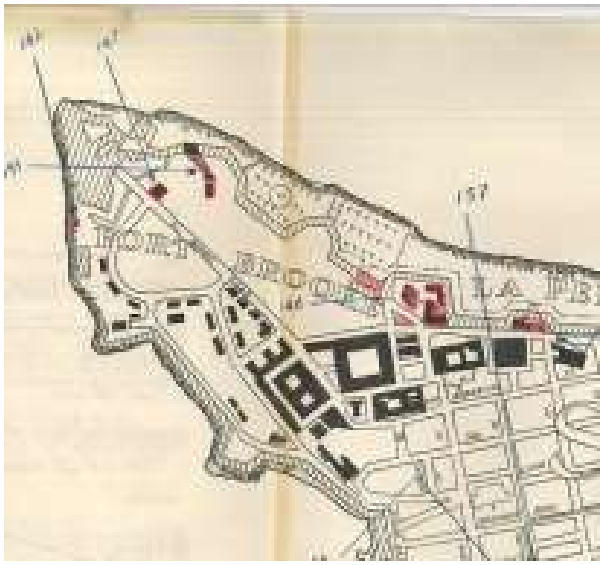


FIGURE 190. A 1951 map of Fort Brooke indicating the arrangement of roads within El Morro Esplanade, including El Morro Road, Santa Elena Road, the secondary loop to the southeast, San Agustín Road, Casa Rosa Road, and Norzagaray Street. (Source: Park Archives, SJNHS, NHS-SJ-9566)

San Agustín Road was later returned to its earlier elevation by the NPS in the late 1990s, while Santa Elena Road, the northwest extension of Casa Rosa Road, and the parking area associated with El Morro Road were removed circa 1992-1994, based on recommendations provided in an HSR/CLR prepared in 1991.[265] Maintenance access to Parcel A from Parcel B follows the route of the former connection to Santa Elena Road, now a grassy two-track. El Morro Road was then widened and repaved with concrete, with a circular turnaround added at the southeast end where the road meets Norzagaray Street, and a large circular plaza near El Morro moat.

There are few pedestrian paths or walks associated with El Morro Esplanade. Several connect Casa Rosa to adjacent roads. These appear to have been

264. Crisson et al., 12, and Vingboons, "Plan of San Juan," circa 1625.

265. Wild, 5.

constructed as part of the adaptive use of the former guardhouse for residential purposes during the US military occupation period. Walks associated with El Polvorín were added by the NPS during the adaptive use of the building for maintenance offices. A concrete walk and stairs that led to the playground from Casa Rosa Road connects to a sidewalk fronting the tennis and basketball courts along San Agustín Road. This route, which appears to have been added in the 1950s or 1960s, was altered in the mid-1990s to enhance accessibility. As part of the project, stairs near the tennis courts were replaced with an accessible ramp.

Ad hoc parking located adjacent to Santa Elena Guardhouse occurs to either side of a short, paved road that was likely built by the NPS. Associated with El Polvorín is a parking area to the south of the building paved with grass-crete. This was also added by the NPS in the 1990s and replaced a garage structure added to the building by the US Army in the 1950s. Another circulation feature added since the end of the US military occupation period is a heliport used by the Governor of Puerto Rico. It is located south of El Polvorín.

Historic Conditions. Evidence of circulation routes present during the Spanish military occupation period include several maps prepared in the seventeenth, eighteenth, and nineteenth centuries. As noted, a map prepared in 1625 indicates the presence of a route following an alignment similar to El Morro Road, which is in turn intersected by a route leading toward the promontory from San Juan Gate, and another route from the northern section of the city (Figure 191). It was referred to as the Road of the Castle of El Morro (El Camino del Castillo del Morro and Camino Afirmado). The southern route remained the primary means of accessing El Morro between circa 1539 and 1860 and was likely used to transport supplies and artillery from the harbor to the fort.[266]

During the eighteenth century, many informal routes crisscrossed the esplanade, connecting elements of the military complex (refer to Figure 167 and Figure 191). Military roads and communication trenches connected the bastions and other artillery positions and were built behind the North Walls.

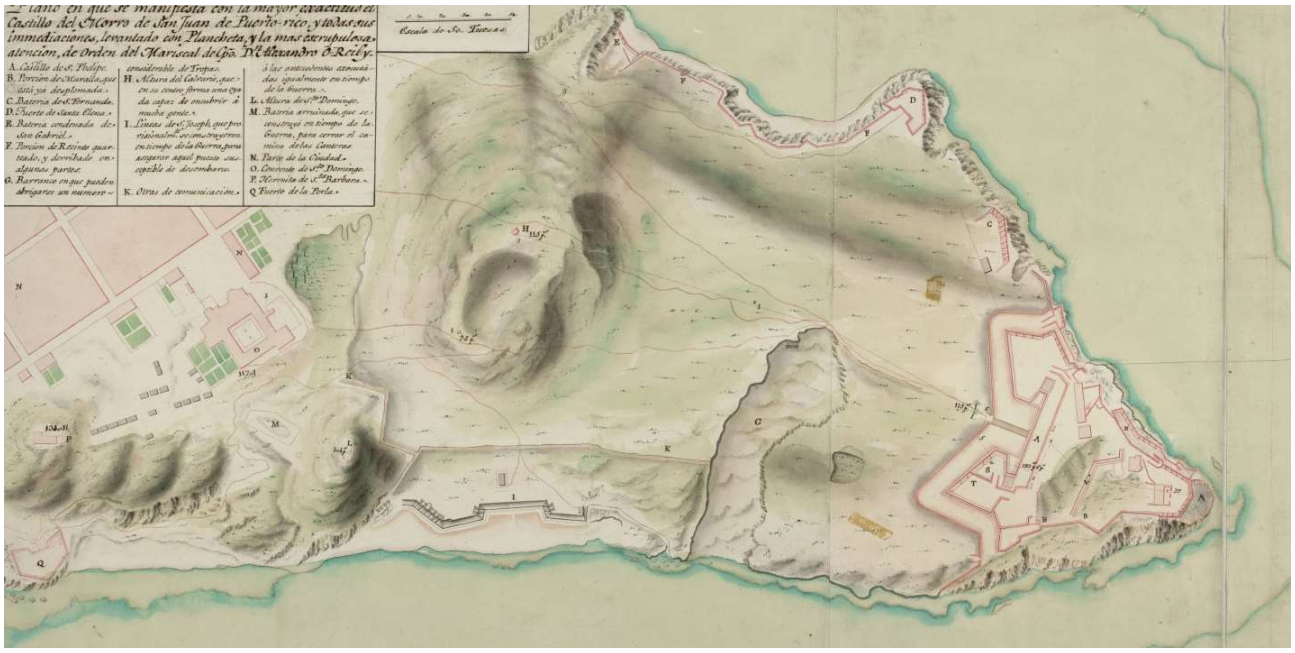


FIGURE 191. Circa 1765–1772 map of the esplanade prepared by Alejandro O'Reilly showing mid-eighteenth-century circulation networks. (Source: Park Archives, SJNHS, ARJT4C2651 1765)

266. Crisson et al., 12.

During the second half of nineteenth century, the perimeter walls and bastions became obsolete due to the introduction of rifled artillery. The circulation routes leading to the walls and bastions may have fallen out of use during this time.

By the 1860s, maps indicated that roads were being formalized east of El Morro Esplanade that provided access to El Cuartel de Ballajá (or the Ballajá Barracks, El Asilo de la Beneficencia (the Welfare Asylum, built circa 1841), and El Manicomio (the Insane Asylum, built in 1854). Calle de Cementerio (Cemetery Road) and an associated tunnel that extends beneath the North Walls were added to provide access to Cementerio Santa María Magdalena de Pazzis (Old San Juan Cemetery) by 1864.

El Morro Road underwent a modest adjustment at the southeastern end circa 1897 to allow for construction of a yellow fever hospital, built between the Dutch Monument and el Manicomio. A plan prepared in 1897 by José Laguna for the hospital complex suggested that two locations were evaluated for the hospital. One of these locations required that the alignment of El Morro Road be adjusted.[267] A map from 1899 depicting the completed hospital suggests that the location requiring realignment of El Morro Road was the location selected.[268]

Around the same time, Manicomio Road was established to provide access to el Manicomio, while portions of Norzagaray Street begin to appear on maps.

El Morro Road remained the primary access route to the fort during the US military occupation period. One of the first improvements to the esplanade made by the US Army was repair of the damage caused by the shelling associated with the Spanish American War. In 1899, reports suggested that the section of El Morro Road from the Dutch Monument to the fort was in especially poor condition.[269] The US Army used dirt and gravel from earlier ditch systems along the road to build up a crown in the center of the road and realigned the ditches to improve drainage. These improvements were completed by 1905.[270]

Also completed during the early years of US military occupation was a vehicular turnaround near the sallyport of El Morro and a diagonal path leading north from the intersection of El Morro and Manicomio Roads to the esplanade. The turnaround, which was later altered by the National Park Service, is recalled by the present-day plaza at the end of El Morro Road near the sallyport.

Between 1910 and 1911, El Morro Road was paved with asphalt. Drainage was accommodated within a gutter system that paralleled the road. A 5-foot-wide walkway, constructed with a 3-inch concrete base top-dressed with a 1-inch layer of concrete, was built along one side of the road for pedestrians as part of these improvements. Concrete curb edged the walk for the entire length.[271] By the late 1920s, the US Army had constructed a new road, known as Bay Road, paralleling the West Walls between Casa Rosa Road and Santa Elena Bastion. A 1934 Army Map indicates that Bay Road was formed by connecting paths that had traditionally served the West Wall bastions.[272]

During the early 1930s, the US Army made several changes to circulation within the esplanade. Among these changes was the construction of two new roads and the extension of a third, along with improvements made to Bay Road. One of the new roads built by the US Army was Santa Elena Road. Located within Parcel A, it formed a large half-

267. Crisson et al., 13; from José Laguna, "Plaza de San Juan: Proyecto de un Hospital para Fiebre Amarilla que ha de Emplanarse en el Campo del Morro de esta Ciudad," 1897.
268. Ibid.; from Captain Hodges, "Plan of Grounds and Buildings of the War Department," April 13, 1899.
269. Ibid., 22, from Bearss, *Historic Structure Report,* 106.
270. Ibid., from circa 1899 photos in the Gambell Collection. Historic photographs referenced in Berkowitz et al. were not available for use in this document.
271. Ibid., 2–23; from Bearss, *Historic Structure Report,* 138–139.
272. Ibid.

moon loop from El Morro moat to the Dutch Monument. New military barracks and administration buildings were constructed along the outer edge of the new road. Santa Elena Road was paved with asphalt and edged by curb and gutter as well as concrete walks.[273] The road surrounded a low point that had previously been encircled by a footpath. Another new road was an extension of Casa Rosa Road, which was formalized at the time through paving and the addition of curbing and connected to Santa Elena Road. Casa Rosa itself was likely adapted for residential use during the 1930s, with new walks and gardens added that remain present today.

Circa 1938-1939, Bay Road was elevated at the northwestern end, edged by a fence and stone retaining wall, and paved with asphalt. This work coincided with terracing of the slopes to the north and stabilization of the curtain wall between San Agustín and Santa Elena Bastions as well as stormwater-management measures.[274]

After portions of the property was transferred to the National Park Service in 1961, Santa Elena Road remained in place and served visitors to the park. The NPS built a parking area along the western end of the road near the intersection with El Morro Road. By the 1980s, the adjacent buildings had been removed by the US Army (Figure 192).

Several changes were made to circulation during the 1990s. The park built a new grass-crete parking area adjacent to El Polvorín in 1996 to the east of the building in an area that had been previously disturbed when the Commonwealth Power Authority installed a transformer vault nearby in 1992.[275] Also formerly on the site of the parking was a concrete carport large enough for twelve cars that was built by the US Army by 1951. The building was attached to the east wall of the building.[276] The carport was removed by the late 1980s.[277] Although the date of origin is not known, the heliport located to the south of the grass-crete parking area also likely dates to the 1990s or later.

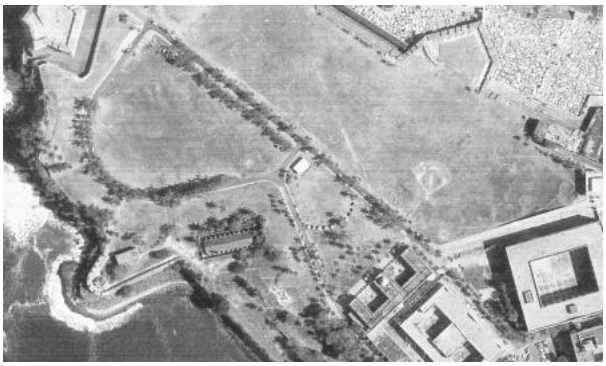


FIGURE 192. 1981 aerial photograph showing the configuration of roads remaining after the military buildings had been removed. (Source: Rodríguez López et al., 57)

Until the 1990s, El Morro Road was gravel-surfaced (Figure 193). During the early 1990s, the National Park Service removed Santa Elena Road, the northwestern extension of Casa Rosa Road, and removed the fill atop San Agustín Road, repaving with concrete to reflect historic conditions (Figure 194). Trees that had lined El Morro Road since the US military occupation period were removed. Circa 1998, El Morro Road was paved with concrete. The circular turnaround at the southeast end was added in conjunction with the development of a pedestrian promenade and special paving along Norzagaray Street by the local municipality.[278]

273. Crisson et al.
274. Ibid.
275. Wild, 14.
276. Pantel, del Cueto & Associates, 41–42.
277. Ibid., 49.
278. National Park Service, San Juan National Historic Site Superintendent's Annual Narrative, 1998.



FIGURE 193. El Morro Road as photographed for the Historic American Building Survey in 1998 was gravel-surfaced.



FIGURE 194. Aerial photographs of the esplanade that post-date the mid-1990s continue to illustrate the locations of the US military period roads removed by the National Park Service. (Source: San Juan Historic Site Turf Report, 2)

Existing Conditions. Circulation routes are relatively limited within Parcel A of El Morro Esplanade today. The primary route of access is El Morro Road, a 20-foot wide, 1,100-foot-long concrete road edged by a 4-foot-wide concrete sidewalk. Concrete curbing, flush with the pavements, separates the adjacent routes. El Morro Road is used by pedestrians as well as park personnel involved in maintenance and conveying VIPs to El Morro. A circular concrete plaza edged by benches is located at the end of the road near the bridge across El Morro's dry moat that leads to the fortification's sallyport.

El Morro Road is reached either from a circular turnaround that extends north from Norzagaray Street where visitors can be dropped off, or from the pedestrian promenade along Norzagaray Street where breaks in the perimeter wall provide access to the esplanade. The promenade also leads to a concrete sidewalk that extends to El Morro Road along the edge of the circular turnaround.

A paved terrace located outside of the bookstore also serves circulation into and out of the building, and as a waiting area.

All other circulation within Parcel A is informal and is composed of an unimproved access road used by maintenance personnel to the south of El Morro Road, and pedestrian social trails etched into the grass. The paved landings and firing steps located behind the curtain and bastion walls are also used by visitors to circulate alongside the North and West Walls.

Two road corridors are associated with Parcel B—Casa Rosa Road and San Agustín Road. Casa Rosa Road extends into the project area from southeast, passing through the Casa Rosa Gate. It continues to the north of Casa Rosa. San Agustín Road arises at Casa Rosa, and leads northwest through Parcel B, ending at a parking area located east of Santa Elena Guardhouse. San Agustín Road provides access to the various cultural features and clusters located within Parcel B. Parking occurs along the margins of the road near Casa Rosa and along the curtain wall that extends between Santa Elena and San Agustín Bastions. Parking accommodates staff of La Fortaleza and Save-A-Gato. Located on the hillside to the north of San Agustín Road is a heliport used to transport the Governor of the Commonwealth. Parking, composed of permeable pavers referred to as grass-crete, is located to the south of El Polvorín for use by San Juan National Historic Site maintenance personnel.

Concrete walks provide access to the playground and basketball and tennis courts, and to Casa Rosa.

Passing through El Morro Esplanade, but outside of the CLR project area, is Cemetery Road and an associated tunnel that extends the road beneath the North Walls. The construction materials and methods used to construct and any changes that have occurred since its original establishment in the mid-nineteenth century is not known.

Evaluation (Refer to Figure 196 and Figure 197). Several vehicular circulation features survive with sufficient integrity to convey their historic associations with the significance of the El Morro Esplanade. Roads include El Morro Road, Casa Rosa Road, and San Agustín Road. Most of the pedestrian circulation within the CLR project area appears to postdate the period of significance and does not contribute. The possible exception is the walk and terrace system associated with Casa Rosa, which was likely improved to accommodate residential use during the US military occupation period, although further research is needed to confirm this theory.

The paved plaza near El Morro and the circular turnaround at Norzagaray Street were established in the 1990s by the National Park Service. They postdate the period of significance and are non-contributing. An unimproved road that provides maintenance access to Parcel A also postdates the period of significance and is non-contributing.

Within Parcel A, El Morro Road is a route that appears on maps of the esplanade as early as 1625, with an alignment that is consistent with the present-day route. Paving materials associated with the road have changed over the years from dirt, to gravel, asphalt, and concrete. The present-day concrete dates to the 1990s and, thus, it post-dates the period of significance. In terms of integrity, El Morro Road possesses integrity of location, association, setting, and feeling, and diminished integrity of design. The road does not possess integrity of materials or workmanship due to the more recent changes to the surface and drainage systems that were associated with the route during the period of significance. El Morro Road possesses sufficient integrity to convey its historic associations and is in good condition.

Pedestrian circulation located within Parcel A that postdates the period of significance and is non-contributing include the sidewalk leading to El Morro Road from the Norzagaray Street promenade, the Norzagaray Street promenade and the connections it provides visitors with the esplanade, the paved landing at the bookstore, and social trails. The social trail southwest of El Morro is a deeply eroded passageway that is in poor condition. Erosion is also associated with the access points to the esplanade from Norzagaray Street promenade, and the margins of the bookstore landing and the benches along the plaza near El Morro, rendering these features in fair condition.

Within Parcel B, Casa Rosa Road appears to follow the route of one of the earliest roads associated with the El Morro fortification, one which connected San Juan Gate at the harbor with El Morro Road. The road was improved and formalized in the early 1930s with asphalt paving and the addition of concrete curbs. Although it possesses diminished integrity to the Spanish military occupation period, Casa Rosa Road otherwise possesses integrity of location, setting, feeling, association, design, workmanship, and materials for the US military occupation period and contributes to the significance of the El Morro Esplanade. Casa Rosa Road is in good condition.

San Agustín Road, also located within Parcel B, was established by the US Army to connect the military features located along the West Walls between Casa Rosa and Santa Elena Bastion. As built in the 1930s, this asphalt road was elevated approximately 4 feet above the current grade and edged by a chain-link fence (Figure 195).

In 1994, the section between San Agustín and Santa Elena Bastions was excavated to remove US military-occupation-period fill and return the grade to what was present during the Spanish period. The ground was regraded, along with the adjacent hillside, which was smoothed and terraced. The new road section was paved with concrete based on the excavations that revealed evidence that the Army's first road through the area, which pre-dated San Agustín Road and was known as Bay Road, was concrete.[279] The section to the east that was not altered is in fair to poor condition, with broken, chipped, and uneven pavement and curbing.

279. Wild, 5-8.



FIGURE 195. View along San Agustín Road in the 1990s prior to removal of fill and a protective fence added in 1938-1939 as part of the rebuilding of the adjacent curtain wall and stormwater-management improvements. (Source: Wild, *Report on Archeological Investigations*, 9)

Other vehicular circulation within Parcel B includes the access road and parking associated with Santa Elena Guardhouse, parking south of El Polvorín, and the heliport. The parking located south of El Polvorín was established in 1996.[280] All of these features appear to postdate the period of significance and are non-contributing. The parking east of Santa Elena Guardhouse is compacted and eroded in some places, while the permeable pavers of the parking south of El Polvorín exhibit weed growth. The use of the margins of San Agustín Road for parking by Commonwealth staff has contributed to additional problems with compaction and erosion.

The pedestrian circulation systems within Parcel B include the front walk at Casa Rosa, the sidewalk along Casa Rosa Road, a flagstone walk to the wishing well, the walk to Casa Rosa from parking along San Agustín Road, concrete terraces edging Casa Rosa, stairs leading to the playground, and a concrete walk leading through the playground and past the tennis and basketball courts. All these features appear to postdate the period of significance and to be non-contributing except for the walks associated with Casa Rosa. The terraces at Casa Rosa and the flagstone walk to the wishing well exhibit conditions issues of concern and are in fair condition.

Contributing Circulation Features

Parcel A

- **El Morro Road (CRIS HS #091730 Shadow)** (el Camino del Castillo del Morro, Camino Afirmado, Calle del Morro) (circa 1539; 1898-1905; 1930s; 1998)
- **Norzagaray Street** (late nineteenth-early twentieth century; road improved and pedestrian promenade added 1998)
- **Cemetery Road and tunnel beneath the North Walls** (mid- nineteenth century)
- **Circular turnaround at Norzagaray Street** (US military occupation period)

Parcel B

- **Casa Rosa Road** (seventeenth century, nineteenth century, formalized and extended 1930s; extension later removed)
- **San Agustín Road** (Bay Road by 1920s, San Agustín Road by 1934; altered and raised by 1939; original grade reestablished 1990s)

Parcel B

- **Front walk at Casa Rosa (circa 1930s)**
- **Walk to the wishing well (circa 1930s)**
- **Walk to Casa Rosa from parking along San Agustín Road (circa 1930s)**
- **Concrete terraces edging Casa Rosa**

Non-contributing Circulation Features

Parcel A

The following circulation features have been added to the site by the National Park Service or Commonwealth of Puerto Rico and postdate the period of significance:

280. Ibid., 1.

- **Unimproved maintenance access road to El Morro Esplanade from Parcel B** (1990s)
- **Norzagaray Street pedestrian promenade** (1998)
- **Sidewalk leading to El Morro Road** (1998)
- **Paved plaza near El Morro** (1998)
- **Bookstore landing** (post 1970)
- **Social trail south of El Morro leading to lookout** (post 1970)

Parcel B

- **Parking along San Agustín Road** (post 1970)
- **Access road to Santa Elena Guardhouse** (post 1970)
- **Parking at Santa Elena Guardhouse** (post 1970)
- **Paving north of El Polvorín for golf cart access (2020-2021)**
- **Parking south of El Polvorín** (1996)
- **Heliport** (circa 1990s)
- **Brick walk to El Polvorín** (1990s)
- **Stairs leading to the playground (post 1970)**
- **Concrete walk leading through the playground and past the tennis and basketball courts (post 1970; accessibility improvements made 1990s)**

Missing Circulation Features

- **Northern access route to El Morro** (by eighteenth century)
- **Network of paths accessing battery positions** (by mid-eighteenth century)
- **Turnaround at the sallyport** (1930s)
- **Santa Elena Road** (1930s)
- **Parking area south of El Morro** (post 1970)

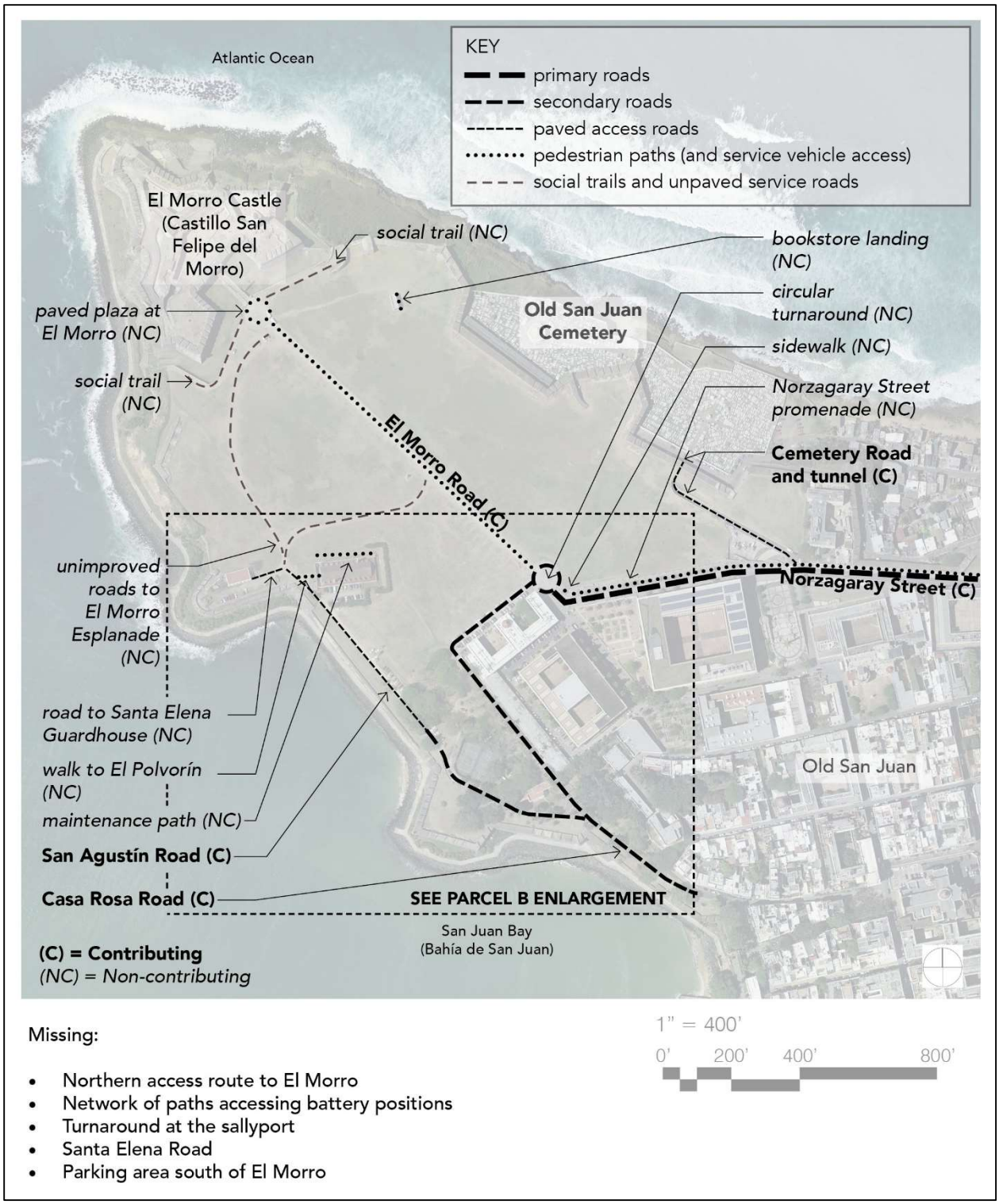


FIGURE 196. Map illustrating contributing and non-contributing Circulation features associated with El Morro Esplanade Parcel A. (Source: LSHLA)

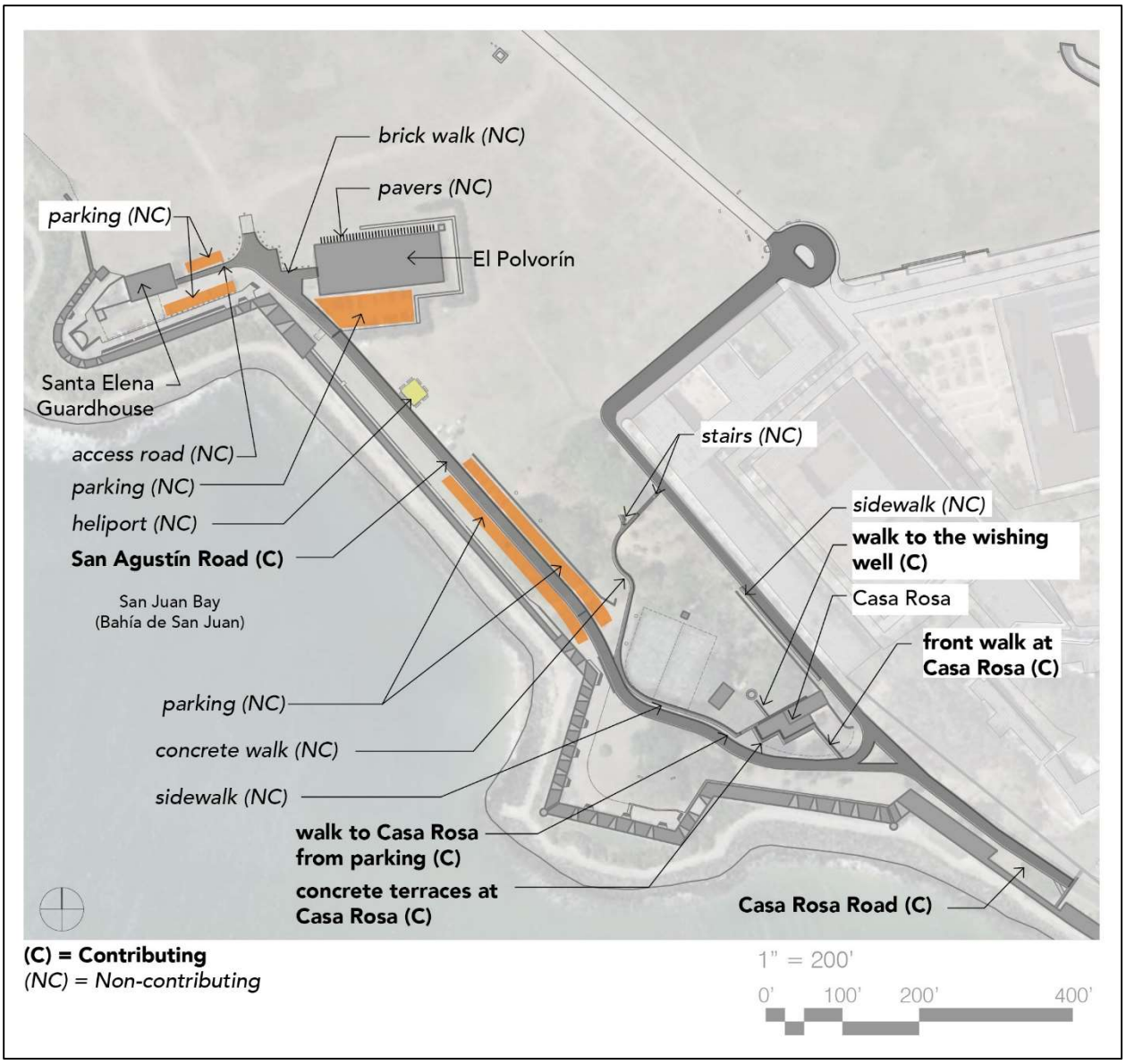


FIGURE 197. Map illustrating contributing and non-contributing Circulation features associated with El Morro Esplanade Parcel B. (Source: LSHLA)

Cultural Vegetation

Summary Analysis. Most of the Parcel A landscape is characterized by open turf lawn. To the southeast, coconut palm trees line the pedestrian promenade along the Norzagaray Street pedestrian promenade, but these are located outside of the project area. Grasses have characterized the esplanade since the Spanish military occupation period, although the species composition has changed over time. During the 1930s, the US Army established a golf course within Parcel A. The putting greens were planted with a low-growing fine textured zoysia grass, evidence of which remains present today. The remaining turf is composed of Bermuda grass interspersed with a variety of weeds. The turf is a contributing feature of the esplanade.

Within Parcel B there are several tree plantings, as well as ornamental trees and shrubs associated with Casa Rosa. A large shade tree is east of Santa Elena Guardhouse, while additional shade trees edge portions of San Agustín Road. A grove of trees occupies the terraced landform of the descending hillside north of San Agustín Bastion and provides shade for a playground and associated picnic facilities. Several trees are also located within San Agustín Bastion. While the

specific dates of origin of these tree plantings are not currently known, review of historic photographs suggests that the grove of trees on the hillside has been present since the period of significance, while the other trees appear to postdate the period of significance.

Additional vegetation within Parcel B is composed of sea grape plantings to either side of San Agustín Road along the curtain wall south of Santa Elena Bastion and ornamental plantings associated with Casa Rosa. Little is currently known about the origin of these plantings but based on review of historic aerial photographs from the 1930s they appear to date to the US military occupation period, and coincide with the establishment of ornamental fencing, gate features, and walks used to enhance the residential character of the former San Agustín Guardhouse.

Historic Conditions. Puerto Rico and the Isleta de San Juan fall within a tropical climate and an area that receives plentiful rainfall. These conditions likely contributed to the lush vegetation observed by Spanish explorers during the early sixteenth century. One of these explorers, Rodrigo de Figueroa described the Isleta de San Juan as being primarily wooded in 1519.[281]

Once the Spanish had determined the need to establish fortifications at the northwestern tip of the isleta for defense of the colony at San Juan circa 1530s, they likely began to clear the area to the southeast of the site where the El Morro citadel would be built of woody vegetation. The timber likely proved useful as a construction material and for firewood.

The rest of the isleta appears to have remained wooded through the sixteenth century as suggested in an account by Reverend John Layfield in 1598:

> within and surrounding the town, there are large numbers of coconut palms, in addition to the large fruit, these provide a poetic and wonderful aspect to the scenery . . . . The hills are crowded with fruit trees; lemons, limes, and oranges are ordinarily found where no man has sown them.[282]

The cleared nature of the esplanade is indicated on a 1625 Dutch map that shows the space barren of trees, even as other areas of the Isleta de San Juan are rendered to appear wooded (refer to Figure 166). A sketch map of El Morro and San Cristóbal prepared by Luis Venegas Ossorio in 1678 similarly indicates the esplanade devoid of trees, but present elsewhere around the city (refer to Figure 170).

Circa 1797, the French naturalist André Pierre Ledrú described the fact that woody vegetation had become generally lacking throughout the isleta. He suggested that "it was necessary to travel 3 miles from the city to find habitat in which to gather specimens."[283] A sketch of the esplanade prepared in 1821 by French naturalist Auguste Plée showed the presence of just one lone palm tree near the moat and sallyport of El Morro.

The open character of the esplanade otherwise remained relatively unchanged throughout the Spanish military occupation period. Planting was limited to grasses and other low growing groundcovers so that the area could serve as the field of fire for military defense.[284] Photographs of the esplanade from the 1890s continue to show the space devoid of trees.[285]

Following the Spanish-American War of 1898, the US Army began to occupy El Morro as part of the San Juan Military Reservation established by the US Government in 1903. Over the next three decades, the US Army made several changes to the esplanade to support operation of the military reservation, adding buildings, roads, fences, and trees.

281. Crisson et al., 2-23 from Juan Manuel Zapatero, *La Guerra del Caribe en el Siglo XVIII* (San Juan: Instituto de Cultura Puertorriqueña, 1964), 279.
282. Crisson et al., 20.
283. Crisson et al..; from Eugenio Fernández Méndez, *Crónicas de Puerto Rico (1493–1797)* Vol. I (San Juan: Commonwealth of Puerto Rico, 1957), 327–344.
284. Crisson et al., 19.
285. Ibid., 20.

Early twentieth-century photographs indicate the presence of coarse grass over most of the esplanade. Fencing and reference to the grazing of livestock within the esplanade suggests that domestic animals may have grazed within the esplanade.[286] A photograph taken circa 1905 shows a single young palm tree growing near the Commanding Officer's Quarters and two Officer's Quarters built near the El Morro moat by 1903. By 1923, photographs suggest that several additional trees had been added to the cluster of three quarters buildings located to either side of El Morro Road.[287]

Additional trees were planted during the early 1930s in conjunction with a swimming pool established near the San Antonio Guardhouse. They were planted to either side of El Morro Road, along the western margin of the esplanade near San Fernando Battery, along Casa Rosa Road, and along Santa Elena Road (Figure 198). Photographs dated 1934 show several young trees that appear to be 6 to 8 feet tall. Species planted include Australian pine (*Casuarina equisetifolia*) and coconut palm (*Cocos nucifera*). As they matured, these trees began to change the formerly open character of the esplanade by making it more compartmentalized and limiting certain views to and from El Morro.[288]



FIGURE 198. Bird's eye view of the esplanade circa 1957 that shows the extent of tree plantings along El Morro Road, Santa Elena Road, and the swimming pool. (Source: Park Archives, SJNHS)

The US Army's installation of a nine-hole golf course circa 1907-1911 entailed the planting of Bermuda and zoysia grasses with a finer blade suited to use for tee boxes and putting surfaces. The Bermuda grass, which is an invasive species, has since spread to many areas of the esplanade, while the zoysia grass used to create tee boxes and putting surfaces remains evident in several locations. By the 1950s, the esplanade turf appeared more like a well-maintained lawn than it had during the early twentieth century.[289]

The trees associated with the buildings and structures of the US military reservation were likely removed with the buildings in the 1960s and 1970s, while the National Park Service removed the trees edging Morro Road in the 1990s based on the recommendations provided in the 1991 HSR/CLR.



FIGURE 199. View of one of the golf course tee boxes at El Morro that shows the turf grass planting, 1940. (Source: Park Archives, SJNHS, 69GU1287)

Within Parcel B, it appears that several of the current tree and shrub plantings were added by the US Army, including a grove of trees on the terraced hillside north of San Agustín Bastion, within the bastion itself, and gardens around Casa Rosa. These plantings likely were added during the 1930s as they appear on aerial photographs in 1930s and 1937, but further research is needed to confirm the date of these plantings. The trees located within San Agustín Bastion appear to have

286. Ibid., 31.
287. Ibid. The historic photographs that illustrate the trees are referenced in Berkowitz et al.
288. Ibid.
289. Ibid.

been associated with buildings constructed in the area by the US Army.

Some of the garden plantings at Casa Rosa are known to have been damaged by the wind and heavy rains of Hurricane Hugo in 1989.[290]

The grove of trees on the hillside was augmented in 1995 when the Instituto de Cultura Puertorriqueña planted twenty-five ceiba trees around the newly designated playground for commemorative purposes.[291] Archeological monitoring by the National Park Service during the installation of the trees revealed the presence of a brick pillar that dated to the Spanish military occupation period, and a terraced wall running north-south down the slope of the hill of unknown origin, and evidence of a possible smithy site or industrial byproduct disposal site.[292]

The remaining tree plantings occur along San Agustín Road and near Santa Elena Bastion. These appear to be more recent additions based on review of historic aerial photographs and the disturbance that occurred in the 1990s to remove Santa Elena Road and restore the original grade of San Agustín Road. Also occurring after the US military period of significance, the National Park Service planted a hedge of sea grape on the hillside above the retaining wall behind El Polvorín to screen maintenance activities from view from Parcel A in 1998, to stabilize the slope, and to discourage visitor access to the dangerous area.[293] The sea grapes were removed in 2020 when they were found to be causing damage to the retaining wall. Trees were also planted in association with the Norzagaray Street pedestrian promenade in 1998 that survive today beyond the project area boundary.

Since 1994, the National Park Service and Commonwealth of Puerto Rico have maintained a memorandum of agreement to address maintenance of vegetation within Parcel B. The 1994 agreement describes work to be completed by the Commonwealth of Puerto Rico to "remove and dispose of all identified dead, dying, dangerous or intrusive trees located within Parcel B." The agreement indicates that trees in poor condition had been mutually marked by the two parties, and that guidelines for removal had also been developed.[294]

Sea grapes were removed from the hillside above El Polvorín in 2020-2021 and replaced with a safety fence. Sea grapes were planted to either side of San Agustín Road south of Santa Elena Bastion in the same time period.

Existing Conditions. Much of El Morro Esplanade is characterized by turf grasses, particularly Parcel A. Sea grapes are found growing on the steeply sloped hillside below San Fernando Battery.

Within Parcel B, several mature shade trees shade the playground and the terraced hillside to the north of San Agustín Road and San Agustín Bastion. A mature shade tree stands to the east of Santa Elena Guardhouse, while an irregular row of trees edges San Agustín Road along the curtain wall between Santa Elena and San Agustín Bastions. Sea grapes are planted to either side of the road south of Santa Elena Bastion.

Within the environs of Casa Rosa, numerous ornamental trees and shrubs convey a residential character to the area. Plantings also occupy the margins of Casa Rosa Road, as well as the traffic circle at the intersection of Casa Rosa and San Agustín Roads.

Evaluation (Refer to Figure 200). The open form and use of grasses as the primary ground cover of the El Morro Esplanade has characterized the landscape since the Spanish military occupation

290. Crisson et al., 32.
291. Wild, 8.
292. Ibid., 8–11.
293. National Park Service, San Juan National Historic Site Superintendent's Annual Narrative (2001), San Juan National Historic Site Superintendent's Annual Narrative, 1998.
294. National Park Service and Commonwealth of Puerto Rico, "Memorandum of agreement between the Commonwealth of Puerto Rico and the US National Park Service San Juan National Historic Site to Place in Effect a Maintenance Plan for a Portion of the El Morro Esplanade," 1994.

period, although the species and texture of the grasses changed between the Spanish and US military occupation periods. Turf grasses are prevalent within both Parcels A and B today and contribute to the historic setting of El Morro Esplanade.

Trees added during the second quarter of the twentieth century by the US Army along El Morro Road, the swimming pool, various building clusters, the North Walls, Santa Elena Road, and the western edge of the promontory are no longer present.

Parcel B contains several planting features that were likely added during the US military occupation period, when the landscape was intensively developed to support operation of the military reservation. These include shade trees on the hillside north of San Agustín Bastion, other trees within the bastion, and ornamental gardens around Casa Rosa. Ceiba trees planted in association with the hillside grove at the time the playground was formalized in 1995 post-date the period of significance and are non-contributing.

Trees edging San Agustín Road and Santa Elena Bastion also appear to postdate the period of significance and are non-contributing.

Cultural Vegetation Features Contributing to the Historic Setting of El Morro Esplanade

Parcel A

- **Turf lawn** (sixteenth century; twentieth century)

Parcel B

- **Turf lawn** (sixteenth century; twentieth century)
- **Grove of trees on the hillside above San Agustín Bastion** (by 1937) (25 ceiba trees added in 1995)
- **Trees within San Agustín Bastion** (by 1937)
- **Tree, shrub, and herbaceous ornamental and shade plantings at Casa Rosa** (circa 1930s)

Cultural Vegetation Features Not Contributing to the Historic Setting of El Morro Esplanade

Parcel A

- **Palm trees along Norzagaray Street** (1998)

Parcel B

- **Trees along San Agustín Road** (post 1970)
- **Trees along Casa Rosa Road and ornamental plantings in the roadway triangle of Casa Rosa and San Agustín roads** (post 1970)
- Sea grapes to either side of San Agustín Road

Missing Cultural Vegetation Features

- **Tree plantings along El Morro and Santa Elena Roads, and in association with officer housing and barracks and the swimming pool** (US military occupation period)



FIGURE 200. Map illustrating contributing and non-contributing Cultural Vegetation features associated with El Morro Esplanade. (Source: LSHLA)

Buildings and Structures

Summary Analysis. Several historic buildings survive within El Morro Esplanade that survive from the period of significance. Each of these buildings appear to retain sufficient integrity to convey their historic associations and contribute to the significance of the historic property. Most can be traced to the Spanish military occupation period (circa 1539-1898). These include the San Antonio Guardhouse, Santa Elena Guardhouse, El Polvorín, and San Agustín Guardhouse (Casa Rosa).

Two buildings potentially date to the US military occupation period (1898-1961). These include a mid-twentieth-century building located west of Casa Rosa and a utility building on the hill above the tennis and basketball courts.

The only other building located within El Morro Esplanade is a tiny wooden gatehouse that edges San Agustín Road. This building postdates the period of significance and is non-contributing.

Numerous additional buildings appear on historic maps and in historic photographs that are no longer extant. These missing buildings relate to both Spanish and US military occupation of El Morro Esplanade. Buildings indicated on historic maps during the Spanish military occupation period include a chapel, a cistern, a military barracks, stable, and a cluster of buildings set within a perimeter wall that variously served as Pabellones Militares (military pavilions likely for housing) and a yellow fever hospital. This cluster of buildings was located between the Dutch Monument and el Manicomio (the Insane Asylum), located along the margin of the esplanade.

At least twenty additional buildings and structures were added during the US military occupation period. These were located between el Manicomio and the Dutch Monument, replacing the earlier yellow fever hospital, at the west end of El Morro Road, along Santa Elena Road, near the northeastern corner of the esplanade, and along San Agustín Road, including within San Agustín Bastion. Most of these buildings were used for military housing, but there was also a cafeteria, post headquarters, and guard house facilities.

In addition to buildings, several structures survive within El Morro Esplanade that were erected during the Spanish military occupation period, and a few structures survive that were built during the US military occupation period. Dating to the Spanish military occupation period are the components of the North and West Walls that include curtains and bastions and associated drainage structures. During the late nineteenth century, the Spanish established a concrete coastal defense battery on the promontory overlooking San Juan Harbor to the south of El Morro as part of an effort to modernize the complex. The structure was used to emplace Ordóñez cannon, a type of gun designed by Spanish Army artillery officer Salvador Díaz Ordóñez. Other structures include a massive retaining wall located behind El Polvorín built in conjunction with the powder magazine, and a stone wall that follows Casa Rosa Road near the former guardhouse.

During World War I, the US Army added a modern concrete coastal defense structure within Santa Elena Bastion to protect San Juan Harbor from German incursions. The gun emplacement was designed to support a 4.72-inch Armstrong rifle mounted *en barbette*. It was supported by a nearby concrete ammunition locker or bombproof.

Also built during the US military occupation period was a pair of tennis courts near San Agustín Bastion by 1929.

Other structures added by the US Army during the 1930s potentially include Casa Rosa Gate, located at the southeastern end of the project area and spanning Casa Rosa Road below Casa Blanca, and walls that appear on maps of the military base near San Antonio Guardhouse, behind San Fernando Battery, within Santa Elena Bastion, and along the West Walls between Santa Elena and San Agustín Bastions. In the late 1930s, improvements to San Agustín Road required grading and filling and construction of a retaining wall near the northwest corner of San Agustín Bastion.

It was likely during this period that Casa Rosa was converted to residential use, and gates and a wishing well added to the landscape.

All other structures present today were added by either the National Park Service or the Commonwealth of Puerto Rico and postdate the period of significance. These include Jersey barriers at the heliport and walls associated with picnic table landings within the playground.

Structures missing from the military landscape include, within Parcel A, a counter mining tunnel dating to the Spanish military occupation period; a masonry wall that connected San Antonio Guardhouse and Bastion; an aboveground swimming pool; a baseball field with dugouts; golf course tee boxes and greens; and a guardhouse at the entrance into the esplanade at Norzagaray Street associated with the US military occupation period. Within Parcel B, missing structures include a wall at Santa Elena Bastion present during the US military occupation period.

Historic Conditions. Spain occupied El Morro and the esplanade as a military outpost for more than 350 years. During this time, several buildings were constructed to support military needs. These included a chapel, guardhouses, a powder magazine, barracks, and other support, storage, and service structures, as well as perimeter walls and bastions.

Initial efforts to construct a citadel, which became known as El Morro, on the promontory overlooking the approach to the harbor at San Juan began in 1539. Over the course of the sixteenth, seventeenth, and eighteenth centuries, the Spanish developed and improved El Morro and a system of supporting defensive military works designed to take advantage of the strategic position afforded by the promontory overlooking the approach to San Juan Harbor. Early batteries developed during the sixteenth century included Santa Elena, on the shoreline below the present-day Santa Elena Bastion, San Gabriel, on the site of present-day San Agustín Bastion, and San Fernando Battery south of El Morro, the ruins of which remain in evidence today.

The first buildings and structures present within the esplanade itself appear on a Dutch map prepared in 1625 (refer to Figure 166).

One is la Capilla del Calvario (the Chapel of Calvary; the Little White Chapel), located northeast of present-day El Morro Road, and another is a cistern.

The chapel continues to appear on maps until the 1760s, and it is believed to have been demolished circa 1774-1782. Documentation suggests that the rubble associated with the demolished building was used for the construction of *el Hospital de la Inmaculada Concepción* east of the esplanade.[295]

Both the 1625 Dutch map and a map prepared in 1678 by Luis Venegas Ossorio (refer to Figure 170) indicate the presence of military defense outposts and a system of walls along the edge of the promontory overlooking the channel approach to the harbor between El Morro and La Fortaleza. By this time, Santa Elena had been relocated to a rocky perch along the edge of the promontory, while San Agustín had been built to replace San Gabriel, while the battery of San Fernando remained in place.

During the mid-eighteenth century, the Spanish formalized the wall and bastion system to establish a comprehensive defensive system surrounding San Juan. This followed the King of Spain's declaration that San Juan would now operate as a Defense of the First Order in 1765. The order followed ongoing conflicts between European colonial powers that initiated during the Seven Years War (1756-1763) and continued thereafter within Caribbean and New World interests. The work to upgrade the defenses was completed in 1782 and included the construction of the North Walls and associated bastions as designed by Field Marshal Alejandro O'Reilly and Chief Engineer Colonel Tomás O'Daly. Drainage features were part of the design of all walls and bastions. Openings in the walls referred to as scuppers allowed the flow of stormwater through the

295. Crisson et al., 17; from Antonio Daubon Vidal, "Archeological Assessment for the Proposed San Felipe Del Morro Landfill Area" (Commonwealth of Puerto Rico, Public Building Authority, 1989), 5.

perimeter walls. Grass swales and masonry channels were designed to direct the overland flow of stormwater to these openings. The sizes of the openings and the engineering of the systems varied to address the anticipated volume of water.[296]

A map prepared by O'Daly in 1772 indicated the location of a military barracks and a stable at the east end of the esplanade (refer to Figure 191). These buildings no longer appeared on maps by 1783.

In recognition of the importance of Santa Elena Bastion, the Spanish built a guardhouse in the space in 1787, while completing a powder magazine nearby by 1792. Both the Santa Elena Guardhouse and the Santa Elena Powder Magazine, or El Polvorín, were built from plans prepared by military engineer Juan Francisco Mestre. Mestre used standard concepts and models devised by such notable French military engineers as Sébastien Le Prestre de Vauban and Bernard Forest de Belidor in developing his designs. El Polvorín was built immediately east of Santa Elena Bastion and below the crest of the upper level of El Morro Esplanade. To establish a level site for the building, El Polvorín was edged to the west and north by a tall retaining wall. It was also surrounded by a moat.

It was also during the late eighteenth century that the Spanish built a counter-mining gallery or tunnel within the esplanade as part of the El Morro defenses. The tunnel extended beneath parts of the esplanade, although the exact distance it reached beneath the glacis is not currently known. The entrance to the gallery remains evident today in the outer wall of the moat or counter scarp of El Morro near its eastern corner. Historian Ángel Rivero Méndez later described the feature as follows:

> The entire glacis of el Morro was permanently countermined with principal branchlines, that allowed for a person to walk upright, and other lateral [lines] that ended in mining blast holes, and allowed travel on the knees. . . . A large part of the subterranean [tunnels] were blocked two years before the [1898] War, during the installation of the Ordóñez rifles. It was very dangerous to travel along these tunnels, not only due to the excessive humidity, but to the thousands of guavas, horrible-looking spiders, which inhabited the tunnels.[297]

Few changes were made to the defensive system during the nineteenth century, except for the addition of new buildings to house military uses. Due to environmental conditions, both Santa Elena Bastion and El Polvorín were subject to deterioration, and the walls underwent several repairs during the early to mid-nineteenth century to address deterioration. By 1870, the storage of gunpowder in the structure had been prohibited due to its proximity to the urban population of San Juan and the threat an explosion might cause.[298] Following this order, the building was used to store metal cartridges.[299]

By 1861, a guardhouse had been built in association with San Agustín Bastion. The building is now known as Casa Rosa. Another guardhouse appears on maps by 1897 in association with San Antonio Bastion. Another change within the esplanade landscape that occurred during the last decade of the nineteenth century was the addition of a contemporary coastal defense artillery structure near the historic San Fernando Battery. This structure, built of concrete rather than masonry, was designed to emplace Ordóñez rifles.

By 1898, a cluster of buildings had been constructed along El Morro Road between the Dutch Monument and el Manicomio. The cluster is referred to as Pabellones Militares. A solid masonry wall nearly 7 feet high enclosed the complex, with gates on the west and north sides. It is likely that this cluster represents the yellow fever hospital described as intended for construction in 1897 that required a slight realignment of the

296. Crisson et al., 21.
297. Crisson et al., 20–21; from Ángel Rivero Méndez, *Crónica de la Guerra Hispano-Americana en Puerto Rico* (San Juan: Instituto de Cultura Puertorriqueña, 1972), 66.
298. Pantel, del Cueto & Associates, 23.
299. Ibid., 28.

southeastern end of El Morro Road. was built between the Dutch Monument and el Manicomio.

Soon after completion of this cluster of buildings, the Spanish and the United States engaged in the Spanish-American War of 1898. The Treaty of Paris, signed in 1898, led Spain to cede Puerto Rico to the United States. By 1903, the US had declared the defensive military complex the San Juan Military Reservation. The US Army assumed administrative responsibility for the reservation and care of the buildings and structures.

Within the first decade of the twentieth century, the US had built an incinerator to support the yellow fever hospital to destroy the personal possessions of those potentially carrying the infectious disease. The incinerator was located to the south of the hospital near El Polvorín.[300] The incinerator remained on site until the 1930s when the military reservation underwent numerous improvements. [301]

In addition to assuming ownership of the guardhouses, El Polvorín, and the yellow fever hospital, the US Army administered the nineteenth-century el Manicomio (the Insane Asylum), Asilo de la Beneficencia (the Welfare Asylum), Cuartel de Ballajá (the Ballajá Barracks), and additional housing located along the eastern edge of the esplanade.

By 1903, the US had built a group of three Officers' Quarters, one designed for the reservation's Commanding Officer, near the entrance to El Morro; two on the south side of El Morro Road and the Commanding Officer's Quarters to its north.

During this period, the US Army also evaluated the condition of the North and West Walls. Several sections were found to be in deteriorated condition, particularly the curtain wall between Santa Elena and San Agustín Bastions. As noted by Historian A. Flager in a report submitted in December 1900, that suggested most of the walls were in fair condition, except for the curtain walls of Santa Elena and San Agustín, where the outer walls, still solid, exhibited evidence of chipping and wear due to weather.[302] Based on an evaluation of its deteriorated condition and lack of military importance usefulness, the US Army also considered demolishing El Polvorín during the early part of the twentieth century.[303]

In 1913, a masonry wall was built to connect San Antonio Guardhouse and the nearby bastion. The wall was nearly 8 feet high and stepped down with the grade of the land. A gate was in the center of the wall.

In 1917, in response to the threat posed by German attack on San Juan during World War I, the War Department ordered three 4.7-inch Armstrong guns to be sited and emplaced in positions that could fire on approaching lightly armed raiders and U-Boats. One of these was emplaced behind Santa Elena Bastion along with a bombproof magazine or ammunition locker, while the others were emplaced at Battery Princesa and El Morro.[304] The gun emplacement and bombproof magazine survive within Santa Elena Bastion today. The gun emplacement sat on a concrete platform large enough to provide space for the gunners to work. The structure was also designed to take care of the reaction from the discharge of the gun through construction of a blast apron and filling in front of the parapet wall. The concrete ammunition locker was sited behind the artillery position and accessed through a steel door.

In 1918, the curtain wall between Santa Elena and San Agustín Bastions collapsed following an earthquake. Work to reconstruct the wall began in 1925 and continued until 1938.

By 1923, a baseball field with dugouts and a nine-hole golf course had been installed at the eastern end of the esplanade for the recreational use of the soldiers housed at the reservation San Antonio Guardhouse served as the clubhouse during the early years that the course operated. However,

300. Ibid., 32.
301. Ibid., 36.
302. As noted in Pantel, del Cueto & Associates, 30.
303. Ibid.
304. Bearss, *Historic Structure Report,* 143–150.

after an aboveground swimming pool was built adjacent to San Antonio Bastion, the guardhouse was adapted for use as a pool house. As part of this development, a masonry wall was built to the north and east that enclosed the pool area. The guardhouse featured a patio, while steps provided access to the pool. This followed completion of tennis courts circa 1929, also for the recreational use of soldiers living at the military reservation. The tennis courts were located north of San Agustín Bastion (refer to Figure 182).

In 1931, the US Army developed a master plan for the San Juan Military Reservation that proposed the addition of numerous military facilities to accommodate housing, supply/storage, administrative offices, and security needs.

As a result of the master plan, the US Army built approximately twenty new buildings along Casa Rosa Road and the newly constructed Santa Elena Road. A total of five buildings were constructed along Santa Elena Road—Building Nos. 259, 260, 261, 262, and 263, all Double Set Officer's Quarters. Two garages—Buildings No. 266 and 267—were built between El Polvorín and Santa Elena Bastion, flanking the extension of Casa Rosa Road to Santa Elena Road. Four additional buildings edged Casa Rosa Road northwest of el Manicomio. These included Building Nos. 56, 254, 255, and 257, all Double Set of Officer's Quarters. Located along El Morro Road northwest of el Manicomio on the site of the former yellow fever hospital, were Building Nos. 251, 252, 253, and 254, three of which were Field Officers and the other a Double Set of Officer's Quarters. The final addition was a Post Guardhouse nearby (Figure 201).

Within Parcel B, two additional buildings were added on the sloped terrain north of San Agustín Road—Building Nos. 264 and 265—both Double Set of Non-Commissioned Officer's Quarters used as Nurses Quarters (Figure 202).[305]



FIGURE 201. Former guardhouse and gate at the Norzagaray Street entrance into the San Juan Military Reservation at El Morro Esplanade during the US military occupation period. (Source: Park Archives, SJNHS)

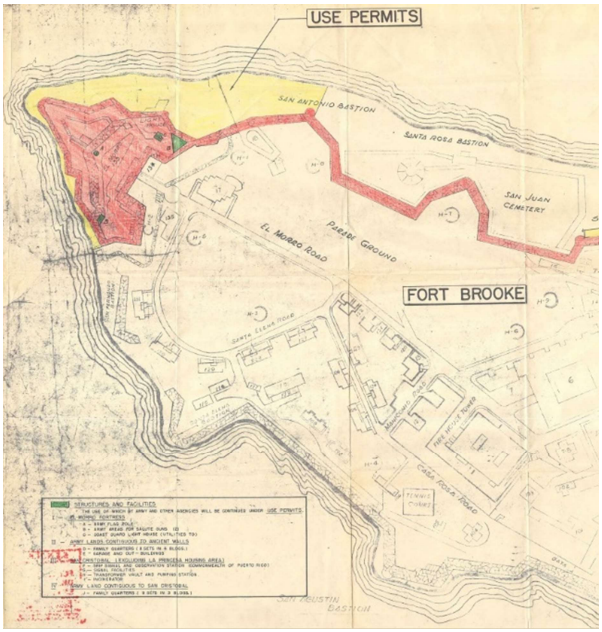


FIGURE 202. 1961 US Army map of Fort Brooke illustrating the extent of construction on the esplanade by the end of the second period of development. (Source: US Army Corps of Engineers, San Juan Area, US Army Engineer District Jacksonville, September 22, 1960, revised September 5, 1961)

In 1934, nineteenth-century residential structures north of the Cuartel de Ballajá were demolished to make room for another new building referred to on maps as a Bachelor Officers Quarters. A Cafeteria and Post Exchange were later added nearby. The building referred to as a Bachelor

305. US Army, "Military Reservation of San Juan, P.R. (and the City of San Juan), May 5, 1934.

Officers Quarters, which is also sometimes known as a Nurses' Quarters, was later adapted as a Neurological Institute. The two 1901 Quarters buildings on the south side of El Morro Road and the Commanding Officers' Quarters to the north of the road were rebuilt or replaced by a three-story Officers' Open Mess.

While it was not demolished, the US Army continued to debate appropriate uses for El Polvorín. In 1935, the Army proposed using the building as a pumphouse to serve the new swimming pool facility established near San Antonio Guardhouse.[306]

Much of the countermining tunnel was filled between 1938 and 1939. During the same period, both San Agustín and Santa Elena Bastions were restored and repaired due to undercutting from waves and overland flow of stormwater, while reconstruction of the connecting curtain wall was completed using counter fronts. Sewer outlets were extended through the wall.[307] The firing steps at Santa Elena were rebuilt following completion of the project in 1939.[308]

It was also during the late 1930s that the US Army began to conduct restoration and repair work on other aspects of the North and West Walls. During the 1930s and early 1940s, nine sentry boxes were reconstructed using concrete blocks, while cleaning, patching, and stabilization efforts were conducted systemwide. These efforts ended when World War II led to funding shortages and attention elsewhere.

In 1943, the San Juan Military Reservation was designated Fort Brooke, named for the first US Governor of Puerto Rico.

After World War II in 1946, the US Army drew up plans for adaptive use of El Polvorín, referring to the building as "Quartermaster warehouse Santa Elena Bastion Magazine, Fort Brooke." At the time, the building was being used as an Ordnance Storage facility. The plans outlined reallocation of a portion of the building as a Storage Room for the Officer's Property and completion of a shed built next to the sentry house.[309] The building was further modified in 1951 when a twelve-vehicle car port was constructed along the east wall of El Polvorín (Figure 203).[310]



FIGURE 203. View of the car port building adjacent to El Polvorín by 1951. (Source: Pantel, del Cueto & Associates, 43)

Later, two buildings were constructed along the curtain wall between San Agustín and Santa Elena Bastion. Indicated as Building Nos. 108 and 109, there served as multiple unit Officers Residences.

Following transfer of Fort Brooke to the Department of the Interior in 1961, the National Park Service prepared a master plan in 1967 that suggested all the US Army buildings be demolished.[311] This master plan described field ammunition storage houses built against the walls of San Antonio and Santa Rosa Bastions not identified elsewhere.[312]

Circa 1971, the US Army demolished most of the buildings constructed during the 1930s, including the Cafeteria and Post Exchange, the swimming pool, and the housing units along Santa Elena Road and elsewhere. The demolition resulted in piles of fill, some of which were placed on top of the moat surrounding El Polvorín. San Antonio

306. Pantel, del Cueto & Associates, 36.
307. Ibid., 36, 38.
308. Ibid., 38.
309. Ibid., 40.
310. Ibid., 40–42.
311. Ibid., 47.
312. Ibid., 45.

Guardhouse was subsequently converted to public restroom use.[313]

During the 1980s, under the administrative management of the Commonwealth of Puerto Rico, proposals were made to rehabilitate and convert El Polvorín into a storage facility for the painting, sculpture, and graphic collections of the Instituto de Cultura Puertorriqueña, along with office space for the institution's personnel, a paper and paintings conservation space, and a small reference room.[314] The plans were never carried out.

Following transfer to the Commonwealth of Puerto Rico, Casa Rosa appears to have been administered by La Fortaleza and occupied by the College of Architects. A small building located to the west of Casa Rosa may survive from US military occupation of San Juan Military Reservation. This building currently serves as an adoption center for Save-A-Gato. The park's GMP indicates that the building was formerly used as a repair shop for air conditioners.

In 1991, El Polvorín was used by the Escuela de Artes Plásticas as classrooms, exhibition space, workshops, and a book bindery. Although plans were prepared by architect Otto Octavio Reyes Casanova intended to restore the building to its historic character, the building was transferred to the National Park Service in 1993, in part due to the poor condition of the structure and the need for stabilization and protection against further deterioration.[315] The National Park Service later cleaned the stucco and removed cement patches from the walls. The rubble masonry exterior walls were also stabilized and restored, while all exterior reinforced concrete and Portland cement plaster interventions were removed. All exposed surfaces were replastered with an appropriate lime plaster, and the building was then painted with lime wash using a historic color scheme.[316]

Around the same time, the National Park Service removed excess fill within the moat resulting from earlier US Army building demolition that had added as much as 3 feet to the elevation of the moat.[317]

El Polvorín was later adapted by the National Park Service for use as the maintenance headquarters and operations center for San Juan National Historic Site. The building was left entirely intact and a new structure built inside the exterior envelope to house the maintenance facilities.

In 1997, to address stabilization of Santa Elena Bastion, the National Park Service reestablished the historic grade behind Santa Elena Guardhouse and the north wall of the bastion. The work resulted from a US Army Corps of Engineers project to stabilize a wall extension added between 1783 and 1795. Because Santa Elena Bastion is built onto a rocky outcrop, the wall varies in construction to reflect the underlying geologic conditions. The north half of the wall is edged by a walk and interior wall, while the south half is flush with the surrounding rock. The Spanish may have built a drain to accommodate the large quantities of stormwater that flow to this point from the sloped terrain above. The area was later filled during the US military occupation period and evidence of a drain lost. As part of the project, the landform behind the wall was regraded and a drop inlet and pipe installed to address drainage needs.[318]

The National Park Service has since adapted Santa Elena Guardhouse for use by the Cannon Conservation Workshop. Use of the interior of the building has not entailed any permanent changes to the structure. The agency has also adapted San Antonio Guardhouse as a bookstore for San Juan National Historic Site. The structure was minimally altered to accommodate this use.

The Superintendent's Annual Narratives from the 1990s and 2000s suggest some of the changes that have occurred within the esplanade since the National Park Service began administering the property. The 1997 Superintendent's Annual Narrative records efforts conducted by the

313. Crisson et al., 32–33.
314. Pantel, del Cueto & Associates, 49.
315. Ibid., 51.
316. Ibid., 56.
317. Wild, 14.
318. Ibid., 16–17.

National Park Service with the US Army Corps of Engineers to stabilize San Fernando Battery. The US Army Corps of Engineers first conducted excavations at the site, including the establishment of a 45-foot-deep trench in front of the bastion. The National Park Service recorded the location and construction information related to historic wall and related features uncovered during the excavation such as the remains of an earlier bastion that may represent attempts made in the 1500s to fortify the promontory near El Morro.[319] The site was stabilized and the historic remains preserved.

The 1997 Superintendent's Annual Narrative also records work conducted to add safety railings and iron grates between the embrasures within some of the West Wall curtains and bastions. A PVC railing was also installed at Santa Elena Bastion. The National Park Service also continued efforts to restore San Fernando Battery and portions of the West Walls, repair the cemetery tunnel wall, restore the San Agustín sentry box, preserve the Santa Elena World War I gun emplacement and ammunition locker, and conduct emergency repairs at San Agustín Bastion.[320]

The 2001 Superintendent's Annual Narrative notes that repairs were made to several sections of the West and North Walls, including stucco work, rehabilitation of sentry boxes and historic brick emplacements, and restoration of historic gates.[321]

The 2002 Superintendent's Annual Narrative notes that additional work was conducted to rehabilitate the walls, including repair of the stucco coatings, replacement of the Santa Elena Bastion brickwork and repair of the floor, and rehabilitation of the Santa Elena World War I gun emplacement.[322]

The 2003 Superintendent's Annual Narrative notes that the San Antonio sentry box, previously rebuilt in 1933 using concrete blocks and metal rebar, was rebuilt with more appropriate materials. The Santa Elena Bastion brickwork project continued with repair of the circa 1760 bastion using brick and traditional lime mortar. The National Park Service subsequently opened the bastion to the public.[323] The 2004 Superintendent's Annual Narrative notes that additional wall repair and rehabilitation projects were conducted.[324]

Existing Conditions. Buildings located within El Morro Esplanade today include Spanish era El Polvorín (the Santa Elena Powder Magazine); San Antonio Guardhouse; Santa Elena Guardhouse; San Agustín Guardhouse (Casa Rosa); a possible US military occupation period outbuilding at Casa Rosa; a small utility building above the tennis and basketball courts; and a small guardhouse along San Agustín Road used for parking control.

Structures include the North and West Wall systems, composed of curtain walls and bastions. The North Walls include two curtains and two bastions—Santa Rosa and San Antonio. The West Walls include San Fernando Battery within Parcel A, and two curtains and two bastions within Parcel B—Santa Elena and San Agustín. Later additions include a late nineteenth-century coastal defense battery near San Fernando Battery and a World War I-era gun emplacement and bombproof magazine within Santa Elena Battery.

The North and West Walls contain original stormwater-management systems in the form of swales, paved channels, drains, and scuppers devised by the Spanish. Wall segments repaired and replaced during the US military occupation

319. National Park Service, San Juan National Historic Site Superintendent's Annual Narrative, 1997.
320. Ibid.
321. National Park Service, San Juan National Historic Site Superintendent's Annual Narrative, 2001.
322. National Park Service, San Juan National Historic Site Superintendent's Annual Narrative, 2002.
323. National Park Service, San Juan National Historic Site Superintendent's Annual Narrative, 2003.
324. National Park Service, San Juan National Historic Site Superintendent's Annual Narrative, 2004.

period are also present in the form of drains, culverts, and paved gutters.

Later stormwater-management structures introduced by the National Park Service include swales, drop inlets, catch basins, culverts, and pipes.

Other structures include tennis and basketball courts, retaining walls, a wishing well, and a heliport, all located within Parcel B.

Additional historic buildings located outside the project area to the southeast of the esplanade include the former Nurses' Quarters (now Instituto de Neurobiología), Escuela de Artes Plásticas, Asilo de la Beneficencia, el Manicomio, Instituto de Cultura Puertorriqueño, and the former Cuartel de Ballajá.

Evaluation (Refer to Figure 204 and Figure 205). As noted, several buildings survive from the Spanish military occupation period at El Morro Esplanade. Each of these buildings—the San Antonio Guardhouse, Santa Elena Guardhouse, El Polvorín, and Casa Rosa—retain a high degree of integrity, even though they have been adapted for contemporary use.

The only two buildings likely associated with the US military occupation period are the outbuilding west of Casa Rosa and a nearby utility building.

Structures surviving from the Spanish military occupation period include the North and West Walls, associated curtains, bastion, and stormwater-management structures, the retaining wall behind El Polvorín, a stone retaining wall along Casa Rosa Road, and the later coastal defense battery at San Fernando. These features retain a high degree of integrity, except for the curtain wall between Santa Elena and San Agustín Bastions, which was rebuilt by the US Army with contemporary materials and construction methods following its collapse.

Structures surviving from the US military occupation period include the World War I-era concrete coastal defense structures within Santa Elena Bastion, the tennis courts and wall along San Agustín Road, and the wishing well, and Casa Rosa Gate. These all appear to retain a moderate degree of integrity. The removal of the 4.72-inch Armstrong gun from Santa Elena Bastion diminishes integrity of feeling and association for the coastal defense structure.

All other buildings and structures present today postdate the period of significance and were added by either the National Park Service or the Commonwealth of Puerto Rico. These include stormwater-management structures added by the US Army Corps of Engineers and National Park Service since the 1990s, Jersey barriers around the heliport south of El Polvorín, retaining wall above San Agustín Road, and low retaining walls associated with picnic tables within the playground.

Contributing Building and Structure Features

Parcel A

- **San Antonio Guardhouse (CRIS HS #091732)** (by 1897)
- **North Walls (CRIS HS #006065) (curtain walls and bastions), San Fernando Battery, and associated stormwater-management structures—drains, swales, scuppers, gutters, paved channels** (by 1782)

West Walls (CRIS HS #006068) (San Fernando Battery and concrete gun emplacement at San Fernando Battery (by 1767 and circa 1888)

Parcel B

- **El Polvorín (CRIS HS #09173) (Santa Elena Powder Magazine) and associated retaining wall** (1787-1792)
- **Santa Elena Guardhouse (CRIS-HS 091739)** (1787)
- **West Walls (CRIS HS #006068) (curtain walls and bastions), and associated stormwater-management structures** (by 1782)
- **Wall along Casa Rosa Road** (circa eighteenth century)

- **San Agustín Guardhouse (Casa Rosa)** (by 1861)
- **World War I-era coastal defense gun emplacement** (circa 1917)
- **World War II-era bombproof structure** (circa 1917)
- **Drainage structures (drains, culverts, paved gutters) associated with the reconstructed sections of the West Walls (1925–1939)**
- **Tennis and basketball courts** (by 1929)
- **Retaining wall along San Agustín** Road near San Agustín Bastion (circa 1939)
- **Unidentified building west of Casa Rosa** (circa 1930s)
- **Casa Rosa Gate** (circa 1930s)
- **Utility building** (circa 1930s)
- **Wishing well** (circa 1930s)

Non-contributing Building and Structure Features

Parcel B

- **Stormwater-management structures not associated with walls (swales, drop inlets, catch basins, pipes)** (circa 1998)
- Retaining wall along San Agustín Road between heliport and playground (post 1970)
- **Gatehouse adjacent to San Agustín Road** (post 1970)
- **Jersey barriers** (post 1970)
- **Low retaining walls associated with picnic table landings at playground** (1998)

Missing Building and Structure Features

- **Little White Chapel (la Capilla del Calvario / Chapel of Calvary)** (1625–circa 1774)
- **Military barracks** (1700s–1783)
- **Stable** (1700s–1783)
- **Counter mining tunnel** (Spanish military occupation period)
- **Yellow Fever Hospital** (1897)
- **Incinerator** (early twentieth century)
- **Officer's Quarters and Commanding Officer's Quarters near El Morro** (by 1903)
- **Golf course** (1907–1911)
- **Masonry wall connecting San Antonio Guardhouse and Bastion** (1913)
- **Baseball field with dugouts** (by 1923)
- **Wall at Santa Elena Bastion** (by 1929)
- **Swimming pool** (circa 1930–1931)
- **Cisterns**
- **US Army buildings supporting housing, supply/storage, services, recreation, administrative, and security needs** (1930s-1950s)



FIGURE 204. Map illustrating contributing and non-contributing Buildings associated with El Morro Esplanade Parcel A. (Source: LSHLA)

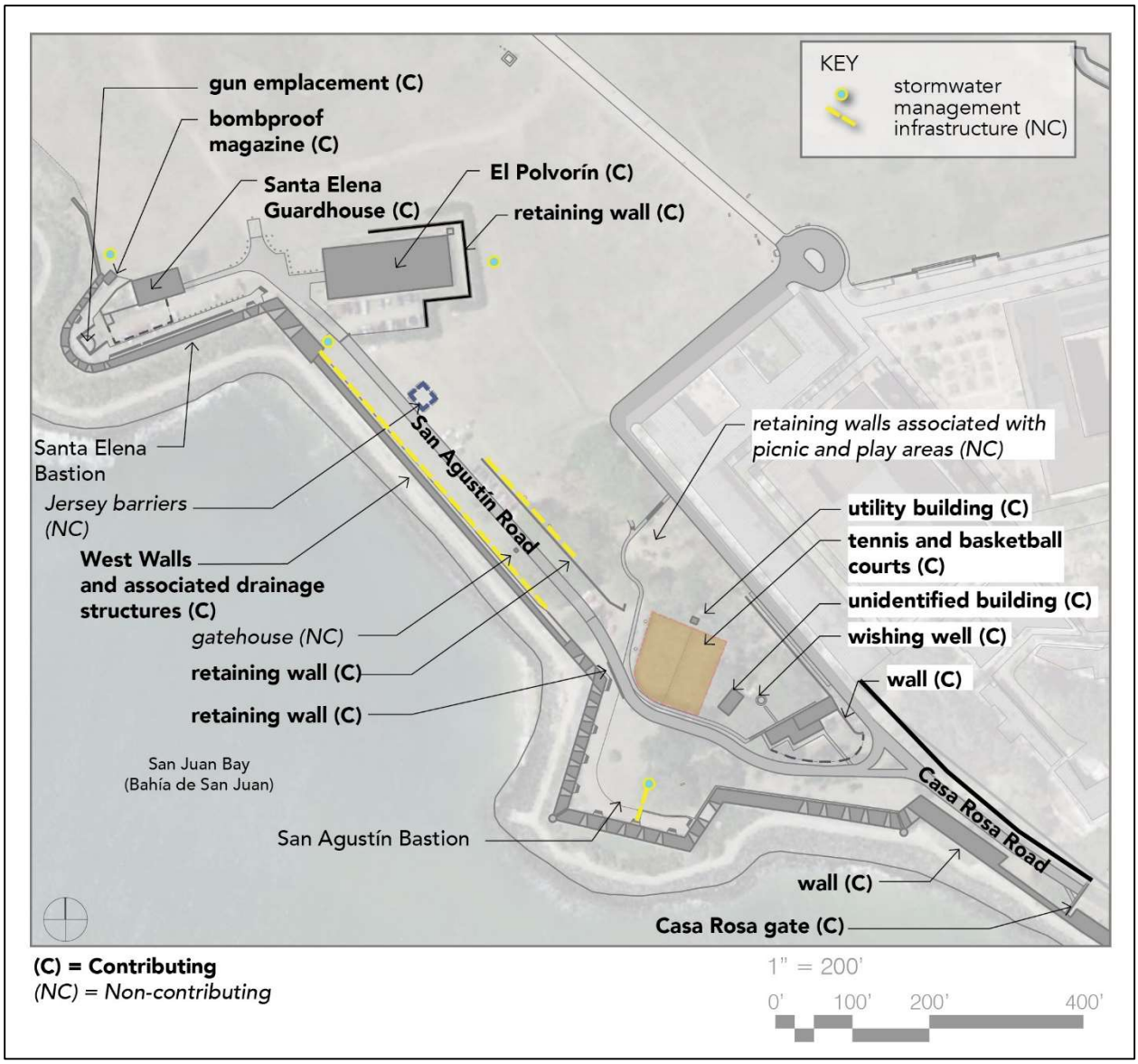


FIGURE 205. Map illustrating contributing and non-contributing Buildings associated with El Morro Esplanade Parcel B. (Source: LSHLA)

Views and Vistas

Summary Analysis. El Morro was established at the northwestern tip of the Isleta de San Juan in 1539 to take advantage of a nearly 360-degree field of vision. This broad view afforded visual command of the surrounding waters and the channel leading to San Juan Harbor, allowing for early detection of and defense against an approaching enemy. The open space to the southeast of El Morro was used as a field of fire to protect the fortification from being approached and overrun landward, although this in fact occurred during an attack by the Dutch in 1625. The esplanade was maintained in open space as a glacis or manipulated landscape designed to allow artillery positioned within the fort an unobstructed view. The Spanish removed high points and ravines within the esplanade to ensure that the ground east of the fort was clearly visible and did not contain opportunities for cover and concealment of the enemy. These qualities remain present today (Figure 206).

These views were impacted during the US military occupation period when the US Army built several buildings and structures and added tree plantings to the esplanade. These features served to impede historic expansive views present during the Spanish military occupation period. Removal of these features following closure of Fort Brooke reestablished the historic viewshed of El Morro.

Views within Parcel B are quite different from those associated with Parcel A. Located at a lower elevation and edged by a steeply sloped hillside, Parcel B is associated with views to the south and west of the channel leading to San Juan Harbor. Views to the north and east are limited by groves of trees and the elevated topography. map.



FIGURE 206. Aerial view of the esplanade illustrating the open character of the space following removal of US Army buildings and restoration of the historic expansive views present during the Spanish military occupation period. (Source: Park Archives, SJNHS)

Historic Conditions. Views across the esplanade were largely unobstructed throughout the Spanish military occupation period. Between circa 1539 and the 1780s, a knoll referred to as Calvary Hill sat to the east of El Morro, and a declining ravine northeast of El Morro. Following declaration of El Morro as a Defense of the First Order in 1765, Calvary Hill was lowered, and the ravine filled to ensure the glacis was smooth and even, and unobstructed views were afforded across its length and breadth. Also associated with the esplanade were views toward the Atlantic Ocean and San Juan Harbor from the embrasures and sentry boxes associated with the North and West Wall systems built by the Spanish by 1782. From the embrasures, Spanish artillery could be sited and fired upon an approaching enemy.[325]

Impacting views from the esplanade beginning during the early nineteenth century was the establishment of Old San Juan Cemetery below the North Walls. The cemetery and its dense cluster of graves, monuments, and commemorative features remain part of the viewshed of the esplanade today (refer to Figure 196).

During the US military occupation period, views previously associated with the esplanade were slowly obstructed by buildings constructed to support US Army operations. Buildings were constructed along Manicomio Street, El Morro Road, and a new road built within the esplanade known as Santa Elena Road. Trees were planted around many of the new buildings and along El Morro and Santa Elena Roads, as well as the swimming pool located along the edge of San Antonio Bastion. As the trees matured, they increasingly obscured formerly open views across the esplanade. By 1957, much of the area to the south of El Morro Road was obscured by the US Army developments.[326] The historic viewsheds were restored when buildings and trees were removed from the esplanade between 1961 and 1971.

Existing Conditions. The views and vistas associated with the esplanade and its relationship to El Morro are broad, expansive, and open. From Norzagaray Street and the southeastern end of El Morro Road, it is possible to view El Morro as well as the walls and promontory margins within Parcel A.

Within Parcel B, views are more directed along the linear form of San Agustín Road, and outward toward the harbor as landform, topography, and tree plantings block and limit views to the north and east. The North and West Walls frame views toward the ocean and harbor through the embrasure openings.

Visible from El Morro and the northwestern end of Parcel A are several historic institutional buildings associated with Old San Juan.[327]

Evaluation (Refer to Figure 207). The broad expansive views associated with Parcel A are consistent with those present during the Spanish military occupation period, as are views to Old San Juan Cemetery and the Atlantic Ocean from the North Wall embrasures, and San Juan Harbor from the West Wall embrasures. Also visible from the esplanade are several institutional buildings associated with Old San Juan that have been present since the Spanish military occupation period.

The linear views through Parcel B are more consistent with the US military occupation period, although integrity of feeling, association, and setting is diminished by the loss of many military buildings and structures present during the first half of the twentieth century.

Views to El Morro from the Norzagaray Street pedestrian promenade are framed by walls, light poles, and tree plantings added in 1998. This view postdates the period of significance and is non-contributing.

325. Crisson et al., 22.
326. Ibid., 34.
327. Ibid., 44.

View and Vista Features Contributing to the Historic Setting of El Morro Esplanade

Parcel A

- **Views across the expansive open space of the esplanade** (by circa 1782)
- **Views of the Atlantic Ocean from the esplanade and North Wall embrasures** (by circa 1782)
- **Views to San Juan Bay and Old San Juan from the esplanade and West Wall embrasures** (by circa 1782)
- **Views to Old San Juan Cemetery from North Wall embrasures** (circa 1814)

Parcel B

- **Views to San Juan Bay from the West Wall embrasures** (by circa 1782)

View and Vista Features Not Contributing to the Historic Setting of El Morro Esplanade

Parcel A

- **Views to El Morro from the Norzagaray Street pedestrian promenade** (1998)

Missing View and Vista Features

- **Linear views along El Morro and Santa Elena Roads framed by tree plantings** (US military occupation period)

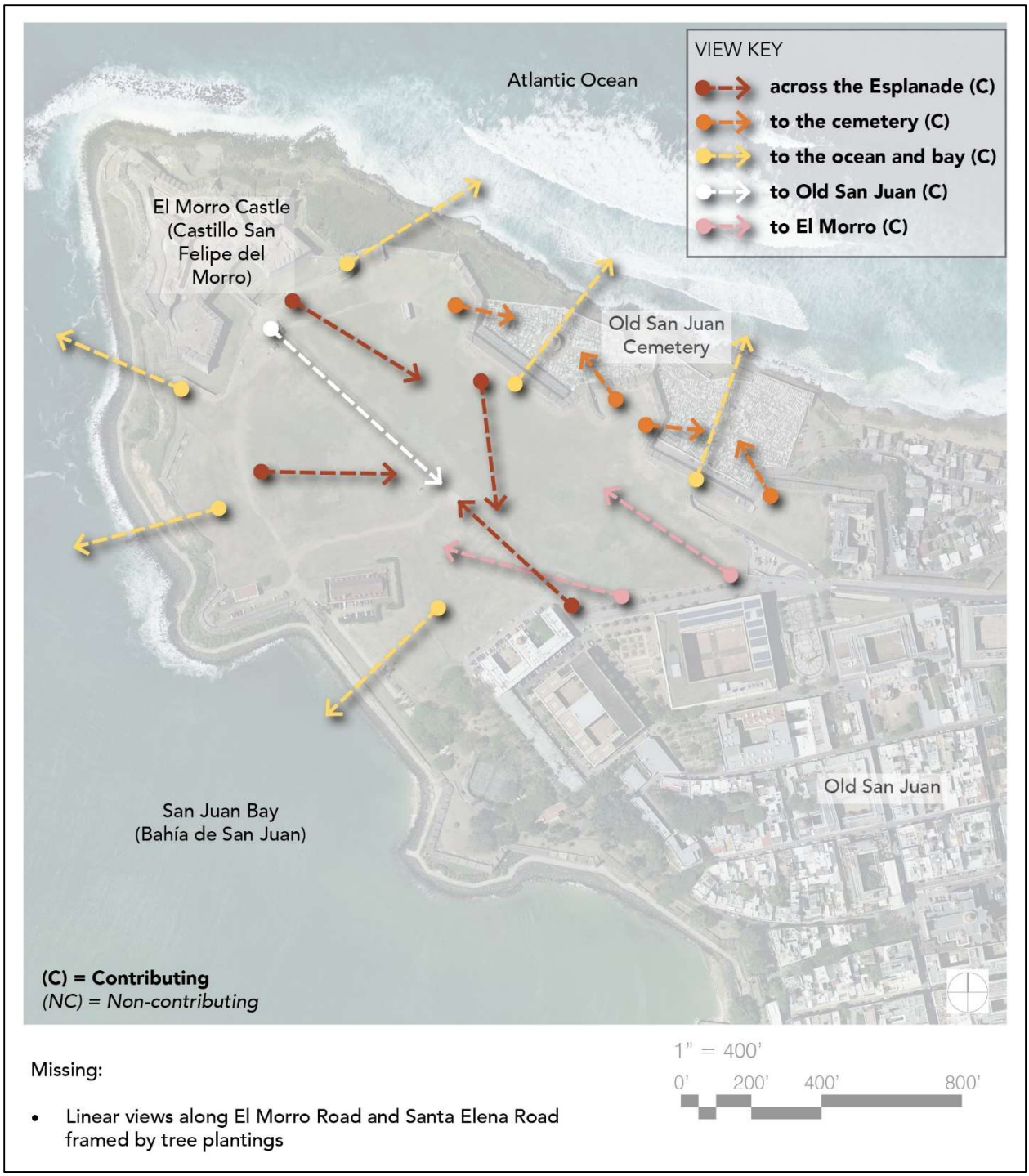


FIGURE 207. Map illustrating contributing and non-contributing Views and Vistas features associated with El Morro Esplanade. (Source: LSHLA)

Small-scale Features

Summary Analysis. Few small-scale features are present within El Morro Esplanade today. Those present fall into five categories: commemorative features, site furnishings, signs, access control features, and utility features.

Overall, there are four commemorative features—the Dutch Monument (Figure 208), "The Borinqueneers" Monument, and bronze plaques marking "Copeland's Corner" and "Santa Rosa Bastion." The Dutch Monument, which commemorates the Dutch siege of 1625 first appears on a map dated 1864. This feature survives with integrity from the Spanish occupation period. Other small-scale features that might have existed during the Spanish military occupation period are missing today.[328]

"The Borinqueneers" Monument was erected in 2000 to honor Puerto Rico's Fighting 65th Infantry Regiment of the United States Army for their valor and patriotism during the Korean War between 1950 and 1953. This monument, as well as bronze plaques affixed to the North Walls that mark Copeland's Corner in honor of Rosie Copeland who was instrumental in the success of the El Morro Golf Club, and Santa Rosa Bastion both postdate 1961 and are non-contributing.

The numerous examples of site furnishings present within El Morro Esplanade have been placed within the park by the National Park Service to support visitor needs and park administration. These include benches, trash receptacles, dog-waste-bag dispensers, bike racks, and a drinking fountain. Within Parcel B, there are also picnic tables, benches, and a drinking fountain within the playground that were established after 1961.

Cobra lighting within Parcel B appears to postdate the period of significance, while cast-iron light poles that no longer contain luminaires appear to date to the US military occupation period.

All signs and most access control systems currently present within Parcel B postdate 1961 and are non-contributing. The fencing and gate at Casa Rosa are the exception and appear to date to the US military occupation period, although further investigation is needed to confirm the date of origin of the fencing.

Present-day utilities within the esplanade are generally contemporary replacements for earlier systems and are non-contributing. One exception may be a vault cover that marks the location of a cistern south of El Morro.

Small-scale features identified from historic photographs and maps of El Morro Esplanade present during the US military occupation period that are no longer extant include artillery features used to line the north side of El Morro Road, tees and flags associated with the golf course, base and pitching bags associated with the baseball field, and electrical poles, a fence that protected the Dutch Monument, wood fences associated with living quarters and animal paddocks, and a fenced precinct near San Fernando Battery.



FIGURE 208. The Dutch Monument located south of El Morro Road is the only small-scale feature associated with the Spanish military occupation period to survive within El Morro Esplanade.

Historic Conditions. Spain occupied El Morro and the esplanade as a military outpost for more than 350 years. During this time, several buildings

328. Ibid., 20.

were constructed to support military needs. These included a chapel, guardhouses, a powder magazine, barracks, and other support, storage, and service structures. It is likely that some of the buildings were associated with fences and other small-scale features for which little information survives.[329]

Erected during the Spanish military period was the Dutch Monument, designed to commemorate the 200th anniversary of Spanish victory over the Dutch in 1625. The monument honored those who lost their lives in the battle and the bravery of Juan de Amézquita, Captain of the Puerto Rican forces during the conflict. The monument was specifically sited to mark the westernmost line of Dutch trenches built during the siege of El Morro.[330] The Dutch Monument first appears on maps of El Morro Esplanade circa 1861. One of the other small-scale features that supported life at the fortification during the Spanish military occupation period was cisterns. When the Spanish first established El Morro and the esplanade there were no available sources of freshwater as indicated in a 1598 account by the Reverend John Layfield:

> On this Islet there are no rivers or springs . . . The houses have cisterns, sometimes two, but there is always water since it frequently rains.[331]

Cisterns would have been an essential means for collecting and storing freshwater. The 1625 Dutch map of El Morro shows a "large well" near present-day San Antonio Bastion just east of El Morro. Although the feature is indicated as a well, it was likely a cistern since wells are never indicated in the documentary record as present at El Morro.[332] In 1989, archeologists revealed evidence of either a large sewer or dry well at the east end of the esplanade near Norzagaray Street that likely dates to the Spanish military occupation period, although little information has been located about this feature.[333] Evidence of a cistern of an unknown date of origin exists to the south of El Morro Road near the sallyport in the form of a vault cover.[334]

During the US military occupation period, a sewer system was installed during the spring of 1899.[335] The installation of the system involved regrading the esplanade north of El Morro Road, and removing obstructions in the sewer line to alleviate drainage problem.[336] A square feature shown as a dashed line in the same area on a circa 1960 plan may indicate where additional work was done.

Electrical lines and lighting set on wooden utility poles were introduced to the esplanade and El Morro during the summer of 1901 by San Juan Light and Transit Company. The lines provided electrical service to the three Officers' Quarters, including the Commanding Officers' Quarters, the fort, and arc lights along El Morro Road.[337] Circa 1905 photographs indicate that electrical power extended from the Commanding Officer's Quarters to the northeast side of the esplanade.[338]

Historic photographs from the early twentieth century also record the presence of eighteenth-century and nineteenth-century artillery projectiles, primarily mortar bombs painted white, lining the north side of El Morro Road as a symbolic and decorative feature. These projectiles continue to appear in photographs of El Morro Road through the remainder of the US military occupation period, and they may not have been removed until circa 1982 or later.

Maps from the early twentieth century of El Morro Esplanade indicate the presence of various

329. Ibid.
330. Ibid.
331. Ibid., 21; from Rafael W. Ramírez de Arellano, *La Capital a través de los Siglos* (author, 1950).
332. Crisson et al., 21.
333. Ibid.
334. Ibid., 33.
335. Ibid.; from Bearss, Historic Structure Report, 103.
336. Ibid.; from Bearss, Historic Structure Report, 104–105.
337. Ibid.; from Bearss, Historic Structure Report, 132–133.
338. Historic photographs referenced in Berkowitz et al., including those in the Gambell Collection, were not available for use in this document.

fenced precincts. The fencing was composed of wood posts topped by a single flat board painted white. The fences defined yards associated with living quarters and enclosed livestock paddocks. It was also during the early twentieth century that maps indicate the presence of a low metal fence surrounding the Dutch Monument, either to set it off for commemorative purposes or to protect it from livestock. Photographs also indicate that the Dutch Monument was altered during the US military occupation period through the addition of a square masonry base and a plaque in addition to the fenced enclosure. Fencing was also present near San Fernando Battery. Both the paddock fencing and fence around the monument were removed by 1923, suggesting that livestock no longer grazed on the esplanade after this time.[339]

In 1925, the Dutch Monument was rededicated in honor of the 300th anniversary of the siege. The Dutch Monument was cleaned and underwent unspecified repairs in 1955.[340]

Other small-scale features established within El Morro Esplanade during the US military occupation period relate to the establishment of a golf course, baseball field, and swimming pool on the esplanade during the 1910s through the 1930s. Associated with the golf course were tees and flags, while the baseball field featured bases and a pitcher's mound.

Between 1930 and 1931, new water lines extended through the esplanade to El Morro. The water system comprised 6,745 feet of iron pipe and vitreous clay sewer. To access the system, five manholes were installed. Four Kennedy fire hydrants were added in proximity to buildings and building clusters. The electrical system was also upgraded at the time. A new electrical cable, buried 2 feet below ground, looped around the esplanade. It was used to install twenty-four streetlights on the southwestern side of El Morro Road with 1,000 lumen lamps. The system had two subway-type transformer manholes.[341] Gas service is also known to have been provided to the esplanade prior to 1939. It is not known what aboveground features were installed in association with the gas service, if any.[342]

In 1939, a sewer line was built through Parcel B and the present-day playground area from the building that houses the Instituto de Cultura Puertorriqueña that emptied through the perimeter curtain wall.[343]

Superintendent Annual Narratives for San Juan National Historic Site during the 1990s and 2000s indicate that several utility systems were upgraded during this time. In 1994, the local municipality installed a new high voltage electrical line near El Polvorín.[344] In 1999, the Casa Rosa electrical system was rehabilitated, and the National Park Service coordinated efforts with the Commonwealth of Puerto Rico to demolish an old transformer building.[345] In 2001, the visitor safety lighting system was rehabilitated, while compliance was undertaken to replace all lighting parkwide.[346]

The same Superintendent Annual Narratives also indicate that the playground within Parcel B was completed in 1998, while the wayside exhibits were replaced that same year. Lighting throughout the park was replaced in 2001.[347] In 2000, a plaque honoring the 65th Infantry Regiment, nicknamed "The Borinqueneers," was placed along El Morro Road near the southeaster end of the esplanade. The plaque recognized the contribution of the regiment to the Korean War effort between 1950 and 1953.

339. Crisson et al., 32.
340. Bearss, *Historic Structure Report,* 419.
341. Crisson et al., 34; from Bearss, *Historic Structure Report,* 318–321.
342. Ibid., describing a post-1943 plan entitled "Fort Brooke: Gas Distribution-System" (SAJU0589-2053).
343. Wild, 8.
344. Ibid., 14.
345. National Park Service, San Juan National Historic Site Superintendent's Annual Narrative, 1999.
346. National Park Service, San Juan National Historic Site Superintendent's Annual Narrative, 2001.
347. National Park Service, San Juan National Historic Site Superintendent's Annual Narrative, 1998, 2001.

In 2004, the electrical system throughout the park was rehabilitated after being assessed as obsolete and hazardous. An old generator at El Polvorín was removed and replaced, while a new air-conditioning (A/C) system was installed in the building.[348] The 2006 Superintendent Annual Narrative indicates that work continued on the rehabilitation of the visitor safety light system and the electrical system.[349]

Existing Conditions. Numerous small-scale features exist within the esplanade today. As noted above, these features fall within five categories: commemorative features, site furnishings, signs, access control features, and utilities.

There are four commemorative features, all located within Parcel A. These include the Dutch Monument, located south of El Morro Road within Parcel A, "The Borinqueneers" Monument, also located south of El Morro Road and within Parcel A, and bronze plaques bolted to the North Walls marking Copeland's Corner and Santa Rosa Bastion within Parcel A.

Site furnishing are present within both Parcel A and Parcel B. These support National Park Service and Commonwealth of Puerto Rico administration of the property for public access and enjoyment. Park standard concrete benches and trash receptacles, fabricated by the maintenance department, are located within both parcels, as are dog-waste-bag dispensers and waste receptacles. Bike racks are located near El Morro within Parcel A. An exposed aggregate drinking fountain is located near the southeastern entrance to El Morro Road within Parcel A, while a concrete drinking fountain is located within the playground in Parcel B. It is painted a primary color similar to the color of the concrete benches and picnic tables also located within the playground. The playground also includes play equipment and additional benches with backs. Limited lighting is located within Parcel B, along with evidence of former lighting systems that includes the poles but not the luminaires. Lighting also edges El Morro Esplanade along the Norzagaray Street pedestrian promenade.

Signage is present within both Parcel A and B. Within Parcel A there are National Park Service wayside exhibits that interpret kite flying, the Dutch Monument, and El Morro. The park identity sign was missing at the time fieldwork was conducted on behalf of this project. Generally, it sits on a concrete base to the north of El Morro Road near the circular turnaround arising from Norzagaray Street. Regulatory signs note speed limits, parking and vehicular access restrictions, and indicate that use of bicycles is not allowed on the esplanade.

Access control features located within Parcel A include a bollard-and-chain system at the southeastern end of El Morro Road that limits vehicular access to the road, which is used primarily by pedestrians; fencing along the steep slopes of the western edge of the promontory near San Fernando Battery that was chain link and as of 2021 was being replaced with concrete columns and stainless steel bars; and bollards that prevent cars from accessing the pedestrian promenade along adjacent Norzagaray Street.

Within Parcel B, access control features include chain-link fencing at Santa Elena Bastion to protect the historic artillery at the Cannon Conservation Workshop; an access control gate to the southeast of El Polvorín and Santa Elena Bastion separating National Park Service activity areas from Commonwealth of Puerto Rico activity areas; and woven wire fencing and a gate at Casa Rosa.

In terms of utilities, a pair of metal doors cover a vault to the south of the circular plaza near El Morro within Parcel A. The vault is believed to mark the location of a cistern developed by the Spanish or US military.

There is a cistern near Santa Rosa Bastion that the park has filled with sand to prevent its collapse. There are also two cisterns built by the US Army.

348. National Park Service, San Juan National Historic Site Superintendent's Annual Narrative, 2004.

349. National Park Service, San Juan National Historic Site Superintendent's Annual Narrative, 2006.

The park is currently using one as a storage room and the other for rainwater harvesting.

Potable water is currently supplied to El Morro by a supply line that parallels El Morro Road. There are also underground utilities associated with telephone and electrical lines. These generally follow El Morro Road.

Contemporary sewer lines run south from El Morro to San Agustín Road within Parcel B and continue beneath the road to the Santa Rosa Gate. There are also contemporary underground sewer and storm drains located along Manicomio Road directed beneath the West Walls.

Stormwater continues to pass through the North and West walls through the openings designed for this purpose by the Spanish and later US military where walls were repaired or replaced following failure. The National Park Service has added swales, drop inlets, and catch basins on the terraced slopes within Parcel B and within the two bastions. These are connected to PVC pipes that convey water through or beneath the West Walls.

Overhead lights are located along San Agustín Road, near the tennis and basketball courts, and along Casa Rosa Road within Parcel B. There are also remnant iron light poles along San Agustín and Casa Rosa Roads that no longer have lanterns. An aboveground electric utility pole sits along Manicomio Road.

An electrical transformer is located at the north end of the parking area associated with El Polvorín. A telephone distribution box is located within San Agustín Bastion. There is also a small utility building on the hill above the tennis court, the purpose of which is not currently known.

Evaluation (Refer to Figure 209 and Figure 210). Only one small-scale feature present within El Morro Esplanade survives from the Spanish military occupation period. This is the Dutch Monument located south of El Morro Road. Changes were made to the monument during the US military occupation period through the addition of a square masonry base and a plaque. The monument was sometimes fenced as indicated in maps dating the mid-nineteenth century, as well as the early twentieth century. The monument appears to retain a high degree of integrity, including integrity of location, feeling, association, setting, design, materials, and workmanship.

Small-scale features surviving from the US military occupation period include a cistern south of El Morro, and another cistern south of San Antonio Bastion, as well as remnant iron light poles within Parcel B. These have diminished integrity of design, association, and feeling due to the loss of the luminaires.

Other small-scale features that may survive from the US military occupation period within Parcel A, include the vault cover for the cistern south of El Morro Road near the sallyport. Within Parcel B, the woven wire fence and gate at Casa Rosa may also survive from the US military occupation period. Further research is needed to confirm this.

Contributing Small-scale Features

Parcel A

- **Dutch Monument (CRIS HS #091729 Shadow)** (by 1861)
- **Vault cover** (circa US military occupation period)

Parcel B

- **Cistern south of El Morro** (US military occupation period)
- **Cistern near San Antonio Bastion** (US military occupation period)
- **Iron light poles without luminaires** (US military occupation period)
- **Woven wire fence and gate at Casa Rosa** (circa 1930s)

Non-contributing Small-scale Features

Parcel A

- **Concrete pier and metal fencing at San Fernando Battery** (2020-2021)

- **Concrete pier and metal fencing above El Polvorín** (2020–2021)
- **Bronze plaques marking Copeland's Corner and Santa Rosa Bastion** (circa 1960s)
- **Identity sign base** (post 1970)
- **Trash receptacles** (post 1970)
- **Benches** (post 1970)
- **Drinking fountain** (post 1970)
- **Regulatory signs at the entrance to El Morro Road** (post 1970)
- **Wayside exhibits** (circa 1990s)
- **Bollards and chain access control features** (1990s)
- **Light poles and luminaires** (1998)
- **"The Borinqueneers" Monument** (2000)
- **Dog-waste-bag dispenser and receptacle** (2010s)
- **Bike rack** (2010s)
- **"No Bicycling" sign** (2010s)
- **Manholes** (post 1970)
- **Drainpipes** (post 1970)
- **Power poles and lines** (post 1970)
- **Telephone distribution box** (post 1970)
- **Fire hydrants** (post 1970)
- **Electrical transformer** (post 1970)

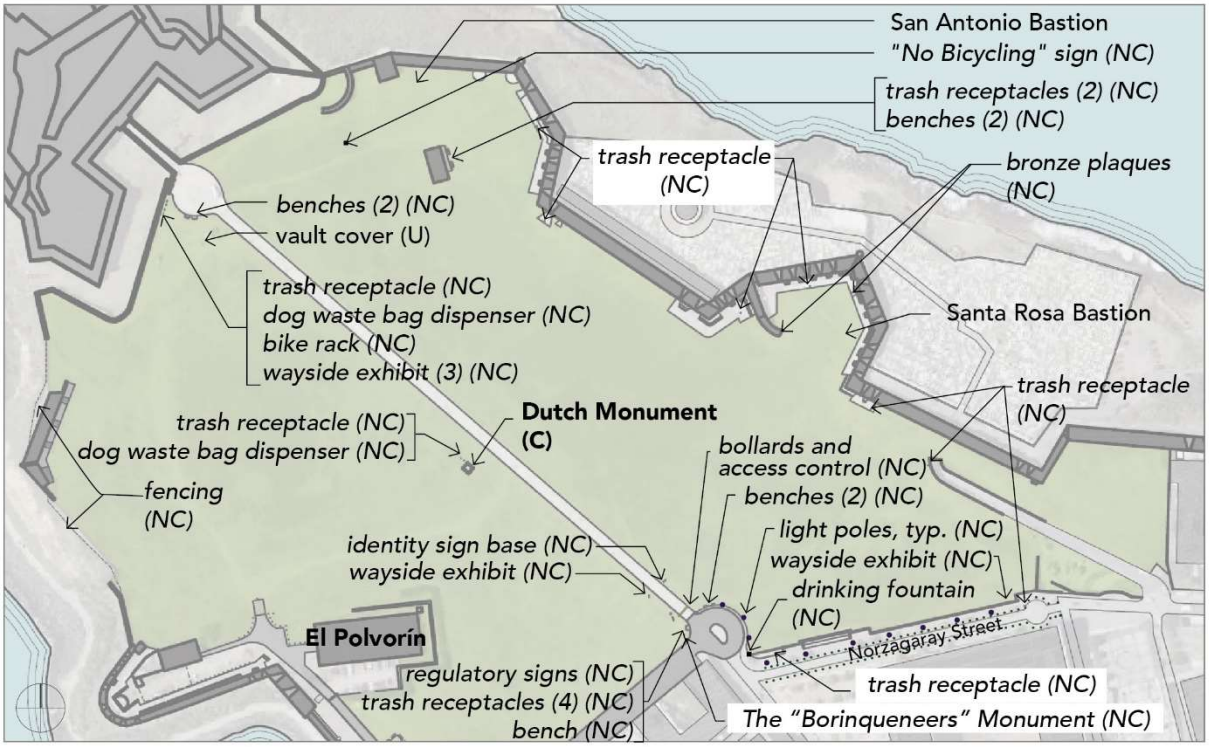
Parcel B

- **Fence associated with Cannon Conservation Workshop at Santa Elena Bastion** (post 1970)
- **Trash receptacles** (post 1970)
- **Overhead lights** (post 1970)
- **Picnic tables and benches in the playground** (1998)
- **Benches with backs in the playground** (1998)
- **Backless benches in the playground** (1998)
- **Playground equipment** (1998)
- **Drinking fountain in the playground** (1998)
- **Backless benches in the tennis court area** (post 1970)
- **Parking signage** (post 1970)
- **Wood bollards and rope** (post 1970)
- **"No Bicycling" sign** (post 1970)
- **Dog-waste-bag dispenser and receptacle** (post 1970)
- **Regulatory signage** (post 1970)
- **Access control gate near the heliport** (post 1970)

Missing Small-scale Features

- **Artillery features lining the north side of El Morro Road** (circa 1905)
- **Low metal fence around the Dutch Monument** (circa 1860s; by 1905)
- **Wood fences associated with living quarters and animal paddocks (circa early twentieth century**)
- **Electrical poles** (circa early to mid-twentieth century)
- **Low metal fence around the Dutch Monument** (by 1905)
- **Wood fences associated with living quarters and animal paddocks** (early twentieth century)
- **Fencing associated with precinct near San Fernando Battery** (early twentieth century)
- **Golf course tees and flags** (circa 1911)
- **Baseball field bases** (circa 1923)
- **Fencing associated with precinct near San Fernando Battery** (by 1929)





(C) = Contributing
(NC) = Non-contributing

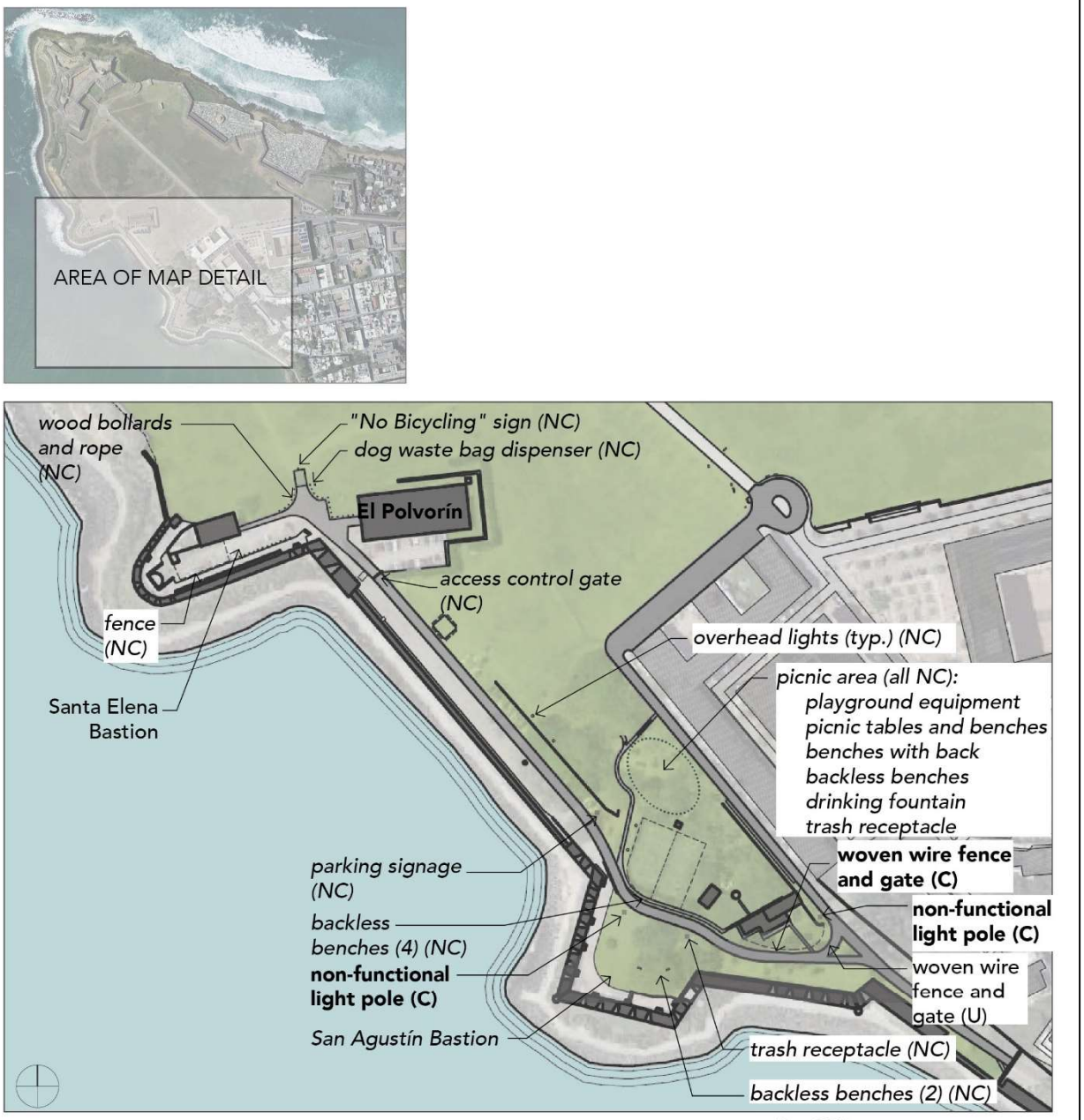
Utility Features (NC) - not shown

- *Vault cover*
- *Manholes*

Missing:

- Low metal fence around the Dutch Monument
- Wood fences associated with living quarters and animal paddocks
- Fencing associated with precinct near San Fernando Bastion
- Artillery features lining the north side of El Morro Road
- Golf course tees and flags
- Baseball field bags
- Cisterns
- Electrical poles

FIGURE 209. Map illustrating contributing and non-contributing Small-scale Features associated with El Morro Esplanade Parcel A. (Source: LSHLA)



(C) = Contributing
(NC) = Non-contributing

Utility Features (NC) - not shown

- *Manholes*
- *Power poles and lines*
- *Telephone box*
- *Fire hydrant*
- *Electrical transformer*

Missing:

- Electrical poles

FIGURE 210. Map illustrating contributing and non-contributing Small-scale Features associated with El Morro Esplanade Parcel B. (Source: LSHLA)

Treatment Plan

Introduction

Treatment is a preservation strategy for long-term management of a historic property, intended to direct physical work on the landscape so that the distinguishing characteristics and features that contribute to its significance are preserved.

One of the goals of the treatment plan is to enhance the historic character of a cultural landscape while accommodating contemporary function and use. Treatment plans establish how the landscape should look and be maintained to protect and / or enhance historic integrity and character. Treatment plans also address other park management goals, such as access, sustainability, and interpretation, as well as routine and cyclical maintenance measures necessary to perpetuate the identified desirable character of the landscape.

This treatment plan has been prepared to provide the National Park Service with an overall vision for the El Morro Esplanade cultural landscape. The recommendations and guidelines included herein are intended to guide and support long-term management and interpretation of the site and its resources.

The resource management strategies presented in the treatment plan have been guided by input from the National Park Service, including park and regional personnel, afforded during meetings and through the review process. The input relating to management goals, issues, and objectives provided by park and regional personnel was particularly critical to this project. Documents, including a 1985 General Management Plan (GMP) and the 1991 HSR/CLR, were also considered when establishing baseline approach strategies for this treatment plan.

The treatment plan is organized into six sections, as follows:

1. **Park Management Goals, Issues, and Concerns.** This section describes the issues raised by the park for consideration within the treatment plan, in addition to issues raised in the park's GMP, HSR / CLR (1991), and Foundation Document.

2. **Recommended Treatment Approach.** This section presents the four approaches recognized by the Secretary of the Interior for treating historic properties, and identifies the approach recommended for El Morro Esplanade.

3. **Treatment Concept.** The treatment concept section conveys the overarching vision for landscape treatment of the El Morro Esplanade landscape based on the NRHP significance of the property and the goals identified by the National Park Service for its management and interpretation.

4. **General Treatment Guidelines and Recommendations.** This section provides an overarching set of recommendations and guidelines that applies to the esplanade landscape as a whole and should be considered in conjunction with the more specific recommendations that follow.

5. **Specific Treatment Recommendations.** This section provides more specific treatment recommendations for individual actions intended to address the management goals, issues, and concerns identified for El Morro Esplanade.

6. **Landscape Preservation / Rehabilitation Projects.** This section provides a prioritized list of draft National Park Service Project Management Information System (PMIS) statements for projects that result from the treatment recommendations and guidelines proposed herein. The list provides a general outline for work needed at El Morro Esplanade to fully implement the recommended treatment.

Park Management Goals, Issues, and Concerns

The management goals, issues, and concerns to be addressed by this treatment plan were identified in several ways. The majority were conveyed during a project start-up meeting held at the park on July 16, 2018, attended by National Park Service regional and park personnel and members of the project team. Others were gleaned from the project statement of work, field investigations, consultation with park maintenance staff, and review of available planning and inventory documents.

The issues conveyed by park personnel include the following:

- **Erosion control.** Soil erosion is a problem in several specific locations within El Morro Esplanade (Figure 211) and occurs generally in response to compaction and loss of turf grass cover due to visitor use. Erosion is problematic at the interface of the Norzagaray Street pedestrian promenade and the Esplanade, along the edge of the dry moat that fronts El Morro, in association with social trails that lead to and within bastions, and to the southwest of El Morro. It is particularly problematic in heavily visited locations, such as around the Dutch Monument and the wayside exhibit interpreting the tradition of kite flying on the esplanade.



FIGURE 211. Example of soil erosion problems on El Morro Esplanade.

Erosion of topsoil generally follows compaction and the loss of the protective turf grasses that cover most of the esplanade. This in turn diminishes the condition and appearance of the historic landscape. If left uncorrected, erosion can lead to more serious problems including impacts to archeological resources, and exposure of buried ordnance. (*See implementation projects: Prepare a stormwater management and erosion control plan; and Address stormwater management, soil compaction, and erosion control needs, including social trail stabilization*)

- **Turf management.** Most of the esplanade is managed under turf grass cover. Two primary grass species are present—Bermuda grass and zoysia grass. These two species convey a different appearance (Figure 212), with the Bermuda grass being far lower and finer in texture. It survives from the US military occupation period and the introduction of a golf course on the esplanade. Consideration should be paid to the treatment of these two grass species, and how to maintain grass where it is impacted by heavy visitor use (Figure 213). The park is also interested in protocols for mowing height and frequency. (*See implementation project: Develop a strategy for turf management*)



FIGURE 212. Turf grass within San Antonio Bastion include two distinct species that differ in terms of texture and height. Also evident is die-back from visitor access.



FIGURE 213. View of El Morro Esplanade illustrating the uneven growth of turf and the impact of visitors on areas exposed to heavy foot traffic.

- **Land ownership.** El Morro Esplanade is composed of Parcel A, which falls within the authorized boundary of San Juan National Historical Site and is administered by the National Park Service; and Parcel B, which is administered by the Commonwealth of Puerto Rico (refer to Figure 4). Both parcels are owned by the Commonwealth. The northwestern section of Parcel B is used by the National Park Service for park maintenance operations and the Cannon Conservation Center, while the remainder of Parcel B is used by the Commonwealth of Puerto Rico; there is an access gate at the junction between the two areas (Figure 214).

  Coordinated management of stormwater between Parcel A and the area of Parcel B that is used by the National Park Service is needed. The park is interested in adjusting the boundary of Parcel B to account for this. The rest of Parcel B supports operation of La Fortaleza through the provision of staff parking and a heliport used by the Governor. The National Park Service maintains vegetation and the west walls and bastions. Further resolution of roles and responsibilities regarding the management of Parcel B is needed (Figure 215). (*See implementation project: Prepare a stormwater management plan*)



FIGURE 214. Gate at the division between the northwestern and southeastern sections of Parcel B, which are managed separately by the National Park Service and Commonwealth of Puerto Rico.



FIGURE 215. View of playground equipment located within Parcel B, one of the features that would benefit from clear management roles and responsibilities between the National Park Service and Commonwealth of Puerto Rico.

- **Visitor management.** El Morro Esplanade is a broad, expansive open landscape where access control poses a challenge. Visitors walk unfettered across the historic landscape,

including during hours when the park is officially closed, and staff is not on site. The walls that frame El Morro Esplanade sit high above the landscape at their base. Many of the walls are accessible to the public without barriers or safety features (Figure 216). Further consideration of visitor management to encourage safe and respectful behavior is needed. (*See implementation project: Address visitor safety at the wall embrasures*)

- **Appropriate activities.** Visitors sometimes deface the masonry features of El Morro Esplanade with graffiti, use the park for illicit activities, and sully the sentry boxes. Further consideration of visitor management to encourage respect for historic and cultural resources is needed (Figure 217). (*See recommendations: Signage strategies*)

- **Drainage.** Control and management of drainage throughout the esplanade, and in specific locations where it impacts walls, bastions (Figure 218), and other cultural landscape features, requires further study and consideration. Soil conditions, such as a hard pan beneath a sand layer, contributes to management challenges due to the inability of water to percolate entirely into the ground. (*See implementation project: Address stormwater management, soil compaction, and erosion control needs, including social trail stabilization*)



FIGURE 216. Visitor safety is a concern within the esplanade where access to wall copings and openings is difficult to control.



FIGURE 217. Visitors enjoy family gatherings and activities such as kite flying at El Morro. These are generally accepted activities. Inappropriate uses of the landscape should be clearly indicated near popular entrances into the open space to help reduce unsafe behavior and activities that may lead to damage of historic resources.



FIGURE 218. Drainage often overcomes stormwater-management systems, such as in San Agustín Bastion where sandbags are used to protect the walls from overland flow.

- **Signage strategies.** The park needs standards and guidelines for park signage in terms of scale, materials, and locations, and protection against damage that can occur in association with signage (Figure 219). Because many of the visitors to El Morro speak Spanish as a first language, provisions for bilingual signage and universal graphics that are easily understood are needed. *(See recommendations: Signage strategies)*



FIGURE 219. Wayside exhibits exist in several locations at El Morro Esplanade. These signs are important to convey interpretive information, but also present drawbacks such as detracting from visual quality and leading to erosion.

- **Site furnishing strategies.** The park needs standards and guidelines for park site furnishings in terms of scale, materials, and locations. *(See recommendations: Site furnishing strategies)*

- **Graffiti removal strategies.** The park is also interested in identifying appropriate options for material conservation strategies to address graffiti removal on historic walls and structures. *(See implementation projects: Develop preservation, repair, and replacement protocols for historic masonry and metal features)*

- **Universal accessibility.** The only circulation route that is currently universally accessible within the esplanade is El Morro Road. The park needs suggestions for options to improve accessibility (Figure 220). *(See implementation projects: Provide for universal accessibility)*



FIGURE 220. Currently, El Morro Road is the only universally accessible route available to visitors within the esplanade. Entry features such as this stair might be adapted for additional accessibility options.

General Management Plan Guidance

The GMP for San Juan National Historic Site indicates the general treatment approach to the property:

> The National Park Service will preserve the San Juan fortifications in their existing form, retaining as closely as possible their appearance between 1949 and 1961, the period during which the facilities were last used for military purposes.[350]

The rationale for this approach as discussed in the GMP is stated below.

> The fortifications of San Juan must be viewed as a historic district that has evolved over time . . . Over the centuries of construction and use, the fortifications have remained one of the finest examples of coastal and land defense systems in the world. As a new technology was developed or a need was identified, the fortifications were changed. Each of these changes was a product of its time, and each served a particular need in the overall defense mission. Therefore, the final result of these changes should be preserved so that the whole story can be told to the millions of visitors who come each year.[351]

350. National Park Service, *Final General Management Plan Environmental Assessment San Juan National Historic Site / Puerto Rico* (September 1985), 26.

351. National Park Service, GMP, 26.

Treatment guidelines detailed in the GMP that relate to the work conducted herein include the following:

> Missing historic fabric will not be reconstructed except when it is determined through the preservation maintenance program . . . that reconstruction is necessary to ensure structural stability of the fortifications.
>
> No physical alterations will be undertaken to provide for adaptive reuse of the casemates or other interior spaces, or to provide for handicapped visitor access or for visitor safety, if it is determined that such actions will impair the significant architectural features or structural system of the fortifications.
>
> Interior spaces will generally not be restored unless it is absolutely necessary to help convey an interpretive theme.[352]

Treatment Approach

The four treatment approaches recognized by the Secretary of the Interior for historic properties were considered in conjunction with the park's objectives in developing this CLR to determine the approach most suitable for the El Morro Esplanade landscape. Described in the Secretary of the Interior's *Standards for the Treatment of Historic Properties* as forming the "philosophical basis for responsible preservation practice and enable long-term preservation of a landscape's historic features, qualities, and materials," the four treatment approaches include: preservation, rehabilitation, restoration, and reconstruction. [353] The approaches are defined as:

> **Preservation**: the act or process of applying measures necessary to sustain the existing form, integrity, and material of a historic property. Work, including preliminary measures to protect and stabilize the property, generally focuses upon the ongoing maintenance and repair of historic materials and features rather than extensive replacement and new construction.
>
> **Rehabilitation**: the act or process of making possible a compatible use for a property through repair, alterations, and additions while preserving those portions or features which convey its historical, cultural, or architectural values.
>
> **Restoration**: the act or process of accurately depicting the form, features, and character of a property as it appeared at a particular period of time by removing features from other periods in its history and reconstructing missing features from the restoration period.
>
> **Reconstruction**: the act or process of depicting, by means of new construction, the form, features, and detailing of a non-surviving site, landscape, building, structure, or object for the purpose of replicating its appearance at a specific period of time and in its historic location.

The 1991 HSR / CLR notes the following regarding a treatment approach for San Juan National Historic Site:

> The General Management Plan acknowledges the fact that the NPS has not followed [the preservation philosophy outlined therein] in the past, stating 'past restoration and removal of materials dating from the historic period (1539-1961), particularly at San Cristóbal, has created a configuration of the fortifications that never existed historically.' More specifically, the treatment approach of the NPS in the 1960s and 1970s had been to repair and restore selected structures to their original, as-built appearance. For example, the Officers'

352. National Park Service, GMP, 26; see Anne E. Grimmer, *The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring & Reconstructing Historic Buildings* (Washington, DC: National Park Service, Historic Preservation Services, 2017), accessed March 25, 2021, https://www.nps.gov/tps/standards.htm.

353. Robert R. Page, Cathy A. Gilbert, and Susan A. Dolan, *A Guide to Cultural Landscape Reports; Contents, Processes, and Techniques* (Washington, DC: Department of the Interior, 1998), 82.

> Quarters building at San Cristóbal was restored to its exterior appearance of 1775, while its south wing built in ca. 1861 has been retained as public restrooms. There is no provision in either the General Management Plan or the 'Resource Management Plan' for rectifying the situation.
>
> This historic structure report proposes a revision to the treatment approach at San Juan National Historic Site . . . It is recommended that the treatment . . . be a combination of preservation, restoration, and rehabilitation. Those elements that should be preserved are all existing fabric dating from the Spanish periods, the lighthouse at El Morro, and the American harbor defense system from World War II.
>
> Limited restoration work may be undertaken on significant elements by removing features that are not historic and by reconstructing missing historic features for which adequate documentation exists. Lastly, those features that are determined to be of lesser significance may be rehabilitated for use by visitors and by NPS administration.
>
> If it is decided to adopt this revised treatment approach at San Juan National Historic Site, it will be necessary to amend the existing General Management Plan.[354]

Recommended Treatment Approach for El Morro Esplanade

Based upon the goals for the property set forth by the GMP, the HSR/CLR (1991), and park and regional National Park Service personnel, which identify the need for changes to the cultural landscape to meet current and projected future interpretive, functional, and management goals, **rehabilitation** is recommended by the CLR as the most appropriate overarching treatment approach for El Morro Esplanade. Because rehabilitation is defined as the act or process of making possible a compatible use for a property, this approach allows for protection of the site's historic character and resources while carefully addressing the need for limited enhancement of interpretive opportunities and circulation routes, sustainability, expanded access for all visitors to more of the park resources, and the improvement of visitor amenities. As part of rehabilitation treatment, stabilization, protection, and preservation of historic and natural resources are assumed even when new uses are accommodated.

In considering the other treatment alternatives recognized by the Secretary of the Interior for possible application to the El Morro Esplanade cultural landscape, the CLR found them inappropriate for the following reasons. **Preservation** is overly restrictive because it does not allow for the site enhancements associated with interpretation and access that are currently needed; **restoration** and **reconstruction** are also inappropriate approaches for the El Morro Esplanade cultural landscape because they assume, as a prerequisite, that sufficient documentation exists to accurately portray a lost historic condition. At this time, it does not appear that there are documentary sources detailed enough to support comprehensive restoration or reconstruction of the park's cultural landscape to a particular year or period or replacement of missing historic features. Given the expansive period of significance of the property, identifying a particular date for a restoration treatment would prove challenging. Rehabilitation allows for ongoing interpretation of the esplanade as the result of years of ongoing use and development.

Secretary of the Interior's Standards for Rehabilitation

The Secretary of the Interior has developed standards for rehabilitation as applied to historic properties. There are ten basic principles that comprise the standards, which are intended to help preserve the distinctive character of a historic property while allowing for reasonable change to meet new needs. The standards (36 CFR Part 67) apply to historic properties of all periods, locations, sizes, conditions, and uses. These standards create a baseline of guidance to which intended changes to the historic landscape must be compared. These standards are neither technical

354. Berkowitz et al., I, 16-17.

nor prescriptive, but promote responsible preservation practices as follows:

1. A property will be used as it was historically or be given a new use that requires minimal change to its distinctive materials, features, spaces, and spatial relationships.

2. The historic character of a property will be retained and preserved. The removal of distinctive materials or alteration of features, spaces, and spatial relationships that characterize a property will be avoided.

3. Each property will be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or elements from other historic properties, will not be undertaken.

4. Changes to a property that have acquired historic significance in their own right will be retained and preserved.

5. Distinctive materials, features, finishes, and construction techniques or examples of craftsmanship that characterize a property will be preserved.

6. Deteriorated historic features will be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature will match the old in design, color, texture, and, where possible, materials. Replacement of missing features will be substantiated by documentary and physical evidence.

7. Chemical or physical treatments, if appropriate, will be undertaken using the gentlest means possible. Treatments that cause damage to historic materials will not be used.

8. Archeological resources will be protected and preserved in place. If such resources must be disturbed, mitigation measures will be undertaken.

9. New additions, exterior alterations, or related new construction will not destroy historic materials, features, and spatial relationships that characterize the property. The new work will be differentiated from the old and will be compatible with the historic materials, features, size, scale and proportion, and massing to protect the integrity of the property and its environment.

10. New additions and adjacent or related new construction will be undertaken in such a manner that, if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.[355]

Treatment Concept

The primary goal of the treatment recommendations that follow is the long-term preservation and protection of existing El Morro Esplanade landscape features that contribute to the historic character, setting, and significance of the property, while specifically addressing the goals, issues, and concerns identified for consideration by the CLR.

Given the extensive period of significance for the property, the goal of treatment is not restoration of the landscape to a particular period of time, but rather, appropriate long-term treatment measures that preserve and protect the qualities and character-defining features of El Morro Esplanade. Another goal is to maintain historic resources in good condition, address repair needs, and identify appropriate protocols for the treatment of individual materials and feature types in support of streamlining maintenance and preservation practice. In support of the National Park Service goals of providing public access and

355. National Park Service, "Standards for Rehabilitation," *The Secretary of the Interior's Standards for the Treatment of Historic Properties and the Guidelines for the Treatment of Cultural Landscapes*, 49. Accessed March 25, 2021, https://www.nps.gov/tps/standards/four-treatments/landscape-guidelines/.

education, the CLR suggests landscape treatments that support additional opportunities for appropriate visitor access and interpretation. Specific suggestions for improving universal access and movement through the esplanade and for interpreting the various layers of history present using a range of creative means and methods that have a limited impact on the integrity of historic resources are included.

General Treatment Guidelines

The general treatment guidelines and recommendations that follow offer an overarching strategy that should be followed regardless of the individual tasks implemented over time. These general treatment guidelines and recommendations should guide the implementation of the specific treatment recommendations presented in the next section.

Role of Preservation Specialists

- Undertake all treatment projects under the direction of appropriate specialists, including historical landscape architects, historical architects, archeologists, conservators, natural resource management specialists, and qualified technicians and artisans.

- Evaluate all proposed new uses in consultation with a historical landscape architect and other appropriate professionals.

- Undertake sufficient study and recordation of landscape features requiring modification, repair, or replacement before work is performed to protect research and interpretive values.

Universal Accessibility

- Ensure that the historic features of critical importance to telling the story of El Morro Esplanade are accessible to the public. Universal accessibility of key historic features and interpretive information should be a goal of park management, although it may not be entirely achievable. Offer an alternative interpretive experience of equal value where universal access is not achievable without compromising the integrity of the historic resource.

Access to Resources

- Limit, monitor, and control access to areas that are vulnerable to damage from humans, or that may be deemed unsafe for visitors to access.

Land Use

- Avoid land use activities, permanent or temporary, which threaten or impair known or potential archeological resources.

- Monitor and regulate use of the landscape to minimize immediate and long-term damage to cultural resources.

Sustainability

- Employ cultural and natural resource treatment and maintenance methods that are environmentally and culturally sensitive and sustainable over the long term.

- Emphasize landform-based solutions, such as grading, over hardscape solutions, such as retaining walls, to address concerns relating to circulation, drainage, and new construction.

- Minimize the extent of any ground or soil disturbance, compaction, and drainage pattern alteration in areas other than those noted below in the specific treatment recommendations for addressing stormwater management concerns.

- Promote biodiversity using native plant species wherever possible.

- Take into consideration life cycle costing of materials, including their long-term wearing capacity and maintenance costs, when evaluating options. Always consider materials that are non-toxic, durable, long-lived, and low maintenance. Consider strategies for the re-use of materials that have been salvaged from the site.

- Encourage visitors to the historic site to "leave no trace" through the creative use of signage and education.
- Preserve existing landforms and natural drainage patterns to the greatest extent possible.
- Consider grading strategies that improve areas where erosion consistently occurs, causing ponding and the loss of turf cover.
- Establish vegetative cover when addressing the need for erosion control. Consider planting species that are suited to the local soil and moisture conditions, selecting native species whenever possible.
- Limit the use of mitigating devices such as retaining walls and closed drainage systems.

Spatial Organization

- Maintain character-defining patterns of spatial organization and resources identified as contributing to the significance of the historic landscape.
- Avoid the addition of any new features—including plantings, roads, or structures—to the landscape that would alter the overall character-defining patterns of spatial organization.

Visual Quality

- Utilize screening methods that blend with the surrounding character of the site.
- Minimize the visual impacts of vehicles and vehicular access systems. Consider the impact on views when proposing new circulation systems. Also consider noise and other impacts that parking will have on the visitor experience and historic resources.
- Minimize the visual impacts of new pedestrian access systems by utilizing materials consistent with the existing material palette at the site and limiting path width.

Cultural Vegetation

- Replace plantings indicated as contributing in kind when the need arises. Consider the use of species that are native, durable, and appropriate to urban and windswept conditions.
- Remove vegetation that has the potential to damage historic features.

Circulation

- Follow the guidance afforded in Americans with Disabilities Act Accessibility Guidelines (ADAAG) and the standards associated with the Architectural Barriers Act Accessibility Standards (ABAAS) when designing universally accessible paths.
- Ensure that all paths are wide enough for two people to walk comfortably side by side, evenly graded, and well drained to prevent trampling of vegetation, soil compaction, and erosion of the path margins.
- Limit the construction of new roads, including service or maintenance routes unless they are absolutely necessary.
- Identify appropriate locations for new parking as needed that are not within primary view corridors.

Buildings and Structures

- Consider the interpretive value of non-intrusive, non-contributing buildings and structures, and retain them when possible.
- Consider the removal of non-contributing structures that are intrusive to the historic landscape only if they are found to be without historical or functional merit or value.
- Avoid conjectural reconstruction of historic buildings and structures.

Interpretation

- Develop an interpretive program that addresses cultural resources, natural systems,

and their interrelationships, as well as layers of landscape history.

- Minimize the visual and physical impacts of interpretive and visitor use facilities on cultural resources and natural systems. Develop the least-intrusive interpretive and visitor use improvements possible.

- Develop interpretive programs and media to be as accessible as possible for the widest range of visitors such as bilingual signage.

- Provide an alternative means for interpretation for those features located in areas that cannot be made universally accessible or where new interpretive features would be a visual intrusion.

- Increase the accuracy of park interpretation by conducting additional documentary and archeological research and investigation.

- Enhance visitor understanding of the property and its historic resources by considering the establishment of additional interpretive aids that result in a better understanding of the historic configuration and composition of the property during the Spanish and US Army occupation periods. Consider incorporating this information into the park's Long-Range Interpretive Plan.

- Consider a range of inclusive design alternatives, including virtual interpretation, such as augmented reality and various types of visual aids, to identify the most successful and least intrusive option for enhancing interpretation. Avoid landscape restoration as an interpretive aid.

Conservation of Historic Materials

- Avoid the use of chemical or physical treatments that cause damage to cultural resources and natural systems. Undertake the surface cleaning of structures using the gentlest means possible.

Maintenance

- Ensure a tidy, well-cared for, and maintained appearance within the park.

- Carefully address places where grassy areas meet roads and paths by ensuring that the two surfaces are flush with one another without gaps, dips, or drop-offs.

- Maintain paved surfaces in smooth and repaired condition and rehabilitate the margins of circulation routes and drainage channels to address erosion and compaction problems.

- Rehabilitate pavements in fair to poor condition. Ensure that rehabilitated pavements are consistent with historic conditions in material, finish, and location.

- Utilize best management practices (BMPs), integrated pest management (IPM), and soil and erosion control measures in all maintenance and management practices to minimize water pollution and degradation of natural systems.

Site Furnishings and Signs

- Erect the minimal number of signs necessary to meet identity, directional, interpretive, and regulatory needs.

- Establish wayside exhibits in the least intrusive manner possible to fulfill proposed new interpretive goals.

New Design and Construction

- Avoid altering existing features or adversely affecting the landscape's historic character when adding new features to support interpretive, management, and visitor access functions. Features that facilitate access and interpretation should be designed to minimize adverse impacts on the character and features of the landscape. Limit the construction of new facilities to those that are absolutely necessary. Consider the use of temporary structures that do not require the placement of

foundations in the ground or involve soil disturbance.

- Site necessary new buildings and structures out of key viewsheds. Consider designing necessary new facilities as low buildings situated in such a way as to be screened from view from primary visitor use areas. A cluster of smaller buildings that are tightly grouped and follow a consistent orientation is preferable to the establishment of one large building. As possible, situate new structures relatively close to existing road corridors to limit the establishment of new roads.

- Ensure that any new buildings and structures are compatible with local traditions of design and are constructed of locally available and indigenous materials such as stone and wood. The design of new buildings and structures should also be sympathetic to local traditions in terms of scale, massing, roof form, and details. New buildings and structures should be situated to lie lightly on the land, minimizing soil disturbance, particularly cut and fill. Sustainability should be considered in the choice of materials and energy use. Consider incorporating passive solar energy conservation strategies into the design of new buildings and structures. Also consider the local climate in the siting and design of buildings and their relationship to solar orientation, heat gain, shading, prevailing winds, and seasonal average temperatures to minimize energy costs. Limit the footprints of new buildings and structures by optimizing use and flexibility of both indoor and outdoor spaces.

- Retain and maintain historic materials, features, finishes, construction techniques, spaces, and spatial relationships when changes to the cultural landscape are considered.

- Design and site new additions or alterations to the landscape in such a way that they do not destroy historic materials, features, and spatial relationships that characterize the cultural landscape. Design all new additions and alterations to be a product of their time, and compatible with historic resources in materials, size, scale and proportion, and massing. Differentiate new work from historic resources.

- Design and site new additions and alterations to the landscape in such a way that, if removed in the future, the essential form and integrity of the cultural landscape would be unimpaired.

- Retain and maintain changes to the cultural landscape that have acquired historic significance in their own right.

- Repair, rather than replace, deteriorated historic features. Replacement of severely deteriorated features should be based on archeological, documentary, or physical evidence. The new feature should match the old in design, color, texture, and, where possible, materials.

- Avoid landscape changes that create a false sense of historical development, including the addition of conjectural, typical, or representative features. Consider interpretation of typical features in cases where restoration is not possible, but where providing the information is important to the visitor experience.

- Design new features, systems, and programs to be as accessible as possible.

Archeological Resources

- Complete an inventory project aimed at identifying the park's archeological resources.

- Complete a project for digitally georeferencing historic maps in GIS. The results will highlight areas where archeological resources are likely to be present, although they would not replace the use of project-specific investigations during the planning of undertakings.

- Protect and preserve archeological resources in place. If such resources must be disturbed, undertake mitigation measures such as recovery, curation, and documentation.

- Limit the use of destructive techniques, such as archeological excavation, to provide information required to support research, interpretation, and management goals.

- Utilize the findings of non-invasive methods to identify areas of possible interest for conducting subsurface investigations, should they become necessary when undertaking planning. For example, consider conducting a ground-penetrating radar (GPR) survey to help determine the purpose of features currently visible on the ground, such as a circular brick foundation and other brick features. Consider investigating surviving evidence of tunnels that may have extended historically beneath the esplanade.

Treatment Recommendations

Refer to the Treatment Plan, Figure 234 through Figure 238.

Documentation

- Complete Historic Structures Reports for buildings and structures associated with the El Morro Esplanade landscape, including
  - El Polvorín (#091738)
  - San Antonio Guardhouse (091732)
  - Santa Elena Guardhouse (#091739)
  - San Fernando Battery
  - Casa Rosa
  - North Walls (Santa Rosa Bastion, San Antonio Bastion)
  - World War I-era coastal defense gun emplacement
  - World War-I era bombproof magazine

- Document all cultural resources located within the El Morro Esplanade landscape using Global Positioning System (GPS) equipment with sub-meter accuracy. Maintain a digital archive using Geographic Information System (GIS) that can also be used to generate working drawings that can be accessed by the National Park Service as well as professionals consulting on preservation and treatment strategies for long-term management of the site.

- Consider conducting oral histories to collect information about the more recent history of the El Morro Esplanade landscape.

- Address the fact that an incomplete Cultural Landscape Inventory exists for the El Morro Esplanade (CRIS CLI #550129) and needs to be certified using data from this CLR.

- Consider updating records related to the CRIS system. Current certified historic structure entries include:
  - El Morro Esplanade (CRIS HS #091728)
  - North Walls (CRIS HS #006065)
  - West Walls (CRIS HS #006068)
  - El Polvorín (CRIS HS #091738)
  - San Antonio Guardhouse (CRIS HS #091732)
  - Santa Elena Guardhouse (CRIS HS #091739)

  There are also several CRIS HS features that are not certified (in 'Shadow' status) and need to be updated. Additionally, there are other features that appear eligible for inclusion as CRIS HS entries. These include:
  - El Morro Road (CRIS HS #091730 Shadow)
  - Dutch Monument (CRIS HS #091729 Shadow)
  - San Fernando Battery
  - San Antonio Bastion
  - Santa Rosa Bastion
  - Santa Elena Bastion
  - San Agustín Bastion
  - World War I-era coastal defense gun emplacement
  - World War-I era bombproof magazine
  - Retaining wall north of El Polvorín
  - Retaining wall along San Agustín Road
- Document, through drawings, photographs, and notes, all future changes and treatments

made within the historic landscape. Maintain records of treatment documentation according to professional archival standards, and ensure they are accessible for use by park staff, researchers, contractors, and maintenance personnel.

Land Ownership

- Work with the Commonwealth of Puerto Rico to formulate a strategy for defining roles and responsibilities for maintenance within Parcel B.

- Work with the Commonwealth of Puerto Rico to transfer ownership of the northwestern section of Parcel B, which includes El Polvorín and Santa Elena Guardhouse, to the National Park Service.

Appropriate Activities

- Manage El Morro Esplanade by providing clear guidance to visitors related to what activities are appropriate within the space. Provide a bilingual information panel at the primary locations where visitors enter El Morro that outlines appropriate behavior and any rules for use. Discourage visitors from climbing into the embrasures, from entering the site after hours, and from using the garitas in inappropriate ways.

- Continue to allow kite flying within El Morro Esplanade.

- Prohibit use of the esplanade as a venue for events inconsistent with existing park and National Park Service regulations.

Conservation of Historic Materials

- Complete a materials conservation plan that identifies appropriate repair and maintenance protocols for masonry and metal features associated with historic monuments, markers, and stormwater-management structures. In the plan, address procedures for ameliorating or correcting the problems caused by environmental processes, such as wind-borne salts, acid rain, airborne pollutants, and animal activity. Also address problems resulting from cultural activities such as erosion resulting from stormwater-management systems, and damage caused by mowers, weed trimmers, chemical treatments used for grounds maintenance. (S*ee implementation project: Develop preservation, repair, and replacement protocols for historic masonry and metal features)*

- Consider a range of strategies for the removal of graffiti on walls using solvents and equipment deemed safe for use on historic materials. Test strategies on limited and visually unobtrusive areas before applying them throughout. (S*ee implementation project: Develop preservation, repair, and replacement protocols for historic masonry and metal features)*

Repair

- Repair all landscape features assessed in fair to poor condition, including evidence of soil compaction and erosion, damaged walls and structures, broken and cracked paving, and broken and incomplete light fixtures and signs. Follow the guidance afforded in the Materials Conservation Plan prepared based on the recommendations herein. (S*ee implementation project: Develop preservation, repair, and replacement protocols for historic masonry and metal features)*

- Provide opportunities to engage young people in the conservation efforts at El Morro Esplanade. As a symbol of Puerto Rico and the largest fortress in the Caribbean, El Morro provides an unparalleled opportunity for hands on conservation education. Located on El Morro Esplanade, the Cannon Conservation Center provides material conservation services for historic artillery and ammunition for National Park units throughout the nation. The park could expand on the program at the center to include conservation efforts that address the entire El Morro Esplanade. Local and national outreach to university and high school students would provide hands on experience

in conservation science in Puerto Rico, as well as allow the park staff to continually reevaluate the improve implemented procedures and examination techniques. The National Park Service could collaborate with organizations including the Hispanic Access Foundation which aims to provide opportunities and engagements with parks dedicated to Latino history and culture, or the Greening Youth Foundation whose mission is to engage under-represented youth and young adults in careers in conservation. Furthermore, the United States Youth Conservation Corps is a summer youth employment program that engages young people in meaningful work experiences at national parks and develops an ethic of environmental stewardship and civic responsibility.

Natural Features and Systems and Responses to Natural Resources

- Preserve and maintain all features assessed as contributing to the significance or historic setting of El Morro Esplanade, including:
    - Promontory landform
    - Open plain of the esplanade
    - Grading of the glacis to improve defense
    - Wall and bastion development along the edge of the promontory
    - Use of drains, culverts, swales, scuppers, and paved channels to control stormwater
    - Use of cisterns to collect and store freshwater
    - Siting of El Morro Road on the high point at the center of the Esplanade
    - Terraced and graded topography within Parcel B
- Address condition issues of concern related to natural features and systems, including:
    - Soil erosion and compaction along Norzagaray Street promenade where visitors access El Morro Esplanade
    - Soil erosion and compaction around the walls of the tunnel (Figure 221)
    - Soil erosion and compaction near the Dutch Monument
    - Soil erosion on the slopes southeast of El Morro
    - Soil erosion and compaction around San Antonio Guardhouse
    - Soil erosion and compaction along the wall overlooking the El Morro moat
    - Soil erosion and compaction extending along the edge of the moat to the northwest promontory overlook
    - Soil erosion and compaction around the kite flying wayside exhibit and cluster of four trash receptacles near the eastern end of El Morro Road
    - Soil erosion and compaction in the playground
    - Soil erosion and compaction where maintenance vehicles access Parcel A from El Polvorín and the end of San Agustín Road
    - Soil erosion and compaction associated with vehicle parking near Santa Elena Guardhouse



FIGURE 221. Soil compaction and erosion near the tunnel walls where visitors tend to congregate.

Drainage

- Identify and preserve all existing stormwater drainage features that contribute to the significance of the historic landscape, including the drains, culverts, swales, scuppers, gutters, and paved channels associated with wall construction during the period of significance.

- Complete a topographic survey of El Morro Esplanade that provides information at a 1-foot contour intervals and identifies all existing stormwater infrastructure, making note of potentially historic stormwater features that should be preserved.

- Use the topographic survey to comprehensively address stormwater management. Develop a plan that identifies desired flow patterns and any engineering measures needed to manage flow and to protect the site from erosion and deterioration. Ensure that the stormwater management plan does not inadvertently cause any damage to surrounding historic resources.

- Ensure that all stormwater structures designed in conjunction with the wall system are in good condition and maintained so that stormwater can pass through available openings and be dispersed away from walls.

Erosion Control

- Study carefully areas of El Morro Esplanade that are subject to erosion to determine the cause of the damage. Address the cause in addition prior to implementing any engineering strategies.

- Protect the site from erosion and deterioration without causing any damage to other historic features, such as the historic city walls.

- Consider the addition of topsoil, erosion control fibers or matting, or sod to ameliorate areas of turf loss due to erosion and compaction.

- Consider the addition of soil fill within the broader context of developing an esplanade-wide grading plan to address stormwater-management issues. The addition of soil is preferable to removing soil for the protection afforded to archeological resources. Ensure that soil used for fill is culturally sterile and free of cultural/archeological material. (*See implementation project: Prepare a stormwater management plan*)

- Explore the use of erosion control fibers or matting on slopes that continually erode due to stormwater runoff or pedestrian access.

- Address the need for more substantial erosion control treatments in heavy traffic areas, such as at access interfaces with the pedestrian promenade along Norzagaray Street, around wayside exhibits, benches, and trash receptacles (Figure 222), the Dutch Monument, and along the north wall, bastion interiors, San Antonio Guardhouse, and the margin of the El Morro dry moat. (*See implementation project: Address stormwater management, soil compaction, and erosion control needs, including social trail stabilization*)



FIGURE 222. Soil compaction and erosion near the cluster of trash receptacles near the southeastern end of El Morro Road.

- Correct grading issues around entrances used by the public to access El Morro Esplanade that are causing compaction and erosion (Figure 223). Regrade using fill to raise the elevation of the grade within proximity of the Norzagaray Street promenade. Consider establishing a terraced landform to mitigate the area between the Esplanade and the pedestrian promenade along Norzagaray Street to facilitate pedestrian access. Ensure that clear access routes into El Morro Esplanade are provided at the breaks in the wall that edge the sidewalk along Norzagaray Street. Consider adding ramps and/or stairs and stabilized soil landings where compaction

and erosion are recurring problems and to help visitors mediate the terraced landforms.



FIGURE 223. Soil compaction and erosion at the location where many visitors enter El Morro Esplanade at the northwestern end of Norzagaray Street and the end of the pedestrian promenade.

- Address the erosion northwest of El Morro where visitors walk across the grass to reach the edge of the promontory and experience the view of the harbor (refer to Figure 189). Consider filling the deep channel erosion that has occurred with native soil and turf reinforcement mesh over the area used by visitors as a path. (*See implementation project: Address stormwater management, soil compaction, and erosion control needs, including social trail stabilization*)

- Consider providing concrete pads for standing platforms facing wayside exhibits, reinforced turf around trash receptacles, benches, and facing the dry moat, and new walks leading to the north walls and bastions (Figure 224).



FIGURE 224. Suggested approach to treating trash receptacle and sign bases. (Source: LSHLA)

Patterns of Spatial Organization

- Preserve and maintain all features assessed as contributing to the significance or historic setting of El Morro Esplanade, including:
    - Broad open space of El Morro Esplanade
    - Spatial edge formed by city walls and bastions
    - El Polvorín complex
    - San Agustín complex
    - Casa Rosa landscape
    - Tennis and basketball courts
    - Grove of trees on site of present-day playground

- Retain and maintain the existing historic patterns of spatial organization associated with El Morro Esplanade composed of a vast expanse of open space within Parcel A edged by the North and West Walls and associated bastions.
- Retain and maintain the historic patterns of spatial organization associated with Parcel B that include the steeply sloped topography to

the north, West Walls and bastions to the south, and the central road corridor edged by historic buildings.

- Avoid adding new buildings and structures or trees to the historic landscape that will serve to alter historic patterns of spatial organization.

Land Uses

- Preserve and maintain all features assessed as contributing to the significance or historic setting of El Morro Esplanade, including:
    - Commemoration land use
    - Recreation land use
- Continue to accommodate visitors, while ensuring preservation of the features associated with the cultural landscape. Encourage visitors to be good stewards of El Morro Esplanade by encouraging appropriate behavior and discouraging activities that are unsafe or might lead to deterioration of the historic resources.

Circulation

- Preserve and maintain all features assessed as contributing to the significance or historic setting of El Morro Esplanade, including:
    - Road and tunnel corridor leading to Old San Juan Cemetery
    - El Morro Road
    - Norzagaray Street
    - Cemetery Road and tunnel
    - San Agustín Road
    - Casa Rosa Road
- Address condition issues of concern related to circulation, including:
    - Cracked and broken asphalt associated with San Agustín Road, and metal panels covering potholes in the road (Figure 225)
    - Patched concrete sidewalk outside the tennis court (refer to Figure 225)



FIGURE 225. The paving associated with San Agustín Road is in poor condition and in need of repair, along with the adjacent sidewalk.

Universal Accessibility

- Complete a universal accessibility assessment for El Morro Esplanade. Ensure that designs developed for implementing access improvements are sensitive to the character and composition of the significant historic landscape. *(See implementation projects: Provide for universal accessibility)*
- Address the need to provide universal access throughout the landscape by determining whether adding accessible routes are appropriate or an unacceptable adverse impact on the historic character of the property.
- Consider implementing new path systems that connect El Morro Road and the Norzagaray Street promenade with other features of El Morro Esplanade while meeting the requirements of ABAAS. Features that might be made accessible include Santa Rosa and San Antonio bastions and San Fernando Battery Determine whether to provide an accessible route to Santa Elena Bastion and El Polvorín, and work with the Commonwealth of Puerto Rico to determine whether to provide an accessible circulation route to San Agustín Bastion and Casa Rosa. Consideration should be paid to identifying a surfacing material with the least visual impact on El Morro Esplanade (Figure 226)



FIGURE 226. Diagrams of potential options for accessible circulation. (Source: LSHLA)

Social Trails

- Consider strategies to stabilize areas of heavy pedestrian use such as turf stabilizer matts or other similar systems to improve durability (Figure 227) (*See implementation project: Address stormwater management, soil compaction, and erosion control needs, including social trail stabilization*).



FIGURE 227. Throughout El Morro Esplanade, there are several clear routes of pedestrian travel across the turf that are resulting in the establishment of social trails. These routes should be stabilized to protect against compaction and erosion.

Vehicular Access

- Consider adding "No Parking Signs," and bollards at the entrance to El Morro Road to prevent vehicles from parking or driving on the sidewalk and historic road.

- Stabilize maintenance vehicle grass two-track routes used by maintenance vehicles using turf stabilizer matts or another form of integral stabilizer. (*See implementation project: Address stormwater management, soil compaction, and erosion control needs, including social trail stabilization*)

Cultural Vegetation

- Preserve and maintain all features assessed as contributing to the significance or historic setting of El Morro Esplanade, including:
    - Turf grasses
    - Grove of mature shade trees at the playground
- Regularly remove volunteer vegetation found growing on the North and West Walls.

- Regularly remove volunteer vegetation found growing within the gutters and drainage structures along the base of the walls and within the bastions to ensure these structures continue to function (Figure 228).



FIGURE 228. Openings in the North Walls such as the one shown above were designed to reduce the potential for stormwater to damage the defensive structures. These systems continue to function when maintained clear of vegetation and other materials blocking the opening.

- Regularly trim palm trees that are located along Norzagaray Street to ensure they do not create hazardous conditions for visitors or cause unnecessary maintenance cleanup for staff. Trimming annually is recommended.

- As the existing palms are damaged or die, consider replacing them with another species that requires less routine maintenance, is tolerable of urban conditions and is less prone to damage by winds and severe weather.

Turf Management

- Work with the Commonwealth to develop a consistent management strategy and maintenance schedule for all areas of turf within the esplanade landscape, including the Commonwealth controlled Parcel B. *(See implementation project: Develop a strategy for turf management)*

- Work with the Commonwealth to ensure vehicular traffic on the esplanade lawn is

limited to maintenance, law enforcement and emergency vehicles and that no parking occurs on the esplanade lawn. Maintenance vehicles should be limited to golf carts where feasible.

- Research alternate turf species to replace Bermuda grass, which is non-native and invasive.

- Ensure that turf health is addressed through the regular testing of the soil for pH and fertility, and that appropriate applications of lime and fertilizer are made to meet any deficiencies identified as part of the soil testing.

- Consider aeration where necessary. Where the turf is poorly aerated due to high water levels and a low permeable pore system, the application of quicklime is recommended to improve the soil.

- Utilize appropriate mowing equipment in the vicinity of masonry walls and structures. Avoid heavy machinery and equipment that will damage walls and masonry structures and exacerbate compaction and erosion.

- Use turf wheels on riding mowers.

- Conduct careful training of maintenance personnel in practices that avoid damage to the walls and other masonry features within the landscape during mowing operations. Where guidance is written, provide it in both English and Spanish. Utilize graphics as much as possible to further help communicate maintenance protocols.

- Trim turf at the base of walls and masonry structures with a line trimmer (weed whip) using a line measuring no more than .09" in diameter and without a metal core. Follow guidance afforded in Preservation Brief 48: *Preserving Grave Markers in Historic Cemeteries* regarding the recommended angle of the trimmer and the value of soaking the trimmer line.[356]

- Ensure that any damage caused during mowing operations is reported immediately to the chief of maintenance.

Buildings and Structures

- Preserve and maintain all features assessed as contributing to the significance or historic setting of El Morro Esplanade, including:
    - San Antonio Guardhouse
    - North and west walls and associated stormwater-management structures
    - Santa Rosa Bastion
    - San Antonio Bastion
    - San Fernando Bastion
    - San Fernando Battery
    - Walls at El Morro dry moat
    - Drains, culverts, swales, and paved channels used to control stormwater associated with the North and West Walls
    - El Polvorín
    - Santa Elena Guardhouse
    - Casa Rosa
    - Unidentified building west of Casa Rosa
    - Santa Elena Bastion
    - San Agustín Bastion
    - World War II-era coastal defense gun emplacement
    - World War II-era bombproof structure
    - Retaining wall behind El Polvorín

356. Mary F. Striegel, Frances Gale, Jason Church, & Debbie Dietrich-Smith, Preservation Brief 48: *Preserving Grave Markers in Historic Cemeteries.* Accessed February 21, 2021, https://www.nps.gov/tps/how-to-preserve/preservedocs/preservation-briefs/48Preserve-Brief-GraveMarkers.pdf.

  - Retaining wall along San Agustín Road between the heliport and the playground
  - Retaining wall along San Agustín Road near San Agustín Bastion
  - Tennis and basketball courts

- Address condition issues of concern related to buildings and structures, including:

  - Chipped masonry at the base of the North Walls resulting from mowing
  - Damage to the wall along San Agustín Road
  - Repair of the concrete channel above the parking near the playground
  - Cracked and broken concrete walks, stairs, and walls around Casa Rosa (Figure 229)
  - Chipping and peeling paint and vegetative growth at Casa Rosa



FIGURE 229. Many of the concrete walls , walks, and stairs at Casa Rosa are cracked and broken and in need of repair.

Views and Vistas

- Preserve and maintain all features assessed as contributing to the significance or historic setting of El Morro Esplanade, including:

  - Views across the expansive open space of El Morro Esplanade, recalling military field of fire and lookout views
  - Views to Old San Juan Cemetery
  - Views of the Atlantic Ocean
  - Views to Old San Juan
  - Views to San Juan Bay and Old San Juan from El Morro Esplanade and the West Walls and bastion embrasures

- Plant additional shrubs around the parking area near Santa Elena Guardhouse to diminish the impact of views from Parcel A.

Small-scale Features

- Preserve and maintain all features assessed as contributing to the significance or historic setting of El Morro Esplanade, including:

  - Dutch Monument
  - Non-functional light poles without luminaires

- Address condition issues of concern related to buildings and structures, including:

  - Replacement of the missing park identity sign along El Morro Road and the missing wayside exhibit at the north end of Norzagaray Street overlooking El Morro
  - Repair of the deteriorated wishing well behind Casa Rosa
  - Reinstallment of the dismantled fencing behind Casa Rosa
  - Repair of broken light fixtures

- Treat as cultural resources commemorative markers, plaques, and monuments regardless of whether they date to the period of significance.

- Avoid adding additional commemorative markers, plaques, and monuments to El Morro Esplanade.

- Avoid adding lighting within El Morro Esplanade.

Visitor Management Strategies

- Restore the Santa Elena Bastion to its historic appearance following completion of the cannon conservation project by removing the fencing, overhead canopy structure, and other supporting infrastructure that were erected for temporary use as part of the project.

Signage Strategies

- Limit the number of signs installed within El Morro Esplanade to the least necessary to address wayfinding, interpretation, safety, and other guidance.
- Consider providing orientation and informational signs at the locations where most visitors enter El Morro Esplanade (Figure 230). These signs should convey rules and regulations, provide orientation information about the history of the site and its historic significance, encourage visitors to be good stewards, and provide wayfinding information about what the site has to offer. Signage should be in both Spanish and English.



FIGURE 230. Example of upright orientation panels that might be used at the primary points of entry into El Morro Esplanade.

- Provide low signs at the base of the North Wall curtain walls and bastions that indicate the safety and resource protection issues associated with walking into the embrasures or on top of the walls (Figure 231).
- Discourage visitors from climbing on top of the walls or into the embrasure openings. Rangers and volunteers should regularly advise visitors from these practices. The orientation signs at the entrances to El Morro Esplanade should clearly state that these practices are to be avoided, and small signs should be included near each group of embrasures to remind visitors of this rule. Undertake these efforts to avoid adding barricades within the openings of the North Walls. Retain the existing barricades within the West Walls. (*See implementation project: Address visitor safety at the wall embrasures*)



FIGURE 231. Example of a small low impact sign used at Fort Frederica National Monument to guide visitors from accessing sensitive historic resources.

Site Furnishing Strategies

- Identify strategic locations in the landscape for the placement of trash receptacles, benches, and shade structures that enhance visitor experience and comfort on site. Strategic locations include places of entry and exit, such as at either end of El Morro Road and at places along the Norzagaray Street promenade at breaks in the wall, where people congregate, such as around benches, where people wait, such as outside the bookstore and near the El Morro sallyport.
- Continue to utilize a consistent palette of materials and forms for benches and trash receptacles. Current concrete benches and

trash receptacles, fabricated by park staff in the maintenance shop, are compatible with the character and feeling of the cultural landscape.

- Identify areas of high pedestrian traffic volume for the location of trash receptacles. Place receptacles where they do not impede viewsheds or circulation patterns. Consider regularly siting trash receptacles at junctions, such as either end of El Morro Road, along the Norzagaray Street promenade entrances into El Morro Esplanade, and at the junction of bastion walls with curtain walls.

- Provide concrete landings for waysides, trash receptacles, benches and other furnishings that receive high pedestrian traffic to reduce the amount of erosion that occurs in proximity to these features.

- Provide additional seating in high traffic areas. For example, provide additional benches along the margins of the pedestrian promenade along Norzagaray Street and at either end of El Morro Road. Also consider adding benches in front of the buildings that extend into the bastions. Consider planting shade trees along the southeastern perimeter of the El Morro Esplanade where people enter the site and tend to congregate (Figure 232 and

- Figure 236).



FIGURE 232. Visitors to the esplanade sitting along the stairs in the July sun along the promenade at Norzagaray Street.

- Consider planting shade trees at the intersection of Norzagaray Street and El Morro Road (refer to

- Figure 236). Trees planted at this location will offer shade for visitors and buffer views from El Morro and the Esplanade toward the city and will not alter the important broad expansive views across the open space of the Esplanade.

- Replace wood bollards within Parcel B with sturdier edging features that are also more compatible with the historic material palette (Figure 233).



FIGURE 233. Proposed style of metal bollards to replace wood bollards within Parcel B. (Source: Reliance Foundry)

Interpretation Strategies

- Consider a range of options for enhancing interpretation at El Morro Esplanade that does not include the addition of new wayside exhibits. Currently, wayside exhibits are located along Norzagaray Street (although the panel is missing), near the eastern end of El Morro Road interpreting kite flying, and along the margin of the El Morro moat. Instead of adding additional wayside exhibits, provide upright orientation panels at the east end of El Morro Road and at the northwest end of Norzagaray Street where many visitors enter

El Morro Esplanade. Provide overview information about the history of the property, information about rules and regulations, and opportunities to learn more from alternative sources. Provide the information in both Spanish and English.

- Consider installing small signs with QR codes that provide virtual interpretation to those with a smart phone or tablet, laminated reusable printed brochures at the orientation signs that visitors can use to learn about the history of the property, and augmented reality opportunities.

Archeological Resources

- Ensure that El Morro Esplanade is adequately surveyed to determine its archeological information potential, and that all archeological investigations are fully documented. A comprehensive archeological inventory should comply with standards established by the National Park System Systemwide Archeological Inventory Program. Archive the findings of archeological investigations, as well as any identified artifacts, with the park's collections. Utilize information gained through archeological investigations to guide interpretation of the historic landscape. Selection of survey techniques for inventory work should prioritize remote sensing methods, such as resistivity/conductivity, ground-penetrating radar, and magnetometry over methods that involve ground disturbance, such as excavations. Although remote sensing cannot completely replace excavation, as a technique used prior to an undertaking to determine whether archeological resources are present, it can highlight areas where resources are highly likely and that should be avoided or would need to be mitigated prior to initiation of a project.

- Utilize GIS technologies to identify the location of archeological resources known within El Morro Esplanade. Using the information gained, provide an ongoing digital display of important archeological finds and use the information to guide interpretation of the historic landscape.

- Document below-ground disturbances that occur during construction projects following the completion of Section 106 consultation processes. The documentation can aid in the planning of future undertakings in that disturbed areas would be known to not contain archeological resources and could be given precedence over undisturbed locations for projects. The documentation should include photography, plans, narrative descriptions, dimensions, and drawings, and should be integrated into the park's GIS. All data should conform to the Cultural Resource Spatial Data Transfer Standards.

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Complete Historic Structures Reports for buildings and structures associated with the El Morro Esplanade landscape.

Document all cultural resources located within the El Morro Esplanade landscape using Global Positioning System (GPS) equipment with sub-meter accuracy. Maintain a digital archive using Geographic Information System (GIS) that can also be used to generate working drawings that can be accessed by the National Park Service as well as professionals consulting on preservation and treatment strategies for long-term management of the site. All data should conform to the Cultural Resource Spatial Data Transfer Standards.

Consider conducting oral histories to collect information about the more recent history of the El Morro Esplanade landscape.

Update the historic resources listed in the Cultural Resource Information System (CRIS) to include the features indicated as contributing to the significance of the El Morro Esplanade landscape.

Document, through drawings, photographs, and notes, all future changes and treatments made within the historic landscape. Maintain records of treatment documentation according to professional archival standards, and ensure they are accessible for use by park staff, researchers, contractors, and maintenance personnel.

Work with the Commonwealth of Puerto Rico to formulate a strategy for defining roles and responsibilities for maintenance within Parcel B.

Work with the Commonwealth of Puerto Rico to transfer ownership of the northwestern section of Parcel B that includes El Polvorín and Santa Elena Bastion and Guardhouse to the National Park Service.

Manage El Morro Esplanade by providing clear guidance regarding what activities are appropriate within the space. Provide a bilingual information panel at the primary locations where visitors enter El Morro that outlines appropriate activities and any rules for use. Discourage visitors from climbing into the embrasures, from entering the site after hours, and from using the garitas in inappropriate ways.

Complete a materials conservation plan that identifies appropriate repair and maintenance protocols for masonry and metal features associated with historic monuments, markers, and storm water management structures.



Repair all landscape features assessed in fair to poor condition, including in particular evidence of soil compaction and erosion, damaged walls and structures, broken and cracked paving, and broken and incomplete light fixtures and signs. Follow the guidance afforded in the materials conservation plan prepared based on the CLR recommendations.

Provide opportunities to engage young people in the conservation efforts at El Morro Esplanade.

Preserve and maintain all cultural landscape features identified in the CLR as contributing to the significance of El Morro Esplanade.

Consider strategies for the removal of graffiti using solvents and equipment deemed safe for use on historic materials.

FIGURE 234. Treatment Plan. (Source: LSHLA)

Complete a topographic survey of El Morro Esplanade that provides information at 1-foot contour intervals and identifies all existing storm water infrastructure.

Use the topographic survey to comprehensively address storm water management. Develop a plan that identifies desired flow patterns, and any engineering measures needed to manage flow and to protect the site from erosion and deterioration.

Study carefully areas of El Morro Esplanade that are subject to erosion to determine the root cause of the damage. Address the cause in addition to implementing engineering strategies.

Avoid adding new buildings and structures or trees to the historic landscape that will serve to alter historic patterns of spatial organization.

Continue to accommodate visitors, while ensuring preservation of the features associated with the cultural landscape. Encourage visitors to be good stewards of El Morro Esplanade by encouraging appropriate behavior and discouraging activities that are unsafe or might lead to deterioration of the historic resources.

Complete a universal accessibility assessment for El Morro Esplanade. Ensure that designs developed for implementing access improvements are sensitive to the character and composition of the significant historic landscape.

Address the need to provide universal access throughout the landscape by determining whether adding accessible routes are appropriate or will be an unacceptable adverse impact on the historic character of the property.

Conduct careful training of maintenance personnel in practices that avoid damage to the walls and other masonry features within the landscape during mowing operations.

Ensure that any damage caused during mowing operations is reported immediately to the chief of maintenance.

Avoid adding additional commemorative markers, plaques, and monuments to El Morro Esplanade.

Avoid adding lighting within El Morro Esplanade.

Consider a range of options for enhancing interpretation at El Morro Esplanade that does not include the addition of new wayside exhibits.

Ensure that El Morro Esplanade is adequately surveyed to determine its archeological information potential, and that all archeological investigations are fully documented.

Utilize GIS technologies to identify the location of archeological resources known within El Morro Esplanade. Using the information gained, provide an ongoing digital display of important archeological finds and use the information to guide interpretation of the historic landscape.

Utilize appropriate mowing equipment in the vicinity of masonry walls and structures. Avoid heavy machinery and equipment that will damage walls and masonry structures and exacerbate compaction and erosion.

Trim turf at the base of walls and masonry structures with a line trimmer (weed whip) using a line measuring no more than .09" in diameter and without a metal core.

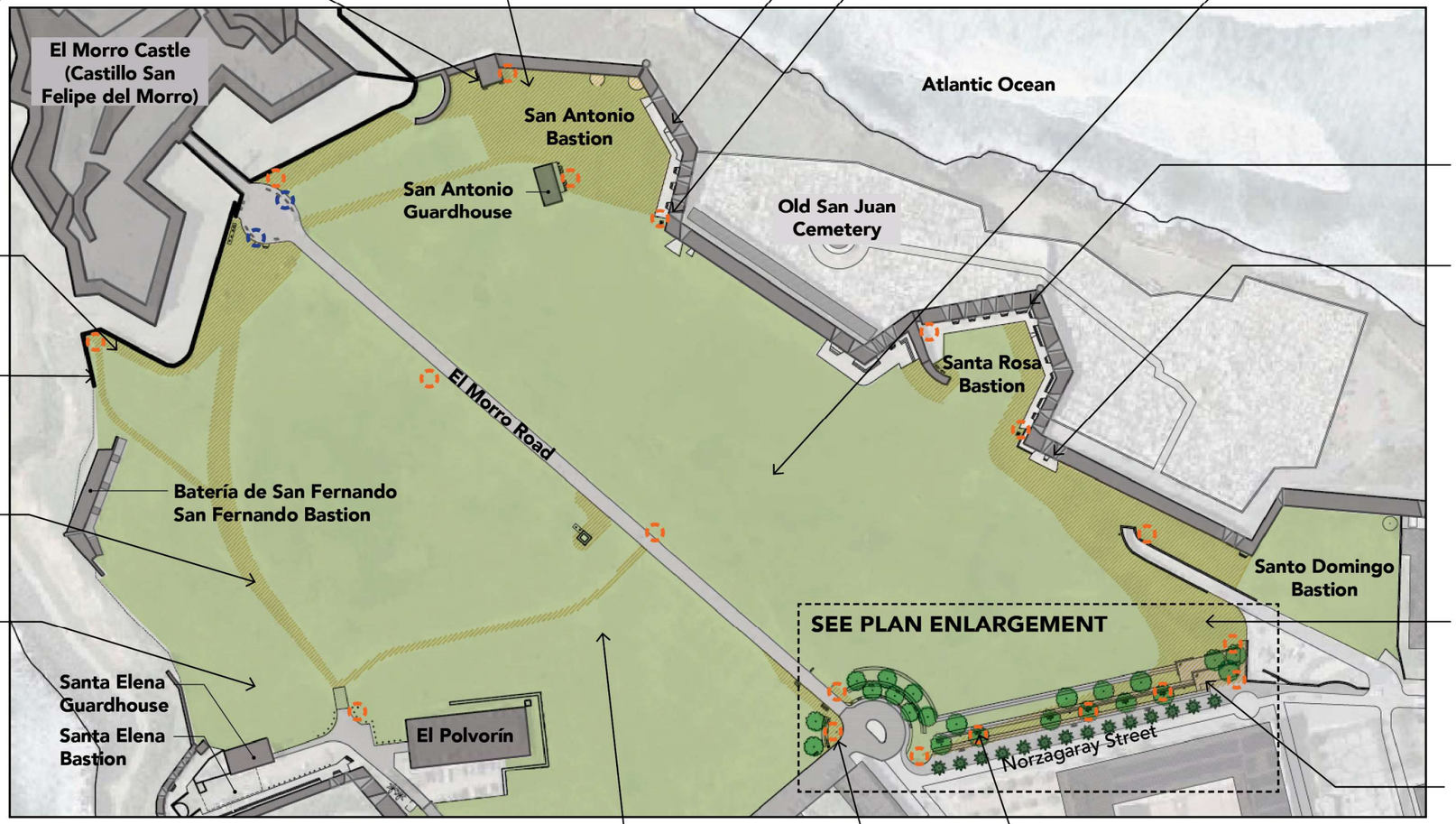
Address the erosion northwest of El Morro. Consider filling the deep channel with native soil and turf reinforcement mesh.

Explore the use of erosion control fibers or matting on slopes that continually erode due to storm water runoff or pedestrian access.

Consider strategies to stabilize social trails using stabilizer matts or other similar systems to improve durability.

Work with the Commonwealth to develop a consistent management strategy and maintenance schedule for all areas of turf within the esplanade landscape, including the Commonwealth controlled Parcel B.

Work with the Commonwealth to ensure vehicular traffic on the esplanade lawn is limited to maintenance, law enforcement and emergency vehicles and that no parking occurs on the esplanade lawn. Maintenance vehicles should be limited to golf carts where feasible.



Areas of soil erosion and compaction to be addressed

Potential locations for the placement of trash receptacles and/or benches

Potential location for the placement of shade structures

Regularly remove volunteer vegetation found growing on the walls.

Identify strategic locations in the landscape for the placement of features that both enhance visitor comfort and facilitate stewardship of the El Morro landscape, such as trash and recycling receptacles, benches and shade structures. Do not place structures to block viewsheds or impede circulation patterns.

Preserve and maintain views across the open expanse of El Morro Esplanade.

Continue to allow kite flying within El Morro Esplanade.

Prohibit use of the esplanade as a venue for large events.

Provide a framework to allow for the temporary installation of poles and rope to block access to the sentry boxes.

Provide low signs at the base of the curtain walls and bastions that indicate the safety and resource protection issues associated with walking into the embrasures or on top of the walls.

Limit the number of signs installed within El Morro Esplanade to the least necessary to address wayfinding, interpretation, safety, and other guidance.

Consider installing small signs with QR codes that provide virtual interpretation.

Consider strategies to address areas of heavy pedestrian use prone to compaction and erosion. Consider the addition of topsoil, erosion control fibers or matting, or sod to address areas of erosion near the Norzagaray Street promenade.

Consider adding ramps and stairs where compaction and erosion are recurring problems and to help visitors mediate the sloping ground.

Provide additional seating in high traffic areas.

Continue to utilize a consistent palette of materials and forms for benches and trash receptacles.

Ensure that turf health is addressed through the regular soil testing, and that applications of amendments are made to meet deficiencies identified. Consider aeration or quicklime where the turf is poorly aerated due to high water levels and a low permeable pore system.

Research alternate turf species to replace Bermuda grass, which is non-native and invasive.

Use turf wheels on riding mowers.

FIGURE 235. Treatment Plan, Parcel A. (Source: LSHLA)

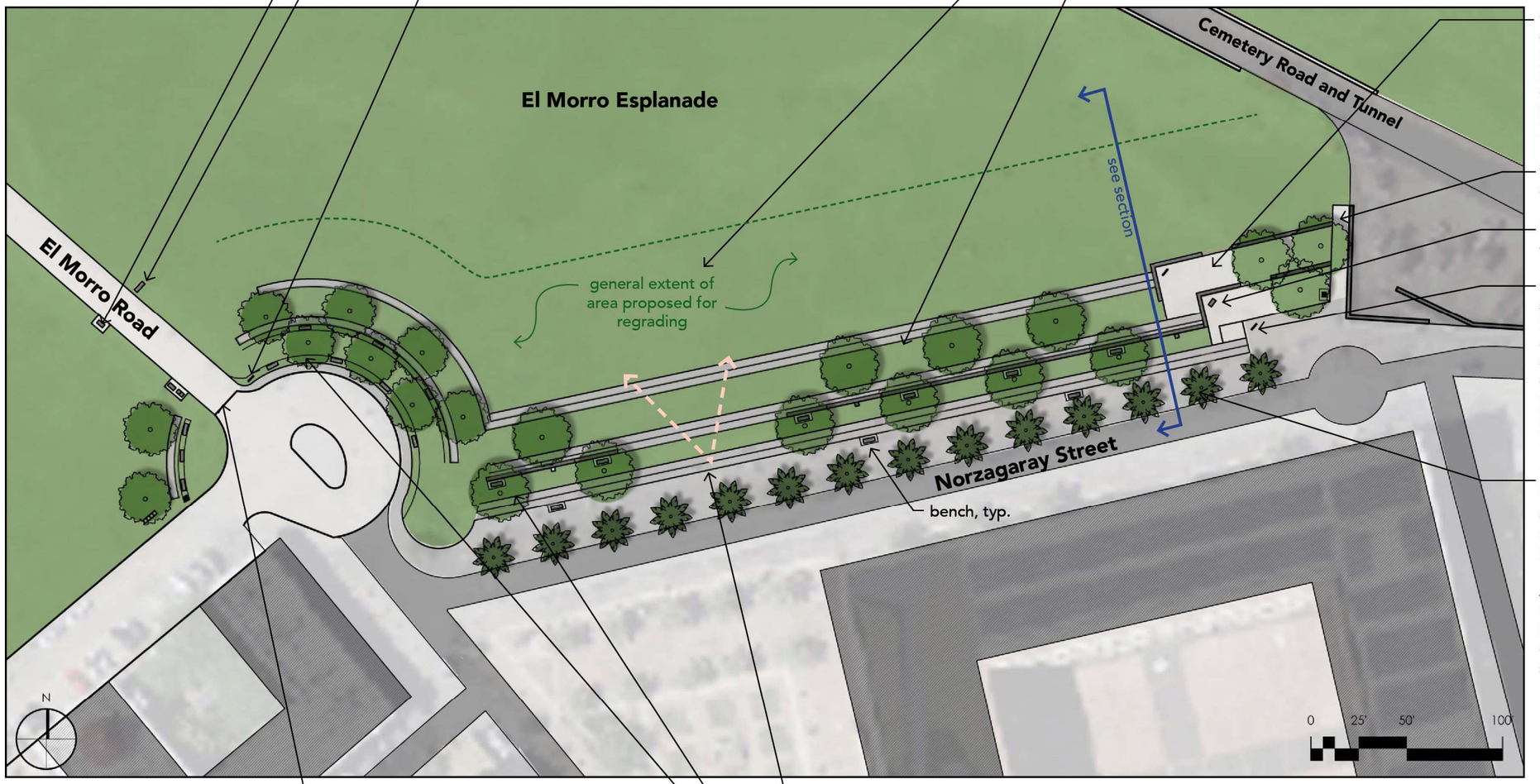
Consider providing concrete pads at wayside exhibits and reinforced turf around trash receptacles and benches and at any new areas designed for pedestrians.

Replace the missing park identity sign along El Morro Road.

Provide upright orientation panels at El Morro Road and Norzagaray Street where many visitors enter El Morro Esplanade.

Correct grading issues around entrances used by the public to access El Morro Esplanade that are causing compaction and erosion. Regrade using fill to raise the elevation within proximity of the Norzagaray Street promenade.

Consider establishing a terraced landform to mitigate the slope between the pedestrian promenade along Norzagaray Street and the sloping terrain of El Morro Esplanade. Consider adding ramps, stairs and stabilized landings where compaction and erosion are recurring problems and to help visitors mediate the terraced landforms.



Consider implementing new path systems that connect El Morro Road and the Norzagaray Street promenade with other features of El Morro Esplanade while meeting the requirements of ABAAS. Consideration should be paid to identifying a surfacing material with the least visual impact on El Morro Esplanade.

Consider a universally accessible route that provides access to El Morro Esplanade.

Replace the missing wayside exhibit at the north end of Norzagaray Street overlooking El Morro.

Consider providing orientation and informational signs at the locations where most visitors enter El Morro Esplanade. These signs should convey rules and regulations, provide orientation information about the history of the site and its historic significance, encourage visitors to be good stewards, and provide wayfinding information about what the site has to offer. Signage should be in both Spanish and English.

Regularly trim palm trees that are located along Norzagaray Street to ensure they do not create hazardous conditions for visitors or cause unnecessary maintenance cleanup for staff. Trimming annually is recommended.

As the existing palms are damaged or die, consider replacing them with another species that requires less routine maintenance, is tolerable of urban conditions and is less prone to damage by winds and severe weather.

Consider adding "No Parking Signs," and bollards at the entrance to El Morro Road to prevent vehicles from parking or driving on the sidewalk and historic road.

Ensure that clear views into El Morro Esplanade are provided along Norzagaray Street.

Ensure that clear access routes are provided at the breaks in the wall that edge the sidewalk along Norzagaray Street.

Consider planting shade trees along the southeastern perimeter of the El Morro Esplanade where people enter the site and tend to congregate.

Consider planting of shade trees at the intersection of Norzagaray Street and El Morro Road.

FIGURE 236. Treatment Plan, Parcel A Enlargement. (Source: LSHLA)

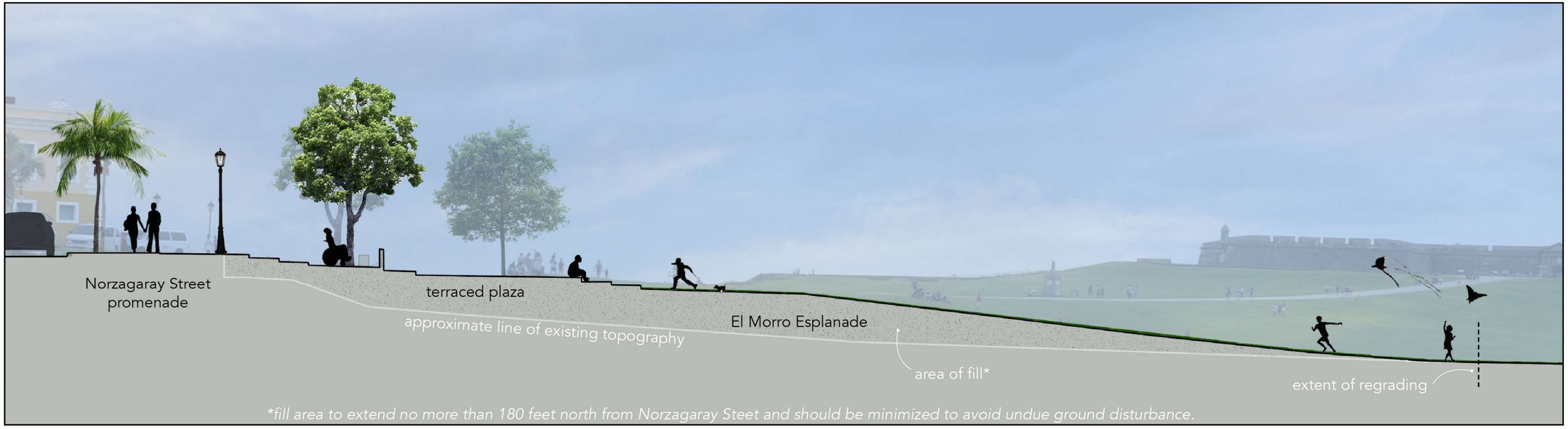


FIGURE 237. Section at El Morro Esplanade and Plaza. (Source: LSHLA)

Stabilize maintenance vehicle routes used by maintenance vehicles using stabilizer products such as integral fibers or pellets or turf paver products.

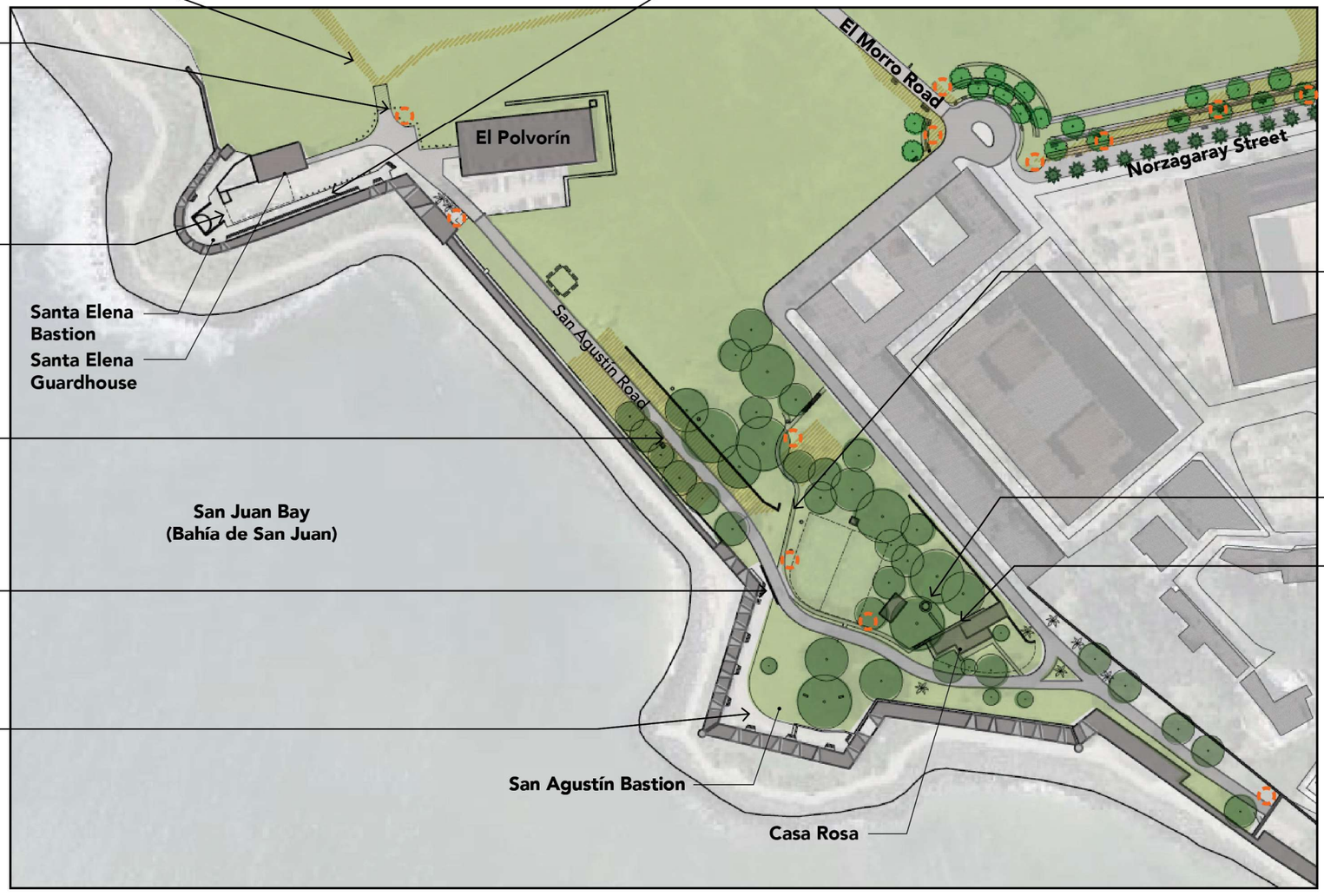
Replace wood bollards with sturdier edging features that are also more compatible with the historic material palette.

The Cannon Conservation Center is a temporary facility. Remove the overhead canopy structure, temporary fencing and other supporting infrastructure at Santa Elena Bastion once preservation work at the bastion is complete, taking care to preserve the cultural resources of the bastion.

Address condition issues of concern related to circulation, including cracked and broken asphalt and metal panels covering potholes in San Agustín Road and patched concrete sidewalk outside the tennis court.

Ensure that all stormwater structures designed in conjunction with the wall system are in good condition and maintained so that storm water can pass through available openings and be dispersed away from walls.

Regularly remove volunteer vegetation found growing within the drainage structures along the base of the walls and within the bastions to ensure these structures continue to function.



Treat as cultural resources commemorative markers, plaques, and monuments regardless of whether they date to the period of significance.

Repair broken light fixtures.

Repair of the deteriorated wishing well behind Casa Rosa

Reinstall the dismantled fencing behind Casa Rosa.

FIGURE 238. Treatment Plan, Parcel B. (Source: LSHLA)

Implementation Projects

To implement the specific recommendations included above, the section that follows outlines a series of projects designed to guide implementation of the CLR treatment plan. The projects address implementation of recommendations relating to resource protection, care, and rehabilitation, as well as life safety, visitor accessibility, and interpretation considerations. Each implementation project is tied to an associated goal or vision for treatment and a process for achieving it. The individual projects indicated below are intended to support the park's ability to secure funding and are presented in a format that is consistent with National Park Service Project Management Information System (PMIS) Facility Management Software System (FMSS) forms.

Each project is presented as a series of sections: 1) project description; 2) location; 3) considerations; 4) additional studies recommended; 5) related implementation projects; and 6) implementation process. These projects are subject to review under Federal Section 106 of the 1966 National Historic Preservation Act (NHPA) and National Environmental Policy Act (NEPA) compliance. Most depend on the completion of one or more parkwide or area-wide studies or plans. The breakdown of tasks for each project does not include project management, compliance-related reviews, and other procedures typically undertaken by National Park Service personnel as part of the planning, design, and construction phases of a project.

The following implementation projects are described below:

- Prepare a stormwater management and erosion control plan
- Address stormwater management, soil compaction, and erosion control needs, including social trail stabilization
- Develop preservation, repair, and replacement protocols for historic masonry and metal features
- Enhance interpretation
- Develop a strategy for turf management
- Provide for universal accessibility
- Address visitor safety at the wall embrasures

Prepare a stormwater management and erosion control plan

Project Description. One of the issues of concern for the El Morro Esplanade cultural landscape is stormwater management and erosion control. The steep slopes between Parcels A and B and the turf around key built features are subject to erosion. Specific locations subject to erosion need to be addressed comprehensively through the preparation of a stormwater management and erosion control plan. The plan should begin with an evaluation of existing stormwater-management systems to determine their integrity and ability to collect and convey stormwater while protecting against erosion and damage to structures. The evaluation should be based on information surmised from a topographic survey of El Morro Esplanade that includes the location of all existing stormwater structures including but not limited to drains, culverts, and pipes. The survey will need to indicate topographic conditions at a minimum of one-foot contours, with spot elevations at walls, stairs, and building entrances, among others. A civil engineer will use the survey to calculate the quantities of water anticipated during storms of various sizes, the direction of stormwater flow, the ability of turf and other surface materials to resist scouring, and of stormwater-management structures necessary to handle the flow and disperse the water from the esplanade.

Location. The stormwater management and erosion control plan should address El Morro Esplanade as a whole and should consider pervious and impervious surfaces that exist within the watershed where the esplanade is located.

Considerations. Erosion problems, compaction, and settlement of soil is in evidence in association with steeper slopes and unpaved areas that experience heavy foot traffic and vehicular use.

The park has addressed stormwater management within Parcel B by adding swales and drop inlets near Santa Elena Bastion, east of El Polvorín, and within San Agustín Bastion. The presence of sandbags within San Agustín Bastion suggests that these new stormwater-management systems are not yet entirely successful. Ground slumping is evident on the steep slopes between El Morro and San Antonio Bastion, while erosion is occurring in association with the steep slopes between Norzagaray Street and El Morro Esplanade at the northwest end of the pedestrian promenade.

All historically significant drainage features should be preserved.

Mowing practices should take into consideration the potential for mowing activities to contribute to erosion.

A Secretary of the Interior qualified archeologist should always monitor the installation of any techniques applied to control erosion.

Using the topographic survey, the park should evaluate all areas subject to erosion to determine the cause of the problem. It may be necessary to regrade areas that are steeply sloped, have experienced slumping, compaction, or have lost soil to reestablish the original contour.

A geotechnical evaluation will also be needed to determine the best way to protect the soil from further compaction and erosion.

Additional Studies Recommended

- Topographic and stormwater utility survey
- Evaluation of existing stormwater-management systems and areas experiencing slumping, compaction, and erosion
- Geotechnical evaluation of soils in areas undergoing erosion

Related Implementation Projects

- Address stormwater management, soil compaction, and erosion control needs, including social trail stabilization

Implementation Process

- Undertake additional studies.
- Utilize the information to develop a comprehensive stormwater management and

erosion plan that addresses drainage as well as erosion control measures taking into consideration subsidence and slumping, methods for reestablishing historic grades, protection of soils against further erosion, appropriate land cover, and maintenance protocols.

- Enlist a qualified archeologist to evaluate the potential for the plan to lead to ground-disturbing activities and determine a mitigation strategy related to the implementation of stormwater management and erosion control measures.
- Implement strategies identified in the plan.
- Record all treatments such that they can be easily accessed by future researchers and park staff.

Address stormwater management, soil compaction, and erosion control needs, including social trail stabilization

Project Description. Following preparation of stormwater management and erosion control plan, the park should implement strategies to correct problems related to soil compaction, erosion, and visitor use of social trails. There are several locations within El Morro Esplanade where heavy foot traffic and vehicular access have contributed to soil compaction and the loss of turf grass, as well as erosion. Some of these locations have previously been treated with a system of concrete reinforcement structures. Additional systems of soil and turf stabilization are recommended for these and other problem areas. Along Norzagaray Street, a more substantial treatment using a terraced approach to filling and diminishing the steepness of the slope is recommended (Figure 239 and Figure 240).



FIGURE 239. The steeper slopes between the Norzagaray Street pedestrian promenade and El Morro Esplanade where many visitors access the cultural landscape have become compacted and eroded. Here a more substantial treatment using terraced fill is recommended.

The use of turf reinforcement mesh (refer to Figure 240) or similar products on social trails and in areas of high traffic are recommended to help to control the loss of turf and associated compaction and erosion. This type of product is recommended to be used in conjunction with aeration of the soil and the addition of fill to reestablish the original grade. Seeding, watering, and protecting the areas undergoing treatment until they are established is also recommended.



FIGURE 240. Turf reinforcement mesh to prevent soil trails development and associated erosion. (Source: Boegger, rhomboidal turf reinforcement mesh, https://www.plasticscreenmesh.com/product/turf-reinforcement-mesh.html)

Location. This implementation project specifically targets the following current (and any additional future) problem areas:

- Compaction of the social trail route between San Antonio Guardhouse and El Morro
- Compaction and erosion of the social trail routes between access points along the Norzagaray Street pedestrian promenade and El Morro Esplanade
- Social trail routes from Norzagaray Street to the tunnel walls and to the North Walls
- Soil erosion and compaction around the walls of the tunnel
- Compaction and erosion within the Parcel B playground
- Compaction and erosion near the Dutch Monument
- Slumping of the slopes southeast of El Morro
- Compaction and erosion around San Antonio Guardhouse
- Compaction and erosion along the wall overlooking the El Morro moat
- Compaction and erosion extending along the edge of the moat to the northwest promontory overlook
- Compaction and erosion where maintenance vehicles access Parcel A from El Polvorín and the end of San Agustín Road
- Compaction and erosion associated with vehicle parking near Santa Elena Guardhouse

Considerations. An archeologist meeting the Secretary of the Interior's Standards should monitor the installation of any techniques applied to control erosion.

A geotechnical evaluation will help guide the selection of turf mesh or other soil stabilization products for use in high traffic areas.

All historically significant drainage features should be preserved.

Additional Studies Recommended

- The stormwater management and erosion control plan recommended above
- Geotechnical evaluation of soils in high traffic areas and proposals for stabilization products and methods

Related Projects

- Prepare a stormwater management and erosion control plan

Implementation Process

- Undertake additional studies.
- Utilize the information to develop a specific treatment measure for each example of compaction and erosion
- Enlist a qualified archeologist to monitor ground-disturbing activities and to determine potential impacts of any associated proposed site improvements related to erosion control and stabilization.

- Implement the treatment measures.
- Record all treatments such that they can be easily accessed by future researchers and park staff.

Develop preservation, repair, and replacement protocols for historic masonry and metal features

Description. The masonry and metal components of walls, buildings, and commemorative features located throughout the cultural landscape of El Morro Esplanade require regular maintenance and specialized care to ensure preservation. The techniques used to care for historic masonry and metal features need to follow appropriate guidelines to avoid causing additional problems requiring future remediation. The CLR treatment plan identifies the need for the park to prepare a historic structures and materials conservation guide that documents appropriate repair and maintenance of historic masonry and metal buildings, walls, monuments, markers, and tablets.

Guidelines to support the plan are provided below.

Location. These protocols relate to all built features of the El Morro Esplanade landscape.

Considerations. A Secretary of the Interior qualified historical architect and/or a qualified conservator should guide the assessment of features and implementation of preservation, repair, and maintenance treatments.

Additional Studies Recommended. Best management practices (BMP) for maintenance processes involving masonry and metal should be identified and prepared as part of this project, incorporating conservation best practices. BMPs should establish protocols for care of monuments and markers, as well as for reporting any problems and documenting existing conditions as well as maintenance and repair following implementation of the recommendations contained herein. Development of BMPs should take into consideration information available based on the experience of others conducting similar efforts, including guidance afforded by NPS publications.

- National Park Service preservation briefs, www.nps.gov/tps/how-to-preserve/briefs.htm.

- National Park Service National Center for Preservation Technology and Training (NCPTT), www.ncptt.nps.gov.

Related Projects

Prepare a stormwater management and erosion control plan.

Implementation Process

- Ensure that all features indicated as the focus of this project are documented using GPS and photographed as a record of their current condition prior to implementation of any preservation, repair, or maintenance measures.

- Conduct a thorough condition assessment of each feature to serve as a baseline for treatment protocols and a record of treatment.

- Document and record the history of each structure, as well as the history as known of past repair, maintenance, and conservation work performed. Establish a comprehensive computerized database for the maintenance records, including GPS identification for each resource, in coordination with NPS databases used by park facilities. Retain documentation in an accessible location.

- Review and evaluate the efficacy of current practices used to treat the structures associated with this project.

- Develop a conservation plan that identifies appropriate repair and maintenance protocols for each of the masonry and metal features identified as part of this project. Address procedures for addressing any current repair needs as well as future cyclical maintenance. Consider the potential for environmental processes, such as acid rain, airborne pollutants, and animal activity, to lead to condition issues in the future and anticipate the types of treatments and preventive actions that might be required. Also address problems resulting from cultural activities such as erosion resulting from stormwater-management systems, and damage caused by mowers, weed trimmers, and chemical treatments if used for grounds maintenance.

- Discourage visitors from climbing on historic structures.

- Monitor monuments for damage related to vandalism and take preventive action if needed (in coordination with related efforts park-wide).

- Monitor monuments for degradation from environmental effects such as airborne pollutants and erosion.

Materials Conservation Guidelines

General Guidelines

- Repair and maintenance measures should correct any immediate problems while also working to eliminate or reduce the cause of the deterioration.

- Repair work should also not accelerate deterioration or cause more problems in the future.

- Approach all repair and maintenance efforts using a conservative and adaptive approach, applying the least intrusive methods and using the least amount of force, as aggressive repairs may permanently alter the historic fabric.

- Specific treatments should always be tested on inconspicuous small areas of monuments markers prior to full scale implementation.

- Ideally, repairs and treatments will be reversible.

- Conservation methods should use compatible materials, and the treatments should be re-treatable to the greatest extent possible.

- Cleaning and other treatments should be undertaken using the gentlest means possible.

- The conservation of historic buildings and structures should comply with the Secretary of the Interior's Standards for Preservation and

the American Institute of Conservation's *Code of Ethics and Guidelines for Practice*.

- Repairs to these historic features should only be performed by those with proven experience in the preservation of historic materials. All work should be documented, evaluated, and considered within a framework of an adaptive strategy.
- Repair and conservation work should be assessed for its potential to affect archeological resources, and archeological investigations conducted if necessary.

(Refer to the *San Juan National Historic Site Historic City Wall Cultural Landscape Report* for further discussion of conservation of masonry and metal features. As requested by the park, specific guidance for graffiti removal is provided below.)

Guidelines for Graffiti Removal

When graffiti is reported, San Juan National Historic Site park staff follow preservation guidance to carefully remove markings as promptly as possible. Prompt removal of graffiti improves the effectiveness of removal efforts and may also tend to discourage repetition of markings.

Graffiti can occur in many forms, with the most typical being applied coatings such as ink, indelible marker, wax markings, and paint, as well as abrasive markings. A range of strategies may be required for the removal of graffiti where different materials have been used to make markings. [357]

The selection of a method to remove graffiti must take into consideration both the material used to create the markings and the nature and condition of the substrate.[358] As with other treatments, graffiti removal should follow the Secretary of the Interior's Standards for the Treatment of Historic Properties, which states that the gentlest most effective cleaning methods should be selected. Methods and materials that result in damage to the substrate or that are harmful to humans, animals, and the environment should not be used.

Low pressure water cleaning with a mild detergent can be effective if the graffiti is addressed promptly after the markings occur. The park has reported good success with detergent cleaning of masonry substrates where graffiti marking has occurred. Should graffiti not be readily removed with water and detergent, proprietary graffiti removal products and paint strippers containing solvents can be effective in removing graffiti. However, some solvents or strippers can dissolve the paints, resulting in staining of the substrate. In addition, some solvents and other chemical paint removal and cleaning products are hazardous to workers. The use of solvents in poultice form can be effective in removing graffiti, as poultices can be applied to specific locations and remain active in place for a period of several hours, thus helping to dissolve and draw out the stain. Alkaline compounds in poultice form can also be used on certain substrates to remove oils, grease, and wax.

Mechanical or abrasive methods, with water alone or with a variety of media, can damage the underlying surface and should not be used to remove graffiti. Certain very low pressure microabrasive techniques, such as dry ice cleaning, have been effective in removing graffiti in some cases, without damage to the substrate. Laser cleaning also offers promise for graffiti removal.

For any graffiti removal effort, trials should be conducted in an inobtrusive location prior to use, to evaluate the effectiveness of the product or

357. Graffiti removal as discussed here pertains to graffiti that is not in itself historically significant, and which the park determines should be removed.

358. In addition to this report, several sources exist to help guide the selection of appropriate cleaning materials for removal of graffiti. Examples include National Park Service *Preservation Brief 38: Removing Graffiti from Historic Masonry* (available at http://www.nps.gov/tps/how-to-preserve/briefs/38-remove-graffiti.htm), and *Keeping it Clean: Removing Exterior Dirt, Paint, Stains, and Graffiti from Historic Masonry Buildings* (available online at http://www.nps.gov/tps/how-to-preserve/preservedocs/Keeping-It-Clean.pdf).

system and to determine whether it has any adverse effects on the substrate. Successful graffiti removal protocols should be documented for reference in future maintenance.

In addition to cleaning to remove graffiti markings, other graffiti mitigation measures can include application of a sacrificial surface treatment to make removal of future graffiti that may occur easier, and application of a film-forming coating to conceal existing graffiti that cannot be sufficiently removed by cleaning. Because the park is able to address the graffiti quickly, application of a sacrificial surface treatment or film-forming coatings is not considered necessary at this time. Overpainting—covering the graffiti with paint instead of removing it—may be appropriate for substrates that were painted historically; however, this treatment is not an appropriate means to address graffiti on historic features that were not originally painted.

Enhance interpretation

Description. An overall interpretive plan is needed to address the park's goals for enhancing interpretation as articulated in the discussions between the park and the CLR team. Based on the historic character and integrity of the cultural landscape, the CLR recommends that no additional wayside exhibits be placed within El Morro Esplanade. Instead, personal interpretation, the use of orientation panels at the entrance, web-based interpretation accessed using a hand-held device, and the potential provision of augmented reality interpretive programming are recommended for consideration by the park for enhancing interpretation in the future.

Location. This project would focus on the entire El Morro Esplanade.

Considerations. New interpretive materials need to be considered within a broader parkwide context of themes and messaging. The use of alternative methods that do not impact the historic landscape is recommended for consideration.

If waysides are revised, an artistic rendering and/or the use of historic photographs, maps, and other compelling illustrations are key considerations in the development of enhanced interpretive programming. Given the extent of historic features related to both the Spanish and US military occupation periods, the use of graphics to depict missing conditions is recommended.

In addition to graphics that can be used in wayside exhibits, web-based interpretation is another option to be considered. Programs like ArcGIS StoryMaps provide templates for online tours. The tours can be tailored by theme and provide place-based narratives with interactive geo-located maps, images or videos which can be accessed by anyone with a smart device (Figure 241).

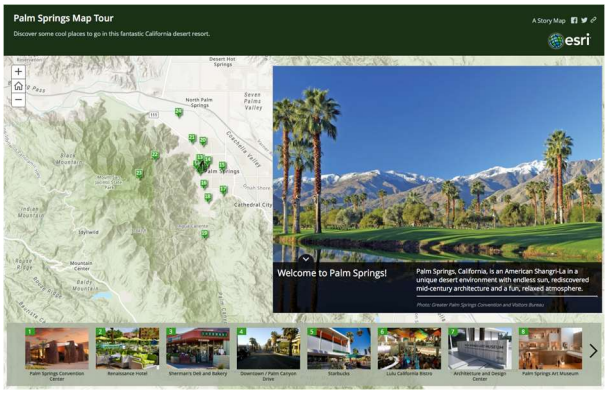


FIGURE 241. Example of a Story Map Tour. (Source: Story Maps by ESRI)

Another option for the park to consider is the use of augmented reality to depict missing features and bring the historic scene to life. Augmented reality as it relates to a site such as El Morro Esplanade is an interactive experience that combines the actual landscape with computer-generated perceptual information. Augmented reality could be used to enhance and amplify the physical experience of travelling through the landscape via a combination of the actual landscape and computer-generated sensory inputs that might include graphics, video, and/or sound uniquely associated with the site to offer a perceptually enriched experience (Figure 242).



FIGURE 242. View of the use of a device to experience augmented reality. (Source: Redshift by Autodesk)

Videos used with augmented reality or StoryMaps could incorporate living history such as oral histories to help convey the sounds, sights, and smells of the military base to visitors.

All additional or enhanced interpretation strategies should be provided in both Spanish and English.

Additional Studies Recommended

- This project should be developed as part of the park's interpretive planning process.
- Archival research and the identification of historic graphics useful in portraying the site through time will be needed to implement this project.

Project Implementation Process

- Assess which features should be interpreted by determining those that will deliver the most
- educational value to visitors.
- Enlist an exhibit designer, in coordination with park staff, to plan the interpretive features that might include
    - An artist rendering
    - A web-based program
    - Augmented reality
- Design the program to supplement existing interpretive media and programs with new materials to enhance the depiction of the Spanish and US military periods of occupation of El Morro Esplanade.
- Enlist a qualified archeologist to monitor ground-disturbing activities and to determine potential impacts of any associated proposed site improvements related to interpretation.

Develop a strategy for turf management

Description. The US Army's installation of a nine-hole golf course during the early twentieth century entailed planting turf lawn within El Morro Esplanade suitable for tee boxes and putting surfaces. The US Army planted a combination of Bermuda grass and zoysia grasses. Both species continue to be represented within the Esplanade today. The Bermuda grass has since spread throughout the Esplanade, while the zoysia grass is concentrated in several locations within Parcel A.

Due to the number of visitors to the park and the popularity of the Esplanade for gathering and such recreational activities as kite flying, the turf has been impacted in high use areas, such as near paved walks, along the margins of the North Walls, and along the margins of the bastion walls. A combination of compaction and erosion has led to diminished vigor and loss of turf in several locations. There are also social trails that etched into the turf where compaction and erosion are also occurring. The park needs a strategy for managing the turf to improve its health and appearance.

Location. Turf grasses are the dominant groundcover throughout Parcels A and B. The wearing and loss of turf grass is problematic in several locations, including along entrances to the Esplanade from the Norzagaray Street promenade, along the cemetery tunnel walls, along the margins of the North Wall curtains and bastions, in proximity to wayside exhibits, benches, and trash receptacles, overlooking the dry moat near El Morro, and in front of the bookstore. There are also social trails leading from the North Walls to El Morro Road and from the area overlooking the dry moat at El Morro to the area to the northwest where views of the harbor entrance are afforded.

Considerations. Turf management strategies can vary significantly based upon location, weather, underlying soil conditions and use patterns. When assessing a suitable approach to turf management, some considerations include:

Compaction

Foot traffic as well as maintenance vehicle access causes compaction of the turf and the underlying topsoil. Because the topsoil layer is relatively thin over top of bedrock within the Esplanade, and contains areas of non-native fill, compaction has occurred in many places and the soil is relatively deficient in nutrients. Compaction causes the pore space that is dedicated for plant root growth and moisture to become compressed which, in turn, impacts the amount of soil nutrients and moisture the grass receives. With compaction, stormwater often runs off rather than infiltrates into the soil where the turf roots are located. Where compaction is obvious and causing problems with turf growth, routine aeration during the spring and fall seasons may be necessary. Where the turf is poorly aerated due to high water levels and a low permeable pore system, the application of quicklime is also recommended to improve soil conditions.

Erosion

The erosion of topsoil often follows the loss of turf due to compaction and further contributes to the loss of turf grass. This in turn diminishes the condition and appearance of the historic landscape. If left uncorrected, erosion can lead to more serious problems including impacts to archeological resources, and exposure of buried ordnance.

Grading

Due to settling, compaction and erosion that has occurred over time, the topography of the Esplanade is varied and there are places where depressions have formed. These become opportunities for stormwater to pond and turn the soil to mud. Subtle re-grading of the surface to ensure a positive flow to drainage where water runs off and toward drainage structures at a sustainable slope would improve both the functionality and appearance of the Esplanade. Typically, the ideal slope conditions for turf would be between a minimum slope of 2 percent and a maximum slope of 5 percent. Any grading would need to be conducted under the oversight of an

archeologist that meets the Secretary of the Interior's standards to ensure that belowground resources are not disturbed.

Fertilizing

Ensure that turf health is addressed through regular testing of the soil for pH and fertility, and thatlime and fertilizer applied as needed to address any deficiencies identified as part of the soil testing. Develop a strategy for fertilization in coordination with a turfgrass expert familiar with the conditions at El Morro Esplanade.

Irrigation

Winter desiccation can be problematic for turf grass during dry winters. During the dormant period, the turf on the Esplanade may need to be watered to prevent desiccation and eliminate turf loss during winter.

Maintenance Schedule

Establishing a regular turf maintenance schedule for El Morro Esplanade is recommended that is flexible enough to account for annual fluctuations in temperature, rainfall, and storm events. A proposed schedule of turf maintenance activities is outlined below based on consultation of the CLR team with the park maintenance staff in 2018. Climate change may lead to future adjustments to the maintenance schedule.

Daily	Collect and remove trash and recycling from receptacles.
Weekly	Mow by zone: week 1 = zone 1; week 2 = zone 2; week 3 = zone 3; week 4 = zone 4 (Figure 243)
Twice a year	Clear stormwater management systems associated with the walls and bastion and ensure that they are operating properly.
Annually	Sharpen mower blades and inspect maintenance equipment for repairs.
Every 1 – 2 years	Aerate the lawn (frequency may vary based upon site inspection and determination of level of compaction). Test the topsoil to assess the need for fertilizer.
As needed	Fertilize the lawn; water the lawn during extreme drought conditions.

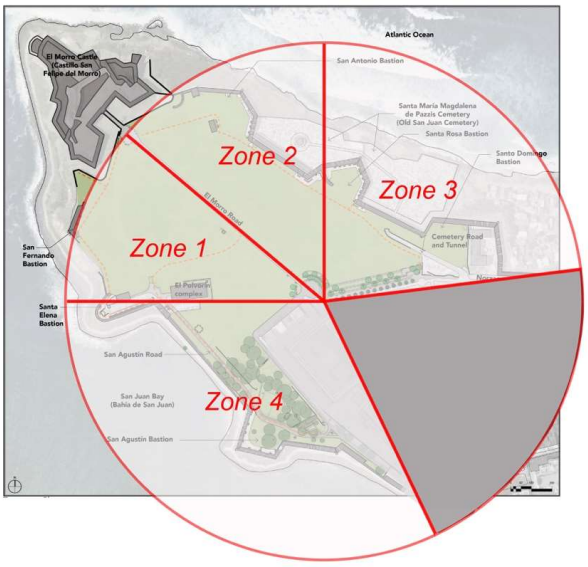


FIGURE 243. Proposed monthly cyclical strategy for turf mowing and management. (Source: LSHLA)

Alternative Turf Species

The turf at El Morro Esplanade is composed of Bermuda grass and zoysia grasses, neither of which is native to Puerto Rico. Consideration should be paid to assessing alternative species that may prove more durable and require less maintenance and serve as an alternative for current turf grass species at the Esplanade. The representation of the historic US Army golf course tee boxes and putting surfaces with zoysia grass, however, should be maintained as a historic landscape feature wherever possible. When considering alternative turf species for use on the Esplanade, the following issues are important:

- **Drought tolerance**. Because the Esplanade is not regularly irrigated, turf species must be able to withstand long periods without irrigation. During storm events, the turf must also be able to withstand extensive rain and severe weather.

- **Hardy cultivars**. In addition to heavy foot traffic, weather and temperature fluctuations can take a toll on a lawn. The turf species at the Esplanade must be hardy and able to withstand adverse growing conditions associated with heat, drought, flooding, and wind.

- **Low maintenance and disease resistance**. Turf species selected for use on the Esplanade must also be disease resistant and require relatively infrequent mowing.

Because of the many constraints and challenges associated with turf management at El Morro, it may be necessary to devise a custom mix of species that include cultivars developed for the specific conditions of the site. Consultation with an experienced turfgrass specialist familiar with local conditions is recommended for identifying the appropriate mix.

Mowing and Trimming

Mowing is one of the most important management tools for maintaining turf. Selecting the appropriate mowing equipment, particularly in the vicinity of masonry walls and structures, is of paramount importance. Heavy machinery and equipment should be avoided so protect the sensitive historic walls and structures from damage and the turf from compaction and erosion. Turf wheels should be used on riding mowers and blades should be routinely sharpened to help prevent disease. Mowing frequently can determine the aesthetics and density of the lawn, while mowing height can either prevent or encourage weeds and increase the susceptibility to drought. At El Morro Esplanade, the recommended maximum growing height for the turf is 3.5 to 4 inches, with mowing height adjusted based on the season and temperature. During periods of environmental stress due to high temperatures or a lack of rainfall, the mowing height should be raised until the stress is eliminated.

At El Morro Esplanade trimmers are needed to mow in proximity to walls and structures. In tight spaces where the mowers cannot access, trimming allows for quick removal of weeds, grasses, and other vegetation within the bastions and around the sensitive cultural resources. The use of a low gauge trimmer at the base of all walls and masonry structures is recommend. This would include a line trimmer (weed whip) with a line measuring no more than .09” in diameter without a metal core be used. All maintenance personnel should be trained in appropriate practices to avoid damage to walls and other masonry features during mowing operations. Any damage that may occur should be reported immediately to the chief of maintenance.

Soil stabilizer and turf reinforcement

When the CLR team visited the park in 2018, maintenance personnel indicated that there are several areas of reinforced turf that have been in place for roughly eighteen years. The reinforcements are exposed in some locations where heavy traffic has caused the soil around them to erode. Further stabilization may be required in these and other areas of heavy traffic. Soil stabilizing products such as a soil stabilizer pellets or fibers (Figure 244) could be used for this purpose. In areas experiencing serious erosion and compaction, turf pavers or matting may be needed to correct the problem. Redirecting foot and

vehicle traffic is also an approach that might be considered.



FIGURE 244. Flexible polypropylene fibers can be used to stabilize areas of soil erosion and compaction. (Source: Stabilizer Solutions)

Additional Studies Recommended

- Soil survey and regular testing. The park should conduct a soil survey to assess the health of the existing soil at El Morro Esplanade. Upon examining the results, an appropriate fertilization strategy can be designed. Every one-to-two years, soil samples should be taken from various locations throughout the esplanade to re-evaluate the soil health and determine if the strategy for turf fertilization should be adjusted.

- Topographic and stormwater utility survey. The park should complete a topographic survey of El Morro Esplanade. Using the survey, the park should evaluate all areas subject to erosion to determine the cause of the problem. It may be necessary to regrade areas that are steeply sloped, have experienced slumping, compaction, or have lost soil to reestablish the original contour.

- Geotechnical evaluation. A geotechnical evaluation of soils in high traffic areas could be used to determine the most appropriate stabilization products and methods. A geotechnical evaluation will also be needed to determine the best way to protect the soil from further compaction and erosion.

Related Projects

- Prepare a stormwater management and erosion control plan

Implementation Process

- Undertake additional studies.

- Utilize the information collected to develop a comprehensive turf management strategy that addresses the soil health, the potential need for fertilization and aeration, as well as any regrading that may be necessary to achieve proper drainage.

- Consult with a turfgrass specialist to determine if an alternative grass mix may better serve the needs of the park. If re-planting is required, work with the consultant and park staff to identify the timing and logistics that may need to be considered for implementation.

- Review maintenance schedule and requirements with park maintenance staff to assess where adjustments may be necessary.

- Record all treatments such that they can be easily accessed by future researchers and park staff.

Sources

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Provide for universal accessibility

Description. The only circulation route that is currently universally accessible within the esplanade is El Morro Road. The landscape was not traditionally designed to be available to all users; today the perimeter walls are not accessible due to the extent of turf grass that characterizes the Esplanade and the lack of internal paved walks. The park has identified enhanced accessibility as a goal to be considered in the CLR. Given the historic character of the landscape, the CLR provides recommendations for approaching accessibility without diminishing integrity.

Location. Turfgrass with a sloped profile is the dominant character of El Morro Esplanade. Turfgrass is typically not considered an accessible surface material as it is not reliably firm and stable.

Considerations

Grading

Due to settling, compaction and erosion that has occurred over time, the Esplanade has a varied grade across its surface. A topographic survey of the project site could be used to provide information on the existing grades of the esplanade. Regrading to achieve a smooth consistent surface of turf is likely to render the Esplanade more accessible to a wider range of visitors.

Slope

Accessible slopes are typically 5 percent or less steep according to the guidance afforded in Americans with Disabilities Act Accessibility Guidelines (ADAAG) and the standards associated with the Architectural Barriers Act Accessibility Standards (ABAAS). A topographic survey of the project site could be used to provide information on existing slopes, particularly the areas frequented by visitors. Working with the topographic survey and a landscape architect, the park could establish an accessible route that allows a wide range of visitors to visit most of the cultural resources that help relay the important story of El Morro.

Accessible Route

The CLR provides suggestions for two potential accessibility options that may allow visitors with mobility challenges to circumnavigate the El Morro Esplanade (refer to Figure 227). The route initiates at the Norzagaray Street pedestrian promenade and includes an accessible ramp leading into El Morro Esplanade as part of a proposed series of earthen terraces that mitigate the steep slope between the sidewalk and the Esplanade. From the accessible ramp, a stabilized path could be installed that traverses the perimeter of the Esplanade and provide access to the paved interior margins of Santa Rosa and San Antonio Bastions, San Fernando Battery, and Santa Elena and San Agustín Bastions. Alternately, accessible paths could emanate from El Morro Road to some of these other features since the road is already accessible. The park would need to work with the Commonwealth of Puerto Rico to determine whether the provision of an accessible circulation route to San Agustín Bastion is acceptable. The accessible route will need to be at least 3 feet in width to accommodate visitors in a wheelchair, with some wider areas to allow passage of multiple visitors. The path would need to be clearly marked and identified on any maps of the historic site.

New Additions

Any new structures or features added to the park in the future to accommodate visitors should be designed with accessibility in mind. Installation of an accessible route should be designed to have minimal impact on the historic landscape and designed to be reversible so that when removed in the future, the essential form and integrity of the site would remain intact. The design of any new additions should be differentiated from historic features and clearly a product of their own time.

Materials

Consideration should be paid to identifying a material for new accessible paths that will have the least visual impact on El Morro Esplanade. Accessible surface materials must be stable, firm and slip resistant. Soft surfaces such as sand, gravel, wet clay or cobblestones are not accessible.

Materials for consideration might include stabilized turf, permeable or non-permeable concrete, chip seal, stabilized crusher fines, modular pavers, rubber or rubberized mulch. For more information, see "Cultural Landscape Guidance Documents" available on IRMA at https://irma.nps.gov/DataStore/Reference/Profile/2198071.

Interpretation

A primary goal of the park is to ensure that the historic features of critical importance to telling the story of El Morro Esplanade are accessible to all people who visit the park. While accessibility of key historic features is a goal for the park, it may not always be possible to provide an accessible route to all features of El Morro Esplanade. Where accessibility is not achievable, providing an alternative interpretive experience that does not compromise the integrity of the historic resource should be considered. Considerations should be made to accommodate all forms and types of disabilities or differences through appropriate interpretive programs (Figure 245).

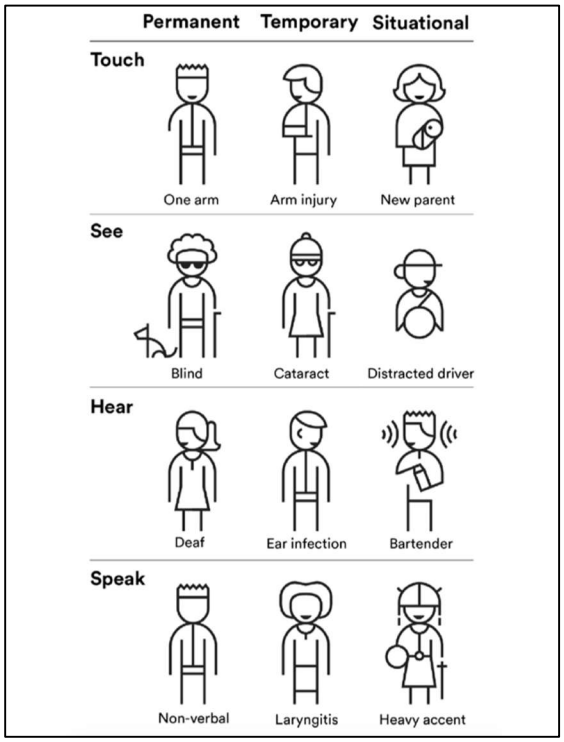


FIGURE 245. Examples of types of disabilities or differences to be considered when developing interpretive guides (Source: Inclusive Design Toolkit, Microsoft)

Additional Studies Recommended

- Topographic survey. Complete a topographic survey of the entire project site, including along Norzagaray Street where visitors access the park.

- Universal Accessibility Assessment. Use the topographic survey to evaluate all areas that would be considered inaccessible according to the guidance afforded in Americans with Disabilities Act Accessibility Guidelines (ADAAG) and the standards associated with the Architectural Barriers Act Accessibility Standards (ABAAS).

Related Projects

- Prepare a stormwater management and erosion control plan

- Enhanced interpretation

Implementation Process

- Undertake additional studies.

- Utilize the information collected to develop a comprehensive accessibility approach and design plan that follows the guidance afforded in Americans with Disabilities Act Accessibility Guidelines (ADAAG) and the standards associated with the Architectural Barriers Act Accessibility Standards (ABAAS).

- For any new structures or features that are added to the park, design them to be as accessible as possible to visitors.

- Document, through drawings, photographs, and notes, all future changes and treatments made within the historic landscape to address universal accessibility.

Sources:

Thomas C. Jester and Sharon C. Park. *Making Historic Properties Accessible: 32 Preservation Brief*. National Park Service, 1993.

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Address visitor safety at the wall embrasures

Description. The walls that frame El Morro Esplanade are located along the promontory landscape one or more stories above the ground below. Many of the walls feature embrasures or openings originally designed for artillery fire. Those associated with the North Walls are open and accessible to the public without barriers or safety features that could prevent visitors from falling or otherwise endangering themselves, while many of the West Walls embrasures have been retrofitted with safety bars. Consideration should be paid to enhancing safety features of the North Walls. Adding bars to the embrasures is likely to diminish the integrity of the walls in terms of feeling and design, and installation of such features may lead to damage to the walls. The park should consider an adaptive strategy that begins with improved visitor guidance in the form of signage and ranger monitoring and proceeds to more intrusive interventions as necessary should the non-intrusive measures be found not to be successful in keeping visitors off the embrasures.

Location. The wall openings, or embrasures, that are accessible to visitors within El Morro Esplanade are in association with the North Walls.

Considerations

Signage

The park should provide signage in association with the North Walls, as well as in association with proposed orientation signage at the usual entry points into El Morro Esplanade that advise visitors of the risks. Orientation signs should convey park rules that include not climbing into embrasures and encourage visitors to be good citizens by respecting and taking care of the historic landscape. Additional signs should be posted at the entrances into each of the bastions that remind visitors to be safe and to avoid accessing the embrasures or climbing on top of the walls. Signage should be in both Spanish and English and should utilize simple graphic language as much as possible to ensure understanding by the widest audience possible (Figure 246). Consideration

should also be paid to providing additional signs at locations where visitors are most frequently found climbing on walls and embrasures.

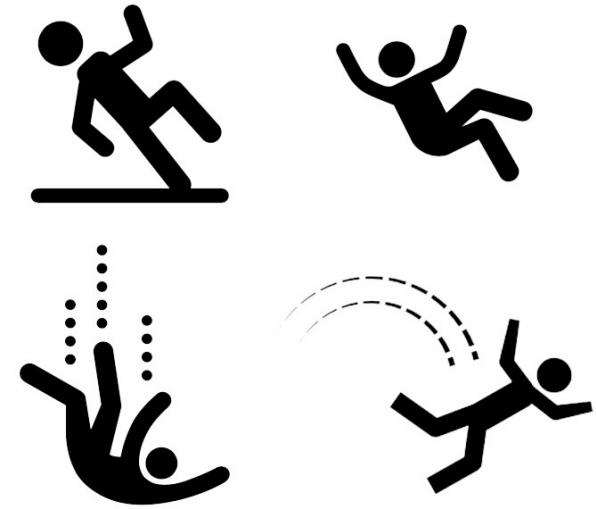


FIGURE 246. An example of some simple, discreet and playful graphics that could be utilized for small signs at embrasures. (Source: Luis Prado at creativecommons.org)

Ranger engagement and park orientation

Park rangers and volunteers should address visitors found to be accessing walls and embrasures and advise them to avoid such behavior. Regular visits that include walking the length of the North Walls may be needed to encourage visitors to remain safe and stay on the ground until the behavior has become ingrained. In addition, when visitors engage with park rangers for guidance on the historic landscape, staff should provide a friendly notice to stay out of the embrasures. Positive reinforcement and reminders, rather than reprimanding visitors who do not abide by the rules, is likely to produce better results. All park printed materials and online information should include a note about this rule.

Barriers

If the park finds that signs and ranger and volunteer guidance is not sufficient to keep visitors from accessing unsafe aspects of the walls, consideration should be taken to add safety bars to the embrasures. Should barriers be considered, the existing barriers at the West Walls should be evaluated for their efficacy and impact on the historic walls. The design for new barriers should take any concerns associated with the existing barriers into consideration and address the problem in the least intrusive manner possible and with the least impact to the historic walls. Materials should be chosen based on their visual compatibility with the walls and to disappear as much as possible. For example, if steel is used, the structural members should be as thin as possible while still providing sufficient structural integrity to serve their intended purpose as a safety barrier. The barriers used in association with the North Walls should also be consistent in design and appearance.

Should a refined version of a barrier be designed for the North Walls, it should be considered for use in association with the West Walls once the existing barriers have reached the end of their useful life. However, since the safety railings added to the embrasures of the West Wall are bolted into the walls and some of the bolts have rusted and left unsightly stains on the walls at the anchoring locations, consideration might also be paid to replacing these in the future. Future anchoring devices should be fashioned of stainless steel to prevent rusting and staining and should be installed in the most discrete manner possible. Holes made in the walls for anchoring devices should be small and easily repaired or patched once the railings are removed.

Where anchoring a barrier or railing is not preferable, the park might also consider the use of small retractable stainless steel scissor gates that could be placed across openings such as the sentry boxes and embrasures to discourage access during periods when crowds are anticipated. Gates could be secured with tension systems and not embedded or otherwise fixed to the wall. An alternative option is the use of removable steel posts with chain or cable.

Additional Studies Recommended

None

Related Projects

- Enhanced interpretation

Implementation Process

- Establish an overarching safety signage strategy. Ensure that signage has a consistent graphic identity and is simple to convey.

- Install signage, practice ranger and volunteer outreach, and monitor the resulting safety practices of visitors.

- Should more stringent safety measures be needed, design barriers that have the least physical and visual impact on the walls.

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Maps

Map of San Juan, 1575, drawn by Juan Escalante de Mendoza. Reproduced by Murga Sanz in 1960. Source: Rodríguez López et al., 25.

Circa 1625 Dutch map of San Juan showing El Morro Esplanade, El Morro, La Fortaleza, and several other early features of the military landscape. Source: As reprinted in Rodríguez López et al., 30.

Map of San Juan, 1678, drawn by Luis Venegas Ossorio. (Source: Spanish Archives Portal (PARES), State Archives, Madrid, AGI Santo Domingo, Número 074)

Circa 1765–1772 map of the esplanade prepared by Alejandro O'Reilly showing mid-eighteenth-century circulation networks. (Source: Park Archives, SJNHS, ARJT4C2651 1765)

Sections drawn by Alexander (Alejandro) O'Reilly in 1765 showing the relationship between Santa Elena Bastion, and San Agustín Bastion and the cliff of the promontory facing the channel leading to San Juan Harbor. Source: Sepúlveda Rivera, 141.

1792 map prepared by military engineer Juan Francisco Mestre illustrating the ravine and Calvary Hill that were regraded by the Spanish to improve the effectiveness of the glacis associated with the land approach to El Morro. Source: *Manuscrito por Juan Francisco Mestre,* Servicio Histórico Militar Núm. 5795, Madrid.

1864 map showing the completed arrangement of perimeter walls, central open space, linear element of El Morro Road dividing the Esplanade into north and south sections, Dutch Monument, El Polvorín, Santa Elena and San Agustín Guardhouses, and the road and tunnel providing access to Old San Juan Cemetery. Source: Park Archives, SJNHS ARJT4C26_1 1861.

Roldán, F. *Levantado Por el Cuerpo de ingenièros Militares: Plano de la Plaza de San Juan*, 1889. Source: Park Archives, SJNHS ARJT4C262).

Laguna, José. "Plaza de San Juan: Proyecto de un Hospital para Fiebre Amarilla que ha de Emplanarse en el Campo del Morro de esta Ciudad," 1897.

Captain Hodges, "Plan of Grounds and Buildings of the War Department," April 13, 1899.

Circa 1899 photos in the Gambell Collection.

1901 map showing the Pabellones Militares complex, later adapted for use by the US Army as a yellow fever hospital. Source: Rodríguez López et al., 50.

1905 Quartermaster map showing the arrangement of buildings within the esplanade. Source: Park Archives, SJNHS.

US Army, "Military Reservation of San Juan, P.R. (and the City of San Juan)," May 5, 1934.

1951 map of Fort Brooke indicating the arrangement of roads within El Morro Esplanade, including El Morro Road, Santa Elena Road, the secondary loop to the southeast, San Agustín Road, Casa Rosa Road, and Norzagaray Street. Source: Park Archives, SJNHS, NHS-SJ-9566.

1953 map of Fort Brooke showing Santa Elena Road and the numerous buildings located along the outer margins of the road. Quartermaster map showing the arrangement of buildings within the esplanade. .Source: Park Archives, SJNHS NHS-SJ-2058.

Appendix A: Inventory of Landscape Features

Appendix A – Inventory of Landscape Features

Feature	CRIS/Building Number	Date of Origin	Alterations	Character Area	Contributing Status
Natural Systems and Features					
Promontory landform		Natural feature; present by circa 1539		Parcels A and B	Contributes to the historic setting
Open sloped plain of the Esplanade		Natural feature; present by circa 1539	Spanish cleared trees when establishing El Morro; repaired during U.S. military occupation period	Parcels A and B	Contributes to the historic setting
Responses to Natural Resources					
Construction of batteries, bastions, and walls along the edge of the promontory		Circa 1560s-1782	Several walls and bastions have undergone adaptations and repair	Parcels A and B	Contributes to the historic setting
Grading of the glacis to improve defense		Circa 1775-1887		Parcels A and B	Contributes to the historic setting
Walls and bastions along the edge of the promontory		Circa 1765-1792		Parcels A and B	Contributes to the historic setting
Stormwater management: use of drains, culverts, swales, scuppers, gutters, and paved channels in association with bastions and curtain walls		Circa 1560-1782; circa 1925-1939	Some stormwater-management systems have undergone adaptations and repair or replacement	Parcels A and B	Contributes to the historic setting
Use of cisterns to collect and store freshwater		Circa 1539-1897; 1898-1961		Parcel A	Contributes to the historic setting
Siting of El Morro Road along a ridgeline leading to El Morro		Circa 1539	Continuing through the U.S. military occupation period	Parcel A	Contributes to the historic setting

Feature	CRIS/Building Number	Date of Origin	Alterations	Character Area	Contributing Status
Terraced and graded topography		Circa 1930s		Parcel B	Contributes to the historic setting
Use of turf reinforcement pavers to control erosion		Post 1970		Parcels A and B	Does not contribute to the historic setting
Stormwater management: use of berms, swales, catch basins, drop inlets, and pipes		Post 1970	These features are associated with the flow of water from Parcel A toward historic features in Parcel B, and with San Agustín Bastion	Parcel B	Does not contribute to the historic setting
Land Uses					
Commemorative		By 1861		Parcel A	Contributes to the historic setting
Recreational		Circa 1907-1931	Several U.S. military occupation period recreation features no longer extant; contemporary park use includes recreation	Parcels A and B	Contributes to the historic setting
Commercial		Post 1970		Parcel A	Does not contribute to the historic setting
Museum/interpretive/ educational		Post 1970		Parcel A	Does not contribute to the historic setting
Maintenance		Post 1970		Parcel B	Does not contribute to the historic setting
Conservation		Post 1970	Cannon Conservation Workshop	Parcel B	Does not contribute to the historic setting
Transportation		Post 1970		Parcel B	Does not contribute to the historic setting

Feature	CRIS/Building Number	Date of Origin	Alterations	Character Area	Contributing Status
Military		*Circa 1539*		*Parcels A and B*	*Missing*
Housing		*Spanish and U.S. military occupation periods*		*Parcels A and B*	*Missing*
Supply and storage		*Spanish and U.S. military occupation periods*		*Parcels A and B*	*Missing*
Services		*Spanish and U.S. military occupation periods*		*Parcels A and B*	*Missing*
Agriculture		*U.S. military occupation period*		*Parcel A*	*Missing*
Spatial Organization					
Broad open space of El Morro Esplanade	091728; HS-230	Circa 1539		Parcel A	Contributes to the historic setting
Spatial edge formed by defensive walls and bastions		Circa 1560-1782		Parcels A and B	Contributes to the historic setting
San Antonio Bastion and Guardhouse complex		By 1897		Parcel A	Contributes to the historic setting
Road and tunnel corridor to Old San Juan Cemetery		By 1864		Parcel A	Contributes to the historic setting
Santa Elena Bastion, Guardhouse, and El Polvorín complex		By 1792		Parcel B	Contributes to the historic setting
El Polvorín complex		1787		Parcel B	Contributes to the historic setting
San Agustín Bastion and Guardhouse complex		By 1864		Parcel B	Contributes to the historic setting
Tennis and basketball courts		By 1929	one of the tennis courts has been converted to basketball use	Parcel B	Contributes to the historic setting
San Agustín Road corridor		Circa 1934	1939	Parcel B	Contributes to the historic setting

Feature	CRIS/Building Number	Date of Origin	Alterations	Character Area	Contributing Status
Casa Rosa residential landscape		Circa 1930s		Parcel B	Contributes to the historic setting
Grove of trees on the hillside north of San Agustín Bastion		By 1937		Parcel B	Contributes to the historic setting
Playground		Circa 1998		Parcel B	Does not contribute to the historic setting
Cluster of military buildings between Manicomio Road and the Dutch Monument		*By 1897*		*Parcel A*	*Missing*
Cluster of military buildings near San Agustín Bastion		*By 1905*		*Parcel B*	*Missing*
Fenced cluster of military buildings south of El Morro Road		*By 1905*		*Parcel A*	*Missing*
Fenced precinct near San Fernando Battery		*By 1905*		*Parcel A*	*Missing*
Golf course		*1907-1911*		*Parcel A*	*Missing*
Baseball field		*By 1923*		*Parcel A*	*Missing*
Swimming pool and pool house complex (San Antonio Guardhouse)		*By 1931*		*Parcel A*	*Missing*
Santa Elena Road edged by U.S. Army buildings and tree plantings		*1930s*		*Parcel A*	*Missing*
Rows of trees along El Morro and Santa Elena Roads and around the swimming pool		*1930s*		*Parcel A*	*Missing*
Clusters of U.S. Army buildings within Parcel B		*1930s-1950s*		*Parcel B*	*Missing*
Circulation					
Vehicular Circulation					
El Morro Road (el Camino del Castillo del Morro, Camino Afirmado, Calle del Morro)	091730	Circa 1539	1898-1905; 1930s; 1998	Parcel A	Contributing
Norzagaray Street		Late 19th-early twentieth century	1998	Parcel A	Contributing
Cemetery Road and tunnel beneath North Walls		Mid-19th century	Repaired circa 1990s-2000s	Parcel A	Contributing

Feature	CRIS/Building Number	Date of Origin	Alterations	Character Area	Contributing Status
Circular turnaround at Norzagaray Street		U.S. military occupation period	1998	Parcel A	Non-contributing
Casa Rosa Road		17th century; 19th century	Formalized and extended 1930s; extension later removed	Parcel B	Contributing
San Agustín Road		Bay Road by 1920s; San Agustín Road by 1934	Altered and raised by 1939; original grade reestablished 1990s	Parcel B	Contributing
Unimproved maintenance access roads to El Morro Esplanade from Parcel B		1990s		Parcel A	Non-contributing
Parking along San Agustín Road		Post 1970		Parcel B	Non-contributing
Access road to Santa Elena Guardhouse		Post 1970		Parcel B	Non-contributing
Parking at Santa Elena Guardhouse		Post 1970		Parcel B	Non-contributing
Parking south of El Polvorín		1996		Parcel B	Non-contributing
Heliport		Post 1970		Parcel B	Non-contributing
Pedestrian Circulation					
Front walk at Casa Rosa		Circa 1930s		Parcel B	Contributing
Walk to the wishing well		Circa 1930s		Parcel B	Contributing
Walk to Casa Rosa from parking along San Agustín Road		Circa 1930s		Parcel B	Contributing
Concrete terraces edging Casa Rosa		Circa 1930s		Parcel B	Contributing
Norzagaray Street pedestrian promenade		1998		Parcel A	Non-contributing
Sidewalk leading to El Morro Road		1998		Parcel A	Non-contributing
Paved plaza near El Morro		1998		Parcel A	Non-contributing
Bookstore landing		Post 1970		Parcel A	Non-contributing
Social trail south of El Morro leading to lookout		Post 1970		Parcel A	Non-contributing
Social trail south of El Morro leading to lookout		Post 1970		Parcel A	Non-contributing
Brick walk to El Polvorín		1990s		Parcel B	Non-contributing

Feature	CRIS/Building Number	Date of Origin	Alterations	Character Area	Contributing Status
Stairs leading to the playground		Post 1970		Parcel B	Non-contributing
Concrete walk leading through the playground and past the tennis and basketball courts		Post 1970	Accessibility improved 1990s	Parcel B	Non-contributing
Northern access route to El Morro		*By 18th century*		*Parcel A*	*Missing*
Network of paths accessing battery positions		*By mid-18th century*		*Parcels A and B*	*Missing*
Turnaround at the sallyport		*By 1930s*		*Parcel A*	*Missing*
Santa Elena Road		*By 1930s*		*Parcel A*	*Missing*
Parking area south of El Morro		*Post 1970*		*Parcel A*	*Missing*
Cultural Vegetation					
Turf lawn		16th century	20th century	Parcels A and B	Contributes to the historic setting
Grove of trees on hillside north of San Agustín Bastion		By 1937	25 ceiba trees added in 1995	Parcel B	Contributes to the historic setting
Trees within San Agustín Bastion		By 1937		Parcel B	Contributes to the historic setting
Tree, shrub, and herbaceous ornamental and shade plantings at Casa Rosa		By 1937	Impacted by Hurricane Hugo in 1989	Parcel B	Contributes to the historic setting
Rows of sea grapes along San Agustín Road		2020-2021		Parcel	Do not contribute to the historic setting
Palm trees along Norzagaray Street		1998		Parcel A	Do not contribute to the historic setting
Trees along San Agustín Road		Post 1970		Parcel B	Do not contribute to the historic setting
Trees along Casa Rosa Road and ornamental plantings in the roadway triangle of Casa Rosa and San Agustín roads		Post 1970		Parcel B	Do not contribute to the historic setting
Tree plantings along El Morro Road and Santa		*U.S. military occupation period*		*Parcel A*	*Missing*

Feature	CRIS/Building Number	Date of Origin	Alterations	Character Area	Contributing Status
Elena Road and around swimming pool					
Buildings					
San Antonio Guardhouse	091732; HS-234	by 1897		Parcel A	Contributing
El Polvorín	091738; HS-239	1787-1792		Parcel B	Contributing
Santa Elena Guardhouse	091739; HS-240	1787		Parcel B	Contributing
San Agustín Guardhouse (Casa Rosa)		by 1861		Parcel B	Contributing
Unidentified building west of Casa Rosa		U.S. military occupation period		Parcel B	Contributing
Utility building		Circa 1930s		Parcel B	Contributing
Gatehouse adjacent to San Agustín Road		Post 1961		Parcel B	Non-contributing
Little White Chapel		*Circa 16th century-1774*		*Parcel A*	*Missing*
Military barracks		*1700s-1783*		*Parcel A*	*Missing*
Stable		*1700s-1783*		*Parcel A*	*Missing*
Yellow Fever Hospital		*Circa 1897*		*Parcel A*	*Missing*
Officer's Quarters and Commanding Officer's Quarters near El Morro		*By 1903*		*Parcel A*	*Missing*
U.S. Army buildings supporting housing, supply/storage, services, recreation, administrative, and security needs		*1930s-1950s*		*Parcels A and B*	*Missing*
Structures					
North and West Walls (curtain walls and bastions) and associated stormwater-management structures: drains, swales,	North Walls-006065; West Walls-006068	Circa 1560-1782		Parcels A and B	Contributing

Feature	CRIS/Building Number	Date of Origin	Alterations	Character Area	Contributing Status
scuppers, gutters, paved channels					
Retaining wall behind El Polvorín	Use of berms, swales, catch basins, drop inlets, and pipes to control stormwater	Circa 1787		Parcel B	Contributing
Wall along Casa Rosa Road		Circa 18th century		Parcel B	Contributing
San Fernando Battery		1888	Emplacement for Ordóñéz cannon	Parcel A	Contributing
World War I-era coastal defense gun emplacement		Circa 1917-1918		Parcel B	Contributing
World War I-era bombproof magazine		Circa 1917-1918		Parcel B	Contributing
Drainage structures added with rehabilitation of portions of the West Walls: drains, culverts, paved gutters		Circa 1925-1939		Parcel B	Contributing
Tennis courts		By 1929		Parcel B	Contributing
Retaining wall that parallels San Agustín Road		Circa 1939		Parcel B	Contributing
Casa Rosa Gate		Circa 1930s		Parcel B	Contributing
Wishing well		Circa 1930s		Parcel B	Contributing
Norzagaray Street pedestrian promenade walls and railings		1998		Parcel A	Non-contributing
Safety railings along El Morro moat		Post 1970		Parcel A	Non-contributing
Stormwater-management structures installed north of Santa Elena Bastion, on the sloped hillside south of El Polvorín, and within San Agustín Bastion: swales, drop inlets, catch basins, pipes		Circa 1998		Parcel B	Non-contributing
Tennis and basketball courts		By 1929	Originally tennis courts, one later converted to a basketball court	Parcel B	Contributing

Feature	CRIS/Building Number	Date of Origin	Alterations	Character Area	Contributing Status
Retaining wall along San Agustín Road		By 1939		Parcel B	Contributing
Jersey barriers		Post 1970		Parcel B	Non-contributing
Low retaining walls associated with picnic table landings at playground		Circa 1998		Parcel B	Non-contributing
Counter mining tunnel		*Spanish occupation period*		*Parcel A*	*Missing*
Incinerator		*Early twentieth century*		*Parcel B*	*Missing*
Cisterns		U.S. military occupation period		Parcel A	Contributing
Golf course		*1907-1911*		*Parcel A*	*Missing*
Masonry wall connecting San Antonio Guardhouse and Bastion		*1913*		*Parcel A*	*Missing*
Baseball field with dugouts		*By 1923*		*Parcel A*	*Missing*
Wall at Santa Elena Bastion		*By 1929*		*Parcel B*	*Missing*
Swimming pool		*Circa 1931*		*Parcel A*	*Missing*
Views and Vistas					
Views across the expansive open space of El Morro Esplanade		By circa 1782		Parcel A	Contributes to the historic setting
Views of the Atlantic Ocean from North Wall embrasures and esplanade		by circa 1790		Parcel A	Contributes to the historic setting
Views to Old San Juan Cemetery from North Wall embrasures		circa 1814		Parcel A	Contributes to the historic setting
Views to San Juan Bay and Old San Juan from the esplanade and West Walls		by circa 1782		Parcels A and B	Contributes to the historic setting
Views to El Morro from the Norzagaray Street pedestrian promenade		1998		Parcel A	Does not contribute to the historic setting
Linear views along El Morro Road and Santa Elena Road framed by tree plantings		*U.S. military occupation period*		*Parcel A*	*Missing*

Feature	CRIS/Building Number	Date of Origin	Alterations	Character Area	Contributing Status
Small-scale Features					
Commemorative Features					
Dutch Monument	091729	by 1861		Parcel A	Contributing
The "Borinqueneers" Monument		2000		Parcel A	Non-contributing
Bronze plaques marking Copeland's Corner and Santa Rosa Bastion		Circa 1961		Parcel A	Non-contributing
Site Furnishings					
Iron light poles without luminaires		Likely U.S. military occupation period		Parcel B	Contributing
Trash receptacles		Post 1970		Parcels A and B	Non-contributing
Backless benches		Post 1970		Parcels A and B	Non-contributing
Dog waste bag dispensers and receptacles		Post 1970		Parcels A and B	Non-contributing
Bike rack		Post 1970		Parcel A	Non-contributing
Drinking fountains		Post 1970		Parcel A	Non-contributing
Lighting at circular turnaround		Post 1970		Parcel A	Non-contributing
Overhead cobra lights		Post 1970		Parcel B	Non-contributing
Picnic tables and benches in the playground		1998		Parcel B	Non-contributing
Benches with backs in the playground		1998		Parcel B	Non-contributing
Backless benches in the playground		1998		Parcel B	Non-contributing
Playground equipment		1998		Parcel B	Non-contributing
Drinking fountain in the playground		1998		Parcel B	Non-contributing

Feature	CRIS/Building Number	Date of Origin	Alterations	Character Area	Contributing Status
Signs					
Identity sign base		post 1970		Parcel A	Non-contributing
Wayside exhibits		post 1970		Parcel A	Non-contributing
"No Bicycling" signs		post 1970		Parcels A and B	Non-contributing
Regulatory signs at the entrance to El Morro Road		post 1970		Parcel A	Non-contributing
Parking signage		post 1970		Parcel B	Non-contributing
Regulatory signage		post 1970		Parcel B	Non-contributing
Access Control Features					
Woven wire fence and gate at Casa Rosa		Circa 1930s		Parcel B	Contributing
Bollards and chain access control		post 1970		Parcel A	Non-contributing
Fencing at San Fernando Battery		2020-2021		Parcel A	Non-contributing
Fencing above El Polvorín		2020-2021		Parcel A	Non-contributing
Fence associated with the work yard at Santa Elena Guardhouse		post 1970		Parcel B	Non-contributing
Access control gate near the heliport		post 1970		Parcel B	Non-contributing
Wood bollards and rope		post 1970		Parcel B	Non-contributing
Bollards along Norzagaray Street		1998		Parcel A	Non-contributing
Utility Features					
Metal cover over elevator to storage in former cistern		post 1970		Parcel A	Non-contributing
Manholes		Undetermined; likely post 1970		Parcels A and B	Non-contributing
Power poles and lines		Undetermined; likely post 1970		Parcel B	Non-contributing
Telephone box		Undetermined; likely post 1970		Parcel B	Non-contributing
Fire hydrant		Undetermined; likely post 1970		Parcel B	Non-contributing

Feature	CRIS/Building Number	Date of Origin	Alterations	Character Area	Contributing Status
Electrical transformer		Undetermined; likely post 1970		Parcel B	Non-contributing
Low metal fence around the Dutch Monument		*By 1905*		*Parcel A*	*Missing*
Wood fences associated with living quarters and animal paddocks		*U.S. military occupation period*		*Parcel A*	*Missing*
Fencing associated with precinct near San Fernando Battery		*U.S. military occupation period*		*Parcel A*	*Missing*
Artillery features lining the north side of El Morro Road		*circa early 20th century*		*Parcel A*	*Missing*
Golf course tees and flags		*U.S. military occupation period*		*Parcel A*	*Missing*
Baseball field bags		*U.S. military occupation period*		*Parcel A*	*Missing*
Cisterns		Spanish and U.S. military occupation periods		Parcel A	Contributing
Electrical poles		*U.S. military occupation period*		*Parcels A and B*	*Missing*

National Park Service
U.S. Department of the Interior

El Morro Esplanade
San Juan National Historic Site
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