

The background image shows a large, weathered stone structure, likely a military battery, situated in a dense forest. The structure consists of several tiers of stone walls and a flat top. The surrounding trees are tall and leafy, with sunlight filtering through the canopy. The ground in the foreground is covered with fallen leaves and patches of moss.

Spanish-American War Battery Cultural Landscape Report and Environmental Assessment Volume I: Cultural Landscape Report

Cultural Resources, Partnerships and Science Division
Interior Region 2

Spanish-American War Battery

Timucuan Ecological and Historic Preserve

Florida

**Cultural Landscape Report and
Environmental Assessment**

March 2022

Prepared by:

Panamerican Consultants, Inc.
2390 Clinton Street
Buffalo, New York 14227-1735

Wiss, Janney, Elstner Associates, Inc.
330 Pfingsten Road
Northbrook, Illinois 60062

Liz Sargent HLA
1855 Winston Road
Charlottesville, Virginia 22903

Prepared for:

National Park Service
Interior Region 2
100 Alabama Street SW
Atlanta, Georgia 30303



**Cultural Resources, Partnerships and Science Division
Interior Region 2
National Park Service
100 Alabama Street, SW
Atlanta, Georgia 30303
(404) 507-5787**

About the front cover: View of the Spanish-American War Battery,
looking northwest, July 2019.

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Spanish-American War Battery
Timucuan Ecological and Historic Preserve
Florida

Cultural Landscape Report and
Environmental Assessment

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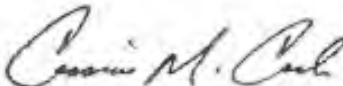
Approved by: Superintendent, Timucuan Ecological and Historic Preserve Date

**CYNTHIA
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WALTON
Date: 2022.01.20 11:53:49 -05'00'

Recommended by: Chief, Cultural Resources, Partnerships and Science Division, Interior Region 2 Date

**LANCE
HATTEN** Digitally signed by LANCE
HATTEN
Date: 2022.01.28 10:09:29
-05'00'

Recommended by: Deputy Regional Director, Interior Region 2 Date

Approved by:  2/10/2022

Acting Regional Director, Interior Region 2 Date

Contents

List of Figures	viii
Foreword	xiii
Acknowledgements	xiv

Volume I: Cultural Landscape Report

Introduction

Management Summary	1
Historical Summary	3
Scope of Work and Methodology	7
Scope of Work	7
Methodology	8
Description of Study Boundaries	12
Summary of Findings	15
Recommendations for Further Study	16

Site History

Introduction	17
Cultural Background	17
Early History of St. Johns Bluff, circa 10,000 BCE–1565 CE	17
Colonial and Pre-Civil War Settlement of St. Johns Bluff, 1564–1861	23
Military Conflict and Defenses, 1861–1899	25
St. Johns Bluff Spanish-American War Fortifications, 1898–1899	29
Construction of Fortifications at St. Johns Bluff, 1898	30
Spanish-American War Battery: Permanent Battery, 1898–1899	33
St. Johns Bluff: Early to Mid-Twentieth Century, 1899–1943	40
St. Johns Bluff Estates and Fort Caroline National Memorial, 1943–1988	44
Timucuan Ecological and Historic Preserve, 1988–2011	45
Spanish-American War Battery Acquisition, 2011–2021	45
Spanish-American War Battery Timeline	48

Existing Conditions

Introduction	59
Environmental Context and Setting	60
Cultural Context and Setting	64
Site Description	66
Existing Conditions Documentation by Landscape Characteristic	73

Analysis and Evaluation

Introduction	85
Evaluation of Significance	85
National Register Significance of the Spanish-American War Battery	87
Period of Significance	88
Integrity Assessment	89
Comparative Analysis of Historic and Existing Conditions	90
Landscape Characteristics	90
Resilience to Natural Hazards	114

Treatment Plan

Introduction	119
Park Management Goals, Issues, and Concerns	120
Treatment Approach	120
General Management and Design Guidelines for Treatment	123
Treatment Concept	126
Treatment Recommendations	128
Implementation Projects	143
Estimate of Probable Costs	156

Bibliography	161
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Volume II: Environmental Assessment

List of Figures	ii
List of Maps	iii

FONSI Signature Page

FONSI Contents

FONSI Appendix A

FONSI Appendix B

Chapter 1: Purpose of and Need for Action

1.1 Introduction	1
1.2 Purpose of and Need for Action	2
1.3 Site Context and Boundary	3
1.4 Issue and Impact Topics	5

Chapter 2: Alternatives

2.1 Development of Alternatives	9
2.2 Alternative A: No Action Alternative	9
2.3 Alternative B: Action Alternative	13
2.4 Ongoing Management Activities and Mitigation Measures for the Preferred Alternative	21

Chapter 3: Affected Environment

3.1 Introduction	25
3.2 Natural Resources	26
3.3 Cultural Resources	31
3.4 Additional Issues	36

Chapter 4: Environmental Consequences

4.1 Introduction	39
4.2 Climate Change and Environmental Issues	39
4.3 Impact Analysis	40

Chapter 5: Consultation and Coordination

5.1 Introduction	53
5.2 Planning	53
5.3 Civic Engagement	54
5.4 Agency Consultation	55
5.5 Preparers and Consultants	55

References

Appendix A: Alternative Options Concepts Considered but Dismissed from Further Analysis

Appendix B: Consultation Letters

List of Figures

Introduction

Figure 1.	One of the gun emplacements associated with the Spanish-American War Battery overlooking the St. Johns River near Jacksonville, Florida, 2019	1
Figure 2.	Views from the top of the bluff adjacent to the Spanish-American War Battery to the St. Johns River are partially blocked by woody vegetation, 2019	2
Figure 3.	View along Fort Caroline Road as it passes through the St. Johns Bluff neighborhood where the Spanish-American War Battery is located, 2019	2
Figure 4.	View of team members conducting field investigations with National Park Service personnel, 2019	10
Figure 5.	Map of the state of Florida indicating the location of the Spanish-American War Battery property	13
Figure 6.	Map of Timucuan Ecological and Historic Preserve	14
Figure 7.	Context map, Spanish-American War Battery property	14

Site History

Figure 8.	St. Johns Bluff on a circa 1839 map	25
Figure 9.	Battery on St. Johns Bluff in 1862	26
Figure 10.	E. B. Thompson's November 1898 sketch of a portion of St. Johns Bluff showing the Spanish American War Battery	31
Figure 11.	Spanish-American War Battery showing the locations of the emplacements for the two 8-inch breech-loading rifles and their field of view	34
Figure 12.	Schematic for the existing bomb-proof magazine contiguous on the northwest to the Spanish-American War Battery gun emplacements	35
Figure 13.	Spanish-American War Battery in February 1899, showing range of fire	37
Figure 14.	Layout of Spanish-American War Battery and bombproof magazine in December 1899	37
Figure 15.	Sketch map completed by Charles Sperry, 1899	38
Figure 16.	Sketch map completed by Charles Sperry, 1899	39
Figure 17.	William H. H. Benyaurd	40
Figure 18.	A circa 1900 view of St. Johns Bluff	40
Figure 19.	St. Johns Bluff in 1903	41
Figure 20.	A 1904 site plan	41
Figure 21.	St. Johns Bluff in 1918	42
Figure 22.	Spanish-American War Battery, St. Johns Bluff in 1934	42
Figure 23.	Spanish-American War Battery, St. Johns Bluff in 1934	43
Figure 24.	Magazine of the Spanish-American War Battery, St. Johns Bluff circa 1940	43
Figure 25.	Spanish-American War Battery, St. Johns Bluff circa 1940	43
Figure 26.	Aerial photograph showing St. Johns Bluff	43
Figure 27.	St. Johns Bluff	44
Figure 28.	St. Johns Bluff	44
Figure 29.	Period Plan, 1513-1862	51

Figure 30. Period Plan, 1863-1899	53
Figure 31. Period Plan, 1900-1944	55
Figure 32. Period Plan, 1945-2019	57

Existing Conditions

Figure 33. Timucuan Ecological and Historic Preserve	61
Figure 34. The Ribault Monument with views toward the St. Johns River beyond	65
Figure 35. Existing Conditions, Neighborhood Context	67
Figure 36. Existing Conditions, Battery	69
Figure 37. 1945 plat of St. Johns Bluff Estates (lots 33 and 34 shown in red)	71
Figure 38. Wooded character of the Spanish-American War Battery parcel	71
Figure 39. View northeast toward the gun emplacement platform of the Spanish-American War Battery from the magazine	72
Figure 40. View northeast of the tunnel leading to the Spanish-American War Battery from the adjacent residential property	72
Figure 41. Portion of a 1991 survey map of the Spanish-American War Battery parcel and adjacent properties indicating the land transfer of the western end of the concrete structure and well site (dark blue areas)	73
Figure 42. The topography of the Spanish-American War Battery parcel slopes gently upward between Fort Caroline Road and the concrete gun emplacement platform	73
Figure 43. The concrete gun emplacement platform of the Spanish-American War Battery is set below a concrete retaining wall set into the slope near the top of the bluff	74
Figure 44. Access to the Spanish-American War Battery occurs via a metal gate set within a fence along the property boundary at Fort Caroline Road	74
Figure 45. The Spanish-American War Battery contains a concrete gun emplacement platform and a concrete magazine. A concrete tunnel links the two features and continues to a western arched opening	75
Figure 46. A hammock woodland community dominated by live oak trees characterizes much of the Spanish-American War Battery property	75
Figure 47. Air potato vine growing on one of the masonry columns at the Spanish-American War Battery property	76
Figure 48. Overall view of the gun mounts and parapet wall	77
Figure 49. The ramp leading down to the battery's magazine. Note the major and minor pylon visible in this photo	77
Figure 50. A view of the magazine from one of the gun platforms	77
Figure 51. A view to the southeast of the traverse wall and a gun platform	77
Figure 52. Historic American Buildings Survey drawing (1934) showing the plan and primary components of the battery	78
Figure 53. Horizontal cracks at cold joints in the traverse wall. Vertical cracking and efflorescence are also visible	79
Figure 54. Map cracking in the traverse wall and efflorescence	79
Figure 55. Cracks at the roof of the ramp leading to the magazine. Also visible is the corroded iron channel	79
Figure 56. A large crack extending along the roof of the magazine. Also visible is the vent shaft located in the roof	80

Figure 57. A crack observed in the base of the major pylon as seen from the roof of the magazine	80
Figure 58. A large spall in the wall of the parapet	80
Figure 59. A large spall observed at the corner of the roof of the ramp leading to the magazine	80
Figure 60. Corroded channel at the southwest side of the roof of the ramp to the magazine. Staining of the concrete is also visible beneath the channel	81
Figure 61. Efflorescence on the interior of the magazine. Corrosion of the exposed reinforcing in the ceiling is also visible	81
Figure 62. Corrosion of the exposed reinforcing in the ceiling. Note the vent shaft in the ceiling and roof slab as seen from the interior of the magazine	81
Figure 63. Vegetation growing through a crack in the traverse wall	81
Figure 64. Vegetation growing over the entrance to the magazine	82
Figure 65. Organic growth present on the surface of the major pylon	82
Figure 66. Darker organic growth on the parapet wall	82
Figure 67. Generally expansive view from St. Johns Bluff north of the Spanish-American War Battery now filtered by trees and shrubs	82
Figure 68. View of a house on the lot to the northwest of the Spanish-American War Battery as seen from atop the magazine. (Image intentionally blurred)	82
Figure 69. View of the entrance gate and post and wire fence marking the Spanish-American War Battery property boundary along Fort Caroline Road	83
Figure 70. One of the two masonry columns located near the property boundary along Fort Caroline Road	83

Analysis and Evaluation

Figure 71. Map of St. Johns Bluff and vicinity developed for coastal defense planning purposes. The map shows St. Johns River and the orientation of St. Johns Bluff as it sits above St. Johns Creek	92
Figure 72. Sketch of a portion of St. Johns Bluff showing the relationship between St. Johns River, St. Johns Bluff, St. Johns Creek and associated marshland, as well as the temporary and permanent Spanish-American War Battery sites and the rail line used to convey construction materials to the bluff from the river in 1898–1899	93
Figure 73. 1904 sketch of the military reservation established on St. Johns Bluff in 1898 showing the location of the temporary battery, rail line, and permanent battery sited to take advantage of topography that afforded a commanding view of St. Johns River	95
Figure 74. Sections of the Spanish-American War Battery and site prepared in 1934 by the Historic American Buildings Survey	96
Figure 75. Detail of US Corps of Engineers map showing the alignment of the rail line built to supply materials for construction of coastal defenses on St. Johns Bluff, and transport the guns emplaced at the Spanish-American War Battery, 1904	100
Figure 76. Map dated December 28, 1899, of the St. Johns Bluff area and military reservation. Labels on the map indicate the character and composition of vegetation encountered by the US War Department when establishing the batteries	102
Figure 77. Circa 1900 photograph of St. Johns Bluff from the St. Johns River. The photograph shows a dock and a cut in the bank of the river near the center of the image where a rail line was established to convey construction materials to the top of the bluff for construction of the Spanish-American War Battery. To the right is a possible mine field terminal to the right	103

Figure 78.	Circa 1900 photograph of St. Johns Bluff and the military reservation associated with the Spanish-American War Battery from the river. Buildings erected to support the project are visible, along with riprap placed along the river shoreline to protect against erosion	103
Figure 79.	View northwest toward the battery showing the wooded nature of the top of the bluff beyond, 1934	104
Figure 80.	Photographic view of the Spanish-American War Battery in 1934 showing trees edging the structure. The evergreens visible are likely eastern red cedar trees	104
Figure 81.	Aerial photograph of St. Johns Bluff in 1943 indicating the dense woodland present on the bluff and the sites of the Spanish-American War Battery and other military features developed in 1898–1899. Yellow arrow shows location of the Spanish-American War Battery	105
Figure 82.	Aerial photograph of St. Johns Bluff in 1960 that indicates where several dwellings had been built within St. Johns Bluff Estates. Yellow arrow shows location of the Spanish-American War Battery	105
Figure 83.	A 1900 map of the coastal defense features erected at St. Johns Bluff between 1898 and 1899	108
Figure 84.	HABS measured drawing of the “bomb proof” ammunition magazine associated with the Spanish-American War Battery, 1934	110
Figure 85.	Map titled “General Project for Defense Proposed by the Board of Engineers,” 1900	112
Figure 86.	Map titled “Defenses of St. Johns River, Fla.,” showing the intended field of fire for the Spanish-American War Battery, 1899	112
Figure 87.	View of the perimeter fence, gate, and signage along the southern boundary of the Spanish-American War Battery property, 2019	114
Figure 88.	Contributing Resources	117

Treatment Plan

Figure 89.	Parking area to be shady and set within a grove of trees	132
Figure 90.	Road and parking surface to be warm colored concrete with exposed aggregate or similarly colored pervious paving	132
Figure 91.	Detail of exposed aggregate road surfacing materials options	132
Figure 92.	Parking wheelstops to convey a park-like but relatively informal character, such as wooden barriers	132
Figure 93.	Property boundary fencing to be dark in color and metal to have little visual impact	133
Figure 94.	Property boundary fencing to be dark in color and metal to have little visual impact	133
Figure 95.	Dark colored privacy fencing to be used where adjacent residences are visible. A trellis with vines may be considered in addition to fencing and planting to create an effective screen	133
Figure 96.	Dark colored privacy fencing to be used where adjacent residences are visible. A trellis with vines may be considered in addition to fencing and planting to create an effective screen	133
Figure 97.	A trellis with vines may be considered in addition to fencing and planting to create an effective screen	134
Figure 98.	The elevated walk is proposed to be a durable wood such as lpe or a sustainable wood such as black locust that has a high slip resistance, is naturally rot resistant and does not become hot in the sun	134
Figure 99.	The elevated walk and platforms will be edged by barrier fencing composed either of wood or wood and metal cable	134
Figure 100.	Signage will provide for orientation, wayfinding, and interpretation but will be kept minimal and unobtrusive	134

Figure 101. Provisions will be made for self-guided tours with features such as QR codes	134
Figure 102. Site furnishings should include benches with backs that are simple and contemporary in design and character	135
Figure 103. Benches without backs might also be provided in some locations that should also be simple and contemporary in design and character	135
Figure 104. A compatible palette of trash receptacles should also be provided, similarly simple and contemporary in design and character	135
Figure 105. Recycling receptacles should also be provided	135
Figure 106. Bike racks will be provided for visitors in addition to parking	135
Figure 107. Preservation Treatment Plan	137
Figure 108. Concept Plan	139
Figure 109. Concept Section	141

Foreword

The Spanish-American War Battery exemplifies the strategic and military importance this area has held for thousands of years. Ancestors of the Timucua people occupied the region for over 6,00 years. The French and Spanish lost hundreds of lives each in their bids to control this vital area providing access to the St Johns River. During the American Revolution, British troops placed cannons on this bluff to fortify their holdings in advance of the Americans, while Confederate earthworks, built as part of a larger coastal defense of Florida, were constructed along the bluff during the Civil War. The Spanish-American War of 1898 spurred the citizens of Jacksonville to defend their city, while the US Military eventually took ownership of the project and completed it. The Spanish-American War Battery provides yet another example of the importance in controlling this site.

The success of this project is due in large part to the staff of the Timucuan Ecological and Historic Preserve. The park has long sought to protect and interpret this important resource. When the Park acquired this property, its first priority was to complete the Cultural Landscape Report and Environmental Assessment to learn more about it and provide visitor services at the site. Morgan Baird, the Park's Exhibit Specialist, Josh Salestrom, Interpretive Ranger, Anne Lewellen, Museum Curator, Lewis Prettyman, Facilities Chief, and Steven Kidd, Resource Manager, all assisted in providing support for this project.

We would like to thank Project Lead Mark Steinback of Panamerican Consultants, Inc., Historian Deborah Slaton and Landscape Architect Jane Jacobs of Wiss, Janney, Elstner Associates, Inc., and Landscape Architect Liz Sargent of Liz Sargent HLA for their thorough research, rigorous existing conditions documentation, and carefully considered recommendations. The Park would also like to thank Interior Region 2 Cultural Landscapes Historical Landscape Architect David Hasty for his careful reviews and tireless work as the primary NPS liaison on this project.

Chris Hughes
Superintendent

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Jami Hammond, Regional Environmental Coordinator

National Park Service – Timucuan Ecological and Historic Preserve

Chris Hughes, Superintendent
R. Steven Kidd, Chief of Science and Resource Management
Morgan Baird, Exhibit Specialist
Joshua Salestrom, Park Ranger

Panamerican Consultants, Inc.

Mark Steinback, Project Team Leader and Editor
Christine Longiaru, Architectural Historian
Don Smith, Archeologist

Wiss, Janney, Elstner Associates, Inc.

Deborah Slaton, Historian/Conservator
Tim Penich, Historical Architect
Sean Barron, Intern Preservation Engineer
Jane Jacobs, Historical Landscape Architect
Christina Osborn, Historic Preservation Specialist
Kenneth Itle, Historical Architect
Abby Valek, Intern Historical Architect

Liz Sargent HLA

Liz Sargent, Historical Landscape Architect
Jen Trompetter, Landscape Architect

Introduction



FIGURE 1. One of the gun emplacements associated with the Spanish-American War Battery overlooking the St. Johns River near Jacksonville, Florida, 2019. (Source: all photographs by the authors unless otherwise noted)

Management Summary

The Spanish-American War Battery that is the focus of this study was erected in April 1898 to protect the mouth of the St. Johns River against the Spanish fleet during tensions between the United States and Spain that resulted in the

Spanish-American War of 1898. The battery, which consists of two concrete gun emplacements and a munitions magazine, was built to emplace two 8-inch breech-loading rifles on a strategic river bluff to protect Jacksonville, Florida, from naval attack (Figure 1). Following the end of the conflict, the battery was decommissioned, and the guns were sent to Pensacola.¹ The concrete battery

1. For more information, please see documentation of the Spanish-American War Battery prepared by the Historic American Buildings Survey (HABS), "The Spanish-American War Fort, St. John's Bluff, Duval County, Florida," HABS No.

FL-15-2 (Washington, DC: Library of Congress, Prints and Photographs Division, 1934); 1936 Addendum; and Barbara P. Prettyman, "8DU00124 Spanish-American War Battery

survives in relatively good condition and continues to convey its historic associations with military coastal defense strategy related to the position's commanding views of the St. Johns River. Although the views associated with the artillery field of fire would have been maintained while in military use, the view from the bluff was partially obscured by woody vegetation at the time fieldwork was conducted for the project in 2019 (Figure 2).



FIGURE 2. Views from the top of the bluff adjacent to the Spanish-American War Battery to the St. Johns River are partially blocked by woody vegetation, 2019.

The battery lies within Timucuan Ecological and Historic Preserve, a unit of the National Park System administered by the National Park Service (NPS) that protects, manages, and interprets one of the last unspoiled Atlantic coastal wetlands. In addition to inland waterways, wetlands, an extensive estuarine system of salt marsh, coastal hammock, and marine and brackish waters, the 46,000-acre preserve encompasses nearly 200 archeological sites and a varied collection of historic buildings and structures and cultural landscapes associated with over 6,000 years of human habitation in the area.

The Spanish-American War Battery occupies an undeveloped parcel within a residential neighborhood located along Fort Caroline Road (Figure 3). Residential properties edge Fort

Caroline Road to either side. Many of the houses occupy the high point of St. Johns Bluff to take advantage of the views to St. Johns River to the north and east.



FIGURE 3. View along Fort Caroline Road as it passes through the St. Johns Bluff neighborhood where the Spanish-American War Battery is located, 2019.

The importance of the Spanish-American War Battery as an intact example of an Endicott-era coastal defense battery has long been recognized. In 1934, the property was recorded by the Historic American Buildings Survey (HABS) due to its historic importance. In 1994, the NPS indicated acquisition of the property for inclusion in Timucuan Ecological and Historic Preserve as a goal in the park's General Management Plan (GMP) as well as its enabling legislation. This goal was supported by the North Florida Land Trust (NFLT), which began working toward acquisition of the property and protection from residential development during the 1990s. NFLT planned to acquire the property with the intention of conveying the tract to the federal government for inclusion within Timucuan Ecological and Historic Preserve.

Following a successful fund-raising effort, the NFLT and the City of Jacksonville purchased the parcel containing the Spanish-American War Battery in 2016. The NPS accepted the deed for the property from the NFLT in a ceremony on December 14, 2018. Since 2018, the NPS has administered the property as part of the Timucuan

cleanup project," August 2011, submitted September 2013.

Ecological and Historic Preserve and currently plans to provide access to the public once appropriate improvements and preservation management protocols are developed and implemented.

In support of this goal, the NPS engaged a consultant team of preservation professionals to prepare a Cultural Landscape Report (CLR) for the Spanish-American War Battery property. The consultant team engaged to prepare the CLR was led by Panamerican Consultants, Inc. (Panamerican) of Buffalo, New York, and included Wiss, Janney, Elstner Associates (WJE) of Northbrook, Illinois, and Liz Sargent HLA, of Charlottesville, Virginia.

In preparing the CLR, the team conducted an in-depth review of available management guidance and documentary sources related to the history and administration of the property; documented existing conditions; and evaluated the property's National Register of Historic Places (NRHP) significance, while also assessing its integrity. In addition, the team worked closely with park personnel to determine goals for preservation, visitor access, vegetation management, and interpretation treatment strategies. Based on these goals, the team prepared treatment guidelines and recommendations designed to address the specific needs and concerns of the NPS related to the Spanish-American War Battery. The CLR provides a conceptual design framework for parking, trails, planting, clearing, signage, and other site furnishings intended to support park goals of stewardship and carefully considered public access.

Future implementation of the CLR treatment plan is supported through an accompanying Environmental Assessment (EA), included as Appendix A of the CLR. The EA meets compliance review requirements under the National Environmental Policy Act (NEPA) while addressing any impacts to natural and cultural

resources anticipated to result from implementation of visitor access and site management recommendations provided in the CLR.

Historical Summary

The Spanish-American War Battery is located on St. Johns Bluff on the south side of the St. Johns River. The river's importance has been recognized for its strategic military and economic value beginning centuries ago, first by American Indians and then later by Europeans and Americans.² St. Johns Bluff has been the site of five fortifications over a period spanning more than three centuries, beginning in 1564 with Fort Caroline from the short-lived French occupation of northeast Florida. The present-day battery, constructed by the United States (US) government in 1898 during the Spanish-American War, represents the last defensive work built on the bluff.

René Goulaine de Laudonnière (circa 1529–1574) established the French Huguenot settlement of Fort Caroline on St. Johns Bluff in 1564. When Europeans first encountered St. Johns Bluff, the riverbank sloped down westerly to a level terrace along a cove between the bluff's eastern point and the hamlet of Fulton. The French called this land feature the "Vale of Laudonnière," and built a fort near the water's edge to the northwest of the future Spanish-American War Battery."³ On September 20, 1565, the Spanish captured Fort Caroline and renamed it Fort San Mateo. The Spanish killed the French occupants and the French contingent sent to supply them. Although a second French expedition defeated the Spanish and recaptured the fort in April 1568, the French left the region shortly thereafter. The remains of Fort Caroline have not been located, and the actual location of the fort is not known.

By treaty in 1763, Great Britain acquired Florida from Spain in exchange for Havana, Cuba,

2. Daniel W. Stowell, *Timucuan Ecological and Historic Preserve Historic Resource Study* (Atlanta, Georgia: National Park Service Southeast Field Area, 1996), 121.

3. T. Frederick Davis, *History of Jacksonville, Florida and Vicinity 1513 to 1924* (St. Augustine, Florida: The Florida Historical Society, 1925), 9.

assuming control of the territory in the following year. During the American Revolutionary War, in anticipation of an American invasion in May 1777, British troops fortified Hester's Bluff (current St. Johns Bluff) with cannon.⁴ The placement of a battery may have been the first effort by the British to fortify St. Johns Bluff.⁵ Since Florida was not part of the United States at the time, British loyalists fled to the area after the war during the summer and fall of 1782. The loyalists erected frame houses with detached kitchens and other structures.⁶ A small force of British regulars remained at St. Johns Bluff until Spain officially took over Florida in 1785 as part of the settlement agreement ending the American Revolution.⁷ The British residents dismantled parts of their village called St. Johns Town and abandoned their estates along the river.⁸ Later, the treaty for the transfer of Florida by Spain to the United States was ratified in February 1819, with the formal transfer occurring in 1821.

On April 17, 1861, Florida joined the Confederate States of America. Coastal defensive works were built in northeast Florida on Amelia Island, Talbot Island, and St. Johns Bluff. In summer 1862, batteries were emplaced on St. Johns Bluff to prevent Union gunboats from advancing upstream on the river.⁹ The St. Johns Bluff Confederate earthworks consisted of two twelve-pounder rifle guns and two eight-inch howitzers. Several engagements between this battery and Federal gunboats transpired over the next few weeks.

Federal troops ultimately seized the battery, destroying its magazines and defense works.¹⁰

The general demobilization and years of reduced military appropriations following the conclusion of the Civil War led to concerns about the ability of the United States to defend itself during a time when the government sought to expand its influence overseas. In 1885, President Grover Cleveland organized a joint army, navy, and civilian board headed by Secretary of War William C. Endicott to assess the state of the nation's coastal defenses.¹¹ A comprehensive modernization program of harbor and coastal defenses, known as the Endicott System, was the result. Unlike previous coastal defense programs, the Endicott System (1890-1905) emphasized weapons over structures.¹² The first efforts to implement the plan occurred in 1890 when the US Army Corps of Engineers initiated a modest construction program.¹³

On January 24, 1898, the United States sent the USS *Maine* from Key West to Havana to protect American interests in Cuba.¹⁴ The USS *Maine* exploded in Havana harbor on February 15, resulting in the loss of 260 American sailors.¹⁵ Five days after the sinking of the USS *Maine*, Florida Governor William D. Bloxham directed the Jacksonville Naval Militia to conduct a detailed reconnaissance of the Atlantic coast to locate proper sites for signal stations and to obtain any

4. Stowell, 134.

5. Ibid.

6. William M. Jones, "A Late Eighteenth Century Work Camp St. Johns Bluff Duval County Florida," *Florida Anthropologist* 26 (No. 4, December 1973); William M. Jones, *Historical Sites in Northeast Florida* (Jacksonville, Florida: Jones, 1985); Henry Seibert Wilbur, *Loyalist in East Florida, 1763 to 1783* Vol. I (DeLand, Florida: The Florida State Historical Society, 1929), 117.

7. Stowell, 135.

8. The Jacksonville Historical Society, "History of the St. Johns River," accessed August 9, 2019.

9. HABS, 3.

10. Ibid.

11. Coastal Defense Study Group, "Modern U.S. Harbor Defense Construction, 1886-1917; The Endicott and Taft Boards," accessed August 12, 2019, <https://cdsg.org/modern-u-s-harbor-defense-construction-1886-191-the-endicott-and-taft-boards/>.

12. Coastal Defense Study Group.

13. Ibid.

14. E. J. Benton, *International Law and Diplomacy of the Spanish-American War* (Gloucester, Massachusetts: Peter Smith, 1968), 43-45.

15. George E. Buker, *Spanish-American War Fortifications St. Johns Bluff, Florida* (Jacksonville, Florida: National Park Service, 1989), 5.

other relevant data from a strategic military standpoint.¹⁶

The State of Florida, like other coastal states, urged the US Congress to provide protection from potential attacks by the Spanish fleet. In the case of Jacksonville, the port had served as a key source of supplies for Cuban rebels. Brig. Gen. John M. Wilson, Chief of Engineers, visited Jacksonville on March 6, 1898, to inspect the river's jetties without indicating whether there were plans to defend the river.¹⁷ Jacksonville citizens had preselected St. Johns Bluff as the site possible fortifications and artillery positions and obtained the landowners permission for construction. As part of the defenses, two modern, rapid-fire five-inch guns, a secondary battery of other guns, and mines were initially planned for the St. Johns River.¹⁸

As a defensive post, St. Johns Bluff offered one of the highest elevations along the river corridor and thus a key strategic location to protect the river approach to the City of Jacksonville and its associated shipping industry. The undeveloped bluff lacked transportation infrastructure, however, and thus required improvements to prepare for the construction of defenses. The first effort entailed siting of a boat landing and wharf facility also referred to as the US Dock. On April 11, 1898, John M. Cook led his civilian laborers to St. Johns Bluff to clear the underbrush on the hillside to allow for access to the proposed battery location.¹⁹ By mid-April, the men had cleared a roadway from the riverbank to the bluff and the wharf had been completed.²⁰ Lt. Col. William H. H. Benyaud subsequently oversaw the laying of railroad track from the boat landing up the edge of the bluff. The

tracks followed the less steep slope of a ravine. Once completed, a stationary engine was used to haul the materials to the top of the bluff.

A temporary battery site was established on the northeast corner of the bluff fronting St. Johns Creek. Ten-inch by 10-inch timbers were employed in the construction of the temporary battery's revetment and magazine, which were covered with a sand embankment partly surfaced with "marsh muck."²¹ The temporary battery initially housed two 5-inch rifles and two 7-inch howitzers.²²

On April 27, 1898, two days after the United States declared war, General Wilson issued an order to build a permanent emplacement for two 8-inch breech-loading rifles on St. Johns Bluff.²³ A site located approximately 1,200 feet southeast of the temporary battery on Section 27 of Township 1 South, Range 28 E, was selected for the permanent Spanish-American War Battery (refer to Figure 10 in the following chapter). Benyaud submitted a formal design for an emplacement for two 8-inch on breech-loading rifles with an accompanying letter to the Chief of Engineers on June 14, 1898 (refer to Figure 11 in the following chapter).²⁴

Construction of the permanent battery entailed site preparation, charting the lines for a new gunpit, constructing a 1,200-foot-long extension of the railroad track, drilling for water, and erecting a building to store the cement.²⁵ By early July 1898, coinciding with American victories at San Juan and El Caney, excavation for the Spanish-American War Battery's 8-inch gun emplacements was completed, and the bomb-proof magazine for ammunition was near completion.²⁶ After the

16. Buker, 8; Davis, 208.

17. Buker, 9; *The Florida Times-Union & Citizen*, March 7, 1898.

18. Buker, 10.

19. *Ibid.*, 12.

20. *Ibid.*, 13.

21. *Ibid.*, 12-13.

22. E. B. Thompson, *Sketch of a Portion of St. Johns Bluff, Florida*. Surveyed November 1898, under the direction of Lt. Col. Wm. H. H. Benyaud, Corps of Engineers, US Army. (Report of Lt. Col. W. H. H. Benyaud, January 9, 1899, re. land to

be acquired for defensive purpose 28144/2). Chief of Engineers Series (NARA RG 77), Fortifications Map File, Drawer 191, Sheet 2.

23. Buker, 17.

24. Benyaud, *Defenses of St Johns River, Fla. (St. Johns Bluff) Design for Emplacement for two 8 inch on B.L. Rifles*. Letter of Lt. Col. W.H.H. Benyaud, June 14, 1898, 26112/4). RG 191, Drawing 191 Sheet 1.

25. Buker, 26.

26. *Ibid.*

peace protocol was signed on August 12, completion of the 8-inch gun emplacements remained a high priority.²⁷ On December 10, the peace treaty was signed in Paris as construction continued at St. Johns Bluff.

In January 1899, two 8-inch breech-loading rifles were mounted at the Spanish-American War Battery.²⁸ Each gun weighed 32,480 pounds and could fire a 300-pound projectile capable of penetrating 10.6 inches of steel at 3,500 yards.²⁹ The concrete cover over the magazines was left unfinished, and the sand was not placed over the magazines. At this time, further work on St. Johns Bluff was suspended.³⁰ After the Spanish-American War, the US government maintained the military reservation at St. Johns Bluff. The bluff remained undeveloped except for the extant military facilities.

In the years leading up to World War I, the United States reassessed its seacoast defense system as the Endicott System became obsolete due to advances in military weaponry and the introduction of aircraft. The US War Department evaluated the positions along the St. Johns River for their role in coastal defenses but determined there was no major naval military threat to Jacksonville. On March 4, 1923, the US Congress decided to deaccession the military reservation at St. Johns Bluff and authorized its sale to the public.³¹

Arthur Tilman Williams, president of the Florida Realty Investment Corporation, contracted with the government to purchase the St Johns Bluff military reservation for \$53,839.38 in 1925.³² However, the corporation never undertook any development on the property.

The parcel was later sold during World War II to St. Johns Bluff-Ft. Caroline, Inc. The company prepared a survey of the property and subdivided it to establish St. Johns Bluff Estates.³³ The plat

prepared by St. Johns Bluff-Ft. Caroline, Inc., included eighty-two parcels laid out on both sides of Fort Caroline Road, a 100-foot-wide two-lane road. In January 1945, Duval County approved the plat for St. Johns Bluff Estates subdivision.³⁴ By 1947, Fort Caroline Road had been completed as an improved dirt road. Residential development continued in St. Johns Bluff Estates near the Spanish-American War Battery in the 1950s and 1960s; dwellings continued to be built on the lots through the end of the twentieth and into the early twenty-first century.

In 1953, the NPS established Fort Caroline National Memorial on the site believed to represent the location of the sixteenth-century French fortification, which is located northwest of the Spanish-American War Battery overlooking St. Johns River. The NPS later built the Timucuan Preserve Visitor Center on the property. In 1958, the NPS sited the Ribault Monument within a discontinuous parcel of the park atop St. Johns Bluff northwest of the Spanish-American War Battery. The column was originally erected near the mouth of the St. Johns River on the current site of the Mayport Naval Station in 1924.

In 1988, Timucuan Ecological and Historic Preserve was established by Public Law 100-249, the Secretary of the Interior was authorized to preserve certain wetlands and historic and prehistoric sites in the St. Johns River valley. The Spanish-American War Battery was identified in the legislation as one of eight “sites of significant historical interest” for potential inclusion in the park. (The Spanish-American War Battery site was included in the authorized boundary at the time.) Although the NPS expressed interest acquiring the Spanish-American War Battery parcel in the 1994 park GMP, the property remained in private ownership and thus unprotected from potential development until into the twentieth-first century.

27. Ibid., 20.

28. Ibid., 30.

29. Ibid.

30. Ibid.

31. Ibid., 43.

32. Ibid., 43.

33. St. Johns Bluff-Ft. Caroline, Inc., *St. Johns Bluff Estates*, State of Florida County of Duval Plat Book 18, 50.

34. St. Johns Bluff-Ft. Caroline, Inc.

In 2015, the NPS and the NFLT began collaborating to protect the Spanish-American War Battery site from development and deterioration. In 2016, the NFLT purchased the Spanish-American War Battery site with the financial assistance of the City of Jacksonville, a \$100,000 challenge grant from the Delores Barr Weaver Fund, and numerous other donors.³⁵ On December 14, 2018, the NFLT transferred the title for the property containing the Spanish-American War Battery to the NPS for inclusion within the Timucuan Ecological and Historic Preserve.³⁶

Scope of Work and Methodology

Scope of Work

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 CLR for the Spanish-American War Battery 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. At the same time, the CLR is intended to guide appropriate development of new infrastructure sufficient to accommodate visitors to the property in the future. The treatment guidelines, recommendations for specific treatment projects, and implementation strategies provided in the CLR identify and prioritize the actions needed to ensure resource preservation while addressing

contemporary park use and management concerns.

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

- Conduct primary research and retrieval of military archival records, including plans, photographs, correspondences, and military reports, from the National Archives, including Record Group 77 as referenced in a report prepared in 1989 by George Buker. Records of interest were those related to military use of the site, particularly pertaining to the Endicott Era.
- Describe the historical development of the study area landscape from pre-contact eras to the modern day.
- Identify all landscape features on the property, organized by landscape characteristic.
- Document existing site conditions.
- Provide analysis of the landscape's National Register of Historic Places significance and integrity.
- Determine the primary period of significance and identify other potential periods of significance.
- Identify and address all primary treatment needs, likely to include: preservation of historic resources, particularly the battery, which is experiencing condition issues with the concrete; pedestrian and vehicular circulation for visitor and park use; parking for cars and oversized vehicles; identification and protection and restoration of significant views and vistas; provision of interpretive facilities,

35. National Park Service, "A Spanish-American War Fort Now Protected by Timucuan Ecological & Historic Preserve," News Release (December 18, 2018), accessed December 29, 2019,

<https://www.nps.gov/timu/learn/news/spanampr.htm>.

36. Ibid.

such as kiosks or shade structures;
consideration of visitor safety needs;
identification of or suggestions for potential
connections to city and regional trail systems;
and access control.

- Provide cost estimates and implementation guidelines for proposed landscape treatment, mitigation, and archeological survey.
- Provide draft project statements for entry into the Project Management Information System (PMIS) by park personnel.
- Provide a Facility Management Software Systems (FMSS) location and asset hierarchy, and information that could be used to generate work orders for the property through collaboration with park personnel.

Methodology

The CLR for the Spanish-American War Battery was 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*
- *Americans with Disabilities Act Accessibility Guidelines (ADAAG)* and *Architectural Barriers Act Standards (ABAS)*

- 8 Cultural Landscape Report and Environmental Assessment: Spanish-American War Battery, Timucuan Ecological and Historic Preserve

- *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: *Guidelines for Identifying, Evaluating, and Registering America's Historic Battlefields*
- 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 the CLR is described below.

Background Research and Data Collection

Prior to the project kick-off meeting held at the park in July 2019, CLR project team members began to collect documents and other materials pertaining to the project and the site, including archival documentation available online through the Library of Congress, and reports and studies prepared previously about the property, such as George Buker's *Spanish-American War Fortifications, St. Johns Bluff, Florida* (1989). The team also collected materials available electronically from the Integrated Resource Management Applications (IRMA) Portal and the NPS History eLibrary, such as the park GMP (1994) and the *Historic Resource Study for Timucuan Ecological and Historic Preserve* (1996). Park personnel provided the team with several property records and the Determination of Eligibility (DOE) prepared for the property in 2019 during the data collection period as well.

CLR project team members conducted research at the park during the July 2019 site visit. The focus of research was compiling and reproducing all materials related to the battery available at the park.

As part of a separate trip, project historian Christine Longiaru conducted research at the National Archives in College Park, Maryland. As stipulated in the statement of work, Ms. Longiaru assembled copies of all materials available in Record Group 77 related to the Spanish-American War Battery.

In preparation for field investigations, the team requested GIS mapping data from the NPS. Using the available data, the team began preparing base maps for use in conducting fieldwork for the project.

Start-up Meeting

On July 9, 2019, project team members from WJE and Liz Sargent HLA met on site with park and regional NPS personnel to initiate work on the CLR. Present at the park during the meeting were:

Interior Region 2 of the National Park Service

- David Hasty, Historical Landscape Architect and Contracting Officer's Representative

Timucuan Ecological and Historic Preserve

- Morgan Baird, Exhibit Specialist
- Joshua Salestrom, Park Ranger

Wiss, Janney, Elstner Associates, Inc.

- Deborah Slaton, Historian/Conservator
- Jane Jacobs, Historical Landscape Architect and EA Specialist
- Sean Barron, Intern Preservation Engineer

Liz Sargent HLA

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

Project Manager/Historian Mark Steinback and Historian Christine Longiaru from Panamerican Consultants, Inc., in addition to historic preservation specialist Christina Osborn, joined

the meeting by conference line, along with NPS regional personnel Barbara Judy (Branch Chief, Cultural Resources Planning and Stewardship) and Jami Hammond (Regional Environmental Coordinator). Also participating in the call was NPS cultural resource specialist and archeologist R. Steven Kidd, who was soon to join Timucuan Ecological and Historic Preserve as Chief of Science and Resource Management.

The meeting focused on several topics, including research materials available for review by the team during the site visit; field investigation procedures; lines of communication; coordination of the CLR and EA; and the project schedule.

During the meeting, park personnel also conveyed specific issues to be considered by the CLR, including:

- Access and parking
- Trail development and accessibility
- Vegetation management
- View and vista management
- Wayside exhibits and other interpretive aids
- Proper management and preservation policies regarding historic structures

Field Investigations

Following the start-up meeting, the team conducted initial field investigations with the assistance of park personnel. Over the course of two days, team members photographed cultural and natural resources, refined the preliminary base maps, and recorded location, materials, dimensional, and condition information related to natural and cultural landscape features (Figure 4).

During the field investigations, the team identified the need for topographic information suitable for considering the feasibility of providing an accessible path for visitors to the gun emplacement platform. Following the identification of this need, park personnel engaged a local surveying company to prepare a topographic survey of the property

and provided the survey to the team ahead of work on the treatment plan.

The project team also conducted a field condition assessment of the battery as part of the field investigations. Visible conditions were documented with field notes and photographs, and measurements were taken of the battery. Non-destructive test methods including sounding of the concrete for voids and metal detector survey were used to further evaluate observed conditions.



FIGURE 4. View of team members conducting field investigations with National Park Service personnel, 2019.

Historical Landscape Documentation and Site History

Using these and all other available historic records, Ms. Longiaru prepared the Site History section of the CLR, which comprises chapter two of the study. The Site History is organized chronologically into a series of discrete historic periods, each illustrated with historic photographs, maps, and period plans that depict the evolution of the property over time.

Previous historical studies and sources that proved particularly useful in preparing the development history include historic context provided in the *Timucuan Ecological and Historic Preserve Historic Resource Study*; 1934 HABS recordation; a historical narrative study of the Spanish-American War Battery prepared in 1989 by George E. Buker,

professor emeritus of History at Jacksonville University; and textual and cartographic materials in the Records of the Office of the Chief of Engineers, 1789–1999 (Record Group 77) in the collection of The US National Archives and Records Administration (NARA) Washington, DC, NARA Atlanta, and the Atlanta Federal Records Center.³⁷

Historic Period Plans

The CLR team prepared period plans in support of the Site History. These cartographic diagrams depict the Spanish-American War Battery property in a series of snapshot moments in history. The period plans are rendered at a consistent scale to facilitate comparison of site development and conditions over time. The period plans were prepared using GIS mapping data provided by the NPS and are thus compatible with other mapping in the CLR. Sources referenced in developing the period plans included archival maps, narratives, and aerial photographs. The plans prepared by the team represented four periods of site development: 1) 1513–1862; 2) 1863–1899; 3) 1900–1944; and 4) 1945–2019.

Existing Conditions Documentation

The CLR project team documented the existing conditions of the Spanish-American War Battery property through compilation of base mapping, data collected during field investigations and review of park planning documents, park files, and other available cultural and natural resource documents. The existing conditions documentation, which comprises chapter three of the study, includes cross-referenced narrative, graphic, and photographic information organized in accordance with the framework established in the NPS *A Guide to Cultural Landscape Reports: Contents, Process, and Techniques*. Sections describing the environmental and cultural context for the property introduce the site-specific existing conditions documentation. This context

37. Stowell; HABS; Buker, 46–54. Note, the records in the Atlanta Federal Records Center cited by Buker were transferred to NARA Atlanta.

information is followed by resource descriptions arranged by the following landscape characteristics:

- Natural systems and features
- Topography
- Spatial organization
- Land use
- Circulation
- Vegetation
- Buildings and structures
- Views and vistas
- Small-scale features
- Archeological sites

For each landscape characteristic, the team also prepared an inventory of the features present on the property.

Evaluation of Significance

The CLR includes an evaluation of the significance of the property based on National Register of Historic Places criteria. The evaluation draws from the DOE (referred to as a Preliminary Site Information Questionnaire) prepared for the property by NPS cultural resource staff, and the March 4, 2019, concurrence of the Florida Department of State Division of Historical Resources (State Historic Preservation Office [SHPO]) regarding the eligibility of the property for listing in the National Register of Historic Places.³⁸ The significance evaluation prepared for the CLR was based on the guidance provided in the National Register Bulletin, *How to Apply the National Register Criteria for Evaluation*. The evaluation also identifies a period during which the property appears significant. It comprises part of the analysis and evaluation section of the study.

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. The three primary goals of the comparative analysis are 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 supports the development of treatment recommendations.

The comparative analysis identifies character-defining elements of the landscape and the features that appear to contribute to its significance as a National Register-eligible property. For purposes of this study, contributing features are defined as those landscape resources surviving from the proposed period of significance with integrity that can also be tied to the property's significant historic contexts. Non-contributing features are defined as those landscape resources originating after the proposed period of significance, or having lost integrity, or not associated with the property's significant historic contexts. Also identified in the comparative analysis are features known to have existed historically but are no longer extant in the landscape today. This information comprises part of the analysis and evaluation section of the study.

38. National Park Service, *Timucuan Ecological and Historic Preserve, National Register of Historic Places Preliminary Site Information Questionnaire: Spanish American War Battery*, February 25, 2019; Ruben Acosta, Supervisor,

Survey and Registration, Division of Historical Resources, Florida Department of State, letter to Morgan Baird, re: Spanish American War Battery (DU00124), March 4, 2019.

Assessment of Integrity

The CLR assesses the overall integrity of the Spanish-American War Battery property 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*. Integrity is assessed 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. Historic landscapes must retain integrity to be eligible for listing in the National Register of Historic Places. This information comprises part of the analysis and evaluation section of the study.

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 includes a discussion of the overall management objectives for the historic landscape as documented in planning studies or other management documents. The treatment plan addresses the issues, concerns, and needs identified by NPS park and regional personnel during meetings conducted over the course of the project as well as feedback received from the public during a civic engagement meeting held in November 2020.

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 PMIS so that they can be easily transferred to FMSS work orders, where applicable. The treatment plan provides Class C planning level cost estimates for these implementation projects based on comparable construction projects and cost-estimating guidance such as that available from R. S. Means.

Civic Engagement Meeting

On November 12, 2020, the CLR project team participated in a civic engagement presentation hosted by park personnel on Microsoft Teams, a virtual meeting platform. Steven Kidd and Joshua Salestrom served as hosts for the meeting, while Jane Jacobs and Liz Sargent presented aspects of the CLR development process during the meeting. The park invited interested parties to attend the meeting and learn more about the CLR and the process being undertaken by the NPS to guide access and interpretation of the Spanish-American War Battery. The meeting was also an opportunity for the public to provide comments and ask questions about the initial groundwork being developed to inform and guide future planning decisions for the Spanish-American War Battery and its associated landscape. The presenters focused on providing background information about the property and its significance in American history, NPS acquisition of the property, and the planning process being undertaken to allow the public to access the site and learn from interpretive programming. The CLR was discussed as part of a larger process that will be followed by preparation of a Historic Structure Report for the battery structure, archeological survey of the property, and design and construction of proposed visitor access and interpretive improvements. Public comments and questions were addressed during and after the meeting.

Description of Study Boundaries

The Spanish-American War Battery is located within the southeastern portion of the 46,000-acre Timucuan Ecological and Historic Preserve and falls within Duval County and the city limits of Jacksonville, Florida, northeast of the downtown area (Figure 5 and Figure 6). The gun emplacement platform and other features of the battery sit near the top of the bluff, which overlooking St. Johns Creek near where the stream empties into St. Johns River. Located to the north is the Ribault Monument, another parcel associated with Timucuan Ecological and Historic Preserve. The monument, also sited on the bluff

overlooking the river, pays tribute to a French expedition led by Jean Ribault that claimed Florida for France in 1562. Northwest of the battery parcel is the Timucuan Preserve Visitor Center, located at Fort Caroline National Memorial, a section of the preserve that honors the short-lived French presence in sixteenth-century Florida. To the south is the Theodore Roosevelt Area, a 600-acre parcel rich in cultural history that also protects hardwood forest, wetlands, and scrub vegetation as part of the preserve.

The Spanish-American War Battery property occupies approximately 2.96 acres within the St. Johns Bluff residential subdivision. Accessed from Fort Caroline Road, the Spanish-American War Battery property includes lots 33 and 34, as well as

a small portion of Lot 32 (parcel 18-50-27-1S-28E), of the St. Johns Bluff Estates subdivision as platted in 1945. The parcel deed also indicates that the property falls within unsurveyed Section 27, Township 1 South, Range 28 East. Rectangular in form and oriented southwest to northeast, the parcel measures 200 by 523.62 feet. It extends between the Fort Caroline Road right-of-way and marshland along St. Johns Creek (Figure 7).

Private homes edge the Spanish-American War Battery property to the northwest and southeast and are also located across Fort Caroline Road to the southwest. A fence and gate limit access to the property from Fort Caroline Road. Fencing and plantings mark the boundaries with adjacent residential properties.



FIGURE 5. Map of the state of Florida indicating the location of the Spanish-American War Battery property. (Source: CLR team)

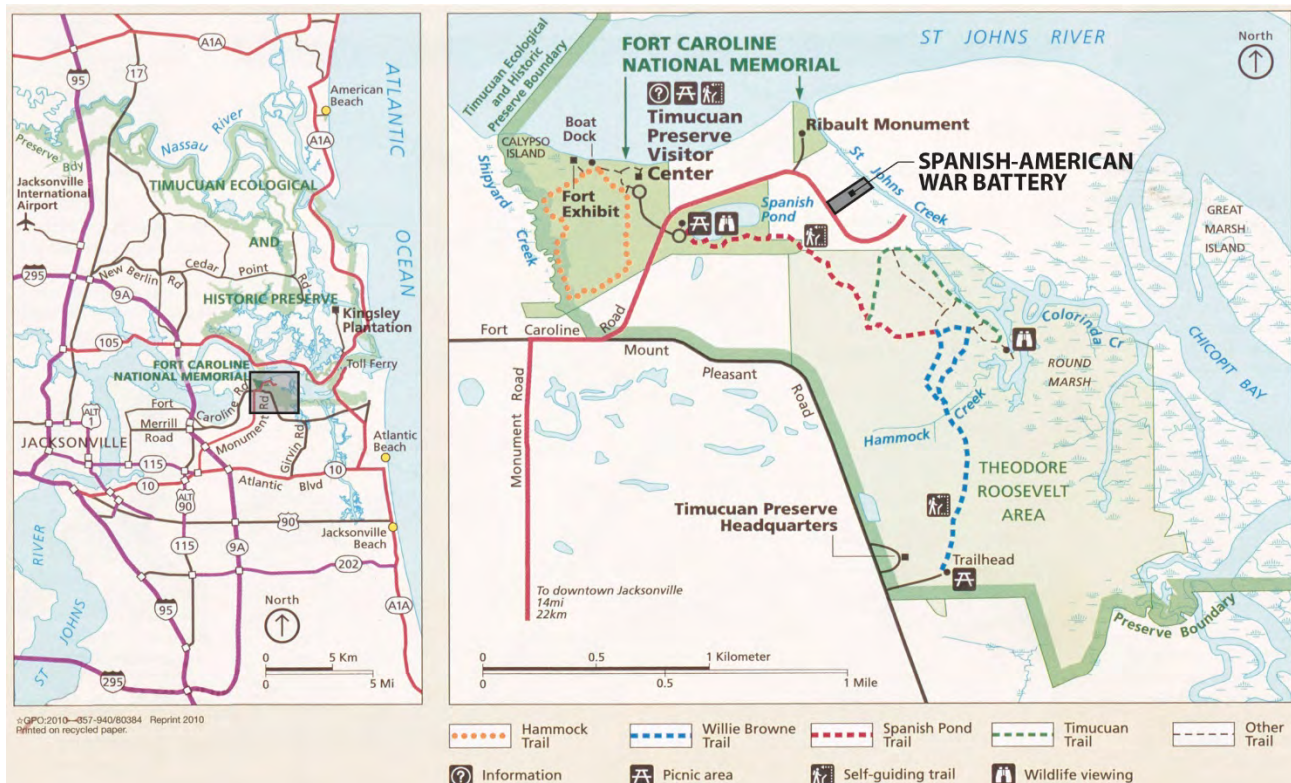


FIGURE 6. Map of Timucuan Ecological and Historic Preserve. (Source: National Park Service, available online at <https://www.nps.gov/timu/playourvisit/maps.htm>, annotated by CLR team)



FIGURE 7. Context map, Spanish-American War Battery property. (Source: Google Earth 2019, annotated by CLR team)

Summary of Findings

The Spanish-American War Battery and an associated magazine are the only surviving evidence of a military reservation designed on St. Johns Bluff in the late nineteenth century. The structure is in relatively good condition and possesses sufficient integrity to convey its historic associations with military defenses of the period. Key visual relationships with the St. Johns River that were essential to the siting and operation of the battery also survive. The property was determined eligible for listing in the National Register of Historic Places in 2019 based on documentation prepared by park personnel and concurrence by the Florida SHPO. The property is significant at the state level under Criteria A in the area of Military History and Criteria C in the area of Engineering during a period of significance of 1898–1899.

Expanding on the DOE, the CLR identifies the following features contributing to the significance of the Spanish-American War Battery:

- Spanish-American War Battery (gun emplacement platform, ammunition magazine, tunnel, and retaining walls)
- St. Johns Bluff, including steep north slope and more gently sloping landform to the south
- St. Johns Creek
- Drainage emptying into St. Johns Creek
- Marshland along St. Johns Creek
- U-shaped battery structure
- Wooded character of the site south of the battery tunnel connection between the gun emplacement platform, ammunition magazine, and western entrance into the structure
Temperate mixed hardwood and evergreen hammock woodland community with mature trees that may survive from the period of significance
- Woody vegetation on the bluff managed to maintain a view of St. Johns River
- Marsh vegetation along St. Johns Creek
- View from the battery toward St. Johns River to the north
- View through the battery tunnel
- View toward the battery from the open space to the southwest of the structure

The Spanish-American War Battery represents advances in military engineering and improvements made by the federal government to address coastal defense needs in response to the threat posed by the Spanish-American War. The battery also occupies terrain that has served military defense purposes for centuries due to its visual command of the St. Johns River and its relationship to the important port at Jacksonville, Florida. The battery is a significant historic resource that merits careful protection and preservation. As steward of the property, the NPS intends to balance protection of the battery with the provision of public access and interpretation.

The primary goal of treatment of the cultural landscape at the Spanish-American War Battery is long-term preservation and protection of resources contributing to its significance. The CLR treatment plan provides recommendations for appropriate care of masonry, concrete, and metal components of the battery, as well as treatment of vegetation, some of which contributes to the significance of the property and some of which threatens the condition or integrity of historic resources. The recommendations provided in the CLR are considered with long-term ecological and economic sustainability in mind, and with the understanding that treatment of the cultural landscape balances natural and cultural resource management within a broader framework of sustainable land management practices. Such efforts conducted by the NPS to address landscape management with ecological principles are recommended to be considered for inclusion in future interpretive programming at the park.

The native woodland that currently occupies the site is recommended to be retained to the extent possible, with existing trees maintained for the safety of visitors and protection of the battery structure. The existing woodland composed of temperate evergreen and deciduous hammock species contributes to the significance of the property. Perpetuating this woodland by retaining

as many extant healthy trees as possible, managing or eradicating invasive species, and either planting or allowing the growth of understory and replacement canopy species associated with the hammock plant community to occur are recommended. Trees are recommended to be evaluated regularly by an arborist to determine whether they pose a hazard to the battery or visitors, with appropriate pruning or removal to follow. Replacement in kind is recommended for consideration when trees must be removed due to hazardous conditions.

At the top of the bluff, views to the St. Johns River are recommended to be reestablished and maintained as open and clear of woody trees and shrubs at eye level. At the same time, a protective barrier is recommended at the top of the bluff to protect visitors from accessing the steep and dangerous slope. The intended character proposed for the barrier would have a limited visual effect on the historic property.

Although the battery structure and its location on and relationship to St. Johns Bluff survive today, residential properties abut the property to either side. To limit the effect of the views of adjacent residences, the treatment plan recommends the establishment and maintenance of a screen buffer along the eastern and western boundaries of the property to include fencing as well as plantings of native evergreen trees and shrubs designed to ensure viewshed protection.

Finally, the treatment plan provides a conceptual plan for the provision of visitor access to the property and an understanding of the history and significance of the battery, including the context within which it was built. The conceptual plan identifies the appropriate means for visitors to enter the property, circulate through the site, and gain an understanding of the historical events and associations through the provision of interpretive information. The conceptual plan carefully addresses these needs in such a way as to limit impingement on significant cultural and natural resources.

Recommendations for Further Study

1. Conduct further archival research to identify as possible additional images or other documentation of the site prior to, during, and after construction of the Spanish-American War Battery.

Developmental History

Introduction

The developmental site history that comprises this chapter of the Spanish-American War Battery CLR considers the physical history of St. Johns Bluff, an area and landform recognized for its strategic military and economic value for centuries, beginning with American Indians and continuing with European and American settlers, as a vital interior access route into eastern Florida.³⁹

The chapter is organized chronologically and according to a series of discrete temporal periods. Narrative description of the landscape, associated cultural use, and physical change over time are supported wherever possible using historic maps and photographs. Period plans, or cartographic diagrams, depict selected eras of history for the Spanish-American War Battery property. These were prepared by the CLR using all available documentation and primary and secondary source material.

Cultural Background

Early History of St. Johns Bluff, circa 10,000 BCE–1565 CE

PaleoIndian Period, circa 10,000–8,000 BCE.

Human occupation of southeastern North

America began more than 11,500 years ago, during a time of lower global temperatures, when glaciers covered significant portions of the northern part of the continent. The St. Johns River area is traditionally identified as part of the East Florida or St. Johns culture area,⁴⁰ and it is also included in the St. Marys Region that extends from the mouth of the St. Johns River in Florida across the Florida-Georgia state border (at the St. Marys River) to the Satilla River in Georgia.⁴¹ This revision to established terminology considers the distinctive character of archeological remains in the area, which include ceramics typical of assemblages from southern Georgia and northern Florida. Traditionally, the region has been viewed as a border area in which competing cultures from Georgia and Florida won and lost territory.⁴²

In the area that would become northeast Florida, evidence suggests that people, today referred to as Paleoindians, began to visit the area between 10,000 to 8000 Before Common Era (BCE) and inhabited a landscape that was warmer than the recently ended Ice Age.⁴³ The lower St. Johns River valley was broad, relatively dry, and shallow

39. Stowell, 121.

40. Jerald T. Milanich and Chares H. Fairbanks, *Florida Archaeology* (New York: Academic Press, 1980).

41. Michael Russo, Ann S. Cordell, and Donna L. Ruhl, *The Timucuan Ecological and Historic Preserve Phase III Final Report* (Gainesville: Florida Museum of Natural History, 1993).

42. Ibid.

43. David G. Anderson and Kenneth E. Sassaman, "Early and Middle Holocene Periods, 9500 to 3750 BC," in *Handbook of North American*

Indians, gen. ed. William C. Sturtevant, vol. 14, *Southeast*, ed. Raymond D. Fogelson (Washington, DC: Smithsonian Institution, 2004), 87; Jesse D. Jennings, "Origins," in *Ancient North Americans*, ed. Jesse D. Jennings (New York, New York: W. H. Freeman and Company, 1983), 25–36; Dennis Stanford, "Paleo-Indian: Introduction," in *Handbook of North American Indians 3*, gen. ed. William C. Sturtevant, *Environment, Origins, and Population*, ed. Douglas H. Ubelaker

with a few catchment lakes.⁴⁴ Sea level was roughly 400 feet lower than today.⁴⁵ The availability of freshwater was a limiting factor in migration and site location for the Paleoindians, which are generally found clustered around freshwater sources where flora and fauna were more common.⁴⁶ Settlement patterns also were affected by the availability of lithic resources. An isolated Paleoindian projectile point discovered near Jacksonville in Ponte Vedra Beach, Florida, is evidence of regional Paleoindian occupation, but the extent of other finds suggests more extensive use of sites within north central, northwest, central and southern Florida. The lack of both freshwater and lithic resources may explain the limited numbers of Paleoindian sites in northeastern Florida.⁴⁷

Changes in faunal resources from the Paleolithic to the Early and Middle Archaic (either because of over hunting or environmental change) meant that megafauna was no longer available to the early inhabitants of Florida. These populations had to switch to hunting deer and smaller mammals, resulting in new hunting techniques, lithic technologies, and settlement patterns.

Archaic Period, circa 8,000–500 BCE. The Archaic period in Florida is typically thought of in three parts: early (8000–5000 BCE), middle (5000–3000 BCE), and late (3000–500 BCE).⁴⁸ These divisions are based on environmental and climatic data as well as knowledge of artifact assemblages

and site types.⁴⁹ The climate became less arid at the beginning of the Early Archaic period, correlating with a change from the lanceolate projectile point types of the Paleoindian to stemmed varieties. Early Archaic sites are sometimes found overlaying Paleoindian sites, suggesting a gradual evolution between the two periods.⁵⁰

Early Archaic populations settled in camps around water sources. Easier access to water in the Early Archaic allowed the population to grow and become more sedentary, inhabiting a wider range of site locations. A wider variety of tools were used in the Early Archaic than in the Paleoindian period. Early Archaic tool types include projectile points, knives, hammerstones, scrapers, choppers, and drills. Bone tools were also used, although bone often is not preserved.⁵¹

Archaic subsistence revolved around hunting terrestrial animals, in some areas supplemented by aquatic resources (i.e., fishing and shellfish gathering). On the upper St. Johns River, small fish are common constituents of middens.⁵² Gathering was also important to Archaic subsistence as plants and small game were collected as food sources. Other plant material (i.e., wood and fiber) would have been used for fuel, or the manufacture of clothing and baskets.⁵³

Prehistoric settlement of Duval County began during the Middle Archaic (5000–3000 BCE).

(Washington, DC: Smithsonian Institution, 2006), 16–22.

44. Judith Bense and Barbara E. Mattick, *Archaeological Resources in the Upper St. Johns River Valley, Florida. National Register of Historic Places Nomination Form* (Tallahassee, Florida: Bureau of Historic Preservation, 1994), 1.
45. Ibid.
46. S. David Webb, Jerald T. Milanich, Roger Alexon, and James S. Dunbar, "A *Bison antiquus* Kill Site, Wacissa River, Jefferson County, Florida (1984)" in *American Antiquity* 49(2):84–392.
47. Todd McMakin, and Bruce G. Harvey, *National Register Evaluation of Four Archaeological*

Sites, Naval Station Mayport, Duval County, Florida (Atlanta, Georgia: Brockington and Associates, Inc., 1998), 27; Jerald T. Milanich, *Archaeology of Precolumbian Florida* (Gainesville: University Press of Florida, 1994), 32.

48. Milanich and Fairbanks, 19
49. Milanich, 1994, 61.
50. Milanich, 1994, 63–64.
51. Ibid.
52. Michael Russo, "The Coevolution of Environment and Human Exploitation of Faunal Resources in the Upper St. Johns River Basin" (Master's thesis, University of Florida, Gainesville, 1986)
53. Milanich, 1994, 71.

Whereas Early Archaic sites are not found in conjunction with shell middens, Middle Archaic sites are found associated with freshwater shell middens along the St. Johns River and Atlantic lagoons.⁵⁴ During the Middle Archaic, oak forests gradually gave way to pine and mixed forests, leaving the vegetation essentially the same as it is at present. The Atlantic coastal lagoons in the St. Johns River valley became significantly more populated during the Middle Archaic, perhaps as a result of increased utilization of river and forest resources.⁵⁵

Spencer's Midden (8DU5623), located on the western edge of the City of Atlantic Beach, is a preceramic oyster shell ring midden dating to the Middle Archaic. Radiocarbon dates (5570 Before Present [BP]) from the shell at the site confirm that it is the oldest known coastal midden on the southeastern seaboard. Zooarchaeological analysis for subsistence and seasonality from Spencer's Midden as well as other preceramic sites in the region indicate that the site was used repeatedly for the collection of oyster, coquina, and small estuarine fish. At Spencer's Midden, analysis revealed that the site was occupied throughout the year: coquina was collected in the summer, estuarine fish were caught from spring through fall, and oyster was collected in the winter.⁵⁶ Coquina and oyster are beach and lagoon species, respectively.⁵⁷

During the Late Archaic period (3000–1000 BCE) aquatic food resources became increasingly important. Late Archaic middens are found along the Florida coast and inland waterway north of Flagler County, including Duval County.⁵⁸

The Mount Taylor period represents a preceramic Middle to Late Archaic culture in east Florida along the St. Johns River drainage, the coastal lagoon system, and coastal salt marsh-tidal stream-barrier island system.⁵⁹ Identified through the use of radiocarbon dating, Mount Taylor shell middens are located at present in marshlands that are partially submerged by higher sea levels.⁶⁰ The artifacts of the Mount Taylor period show a great deal of continuity with those of the Early and Middle Archaic periods, whereas settlement patterns and subsistence strategies of the Mount Taylor period differ greatly from those practiced before.

The most significant development of the Late Archaic was the use of fiber-tempered pottery circa 2000 BCE.⁶¹ There appears to have been cultural continuity between the Middle and Late Archaic sites in the area with the addition of fiber-tempered ceramics the only change from the Mount Taylor to the Orange period. Fresh and saltwater shell middens are common site types for both Mount Taylor and Orange cultures.⁶² Mount Taylor shell middens are thought to underlie several Orange-period middens in Duval County, indicating that settlement patterns did not change immediately with the introduction of ceramic technology.⁶³ Although settlement patterns remained stable, the population of northeastern Florida increased dramatically during the Orange period.⁶⁴

54. Ibid.

55. Ibid., 73.

56. Russo et al., 44.

57. James J. Miller, *An Environmental History of Northeast Florida* (Gainesville: University Press of Florida, 1998), 35.

58. Milanich, 1994, 80.

59. Ibid.

60. Russo et al., 61.

61. Ripley P. Bullen, "The Orange Period of Peninsular Florida," in *Fiber-Tempered Pottery in Southeastern United States and Northern Columbia: Its Origins, Context, and Significance* (1972), edited by Ripley P. Bullen and James B. Stoltman, Florida Anthropological Society Publications 6:9–33.

62. Milanich, 1994, 107.

63. Russo et al., 86.

64. Miller, 1998, 53.

Orange-period ceramics are focused along the St. Johns River, although fiber-tempered ceramics are found throughout the state.⁶⁵

In the early 1990s, a survey of a portion of Timucuan Ecological and Historic Preserve at the mouth of the St. Johns River found that there was extensive evidence to establish Orange-period utilization of the St. Marys region. Large Orange-period shell rings, extensive shell middens, shell middens, and isolated ceramic scatters have all been recorded.⁶⁶

Orange-period ceramics are fiber tempered, which is the process of adding vegetable fibers (often from palmettos) to the clay. These fibers would almost entirely disintegrate during the firing process leaving the vessel porous. To strengthen the vessel, the interior and exterior surfaces would be smoothed with clay.⁶⁷ Fiber-tempered ceramics are found almost everywhere in east Florida, especially in coastal settings or on the St. Johns or Oklawaha Rivers.⁶⁸

The Late Archaic period, also termed Transitional (1000 to 500 BCE) in Florida and Refuge in Georgia, witnessed experimentation in ceramic manufacture, including ceramics containing characteristics of both early and late traditions.⁶⁹ Due to the somewhat ambiguous nature of these transitional ceramic types, few Transitional sites have been recognized. In addition, coastal sites are not common at this time due to drier conditions;

like Early and Middle Archaic sites, many Transitional sites may now be below sea level. A number of other changes occurred during this period. Long-distance trade increased; sedentary village life became the norm; and subsistence started to include cultivation of domestic plants⁷⁰

Transitional-period pottery has elements (decoration or temper) of both the earlier Orange period and the later St. Johns or Deptford periods. Transitional ceramic types include semi-fiber tempered (made with sand and fiber), and chalky-fiber tempered wares. Little is known about the Transitional period in the St. Marys region.

Woodland Period; St. Johns I Culture Period, circa 500 BCE–1565 CE.

In the St. Marys region sand-tempered ceramics are the most common Woodland-period (500 BCE–1565 CE) ceramic type followed by the St. Johns Plain. It is thought that this dominance of sand-tempered types in the St. Marys region reflected settlement by the Atlantic coastal Deptford groups.

The St. Johns culture (500 BCE–1565 CE) grew out of the Orange culture in east and central Florida. This period coincides with the Woodland and Mississippian periods that occurred in other sections of the Southeast. The beginning of the St. Johns culture circa 500 BCE coincides with the advent of chalky-ware ceramics. This type of pottery does not contain fiber, sand, or grit temper, rather it is tempered by sponge spicules.⁷¹

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65. Michael Russo, "Coastal Adaptations" in *Eastern Florida: Models and Methods. Archaeology of Eastern North America* (1988) 16:159-176; Michael Russo, "Chronologies and Cultures of the St. Mary's Region of Northeast Florida and Southeast Georgia," in *Florida Anthropologist* (1992) 45(2):107-126; Dana Ste. Claire, "The Archaic in East Florida: Archaeological Evidence for Early Coastal Adaptations," in *Florida Anthropologist* (1990) 43, no. 3:189–197.
66. Russo et al., 89.
67. James B. Griffin, The significance of the fiber-tempered pottery of the St. Johns area in Florida. *Journal of the Washington Academy of Sciences* (1945) 35(7):218–223.

68. Milanich, 1994, 243
69. Russo et al., 95
70. Milanich, 1994; Steven D. Ruple, *Phase I Archaeological Survey of the Proposed Site of the Azalea Park 115/25 KV Substation Lowndes County, Georgia* (Atlanta, Georgia: Garrow & Associates, 1991), np.
71. Nina T. Borremans and Craig D. Shaak, "A Preliminary Report on Investigations of Sponge Spicules in Florida "Chalky" Paste Pottery," in *Ceramic Notes* 3:125-132. *Occasional Publications of the Ceramic Technology Laboratory* (Gainesville: Florida State Museum, 1986).

This type of tempering agent continued to be used until the Spanish Mission period; however, different surface treatments often act as cultural markers.

Subsistence of St. Johns populations consisted of riverine shellfish as well as an abundance of oyster, which may have been due to rising sea levels. The later St. Johns period is marked by a more sedentary way of life, with increased horticulture as well as trade items.⁷²

There are two major regional variations within the St. Johns culture area: St. Marys to the north, and Indian River to the south. The St. Marys region variation shows the influence of the Savannah period cultures along the Georgia coast, reflected in the presence of cord-marked Savannah ceramics.⁷³ Another influence includes the use of maize agriculture after circa 1200 CE. The Indian River variation shows the influence of the Glades culture to the south. This region stretches from the mouth of the St. Johns River down the Atlantic coast to the north end of the Indian River.⁷⁴

Although it is known that during the contact period St. Johns people practiced maize agriculture in the summer and relied on maritime resources during the winter, it is not known whether this subsistence pattern was followed by the earlier St. Johns groups. St. Johns-period sites tend to be located in wet environments unsuitable for large scale agriculture. Evidence from shell middens along the Atlantic coast has shown that the St. Johns people exploited a wide variety of maritime resources, including oyster, clams, coquina, shellfish, turtles, and fish.⁷⁵

The Deptford culture of the Southeast reached into north Florida between 500 BCE and 750 CE, a period that overlaps the early St. Johns period. The

Atlantic subregion of the Deptford culture area stretched from South Carolina to the mouth of the St. Johns River near Jacksonville.⁷⁶ In this area, Deptford peoples were coastal dwelling and utilized maritime subsistence strategies supplemented by nearby terrestrial resources. Deptford settlement patterns were similar to the settlement patterns of other Late Archaic cultures. Deptford peoples primarily inhabited coastal settlements of no more than fifteen to twenty-five individual households while smaller interior sites allowed special resources to be exploited. The primary feature of coastal Deptford sites is the shell midden.⁷⁷

Although Deptford people inhabited the Atlantic coast of Florida for over 1,000 years, relatively few sites dating to that time have been found. This is probably due to site formation processes rather than site distribution. Many coastal Deptford sites have been inundated by rising sea levels or destroyed by erosion. Deptford sites are usually located in live oak-magnolia hammocks adjacent to salt marshes. These sites are frequently encroached upon by marshland or they are on small islands formed by rising sea levels. Burial mounds were used by the Atlantic Deptford culture after 400 BCE.⁷⁸

Marshes were a favored site location; however, Deptford populations “never moved south of the northernmost St. Johns River apparently in part because their economic system was not well adapted to the riverine and lagoon environments of east Florida.”⁷⁹

Lithic tools are rarely found at Deptford sites, and although it is known that the Deptford people used shell, bone, and wood tools, these classes of artifacts are not often well preserved. Use of

72. Milanich, 1994, 247.

73. Russo, 1992, 111.

74. John M. Goggin, *Space and Time Perspective in Northern St. John's Archaeology*. Yale University Publications in Anthropology No. 47 (1952), 112; Milanich, 1994, 175.

75. Milanich, 1994, 176.

76. Jerald T. Milanich, “The Deptford Phase: An Adaptation of Hunting-Gathering Bands to the Southeastern Coastal Strand,” in *Southeastern Archaeological Conference Bulletin* (1972) 15, 21–33.

77. Milanich, 1994, 189.

78. Ibid.

79. Ibid., 118.

cordage and netting is inferred from impressions on the surface of Deptford pottery. Deptford pottery is sand and grit tempered rather than fiber tempered, although fiber-tempered pottery is found as a minor component of early Deptford assemblages. The surfaces of pots were frequently decorated by designs cut into the wooden paddles used as tools to build the vessel walls. The changes in manufacturing techniques and tempering agents allowed larger and sturdier pots to be made, which could then be used for storage or cooking over fires.⁸⁰

St. Johns II Culture Period, 800–1500 CE.

The St. Marys region represents a transitional zone between the St. Johns II of Florida and the Savannah culture of Georgia (800 to 1500 CE) similar to the relationship manifested between Deptford and St. Johns I in the region. St. Johns II sites are characterized by St. Johns chalky plain and check-stamped ceramics, while Savannah sites are characterized by sand-tempered cordmarked and plain ceramics. The St. Marys region contains sites that are predominately Savannah or St. Johns and sites that have a mix of both. Generally, the single “component” sites tend to be later than mixed sites.⁸¹ Sites dating to this period in the St. Marys region frequently contain a mixture of these types of ceramics. There has been a great deal of speculation concerning the relationship between Savannah and St. Johns in this region. Some possibilities include 1) Savannah populations from Georgia moving into north Florida; 2) the spread of ideas and technology including pottery techniques and maize agriculture; and 3) a group that lived in this area who borrowed traits from both the north and south.⁸² One interesting note is that Savannah Check Stamped, a relatively common type in Georgia, is extremely rare in the St. Marys region. Some researchers have

speculated that the Savannah potters did not use the check stamping because it was already “taken” by St. Johns potters.⁸³ This speculation suggests that the differences in pottery involved cultural identity. However, by the time of Spanish contact, Timucua-speaking people were making Savannah-style pottery.

No other cultural traits have been differentiated between Savannah and St. Johns. This lack of differentiation could result from a lack of social differentiation, as would be the case if a single group were making both types of pottery, or because the two groups lived so closely together that individual traits and practices are difficult to distinguish.

Early European Contact Period. Although Spanish explorer Juan Ponce de León claimed La Florida for Spain on April 3, 1513, Spanish settlement did not occur within much of the region for several decades.⁸⁴

The first Europeans arrived circa 1539. At the time, the American Indians living along the St. Johns River were Timucua, that is, they spoke a dialect of the language the Spaniards called Timucua. Although Timucuan groups had spread across northern Florida and into southern Georgia, they were not a single group. Various dialects represent different cultures that probably never considered themselves a single entity.⁸⁵ These people lived at least some of the time in medium-sized sedentary villages, and their subsistence relied, at least in part, on agriculture. Cultivated products included corn, beans, and squash. The Indians also relied heavily on marine life and shellfish. Life continued in a fashion similar to the previous St. Johns II period with gradual population loss and cultural changes caused by increasing contact with

80. Ibid.

81. Russo et al., 20.

82. Milanich, 1994, 249.

83. Russo et al., 20.

84. Davis, 1. Note, Jacksonville’s official records were destroyed twice prior to 1925, during the Civil War and by fire in 1901. Davis compiled available records which he presented in this 1925 history.

85. Jerald T. Milanich, *Florida Indians and the Invasion from Europe* (Gainesville: University Press of Florida, 1995), 80.

Europeans and European diseases. Protohistoric and colonial pottery in the St. Marys region consists mostly of Savannah-style techniques including sand/grit tempering and cordmarking. St. Johns pottery, although present, is rare. The similarities in pottery between the protohistoric and prehistoric are so strong that many sites are indistinguishable as to date.

French Huguenot explorer Jean Ribault and his small fleet entered the St. Johns River on May 1, 1562.⁸⁶ Here, the French encountered a Timucua chiefdom along the river led by Chief Saturiwa who had thirty other chiefs in the region under his authority.⁸⁷ He was probably not a paramount chief, but his village served as the origin for the other village populations, thereby creating a historic link. This chiefdom-level society probably included separate religious as well as political leaders and systems of trade and tribute. Some evidence suggests that these chiefdoms were part of the Southeastern Ceremonial Complex, a set of artifacts and motifs found throughout the Southeast.⁸⁸

Colonial and Pre-Civil War Settlement of St. Johns Bluff, 1564–1861

Following the initial exploration by Jean Ribault in 1562, the French claimed the territory associated with the St. Johns River and placed a monument on the south side of the river, east of St. Johns Bluff near Mayport.⁸⁹ Ribault named the river *Rivière de Mai*, or River of May, to commemorate the first day of his expedition.⁹⁰ René Goulaine de Laudonnière, who accompanied Ribault on the first excursion, led the next French foray to Florida in 1564, landing first at St. Augustine on

June 22.⁹¹ They entered St. Johns River three days later.⁹²

Laudonnière established the first French settlement of Fort Caroline, or Fort de la Caroline, named after the French King Charles IX. The officers selected a site for the fort on a “pleasant vale” on the south side of St. Johns River at the base of the “mountain,” as St. Johns Bluff was first known, which they had previously surveyed during the 1562 reconnaissance of the river.⁹³ When Europeans first encountered St. Johns Bluff, the riverbank sloped down westerly into a little plain occupying a cove between the bluff’s eastern point and the present-day hamlet of Fulton. The French called this land feature “Vale of Laudonnière.”⁹⁴ They soon constructed a fort on the plain at the water’s edge (see Figure 29).⁹⁵

News of a French Huguenot settlement in Florida soon reached Spain. At that time, Spain held claim to Florida by right of discovery and exploration. King Philip II, alarmed by the potential threat posed by a French (and Protestant) colony to Spain’s possessions in the New World, selected Pedro Menéndez de Avilés to outfit and undertake an expedition to Florida to remove the French from the territory.⁹⁶ Menéndez anchored just south of the mouth of St. Johns River, where he established St. Augustine. On September 20, 1565, Spanish forces captured Fort Caroline and killed or drove away the French settlers, as well as the French contingent sent to resupply the outpost.⁹⁷ Menéndez renamed the fort and river “San Mateo,” as the fort’s seizure occurred during the festival of “Saint Matthew.”⁹⁸ Although a second French expedition defeated the Spanish and recaptured the fort in April 1568, the French left the region shortly thereafter. The remains of Fort

86. Stowell, 121.

87. Milanich, 1995, 84,

88. Jerald T. Milanich, *The Timucua* (Cambridge, Massachusetts: Blackwell Publishers, Inc., 1996), 18–19.

89. Davis, 6.

90. Ibid.

91. Ibid., 7.

92. Ibid.

93. Ibid., 8.

94. Ibid., 9.

95. By 1924, the plain was washed away by the river due mainly to the construction of jetties. Davis, 9.

96. Davis, 12.

97. Ibid., 13.

98. Ibid., 17.

Caroline have not been located, and it is not clear where the fort was actually constructed.

After 1620, with the steady decline of the Timucua population, the Guale Indians from Georgia began to be relocated by the Spanish into this region. Like the Deptford and Savannah people of prehistory, the Guale brought their own traditions and culture, including pottery styles. Guale pottery, referred to in the archeological record as San Marcos, is similar in style to the Lamar and Irene series ceramics of Georgia.⁹⁹ San Marcos pottery includes stamped and incised decoration, with roughened types like cobmarked as minor types. Some San Marcos pottery may also have come into the area as a result of trade up and down the missions along the coast.

British Occupation, 1763–1783. Great Britain possessed the length of North America’s eastern seaboard from 1763 to 1776, an area extending from the southern tip of Florida to Nova Scotia.¹⁰⁰ By treaty in 1763, Great Britain acquired Florida from Spain in exchange for Havana, and it assumed control of the territory the following year.¹⁰¹ About that time, colonists loyal to Great Britain settled in northeast Florida. The Marquis of Hastings secured a British grant for 20,000 acres on the north side of St. Johns River, while the Marquis of Waterford secured a grant for the same amount of land on the south side of the river (see Figure 29).¹⁰²

In the 1770s, “St. Johns Town” was established on a 200-acre tract owned by William Hester.¹⁰³ The

bluff was known as Hester’s Bluff during this period. In anticipation of an American invasion, the British fortified Hester’s Bluff with cannon in May 1777.¹⁰⁴ The placement of this battery may have been the first effort by the British to fortify St. Johns Bluff.¹⁰⁵

William Hester conveyed the tract of land to Thomas Williamson in 1779, after which small log houses were built on the bluff.¹⁰⁶ When British loyalists came to the area in the summer and fall of 1782, they erected frame houses with detached kitchens and other structures, forming a village known as St. Johns Town.¹⁰⁷ According to Governor of East Florida Peter Tonyn, St. Johns Town consisted of roughly 300 houses, two taverns, a public house, a livery stable, a dry goods shop, a storehouse, a tools shop, and a small Freemason’s Lodge.¹⁰⁸

With its better harbor facilities, St. Johns Town replaced St. Augustine as the major seaport of the area until England ceded Florida back to Spain in 1783.¹⁰⁹ A small force of British regulars remained at St. Johns Bluff until Spain officially took control over Florida in 1785.¹¹⁰ The British subsequently dismantled parts of St. Johns Town and abandoned their estates along the river.¹¹¹

Spanish Occupation, 1784–1821. During the war for American Independence, the East Florida and West Florida colonies remained loyal to the British. With the signing of the Treaty of Paris in 1783, the Florida Territory returned to Spanish control without clear definition of the territory’s

99. Kathleen Deagan, St. Augustine and the Mission Frontier in *Spanish Missions of La Florida*, Bonnie G. McEwan, ed. (Gainesville: University Press of Florida, 1993), 87-110; John Solomon Otto and Russell Lamar Lewis, Jr, *A Formal and Functional Analysis of San Marcos Pottery from Site SA 16-23 in St. Augustine Florida in Bureau of Historic Sites and Properties Bulletin No. 4* (Tallahassee: Division of Archives, History, and Records Management, Florida Department of State, 1974), 95-117.
100. Stowell, 130.
101. Jones, 129.
102. Davis, 26.

103. Jones, 129; Henry Seibert Wilbur, *Loyalist in East Florida, 1763 to 1783*, Vol. I (DeLand, Florida: The Florida State Historical Society, 1929), 117.
104. Stowell, 134.
105. Ibid.
106. Jones, 129; Wilbur, n.p.
107. Ibid.
108. Jones, 129; Wilbur, n.p.
109. Jones, 129.
110. Stowell, 135.
111. The Jacksonville Historical Society, “History of the St. Johns River.” 2019.

boundaries. American settlers soon moved into the territory. After the arrival of the new Spanish governor in 1784, the Spanish established a battery on St. Johns Bluff, which they named San Vincente Ferrer (St. Vincent Ferrer), to control maritime activities on the river.¹¹² While the battery was named San Vincente Ferrer, the surrounding settlement was sometimes referred to by that name. During this period, two plantations were established on the bluff in the areas of the current sites of Fort Caroline National Memorial and Ribault Monument.¹¹³ Zephaniah Kingsley, who owned Fort George and other area plantations, purchased both tracts of land in 1817.¹¹⁴

With Spain's second occupation of the region, the United States sought to acquire both East and West Florida, which included the Mississippi River, an important trade route. Spain's inability to attract settlers to Florida, compounded by a lack of resources to properly protect or develop its colonies, weakened their rule over the territory. Its colonial power further diminished after French Emperor Napoleon Bonaparte's 1808 invasion of Spain. In 1810, rebellious American settlers in West Florida had declared their independence from Spain.¹¹⁵ This incident prompted President James Madison and Congress to claim the region by declaring that the portion of West Florida from the Mississippi to the Perdido River was part of the Louisiana Purchase of 1803.¹¹⁶ The Spanish government ultimately succumbed to the American pressure and transferred East and West Florida to the United States with the signing of the

Adams-Onís Treaty in 1819. Formal transfer of the territory to the United States occurred in 1821.¹¹⁷

St. Johns Bluff, 1822–1860. On August 12, 1822, Duval County was established from a segment of St. Johns County. Jacksonville was founded in the same year and selected as the county seat. Kingsley continued ownership of the two tracts of land on St. Johns Bluff until 1838.¹¹⁸ The place name of St. Johns is identified with the bluff on a circa 1839 map of Florida (Figure 8).¹¹⁹ In the same year, steam vessels first entered the St. Johns and Apalachicola Rivers, marking the beginning of Florida's steamboat era.¹²⁰ On St. John's Bluff, farming continued until the outbreak of the Civil War.

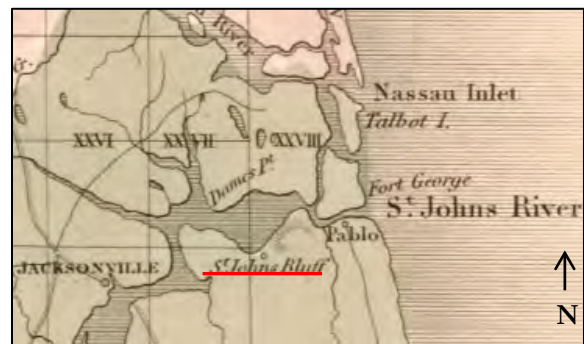


FIGURE 8. St. Johns Bluff on a circa 1839 map. (Source: Burr and Arrowsmith, 1839)

Military Conflict and Defenses, 1861–1899

Civil War, 1861–1865. On April 17, 1861, Florida seceded from the Union and joined the Confederate States of America. Coastal defensive works were erected in northeast Florida on Amelia Island, Talbot

112. National Park Service, *St. Johns Bluff: Changing Times, Changing Flags, Bulletin* (National Park Service, Timucuan Ecological Historic Preserve, n.d.).

113. Ibid.

114. Ibid.

115. Acquisition of Florida: Treaty of Adams-Onís (1819) and Transcontinental Treaty (1821) (Office of the Historian, Foreign Service Institute, US Department of State, n.d.)

116. Ibid.

117. Ibid.

118. Ibid.

119. David H. Burr, Cartographer, and John Arrowsmith, *Map of Florida: Exhibiting the post offices, post roads, canals, rail roads, &c.* (London[?]: John Arrowsmith[?], 1839), accessed August 9, 2019,

<https://www.loc.gov/item/2017586296/enry>.

120. Edward A. Mueller, *Steamboating on the St. Johns: Some Travel Accounts and Various Steamboat Materials* (Melbourne, Florida: South Brevard Historical Society, 1980 [1st ed.]), accessed August 9, 2019, [http://palmm.digital.flvc.org/islandora/object/unf%3A9086#page/Page+\(9\)/mode/1up](http://palmm.digital.flvc.org/islandora/object/unf%3A9086#page/Page+(9)/mode/1up).

Island, and St. Johns Bluff. The Confederate Army also established Fort Steel at the mouth of St. Johns River. In summer 1862, Confederate Gen. Joseph Finegan emplaced batteries on St. Johns Bluff to prevent Union gunboats from advancing upstream on the river.¹²¹ The Confederate earthworks on the bluff consisted of two twelve-pounder rifle guns and two 8-inch howitzers, which were placed in position on September 9, 1862, undetected by the two Union gunboats anchored in the river a short distance below.¹²² Several engagements between this battery and Federal gunboats transpired over the next few weeks.

On October 1, 1862, Union troops were sent from Hilton Head, South Carolina, to support land and naval attacks on St. Johns Bluff (refer to Figure 29).¹²³ After taking possession of the battery two days later, Federal troops destroyed its magazines and defensive works.¹²⁴ *Harper's Weekly* published a sketch of the Civil War battery on St. Johns Bluff by artist H. Van Ingen (Figure 9).¹²⁵ The engraving shows a reported eleven guns emplaced along the top of the earthen battery, which was surrounded by trees in the background.¹²⁶

US Harbor Defense, Endicott System, 1890–1905. By the late nineteenth century, the country's existing seacoast fortifications were deteriorating, which concerned both the US Congress and the military. The general demobilization and years of reduced military appropriations following the conclusion of the Civil War led to concerns about the ability of the United States to defend itself during a time when America sought to expand its influence overseas. In 1885, President Grover Cleveland organized a joint army, navy, and civilian board headed by

Secretary of War William C. Endicott to assess the state of the nation's coastal defenses.¹²⁷

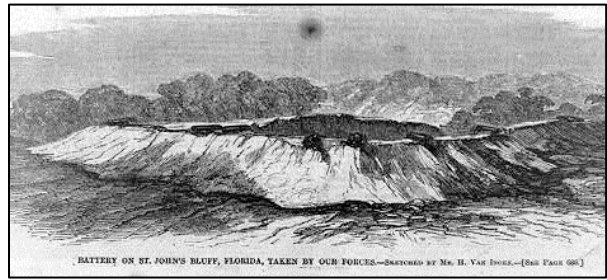


FIGURE 9. Battery on St. Johns Bluff in 1862. (Source: H. Van Ingen, *Harper's Weekly*, 1862)

The Endicott Board recommended an appropriation of \$127 million for a comprehensive modernization program of harbor and coastal defenses in its 1886 report.¹²⁸ The construction program called for breech-loading cannons and mortars, floating batteries, and submarine mines for approximately twenty-nine locations on the coast. Two years after the report, US Congress created the Board of Ordnance and Fortification to test weapons for the new program.¹²⁹

Known as the Endicott System (1890–1905), the new defense program emphasized weapons over structures, unlike previous coastal defense systems.¹³⁰ Steel was now being used in place of iron in gun manufacturing, resulting in lighter, stronger, longer, and more powerful artillery. The introduction of breech-loading weaponry allowed for guns to be mounted on a new type of carriage, one that lowered the gun on the recoil energy of its firing. The gun disappeared behind the wall in front of its mount, permitting quick and safe reloading from behind a protective wall.

121. Historic American Buildings Survey, *Spanish American War Fort, St. Johns Bluff, Duval County, Florida*. Florida, HABS No. FL-15-2 (1934), 3.

122. Ibid.

123. Ibid.

124. Ibid.

125. H. Van Ingen, *Battery on St. John's Bluff, Florida, taken by our forces, Florida, 1862*, photograph, accessed August 14, 2019, <https://www.loc.gov/item/96516669/>.

126. "Our Army in Florida," *Harper's Weekly*, Volume VI (October 5, 1862):686, accessed August 14, 2019, <https://archive.org/details/harpersweeklyv6bon/page/686>.

127. Coastal Defense Study Group, "Modern U.S. Harbor Defense Construction, 1886-1917; The Endicott and Taft Boards."

128. Ibid.

129. Ibid.

130. Ibid.

As the US Army Corps of Engineers initiated the first modest construction program in 1890, structures were built of reinforced concrete as smaller detached batteries rather than the large collections of guns that had characterized coastal defenses previously.¹³¹ Concrete gun emplacements were designed in conjunction with underground magazines and earthen and concrete parapets designed to blend in with their surroundings in order to elude detection by an approaching enemy.¹³² Coastal defense projects received limited appropriations during the early Endicott System period until the Spanish-American War, an event that prompted the US Congress to release more funding to defend the nation's coastline.

Coastal Defense Planning in Florida. In January 1897, the State of Florida held the Coastal Defense Convention in Tampa.¹³³ Many of the most important individuals in the state and nation attended the conference such as businessman Henry Plant, industrialist Henry Flagler, General John Schofield, and Governor William Bloxham.¹³⁴ The State of Florida initiated efforts to secure their coastal defenses prior to outbreak of the Spanish-American War due to its geographic proximity to Cuba and the number of filibustering voyages originating in the state.¹³⁵ As early as November 1897, Governor Bloxham had requested from the Secretary of the Navy, John Davis Long, a loan of a light, one-pounder Hotchkiss rapid-firing gun with field and boat

mount for the state's Naval Militia.¹³⁶ Bloxham asked for the gun to be shipped to Jacksonville in care of Lt. A. R. Merrill, commanding the 3rd Division.¹³⁷ The governor made a similar request for the 1st Division in Tampa in the following month.¹³⁸

Jacksonville and the Cuban War for Independence, 1895–1898.

Jacksonville, with its large Cuban immigrant population, played an important role as one of the centers of Cuban revolutionary activity in the years leading up to the Spanish-American War. José Martí, the founder of the Cuban Revolutionary Party, visited the city eight times.¹³⁹ José Alejandro Huau, a naturalized Cuban, was essential to the filibustering activities departing from Jacksonville.¹⁴⁰ Huau's cigar store at the corner of Bay Street and Pine (Main Street) served as a meeting place for Cubans and their sympathizers during the years before the Spanish-American War.¹⁴¹

As early as March 1897, the Jacksonville City Council passed resolutions condemning Spain for its atrocities in Cuba.¹⁴² Cuban Americans in Florida supplied continuous funds to support the revolution. Seventy-one filibustering expeditions left from US ports for Cuba between 1895 and 1898, twenty-three of which originated from Jacksonville.¹⁴³ Only twenty-seven of these attempts were successful; twelve of which had

131. Ibid.
 132. Ibid.
 133. Graham A. Cosmas, *An Army for Empire: The United States Army in the Spanish-American War* (Columbia: University of Missouri Press, 1971), 71, fn 3.
 134. Joe Netsch and Nick Wynne, *Florida in the Spanish-American War* (Charleston, South Carolina: The History Press, 2011), 88.
 135. Buker, 7. A filibuster or freebooter, in the context of foreign policy, is someone who engages in an unauthorized military expedition into a foreign country or territory to foment or support a revolution. The term is usually used to describe United States citizens who fomented insurrections in Latin America, particularly in the mid-nineteenth century.

136. Buker, 7; Bloxham to Long, 27 November 1897, RG 101, Series 32, vol. 50, Florida State Archives, Tallahassee.
 137. Ibid.
 138. Buker, 7; Bloxham to Long, 7 December 1897, RG 101, Series 32, vol. 50, Florida State Archives, Tallahassee.
 139. Buker, 4.
 140. Ibid.
 141. Gustavo J. Godoy, "José Alejandro Huau: Cuban Patriot in Jacksonville Politics," *The Florida Historical Quarterly*, 56 (2) (Tampa: Florida Historical Society, 1975), 201.
 142. Davis, 203.
 143. Buker, 4.

embarked from Jacksonville using three local tugs: *Three Friends*, *Commodore*, and *Dauntless*.¹⁴⁴

On January 24, 1898, the United States sent the USS *Maine* from Key West, Florida, to Havana, Cuba, to protect American interests on the island.¹⁴⁵ The USS *Maine* exploded under suspicious circumstances in Havana harbor on February 15, resulting in the loss of 260 American sailors.¹⁴⁶ Opposed to military intervention, President William McKinley ordered an investigation of the battleship's sinking. Though both nations were averse to war, each of them made preparations as the crisis intensified after the sinking of the vessel. Five days after the sinking of the USS *Maine*, Governor Bloxham directed the Jacksonville Naval Militia to conduct a detailed reconnaissance of the Atlantic coast as practical to locate proper sites for establishing signal stations and to obtain any other relevant data from a strategic military standpoint.¹⁴⁷ The governor's directive was one of the earliest sets of military orders issued by any state before the Spanish-American War.¹⁴⁸

On March 9, 1898, Congress appropriated \$50 million solely for the improvement of military coastal defense.¹⁴⁹ By the end of March, the US Naval Court of Inquiry determined a mine was the cause for the explosion of the *Maine*, while Spain attributed it to an internal explosion.¹⁵⁰ The Spanish Minister of Marine, upon news of the explosion, directed Adm. Pasquale Cervera to prepare to attack Key West and blockade the American coast.¹⁵¹ Admiral Cervera recognized

three unfavorable factors for the mission: his inadequate personal naval experience compared to the Americans; Spain's lack of military bases on the western side of the Atlantic Ocean; and the inadequate logistic support for such an undertaking.¹⁵² Despite their odds for success, the Spanish fleet sailed westward to sortie in the Cape Verde Islands on April 29.¹⁵³

Spanish American War, April 21–August 13, 1898. President McKinley issued an order for a blockade of Havana on April 21, 1898.¹⁵⁴ Spain ceased diplomatic relations with the United States two days later. On April 25, Congress responded to the president's request for armed intervention.¹⁵⁵ The American declaration of war was dated to April 21 to justify previous operations by the United States.¹⁵⁶ During 1890s, the Regular Army consisted of five regiments of artillery, ten regiments of cavalry, and twenty-five regiments of infantry.¹⁵⁷ In the month prior to the Spanish-American War, two more artillery regiments were authorized. The standing army consisted of 2,143 officers and 26,040 men stationed at posts across the country on April 1, 1898.¹⁵⁸ The outbreak of the Spanish-American War resulted in additional changes to the army's organization and mission.

During the war, the city of Tampa served as the primary port of embarkation for US troops deploying to Cuba. Most of the artillery branch, nearly 300 officers and 4,500 enlisted men, were stationed at established fortifications along the nation's coastline.¹⁵⁹ The Florida Naval Militia was

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144. Buker, 5; E. J. Benton, *International Law and Diplomacy of the Spanish-American War* (Gloucester, Massachusetts: Peter Smith, 1968), 43-45.
 145. Benton, 72.
 146. Buker, 5.
 147. Buker, 8; Davis, 208.
 148. Buker, 8.
 149. Russell A. Alger, *The Spanish American War* (New York: Harper & Brothers, 1901), 8.
 150. Library of Congress, "The World of 1898: The Spanish American War, Introduction," Hispanic Division Library of Congress, accessed August 14, 2019, <https://www.loc.gov/rr/hispanic/1898/intro.html>.

151. Buker, 6.
 152. Ibid.
 153. T. David Trask, "The Spanish American War," Hispanic Division Library of Congress, June 22, 2011, accessed August 14, 2019, <https://www.loc.gov/rr/hispanic/1898/trask.html>.
 154. Ibid.
 155. Ibid.
 156. Ibid.
 157. US Army Center of Military History, "The US Army in the 1890s" (April 2000), accessed August 14, 2019, <https://history.army.mil/html/forcestruc/usa-1890.html>.
 158. Ibid.
 159. Ibid.

also mobilized into federal service during the war, serving in the state mainly with the US Navy's Coastal Signal Service.¹⁶⁰ On May 31, the US Army established Camp Cuba Libre near Jacksonville to relieve overcrowding at the camp in Tampa. From May until late October, the encampment operated as an assembly point for the twenty-two regiments of the Seventh Army Corps under the command of Maj. Gen. Fitzhugh Lee.¹⁶¹ The camp exceeded its maximum occupancy limit of 20,000 people in September, when troop size grew to nearly 29,000.¹⁶² All troops vacated Camp Cuba Libre by the first week of November.¹⁶³

St. Johns Bluff Spanish-American War Fortifications, 1898–1899

The State of Florida, like other coastal states, urged the US Congress to protect the coast from potential attacks by the Spanish fleet. In the case of Jacksonville, the port had served as a key source of supplies for Cuban rebels. Furthermore, during the Civil War, the city had been occupied four times by gunboats escorting US Army transports up the St. Johns River. Brig. Gen. John M. Wilson, Chief of Engineers, visited Jacksonville on March 6, 1898, to inspect the river's jetties without indicating whether there were plans to defend the river.¹⁶⁴ Concern for the defense of Jacksonville continued to intensify among its citizens. The *Times Union and Citizen* published an article on

mine defense, reporting an anonymous and prominent citizen had claimed to have the knowledge and the cables to privately mine the St. Johns River.¹⁶⁵ By end of the month, a group of citizens appointed former Congressman C. M. Cooper and W. W. Cummer to visit Washington, DC, to convince the authorities on the importance of protecting Jacksonville.¹⁶⁶

On April 2, 1898, General Wilson directed Lt. Col. William Henry Harrison Benyaard to go to Miami to select a site for a temporary battery for the defense of Biscayne Bay. He also mentioned to Colonel Benyaard the prospect of a temporary battery on St. Johns River.¹⁶⁷ On the same day, Wilson also met with the Secretary of War and some citizens from Jacksonville who had returned to appeal for guns and fortifications. Cooper, Cummer, and Congressman R. W. Davis informed the men that Jacksonville would provide mines and accessories for the support of the battery.¹⁶⁸ The two military officials approved the proposal to provide supplies to defend St. Johns River. Two modern rapid-fire 5-inch guns, a secondary battery of other guns, and mines were initially planned for St. Johns River.¹⁶⁹ Colonel Benyaard, by now in Miami, was informed of the proposed fortifications two days later.¹⁷⁰ He was instructed to cooperate immediately with Jacksonville citizens to address torpedo defense and to select a site on the river for four modern siege guns.

160. Florida Department of Military Affairs, *Florida Naval Militia Summary Roles Biographical and War Service Information*, Special Archives Publication Number 141 (St. Augustine: Florida Department of Military Affairs, 1992[?]), 19, accessed August 14, 2019, <https://ufdc.ufl.edu/UF00047644/00001>.

161. *Souvenir of Camp Cuba Libre, Jacksonville, Florida, 1898*. Booklet, 1898, n.p., Richard Mette Collection, University of North Florida, Thomas G. Carpenter Library Special Collections and Archives. UNF Digital Commons, accessed August 14, 2019, https://digitalcommons.unf.edu/mette_text/129/.

162. Paul G. Pierpaoli, Jr., "Camp Cuba Libre," *The Encyclopedia of the Spanish American and Philippine-American Wars* (Volume 1) Spencer Tucker, ed. (Santa Barbara, California: ABC-CLIO, LLC, 2009) 88.

163. Ibid.

164. Buker, 9; *The Florida Times-Union & Citizen*, March 7, 1898.

165. Buker, 9; *The Florida Times-Union & Citizen*, March 14, 1898.

166. Buker, 10.

167. Buker, 10; Wilson to Benyaard, 2 April 1898, RG 77, Entry 103:25409, National Archives, Washington, DC.

168. Buker, 10.

169. Ibid.

170. Buker, 10. Albright to Benyaard, 4, 5 April 1898.

However, Jacksonville citizens preselected St. Johns Bluff as the site for the fortifications and obtained the landowners permission, without consulting Benyaurd.¹⁷¹

Three days prior to Benyaurd's scheduled arrival in Jacksonville, on April 7, the Florida Finance Company and Sarah F. Williams, landowners on St. Johns Bluff, drafted letters to Colonel Benyaurd.¹⁷² The landholders granted the government the right to construct temporary fortifications on their land in exchange for an annual rent. The Florida Finance Company sought a \$50 rental while Williams asked for double that amount.¹⁷³ She also indicated she would sell her 50-acre parcel for \$2,500 to the United States, if a permanent occupancy were to become necessary.¹⁷⁴ A third landowner, W. H. Browne, later notified Colonel Benyaurd that the amount requested by the Williams family would be satisfactory for his property as well.¹⁷⁵ Benyaurd met with the Jacksonville committee, received the letters, and returned to his headquarters in St. Augustine. On April 8, he retained John M. Cook of Spartanburg, South Carolina, for the superintendent position to direct the construction of a temporary battery.¹⁷⁶

St. Johns Bluff Military Reservation, 1898. (Refer to Figure 28.) Land tenure on St. Johns Bluff for the military reservation was a more involved process than it was for the construction of temporary buildings. On March 31, 1898, a joint resolution of the US Congress had set aside Section 355 of the Revised Statutes granting the government the power to build temporary fortifications with written consent of the landowners.¹⁷⁷ Benyaurd received permission from the landowners to build temporary fortifications on St. Johns Bluff one week later. In the case of the Spanish-American War Battery, Benyaurd realized that the concrete gun

emplacement would be a permanent fortification, which did not fall under the joint resolution of 1898. Concerned over the matter, Benyaurd proposed to the US Army Chief of Engineers that the military reservation should include all of section 43 and portions of sections 27 and 44 of Township 1 South, Range 28 E in Duval County which totaled 103 acres.¹⁷⁸

Construction of Fortifications at St. Johns Bluff, 1898

As a defensive post, St. Johns Bluff offered one of the highest elevations along the river corridor and a strategic location to address enemies approaching Jacksonville via St. Johns River. The undeveloped bluff, however, lacked transportation infrastructure. To support the necessary infrastructure, a site along the river below the northeast corner of the bluff was selected for a wharf that became known as the US Dock (Figure 10). Work commenced on harbor defense on April 11, 1898, when Cook led his civilian laborers to St. Johns Bluff to clear the underbrush and remove trees.¹⁷⁹ Benyaurd reached an agreement with W. A. MacDuff of Jacksonville on the following day to build a landing wharf and four small temporary buildings close to it for \$531.63. MacDuff supplied the labor, a pile driver, a water boat, hoisting engine, 5,000 shingles, and 125 pounds of iron spikes.¹⁸⁰ By mid-April, a roadway from the riverbank to the bluff had been cleared and the wharf was completed.¹⁸¹

Later, Colonel Benyaurd had a railroad track laid from the boat landing up the bluff along a ravine. A stationary engine hauled the materials to the top of the bluff. Benyaurd rented the rail from a local merchant with the understanding the iron would be returned at the completion of the work, in roughly six or eight weeks.¹⁸²

171. Buker, 11.

172. Ibid.

173. Ibid.

174. Ibid.

175. Ibid.

176. Ibid., 12.

177. Ibid., 38.

178. Ibid.

179. Ibid., 12.

180. Ibid.

181. Ibid., 13.

182. Ibid., 14.

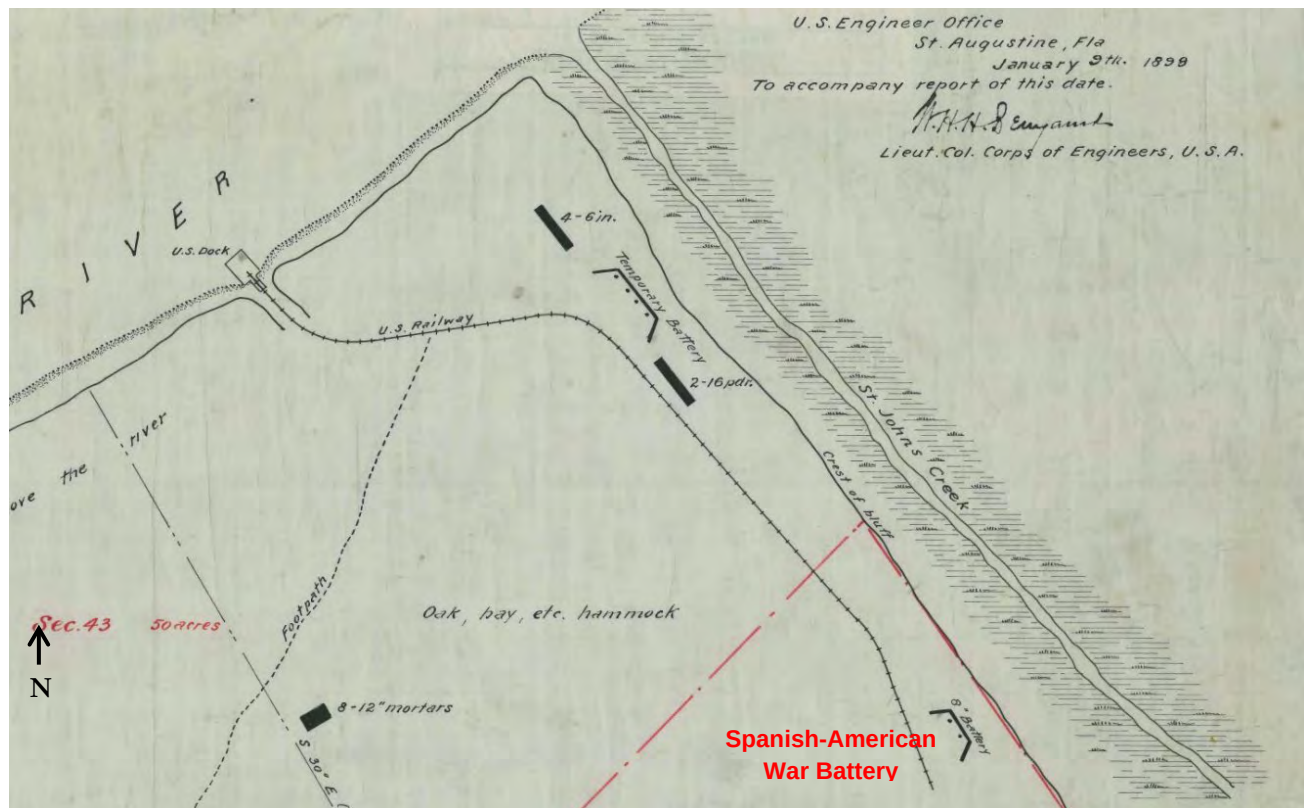


FIGURE 10. E. B. Thompson's November 1898 sketch of a portion of St. Johns Bluff showing the Spanish American War Battery. (Source: E. B. Thompson, 1898, NARA, RG 77).

A November 1898 sketch by E. B. Thompson showed the locations and types of weapons proposed by the Board of Engineers for permanent fortifications on St. Johns Bluff (refer to Figure 10).¹⁸³ The sketch accompanied Benyaurd's January 1899 report for land acquisition for defensive purposes on St. Johns Bluff. The existing land lines and outlines of that portion of the bluff proposed for acquisition, an area containing approximately 103 acres of land, are delineated on the sketch.¹⁸⁴ Existing batteries on St. Johns Bluff consisted of two 8-inch breech-loading rifles mounted in a permanent battery on 15-inch converted carriages—the Spanish-American War Battery—and a temporary battery with four 12-pound field guns. A site located to the south of the temporary battery on the northeast portion of Section 27, containing 40.33 acres

parcel of land, was selected for the permanent Spanish-American War Battery.¹⁸⁵

The US Dock and the temporary railway provided access to the batteries on the east side of the bluff. As initially proposed, the railway extended southeasterly along the west side of the temporary battery and terminated on the west side of the Spanish-American War Battery.¹⁸⁶ Vegetation noted on the eastern side of the bluff consisted of hammock growth of palmetto, oak, and hay.¹⁸⁷ A footpath crossed the bluff from a point on the US railway between the dock and the temporary battery in a southwest direction through a swamp and pond to a road identified as "Old Road to Cosmo." The basin at that time was surrounded by hills ranging from 50 feet to 70 feet high.

183. Thompson, *Sketch of a Portion of St. Johns Bluff, Florida*. Chief of Engineers Series (NARA RG 77), Fortifications Map File, Drawer 191, Sheet 2.

184. Thompson, November 1898.

185. Ibid.

186. Ibid.

187. Ibid.

The temporary battery location is depicted on Thompson's sketch between the two proposed batteries on the crest facing St. Johns Creek, near the northeast point of the bluff (refer to Figure 10). It initially housed two 5-inch rifles and two 7-inch howitzers.¹⁸⁸ The Board of Engineers also proposed four additional batteries on St. Johns Bluff: a battery with four 6-inch mortars on the northwest side of the temporary battery; a battery with two 16-pounders on the southeast side of the temporary battery; a battery with eight 12-inch mortars to the west of the permanent Spanish-American War Battery; and a battery with two 16-pounders on the northwest corner of the reservation, north of cemetery noted as the "Old cemetery."¹⁸⁹

Temporary Battery on St. Johns Bluff. The temporary battery site was prominently located on the northeast corner of the bluff fronting St. Johns Creek, on Section 43 of Township 1 South, Range 28 E. Work commenced on the temporary battery prior to completion of the wharf.¹⁹⁰ Cook employed 10-inch by 10-inch timbers in the temporary battery's revetment and magazine, which he covered with a sand embankment partly surfaced with "marsh muck."¹⁹¹ On April 12, 1898, the Florida Central & Peninsula (F. C. & P.) Railroad Company delivered two 5-inch and two 6-inch rapid fire carriages from Rock Island Arsenal, Illinois, to their railyard at the foot of Julia Street in Jacksonville.¹⁹² The carriages required modification to accommodate the guns scheduled for St. Johns Bluff.¹⁹³ General Wilson formally authorized Colonel Benyaurd to proceed with the construction of defenses at St. Johns Bluff, St. Augustine, and Miami on April 14.¹⁹⁴ Benyaurd estimated construction costs for the three projects to be between \$15,000 and \$20,000.¹⁹⁵ In addition to overseeing the new fortifications projects,

Benyaurd had to manage his regular peacetime civil works projects that involved dredging harbors and navigable rivers throughout Florida.

Benyaurd recommended to Wilson at least one company of soldiers be assigned to defend each of his four construction sites from potential enemy attack.¹⁹⁶ There were two guns at Miami, four at St. Augustine, four at St. Johns Bluff, and six or eight batteries at Tampa.¹⁹⁷ On April 22, the temporary gun emplacements were near completion when the two 5-inch breech-loading rifles and two 7-inch breech-loading howitzers from New York State reached Jacksonville. The newly arrived guns remained on a railroad siding in Jacksonville since there was no place to store them on the bluff.

The four guns were shipped down river on a barge to the bluff and mounted. The 5-inch breech loading rifle weighed 3,600 pounds; it fired a 45-pound projectile that could penetrate 2.5 inches of steel at 3,500 yards.¹⁹⁸ The 7-inch breech-loading howitzer weighed 3,710 pounds; it fired a 105-pound projectile capable of penetrating 2.4 inches of steel at 3,500 yards.¹⁹⁹ As troops were not sent to operate the guns, Benyaurd assigned John Cook the responsibility of the temporary battery's security. The temporary battery's guns and carriages were soon dismounted. On May 18, the materiel was shipped to Tampa for the Army Expeditionary Force's invasion of Cuba. The first soldiers arrived in Jacksonville at Camp Cuba Libre four days after the removal of the temporary battery.²⁰⁰ To provide some defense for the river, four light 12-pounder field guns were sent to the temporary battery site. These outmoded, muzzle-loading, smoothbore guns were mounted in the temporary emplacement.²⁰¹

188. Ibid.

189. Ibid.

190. Buker refers to a sketch of the bluff by E. B. Thomson surveyed in November 1898 for the location of the wharf and temporary battery (NARA RG 77, Fortifications File, Drawer 191, Sheet 2).

191. Buker, 12-13.

192. Ibid., 13.

193. Ibid.

194. Ibid., 14.

195. Ibid.

196. Ibid., 16.

197. Ibid., 17.

198. Buker, 19.

199. Ibid., 19-20.

200. Ibid.

201. Ibid., 21.

Mine Defense of the St. Johns River and St. Johns Bluff, 1898. An electrically controlled mine field, a key component of Endicott System defenses, was planned for St. Johns River in 1898. At an April 15 meeting in Jacksonville, Colonel Benyaurd requested a progress report on the city's mine defense program, which was essential to his defenses on St. Johns Bluff.²⁰² However, no work had commenced on the mine field as the committee of citizens believed that the government was providing all the necessary funds and materials for the mine field.²⁰³ Benyaurd immediately ordered the necessary material and enlisted local support to the lay the mines in the river. He ordered 1,800 pounds of dynamite from C. B. Smith of Jacksonville.²⁰⁴ Most of the other necessary materials were available or manufactured by the Merrill-Stevens Engineering Company located on East Bay Street in the city. Neither the electric submarine cables nor the mine casings were available locally.²⁰⁵ Benyaurd thus requested two miles of submarine cable be sent from the Western Union Telegraph Company. A few days later, he directed Cook to hasten construction at the bluff, insisting on the earliest possible completion date.

To facilitate mining the river, Colonel Benyaurd tasked 1st Lt. W. W. Harts to design, install, and operate the mine field.²⁰⁶ In early May, Benyaurd requested additional funds for the mine defense program.²⁰⁷ He had initially hoped the Florida Naval Militia would patrol the mine field. Lieutenant Harts first deployed the mines in the same month.²⁰⁸ A temporary mine casemate, a wooden building measuring 16 feet by 25 feet located on the bluff, held the terminals of the submarine cables to the planted mines.²⁰⁹ On June 10, the temporary casemate was destroyed by an accidental explosion caused during the testing of

mine plugs.²¹⁰ Two electricians, J. J. O'Rourke and Edward Houston, died in the explosion, and Lieutenant Harts incurred severe wounds during the incident. The injured Harts was replaced by Capt. R. P. Johnston the following day.²¹¹ Five days after the signing of the peace protocol, Benyaurd lifted the navigation restrictions on the river. Captain Johnson deactivated the mine field in September. The US Army Corps of Engineers had shipped dynamite and mine casing in their first shipment to the bluff, leaving the original 1,800 pounds of dynamite intact, which was sold back to C. B. Smith.²¹² The mine cables were sent to the cable storage tank at Tampa.²¹³

Spanish-American War Battery: Permanent Battery, 1898-1899

On April 27, 1898, two days after the United States declared war, General Wilson issued an order to build a permanent emplacement for two 8-inch breech-loading rifles on St. Johns Bluff.²¹⁴ The new battery required Colonel Benyaurd to modify his plans for the bluff. A site located approximately 1,200 feet southeast of the temporary battery on Section 27 of Township 1 South, Range 28 E, was selected for the Spanish-American War Battery (refer to Figure 10). Benyaurd submitted a formal design for an emplacement for two 8-inch on breech-loading (B. L.) rifles with an accompanying letter to the Chief of Engineers on June 14, 1898 (Figure 11).²¹⁵ The design shows the remaining concrete battery for the two pivoting rifles on the bluff, which, with the tree cover removed, allowed a 180-degree view up and down St. Johns Creek.

202. Ibid., 14.

203. Ibid., 14-15.

204. Ibid., 15.

205. Ibid.

206. Ibid., 19.

207. Ibid., 21.

208. Ibid., 22.

209. Ibid., 23.

210. Ibid., 24.

211. Ibid., 25.

212. Ibid., 28.

213. Ibid., 34.

214. Ibid., 17.

215. Benyaurd, *Defenses of St Johns River, Fla. (St. Johns Bluff) Design for Emplacement for two 8 inch on B.L. Rifles*. Letter of Lt. Col. W.H.H. Benyaurd, June 14, 1898 26112/4). RG 191, Drawing 191 Sheet 1.

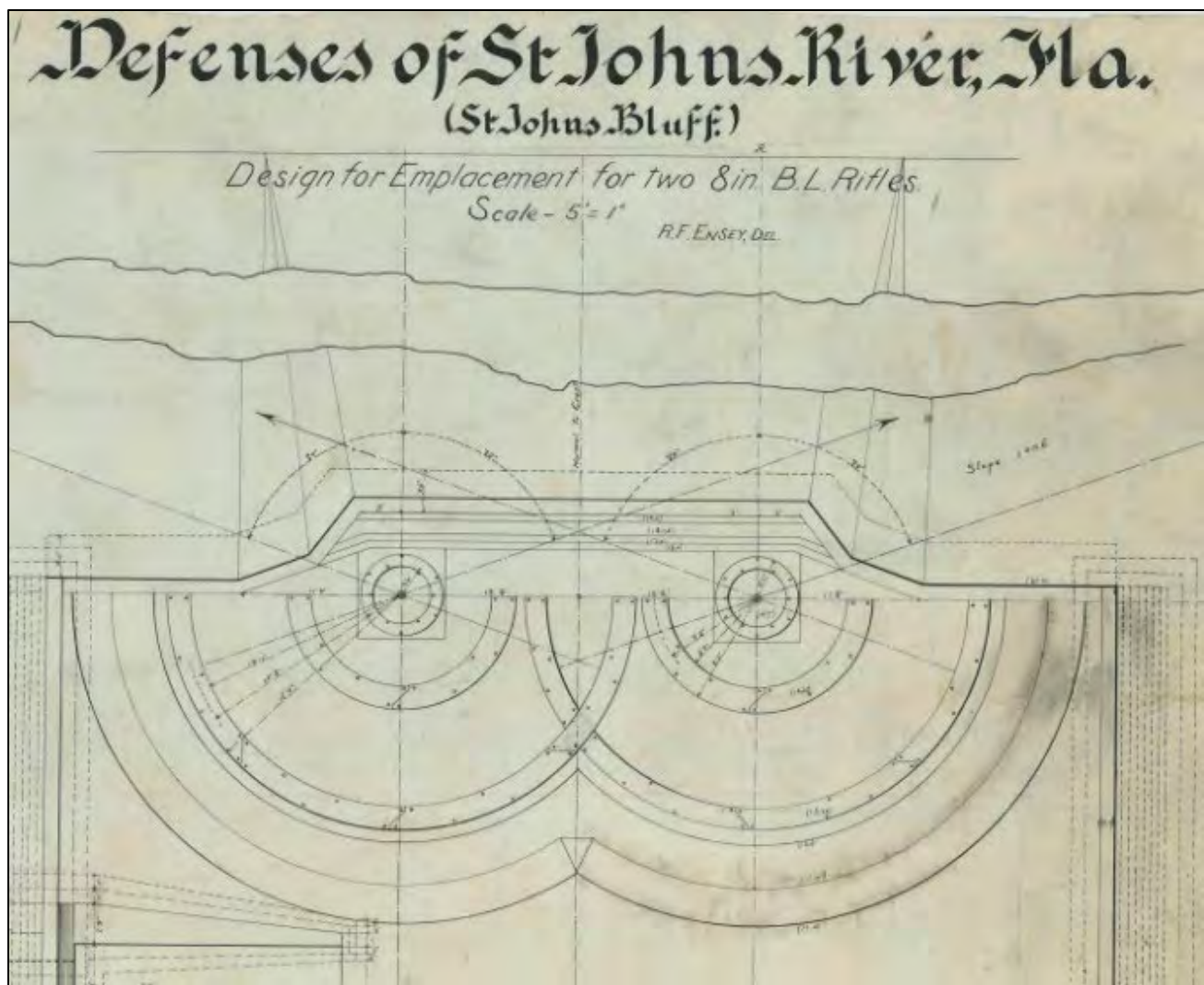


FIGURE 11. Spanish-American War Battery showing the locations of the emplacements for the two 8-inch breech-loading rifles and their field of view. (Source: Benyaard, *Defenses of St Johns River, Fla. (St. Johns Bluff) Design for Emplacement for two 8 inch on B. L. Rifles*. Letter of Lt. Col. W. H. H. Benyaard, June 14, 1898 26112/4; NARA, RG 191, Drawing 191 Sheet 1)

Construction of the permanent battery entailed site preparation, charting the lines for a new gunpit, constructing a 1,200-foot-long extension of the railroad track, drilling for water, and erecting a building to store the cement.²⁰⁶ Seven hundred barrels of cement were shipped and

stored on St. Johns Bluff.²⁰⁷ Shell for the concrete also was procured and piled near the new site. Crushed stone was supplied by Georgia Quincy Granite Company near Sparta, Georgia, and transported to Jacksonville on the F.C. & P. Railroad.²⁰⁸

206. Buker, 17.

207. Ibid.

208. Ibid., 26.

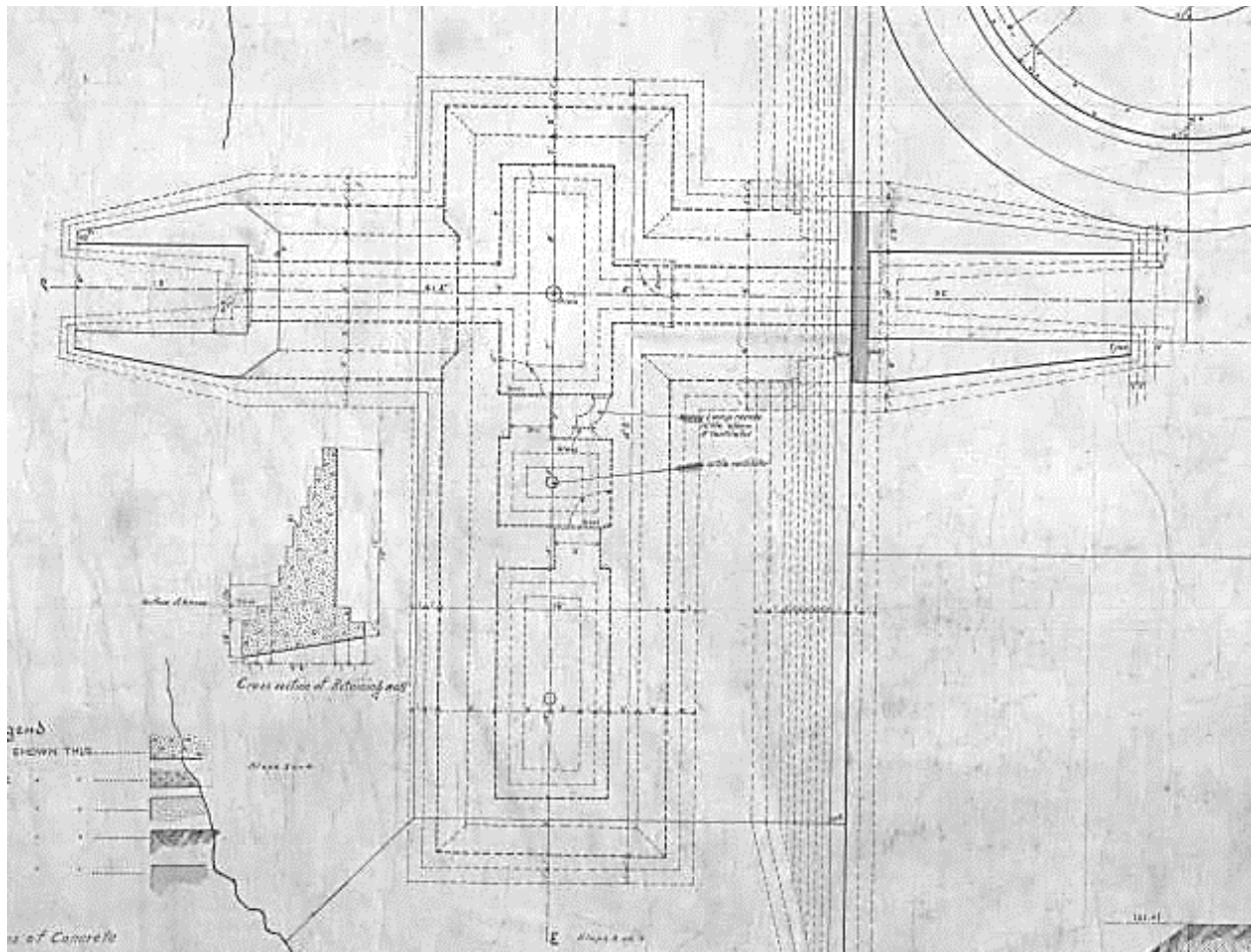


FIGURE 12. Schematic for the existing bomb-proof magazine contiguous on the northwest to the Spanish-American War Battery gun emplacements. (Source: Benyaurd, 1898)

By early July 1898, coinciding with American victories at San Juan and El Caney, excavation for the Spanish-American War Battery's 8-inch gun emplacements was completed, and the bomb-proof magazine for ammunition was near completion (Figure 12).²⁰⁹ Crushed stone for the foundations proved difficult to obtain during the war, however.²¹⁰

After the peace protocol was signed on August 12, completion of the 8-inch gun emplacements remained a high priority.²¹¹ A rock crusher was rented in Jacksonville to increase the supply of crushed stones the following month.²¹² In November, Cook notified Colonel Benyaurd

additional funds were necessary to resume construction on the emplacement.²¹³ Because the war had ended, Benyaurd was not at liberty to supply additional funds for the project. To allow the guns to be mounted as quickly as possible, Benyaurd suggested to Cook that the original height planned for the concrete pit might have to be reduced.²¹⁴ He also told Cook installation of all the doors in the plan was not necessary.²¹⁵ Nevertheless, Benyaurd was forced to request more money. When the 8-inch guns were authorized, additional rail tracks were rented to extend the railway to the Spanish-American War Battery. In November, Benyaurd received an

209. Ibid.

210. Ibid.

211. Ibid., 20.

212. Ibid., 29.

213. Ibid.

214. Ibid.

215. Ibid.

invoice for \$100 for the use of the rails until January 1, 1899.²¹⁶

On December 10, the peace treaty was signed in Paris as construction continued at St. Johns Bluff. The 8-inch guns remained at the foot of the bluff on the rental tracks because construction of the emplacement was still ongoing. General Wilson ultimately approved an additional \$400 for the purchase of the rails from the owner to complete the construction of the permanent battery.²¹⁷ In January 1899, two 8-inch breech-loading rifles were mounted at the Spanish-American War Battery.²¹⁸ Each gun weighed 32,480 pounds and could fire a 300-pound projectile capable of penetrating 10.6 inches of steel at 3,500 yards.²¹⁹ The concrete cover over the magazines was left unfinished, and the sand was not placed over the magazines. At this time, further work on St. Johns Bluff was suspended.²²⁰

The crest of the Spanish-American War Battery had an elevation of 73.27 feet; this elevation was taken from the top of the concrete wall in front the guns.²²¹ The earthwork crest was 11 inches above the wall at that time.²²² A position finding station

was located to the south of the permanent battery. It was marked by a tack driven into a maple stake squared off roughly and driven within ten inches of the surface of the ground.

Capt. Charles H. McKinstry and two assistant engineers conducted a survey of St. Johns Bluff from November 14 to December 6, 1899.²²³ The Spanish-American War Battery was identified as a permanent battery for two 8-inch B. L. guns on altered 15-inch S. B. carriages. A notation on McKinstry's site plan indicates that the guns had not been mounted by that time (Figure 13 and Figure 14). The railroad track was documented on the east side of the Spanish-American War Battery in contrast to Thompson's earlier 1898 sketch which placed the track on the west side of the battery. Oak trees on the southwest side of the battery were five to twelve inches in diameter with heights of up to 30 feet. Surrounding vegetation consisted of thick brush of scrub oak, myrtle, and holly.²²⁴ To the north, the temporary Battery Field or Siege Gun had expanded with the addition of six unidentified ancillary structures (refer to Figure 30).

216. Ibid.

217. Ibid., 30.

218. Ibid.

219. Ibid.

220. Ibid.

221. Lt. Col. W. H. H. Benyaard, *Defenses of St. Johns River, Fla. St. Johns Bluff showing location of 8 inch battery and position finders station, Surveyed February 1899 under the direction of Lieut. Col. Wm. H.H. Benyaard, Corps of Engineers, U.S. Army.* (Report of Lt. Col. W. H. H. Benyaard, March 11, 1899). Chief of Engineers Series (NARA RG 77), Fortifications Map File, Drawer 191, Sheet 3-2.

222. Benyaard, March 11, 1899.

223. Captain C. H. McKinstry, *St. Johns Bluff – Florida. Surveyed November 14 to December 6, 1899 Under the Direction of Captain C.H. McKinstry, Corps of Engineers, U.S. Army by J.W. Sackett and F.W. Bruce, assistant Engineers* (Letter Of Capt. C. H. McKinstry December 28, 1899, submitting map from survey of 1899 – 24824/5. Chief of Engineers Series (NARA RG 77), Fortifications Map File, Drawer 191, Sheet 4-1.

224. McKinstry.

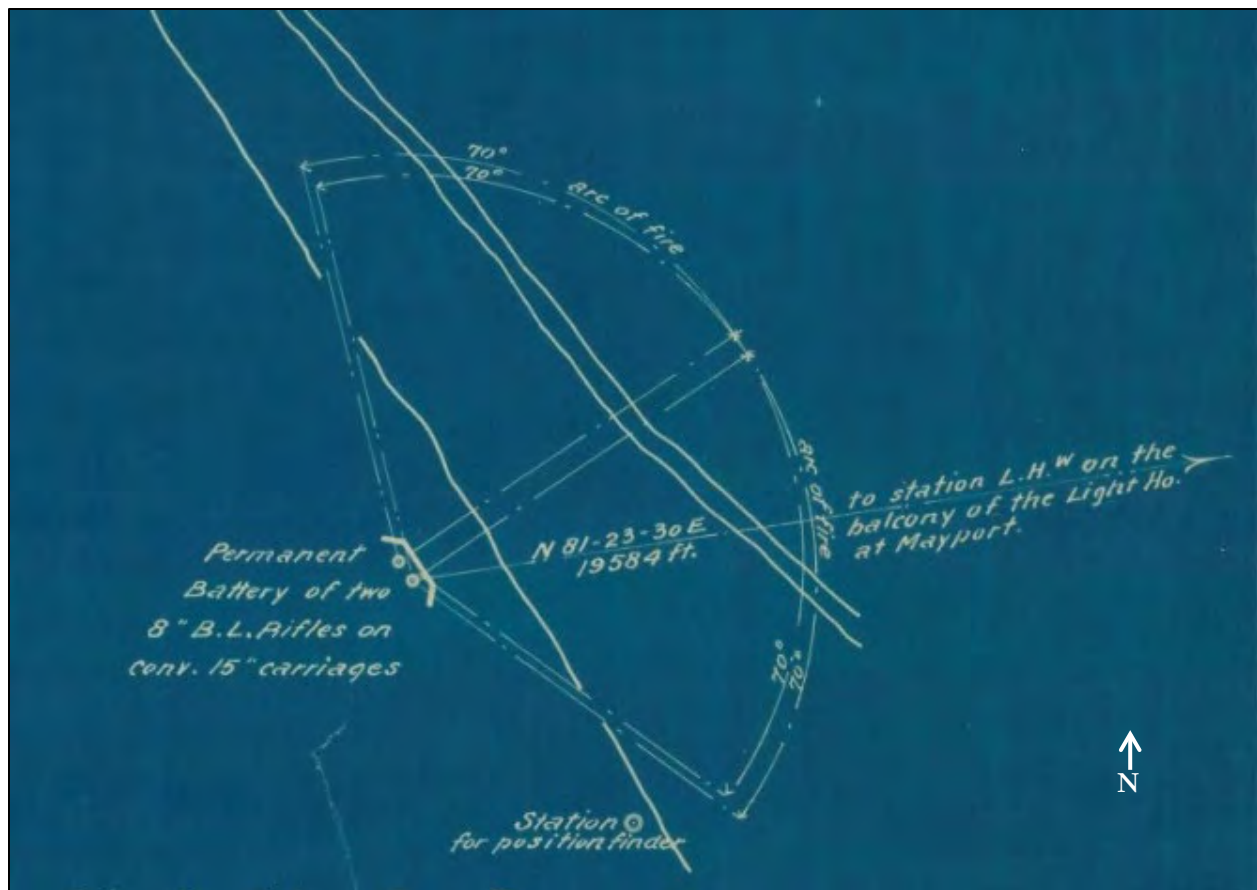


FIGURE 13. Spanish-American War Battery in February 1899, showing range of fire. (Source: Capt. C. H. McKinstry, December 28, 1899)



FIGURE 14. Layout of Spanish-American War Battery and bombproof magazine in December 1899. (Source: Benyaard, 1899 [March])

At the close of Benyaurd's tour of duty in Florida, he was relieved by his former assistant Capt. The 8-inch guns were never serviced by troops or test fired by the US Army Corps of Engineers.²²⁵ Prior to his transfer, Benyaurd hired B. J. Starling at \$60 per month to live on the military reservation as a watchman to perform minor repairs to the buildings and to clean and protect equipment needed as needed.²²⁶

Charles H. McKinstry, who had been in charge of the fortifications at Key West during the war.²²⁷ One of McKinstry's major tasks was to dismount and ship the remaining weapons from St. Johns Bluff. On July 1899, he tasked Charles Sperry to prepare a sketch of buildings used for storage, titled "Relative Positions of Buildings at St. Johns Bluff, Fla" (Figure 15 and Figure 16)²²⁸ The six buildings were clustered in the area north of the temporary battery, and included a 22-foot-by-12-foot kitchen; a 50-foot-by-12 foot stable, where wheelbarrows, iron pipes, and barrels belonging to National Defense were stored; a 16-foot-by-12-foot vacant dwelling; a 30-foot-by-12 foot watchman's house; an 18-foot-by-12-foot National Defense storehouse; and a cross-shaped torpedo storehouse with an 81-foot-by-17-foot main block and lesser wings contained all of the submarine mining material (refer to Figure 30).²²⁹

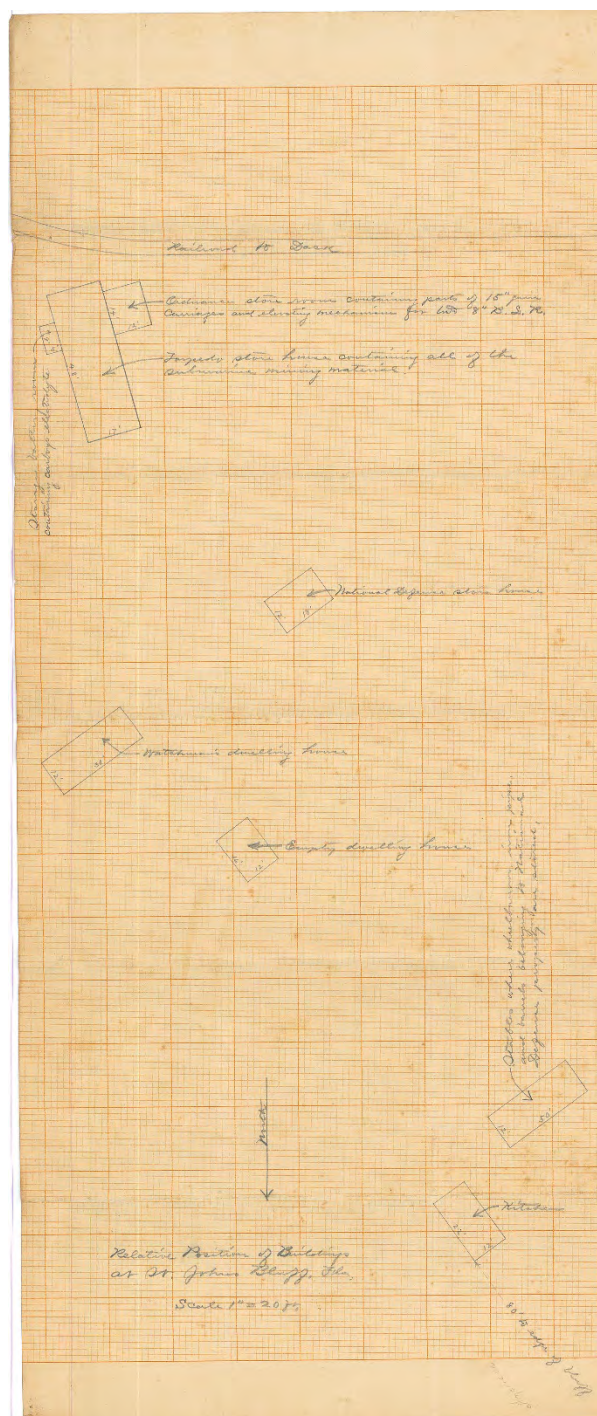


FIGURE 15. Sketch map completed by Charles Sperry, 1899. (Source: NARA Atlanta, R G 77 Engineers files, Entry 1170, Box 1, Folder September 1899)

225. Buker, 30.

226. Ibid., 30-31.

227. Ibid., 31.

228. NARA, Atlanta, RG 77 Engineers files, Entry 1170, Box 1, Folder September 1899. The sketch is referenced in Buker, 35 and Prettyman, 12.

229. Buker, 34-35.

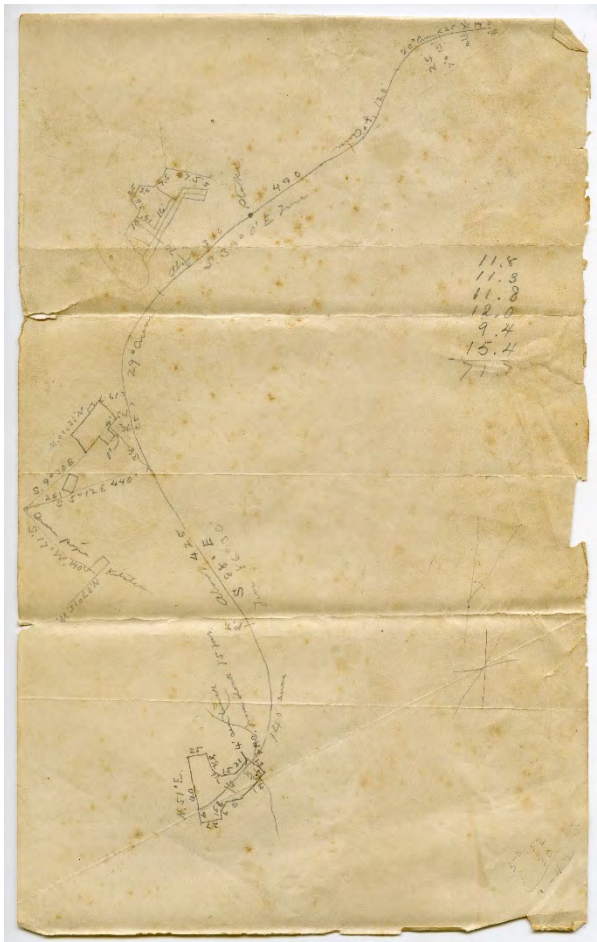


FIGURE 16. Sketch map completed by Charles Sperry, 1899. (Source: NARA Atlanta, R G 77 Engineers files, Entry 1170, Box 1, Folder September 1899)

On September 28, 1899, the Quartermaster, Department of the Gulf, Atlanta, Georgia, informed McKinstry that E. Winchenback of Jacksonville was awarded a contract to remove the ordnance from the bluff.²³⁰ The two 8-inch guns

were to be sent to Fort McRae, near Pensacola.²³¹ The four 12-pounders from the temporary battery were sent to the Augusta Arsenal in Georgia. The Spanish-American War Battery was abandoned in October 1899.²³²

William Henry Harrison Benyaurd. Born in Philadelphia, William Henry Harrison Benyaurd (1841–1900) graduated from the US Military Academy at West Point, New York, as part of the Class of 1863 (Figure 17).²³³ As a First Lieutenant, Corps of Engineers, his initial assignment was assistant engineer of the Defenses of Pittsburgh from June 15 to August 3, 1863.²³⁴ During the Civil War, Benyaurd engaged in various engineering projects for the Union Army ranging from constructing bridges, building block houses and defensive works, conducting surveys, to establishing roads. He received the Medal of Honor for most distinguished gallantry in the Battle of Five Forks, Virginia, on April 1, 1865.²³⁵ Benyaurd returned to West Point from August 1865 to August 1869, serving first in command of the Engineer Company and then as Assistant Professor of Engineering.²³⁶ In the following years to the outbreak of the Spanish-American War, he was charged with important US Army Corps of Engineers projects.²³⁷ By July 1889, he had breveted to lieutenant colonel.²³⁸

230. Ibid., 34.

231. Ibid.

232. Historic American Buildings Survey, *Spanish American War Fort, St. Johns Bluff, Duval County, Florida*. Florida, HABS No. FL-15-2 (1934), 4.

233. US Military Academy (USMA) Association of Graduates. *Thirty-first Annual Reunion of the Association of the Graduates of the United States Military Academy at West Point, New York, June 12th, 1900* (Saginaw, Michigan: Seeman & Peters, Printers and Binders, 1900) 125, accessed August 15, 2019, <http://digital-library.usma.edu/cdm/ref/collection/aogreunion/id/12659>.

234. George W. Cullum, *Biographical Register of the Officers and Graduates of the U.S. Military Academy at West Point, N.Y., from its Establishment, in 1802, Supplement, volume IV 1890-1900* (Cambridge, Massachusetts: Riverside Press, 1901), 869, USMA Library Digital Collections, accessed April 12, 2018, <http://digital-library.usma.edu/cdm/ref/collection/p16919coll3/id/14739>.

235. Cullum.

236. USMA, 128.

237. Ibid., 127.

238. Ibid.



FIGURE 17. William H. H. Benyaure. (Source: USMA, 1900, n.p.)

From January 7, 1896, to June 3, 1899, Benyaure oversaw the fortifications and river and harbor works in Florida.²³⁹ He superintended the construction of defenses at St. Johns Bluff, St. Augustine, Key West, and Tampa.²⁴⁰ Surveys were made under his direction. Benyaure was transferred to New York City after the war, where he died on February 7, 1900.

St. Johns Bluff: Early to Mid-Twentieth Century, 1899–1943

After the Spanish-American War, the United States government maintained the military reservation at St. Johns Bluff. The bluff remained undeveloped except for the extant military facilities. Land tenure disagreements resumed after the war. In September 1899, Captain McKinstry assigned Assistant Engineer J. W. Sackett to determine ownership and appropriate real estate values for the land in the military reservation.²⁴¹ Sackett recommended

condemnation proceedings for the land in question based on two factors: the exorbitant property prices requested by the landowners and the inability to secure a clear title of ownership.²⁴²

On April 25, 1901, the Circuit Court of the United States, 5th Judicial Circuit, Southern District of Florida, reached its decision in the condemnation by granting the United States 117.7 acres on St. Johns Bluff for future development of forts and coast defenses.²⁴³



FIGURE 18. A circa 1900 view of St. Johns Bluff. (Source: State Library & Archives of Florida)²⁴⁴

No further military development occurred on St. Johns Bluff following the land acquisition (Figure 18). Several maps produced in the 1900s and 1910s document the military reservation and St. Johns River. In 1901, the US Army Corps of Engineers prepared a map showing proposed defenses at St. Johns Bluff which identifies the Spanish-American War Battery, two proposed search lights on the east side of the St. Johns Bluff above the St. Johns Creek, and a generating plant

239. Ibid., 128.

240. Ibid., 127.

241. Buker, 39.

242. Ibid., 40.

243. Ibid., 41.

244. *View of Saint Johns Bluff from the Saint Johns River.* 1900. Black & white photoprint, 8 x 10. State Archives of Florida, Florida Memory. accessed December 15, 2019. <https://www.floridamemory.com/items/show/257569>.

near the US Dock above the river.²⁴⁵ The map shows a 30-inch search light in the vicinity of the Spanish-American War Battery to the southeast and a 24-inch search light in the general area of the temporary battery. A 1903 US Army Corps of Engineers sketch shows a single structure, a torpedo storehouse, on the northeast point of the bluff (Figure 19).²⁴⁶ Francis Shunk's February 1904 sketch of the military reservation documents the Spanish-American War Battery, temporary battery with ancillary buildings, railway, and dock (Figure 20).²⁴⁷ Based on a review of available maps, Shunk's 1904 sketch is the last known map to record the support facilities on the military reservation. A series of US Army Corps of Engineers drawings of the St. Johns River dating from 1906 through 1916 identify the Spanish-American War Battery and temporary battery (refer to Figure 31).²⁴⁸

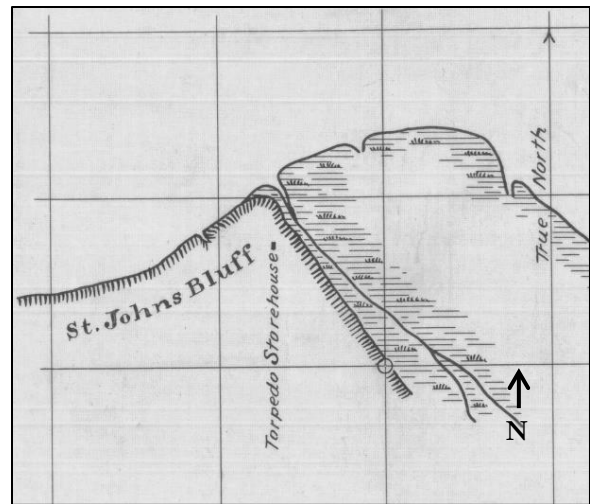


FIGURE 19. St. Johns Bluff in 1903. (Source: Shunk, 1903)

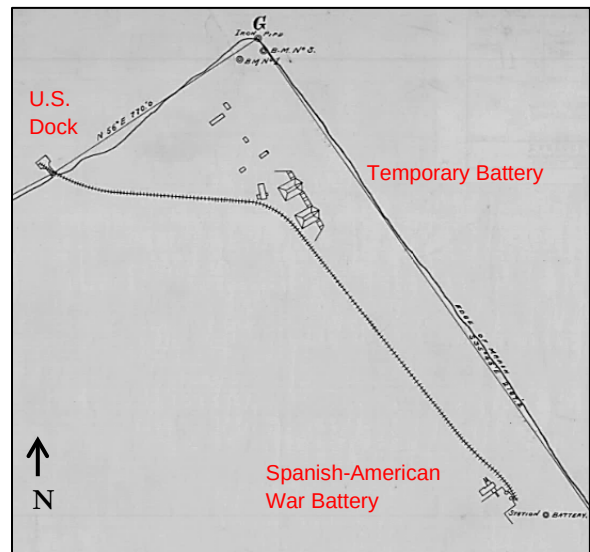


FIGURE 20. A 1904 site plan. (Source: Shunk, 1904)

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245. Thomas H. Rees, *Defenses of St. Johns River, Fla. Map Showing Proposed Arrangement of Searchlights at St. Johns Bluff, Florida*. US Engineer Office, Tampa Fla, July 19, 1901. To accompany my letter of this date. Chief of Engineers Series (NARA RG 77), Fortifications Map File, Drawer 191-6.
246. Francis R. Shunk, *Sketch showing additional data for Harbor Chart, St. Johns River, Fla.* US Engineer Office, St. Augustine, Fla., February 2, 1903, To accompany letter of this date to the Chief of Engineers (NARA RG 77), Forts File Drawer 191-5-4.

247. Francis R. Shunk, *U.S. Military Reservation St. Johns Bluff, Florida*, U.S. Engineer Office, St. Augustine, Fla., February 25, 1904, To accompany letter of this date to the Chief of Engineers. Chief of Engineers Series (NARA RG 77), Fortifications Map File, Drawer 191-4-4.
248. Chief of Engineers Series (NARA RG 77), Fortifications Map File, Drawer 191-8-2-through 191-8-10.

In the years leading up to World War I, the United States reassessed its seacoast defense system as the Endicott fortifications had become functionally obsolete. The War Department evaluated St. Johns River and determined there was no major naval military threat to Jacksonville. On August 25, 1915, the War Department Board of Review made the recommendation for no fixed armament along the St. Johns River. The US government continued ownership of the decommissioned St. Johns Bluff military reservation. The US Geological Survey in cooperation with the War Department conducted a topographical survey in 1918, which delineated section parcels lines on St. Johns Bluff.²⁴⁹ Located on Section 27 on the bluff, the Spanish-American War Battery does not appear on the 1918 map (Figure 21).²⁵⁰ One unidentified structure appears on northeast corner of St. Johns Bluff, northwest of the Spanish-American War Battery. Located in Section 43, the unidentified structure is likely the torpedo storehouse as previously documented in 1903.

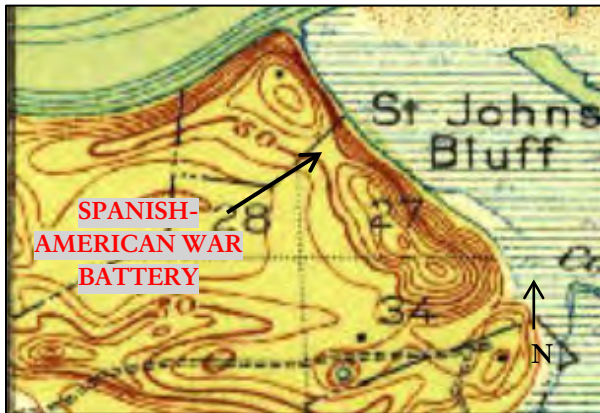


FIGURE 21. St. Johns Bluff in 1918. (Source: US Geological Survey Mayport, Fla., 1918)

On March 4, 1923, the US Congress authorized the sale of St. Johns Bluff.²⁵¹ Arthur Tilman Williams,

president of the Florida Realty investment Corporation, contracted with the government to purchase the St. Johns Bluff military reservation for \$53,839.38.²⁵² By September, there were three additional investors.²⁵³ Arthur Williams, the largest shareholder, died in 1932.



FIGURE 22. Spanish-American War Battery, St. Johns Bluff in 1934. (Source: HABS FL-15-2)

The Historic American Buildings Survey documented the Spanish-American War Battery in 1934 (Figure 22 and Figure 23).²⁵⁴ Two additional photographs of the battery were taken circa 1940 (Figure 24 and Figure 25). These photographs capture the pre-World War II conditions of the battery and the surrounding tree cover. On August 18, 1943, the St. Johns Bluff – Fort Caroline, Inc., acquired the military reservation.²⁵⁵ No development had occurred within the military reservation during first period of private ownership. A 1943 aerial photograph of St. Johns Bluff shows a northeast-southwest road (current Fort Caroline Road) extending from the northeast corner of the bluff to the main road to the south (Mt. Pleasant Road, Figure 26).²⁵⁶ The Spanish-

249. US Geological Survey, Mayport, FL. Map. (Washington, DC: Topography War Department Corps of Engineers, US Army, 1918). Note, the topographical survey was conducted in 1917.

250. Ibid.

251. Buker, 43.

252. Ibid.

253. Ibid., 43-44.

254. Historic American Buildings Survey, *Spanish American War Fort, St. Johns Bluff, Duval County, Florida*. Florida, HABS No. FL-15-2 (1934),

255. Buker, 44.

256. US Department of Agriculture "Aerial photographs of Duval County - Flight 6C (1943)," DCW-5C-17-19, University of Florida, <http://ufdc.ufl.edu/UF00071741/00006>.

American War Battery is not discernable in the photograph as the surrounding area consisted of woods.



FIGURE 23. Spanish-American War Battery, St. Johns Bluff in 1934. (Source: HABS FL-15-2)



FIGURE 24. Magazine of the Spanish-American War Battery, St. Johns Bluff circa 1940. (Source: State Archives of Florida)²⁵⁷



FIGURE 25. Spanish-American War Battery, St. Johns Bluff circa 1940. (Source: State Archives of Florida)²⁵⁸

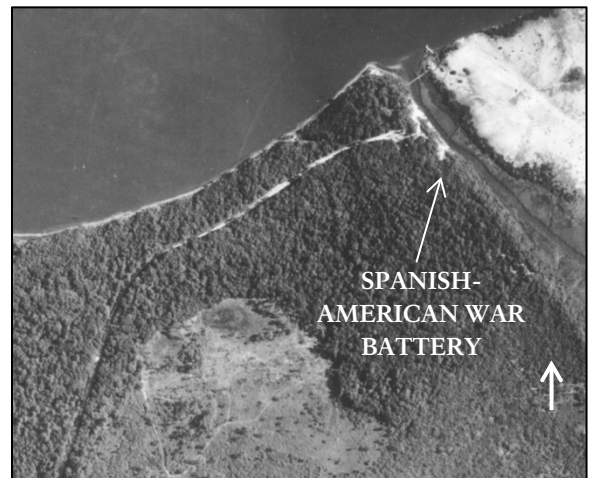


FIGURE 26. Aerial photograph showing St. Johns Bluff. (Source: US Department of Agriculture, 1943)

257. *Spanish American War Battery atop St. Johns Bluff.* Circa 1940. Black & white photonegative, 8 x 10 in. State Archives of Florida, Florida Memory. Accessed April 12, 2019, <https://www.floridamemory.com/items/show/3000>.

258. *Spanish American War Battery atop St. Johns Bluff.* Circa 1940. Black & white photonegative, 8 x 10 in. State Archives of Florida, Florida Memory. Accessed December 10, 2020, <https://www.floridamemory.com/items/show/3001>.

St. Johns Bluff Estates and Fort Caroline National Memorial, 1943–1988

During World War II, St. Johns Bluff-Ft. Caroline, Inc., adopted and dedicated their surveyed plat map of St. Johns Bluff Estates subdivision to Duval County on December 18, 1944.²⁵⁹ The original plat for St. Johns Bluff Estates consisted of 82 parcels laid out on both sides of Fort Caroline Road, a 100-foot-wide two-lane road. The Spanish-American War Battery straddles Lots 33 and Lot 34 of the subdivision.²⁶⁰ Parcels in the eastern section of the subdivision measure 100 feet wide and 150 feet deep. In January 1945, Duval County approved the plat for St. Johns Bluff Estates subdivision.²⁶¹ Jacksonville experienced an economic boom during the war with the buildup of three military installations.

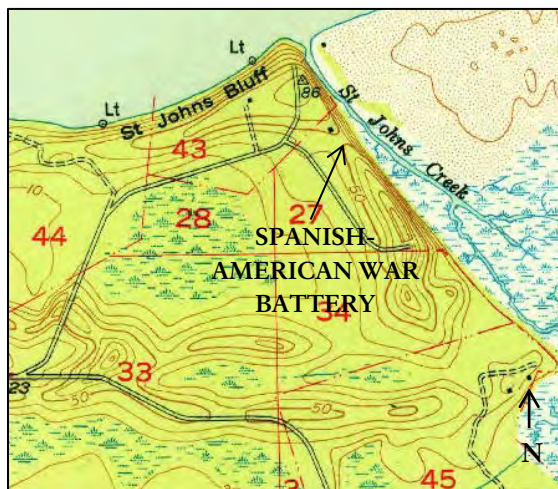


FIGURE 27. St. Johns Bluff. (Source: USGS, *Mayport, Fla.*, 1950)

By 1947, Fort Caroline Road had been completed on St. Johns Bluff as an improved dirt road (refer to Figure 32).²⁶² Two structures and a segment of road to the future site of Ribault Monument (West

Fort Caroline Park Road) were documented on the bluff on the 1950 topographic map (Figure 27). The northernmost structure is a single-family residence built in 1946 (13015 Fort Caroline Road).²⁶³ The structure on the east side of the bluff, northwest of the Spanish-American War Battery, was not identified. Two light towers (Lt with circle symbol on map—not lighthouses) were located on the north side of the bluff. The structure previously documented in 1918 on the northeast point of St. Johns Bluff does not appear on the 1950 topographic map.

In 1953, the NPS established Fort Caroline National Memorial along the southern bank of the St. Johns River north of the Spanish-American War Battery to commemorate the first French-Protestant settlement in the New World. The eastern boundary of the park borders St. Johns Bluff Estates. In 1958, the northeast point of St. Johns Bluff was added to Fort Caroline National Memorial and the 1924 Ribault Monument relocated from its original location near the mouth of St. Johns River (refer to Figure 32).²⁶⁴



FIGURE 28. St. Johns Bluff. (Source: USGS, *Mayport, Fla.*, 1964 [rev. 1970])

259. St. Johns Bluff-Ft. Caroline, Inc., *St. Johns Bluff Estates, State of Florida County of Duval Plat Book 18, Page 50.*

260. *Ibid.*

261. *Ibid.*

262. US Geological Survey, *Mayport, Fla.*, Map (Washington, DC: US Geological Survey, 1950 edition [1933; rev. 1947]).

263. Duval County Property Appraiser, "13015 Fort Caroline Road, Jacksonville, FL," accessed August 12, 2019, <https://paopropertysearch.coj.net/Basic/Detail.aspx?RE=1603370000>

264. National Park Service, "Ribault Monument" (April 14, 2015), accessed August 12, 2019, https://www.nps.gov/timu/learn/historyculture/foca_ribaultmonument.htm.

Residential development continued in St. Johns Bluff Estates near the Spanish-American War Battery in the 1950s and 1960s (Figure 28). A single-family home was built on the adjacent parcel to the north of the Spanish-American War Battery in 1960.²⁶⁵

Timucuan Ecological and Historic Preserve, 1988–2011

President Ronald Reagan signed Public Law 100-249 on February 16, 1988, creating the Timucuan Ecological and Historic Preserve, which included the Theodore Roosevelt Preserve. The new unit of the National Park System was created to preserve certain wetlands and historic and prehistoric sites in the St. Johns River Valley. Title II of the act authorized the Secretary of the Interior to acquire lands within the authorized boundary of the Preserve by donation, purchase or exchange.²⁶⁶ The Spanish-American War Battery was identified in the Act as one of the original eight “sites of significant historical interest,” which also included:

- Spanish sixteenth-century forts San Gabriel and San Estaban
- Spanish eighteenth-century fort Dos Hermanas
- English eighteenth-century forts at St. Johns Bluff and Fort George Island
- Spanish sixteenth- and seventeenth-century mission San Juan del Puerto

- Site of the American Revolutionary War battle of Thomas Creek
- The Zephaniah Kingsley plantation, with its eighteenth- and nineteenth-century buildings
- The Confederate fort known as Yellow Bluff Fort State Historic Site.²⁶⁷

The 1988 legislation also amended a 1950 act which provided for the acquisition, investigation, and preservation of lands associated with Fort Caroline on St. Johns Bluff. Congressman Charles E. Bennett, the local representative in Congress from 1949 to 1992, authored both acts.

President William J. Clinton officially designated St. Johns River an American Heritage River on July 30, 1998, in recognition of its ecological, historic, economic, and cultural significance.²⁶⁸ The Spanish-American War Battery is one of numerous historic sites along the St. Johns River that contributes to designation as an American Heritage River.

Spanish-American War Battery Acquisition, 2011–2021

The Spanish-American War Battery property remained in private ownership at the beginning of the twenty-first century. The land continued to be undeveloped and overgrown in the 2000s and 2010s. NPS staff cleaned the site every few years by removing weeds and trash to reduce risk of

265. Duval County Property Appraiser, “13157. Fort Caroline Road, Jacksonville, FL,” accessed August 12, 2019, <https://paopropertysearch.coj.net/Basic/Detail.aspx?RE=1603520010>.

266. US House of Representatives, *100th Congress, H.R.1983 - A bill authorizing the Secretary of the Interior to preserve certain wetlands and historic and prehistoric sites in the St. Johns River Valley, Florida, and for other purposes, 1988*, accessed August 12, 2019, <https://www.congress.gov/bill/100th-congress/house-bill/1983>.

267. Stowell, 1.

268. “President Clinton: Celebrating America’s Rivers July 30, 1998,” American Heritage Rivers (web site no longer updated), accessed August 13, 2019, <https://clintonwhitehouse2.archives.gov/CEQ/Rivers/>.

injury.²⁶⁹ In August 2011, the NPS conducted a one-day cleanup project of the Spanish-American War Battery property which entailed removal of vegetation, litter, and eroded soil from the exterior and interior rooms of the structure.²⁷⁰ By that time, the battery already exhibited evidence of deterioration related to corrosion of metals, intrusive vegetative growth, vandalism, and concrete deterioration.²⁷¹

The Ida M. Stevens Foundation, a non-profit organization, owned the Spanish-American War Battery site property until 2013, when the foundation lost ownership due to unpaid taxes.²⁷² A real estate investor, David Radcliffe, purchased the 3-acre property for \$101,000 in a September 2013, deed sale.²⁷³ He reportedly purchased the land without any prior knowledge of the fortification.²⁷⁴ He placed the parcel, large enough for two residences, on the real estate market for \$500,000 suggesting that the battery was at risk of being lost to development.²⁷⁵ In 2015, the NPS and the NFLT began collaborating to save the Spanish-American War Battery site. Discussions ensued between Radcliffe and the NPS about the prospect of the federal government acquiring the

property.²⁷⁶ Radcliffe offered to sell the property to NFLT for \$400,000.²⁷⁷ In the fall of 2015, NFLT signed a one-year purchase option to prevent the sale of the site to other interested buyers.²⁷⁸

In June 2016, Jacksonville Councilman Tommy Hazouri, with members Al Ferraro and John Crescimbeni, sponsored a bill (2016-435) to commit \$162,500 from city land acquisition accounts to assist NFLT with purchasing the fortification site.²⁷⁹ A public hearing was held before the Jacksonville City Council on Ordinance 2016-435 in the following month for the appropriation from the Jacksonville Recreational & Environmental Land Acquisition Capital Projects Fund to NFLT for the purchase of the Spanish-American War Battery parcel.²⁸⁰ By August, the City Council approved the appropriation.²⁸¹

NFLT purchased the Spanish-American War Battery site through the financial support of the City of Jacksonville, a \$100,000 challenge grant from the Delores Barr Weaver Fund, and numerous donors.²⁸² The initial plan was to restore the fortification and turn over the site to the NPS.²⁸³ NFLT also assisted in acquiring the

269. North Florida Land Trust. "North Florida Land Trust Had a Historic Year By Tripling the Land Conserved in 2016. Press Release" (January 11, 2017). Accessed December 19, 2019, <https://www.repi.mil/Portals/44/Documents/News%20PDFs/PR.comJan17.pdf?ver=2017-04-11-153656-830>.

270. Prettyman, 1.

271. Ibid., 12.

272. Steve Patterson, "Bill to help land trust buy Arlington fort built for Spanish-American War going to Jacksonville City Council," *The Florida Times Union*, June 27, 2016, accessed December 19, 2019, <https://www.jacksonville.com/news/metro/2016-06-27/story/bill-help-land-trust-buy-arlington-fort-built-spanish-american-war-going>

273. Max Marbut, "City considers partnership to preserve historic fort," *Financial News & Daily Record*, July 27, 2016.

274. Steve Patterson, "Land trust aims to buy forgotten Spanish-American War fort in Arlington," *The Florida Times Union*, December 2015, accessed December 4, 2019, <https://www.jacksonville.com/article/20151204/NEWS/801258430>.

275. Marbut.

276. Ibid.

277. Ibid.

278. Patterson, *The Florida Times Union*, June 27, 2016.

279. Ibid.

280. Marbut.

281. Steve Patterson, "Council backs money for Spanish-American fort purchase; backers still short \$72,500," *The Florida Times Union*, August 9, 2016, accessed December 19, 2019, <https://www.jacksonville.com/news/metro/2016-08-09/story/council-backs-money-spanish-american-fort-purchase-backers-still-72500>.

282. National Park Service, "A Spanish American War Fort Now Protected by Timucuan Ecological & Historic Preserve."

283. North Florida Land Trust.

Billy tract, an eight-acre parcel, for a trail between Fort Caroline Pond, Ribault Monument, and the Spanish-American War Battery.²⁸⁴ The NPS agreed to accept the property and manage it as part of the Preserve once NFLT purchased the land. On December 14, 2018, the NFLT transferred the title for the property containing the Spanish-American War Battery to the NPS, and the site became part of Timucuan Ecological and Historic Preserve.²⁸⁵

During the late 2010s, a youth conservation team spent one to two weeks participating in a project to remove sword fern, an invasive plant species, from the property. In 2019, the NPS engaged the Panamerican team to prepare a CLR for the property.

284. Ibid.

285. National Park Service, "A Spanish American War Fort Now Protected by Timucuan Ecological & Historic Preserve."

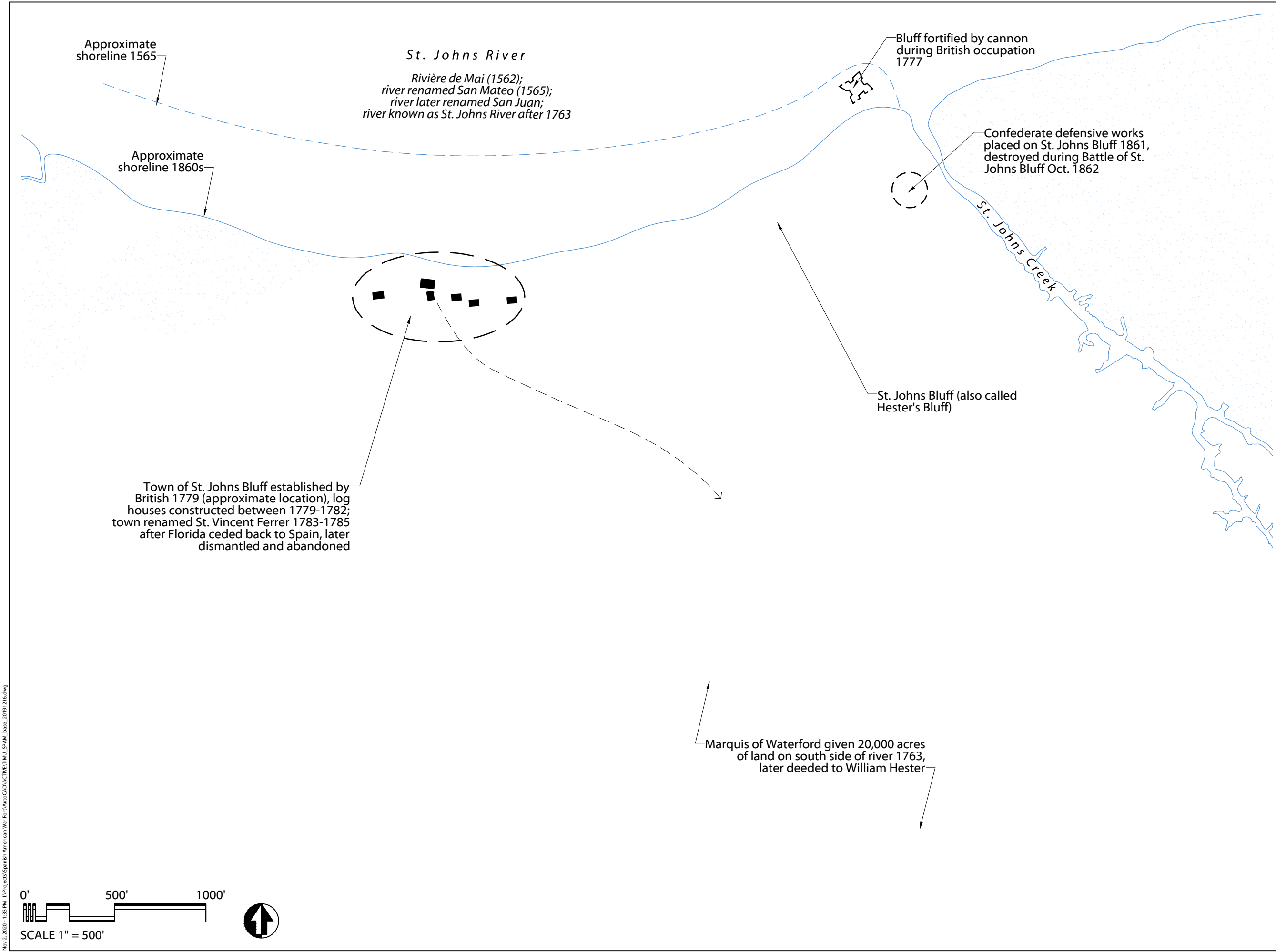
Spanish-American War Battery Timeline

- 1513 Spanish explorer Juan Ponce de León claimed La Florida for Spain on April 3.
- 1562 French Huguenot explorer Jean Ribault (circa 1520-1565) and his small fleet entered St. Johns River on May 1. The French claimed the territory and placed a monument on the south side of the river, east of St. Johns Bluff near Mayport.
- 1564 René Goulaine de Laudonnière (circa 1529–1574) established Fort Caroline, the first defensive works constructed on St. Johns Bluff, although the fort’s actual location is not known.
- 1565 The Spanish under the command of Pedro Menéndez de Avilés capture Fort Caroline in September.
- 1763 By treaty, Great Britain acquired Florida from Spain in exchange for Havana, Cuba, and assume control of the territory in the following year.
- 1770s “St. Johns Town” was established on a 200-acre tract owned by William Hester on St. Johns Bluff.
- 1777 The British fortified St. Johns Bluff with cannon in May.
- 1783 Great Britain ceded Florida to Spain.
- 1784 The Spanish erected a battery designated San Vincente Ferrer (St. Vincent Ferrer) on St. Johns Bluff. Two plantations were established on the bluff thereafter.
- 1817 Zephaniah Kingsley, who owned Fort George and other area plantations, purchased both tracts of land on St. Johns Bluff.
- 1821 Florida was formally transferred by Spain to the United States.
- 1822 Duval County was established on August 12. Jacksonville established and selected as county seat.
- 1862 Confederate Army constructed earthworks on St. Johns Bluff.
- 1898 On February 15, the USS *Maine* exploded in the port of Havana. Five days later, Florida Governor William Bloxham instructed Jacksonville Naval Militia to conduct a reconnaissance of the Atlantic coast.
- 1898 On March 31, a joint resolution of Congress allows the construction of temporary fortifications by the government upon written consent of the owners. A week later Lt. Col. William H. H. Benyaure received the owners’ permission to build temporary fortifications on St Johns Bluff.
- 1898 City of Jacksonville was notified of the Secretary of War approval of orders for guns and mines on April 2. Brigadier Gen. John M. Wilson, Chief of Engineers, instructed Lieutenant Colonel Benyaure, the district engineer, and instructed him to coordinate with Jacksonville citizens to select a site for four modern siege guns for torpedo defense.
- 1898 On April 11, construction of a temporary battery begins at St. Johns Bluff. The Corps of Engineers hired John M. Cook of Spartanburg, South Carolina, to oversee construction.
- 1898 On April 12, two 5-inch breech-loading rifles and two 7-inch breech-loading howitzers for St. Johns Bluff arrived at Jacksonville.
- 1898 Colonel Benyaure prepared for the mining of St. Johns River. An American flag was hoisted on the bluff on April 15.
- 1898 The United States formally declares war against Spain on April 25.
- 1898 On April 27, General Wilson issues orders to build a permanent emplacement, the Spanish-American War Battery on St. Johns Bluff, for two 8-inch breech-loading rifles. The new fortification site is 1,200 feet southeast of the temporary battery on the bluff facing St. Johns Creek.

- 1898 The guns for the battery were sent to Tampa on May 18 and replaced by four obsolete 12-pounder field guns from Jacksonville.
- 1898 Two electricians, J. J. O'Rourke and Edward Houston, died in an explosion while conducting a torpedo plug at the battery on June 10. Lieutenant Harts incurred severe wounds during the incident.
- 1898 A peace protocol between the United States and Spain was negotiated on August 12.
- 1898 The Treaty of Paris was signed on December 10.
- 1899 In July, Charles Sperry was asked to develop a sketch showing the "Relative Positions of Buildings at St. Johns Bluff, Fla."
- 1899 Two 8-inch, breech-loading rifles, each weighing 32,840 pounds, were mounted in the permanent battery January.
- 1899 The Spanish-American War Battery was abandoned in October. The two 8-inch guns are dismantled and sent to Fort McRee, near Pensacola, Florida. The four 12 pounders were sent to Augusta Arsenal in Georgia.
- 1900 All ancillary buildings on the site were reported demolished by 1900, leaving only the cement gun emplacement.
- 1901 On April 25, the Circuit Court of the US 5th Judicial Circuit, Southern District of Florida, reached a decision for the condemnation of the land at St Johns Bluff. The United States received 117.7 acres on St. Johns Bluff for a military reservation and future construction of forts and coast defenses.
- 1904 Francis R. Shunk sketched a map of US Military Reservation, St. Johns Bluff, Florida.
- 1915 On August 23, the Department Board of Review meeting determined that St. Johns River does not require fixed armament.
- 1923 March 4, Congress authorized the sale of St. Johns Bluff.
- 1925 On June 1, Arthur Tilman Williams, president of the Florida Realty Investment Corporation, contracted with the US government to purchase the St. Johns Bluff military reservation for \$53,839.38. By September 9, Williams included three other investors in the ownership of the military reservation.
- 1934 HABS recorded the features of the Spanish-American War Battery.
- 1943 On August 18, St. Johns Bluff – Fort Caroline, Inc., acquires the former military reservation.
- 1944 On December 18, Fort Caroline, Inc., platted the former military reservation land under the title of "St. Johns Bluff Estates."
- 1988 President Ronald Reagan (1911-2004) signed Public Law 100-249 on February 16, 1988, establishing Timucuan Ecological and Historic Preserve. The Spanish-American War Battery is identified in the Act as one of the original eight "sites of significant historical interest" in the Preserve.
- 1998 St. Johns River was designated an American Heritage River in recognition of its ecological, historic, economic, and cultural significance.
- 2000 The Spanish-American War Battery property remained privately owned at the beginning of the twenty-first century, as it had been since the 1940s.
- 2011 The NPS conducted a cleanup of the "Spanish-American War Battery" property in August.
- 2013 The Spanish-American War Battery property was sold at a tax-deed auction to a real estate investor.
- 2016 North Florida Land Trust purchased the Spanish-American War Battery property.

Developmental History

2018 North Florida Land Trust transferred title of the property to the NPS on December 14. The property became part of Timucuan Ecological and Historic Preserve.



Legend

- Waterways
- Old shoreline
- Marsh
- Roads/trails
- Buildings
- Forts

Notes:

1. Dimensions and locations are approximate, based on field observations, NPS-provided GIS data, and GIS data from the Florida Geographic Data Library.
2. Fort de la Caroline established in area by Huguenots 1564; renamed San Mateo by Spanish 1565. Location unknown.
3. Camp of Menendez established in area 1565. Location unknown.

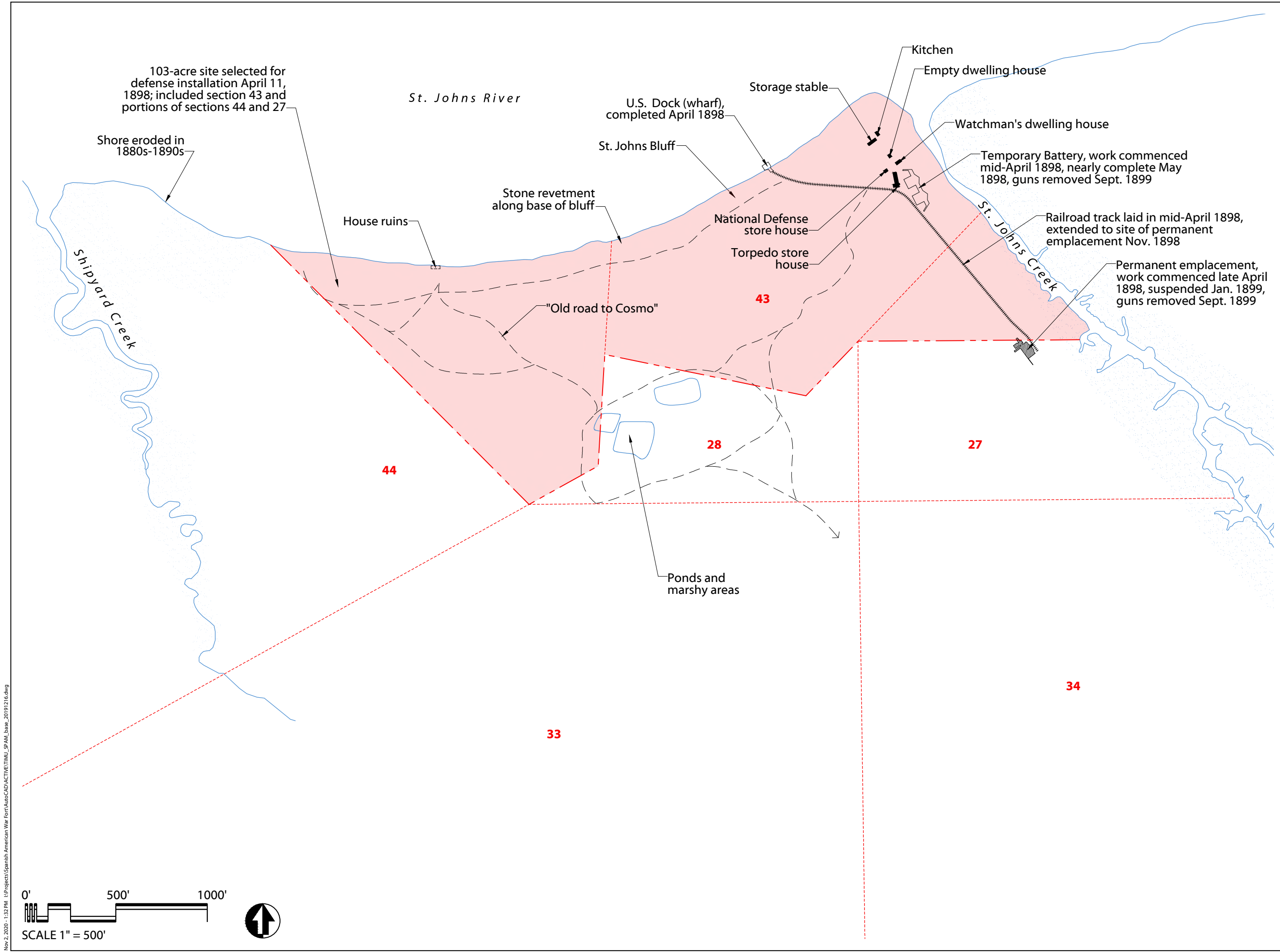
Sources:

Buker, George E. *Spanish-American War Fortifications, St. Johns Bluff*. 1989.

Historic American Buildings Survey. *Spanish-American War Fort, St. Johns Bluff, Duval County, Florida*. HABS No. FL-15-2. 1934.

United States Coast and Geodetic Survey. *Preliminary Chart of St. John's River, Florida, From Entrance to Brown's Creek*. 1856, Revised 1879 and 1886.

Figure 29.
Period Plan 1513–1862



Legend

- Waterways
- Marsh
- Roads/trails
- Railroad
- Buildings
- Structures
- Section lines
- U.S. Military Reservation

Notes:

1. Dimensions and locations are approximate, based on field observations, NPS-provided GIS data, and GIS data from the Florida Geographic Data Library.

Sources:

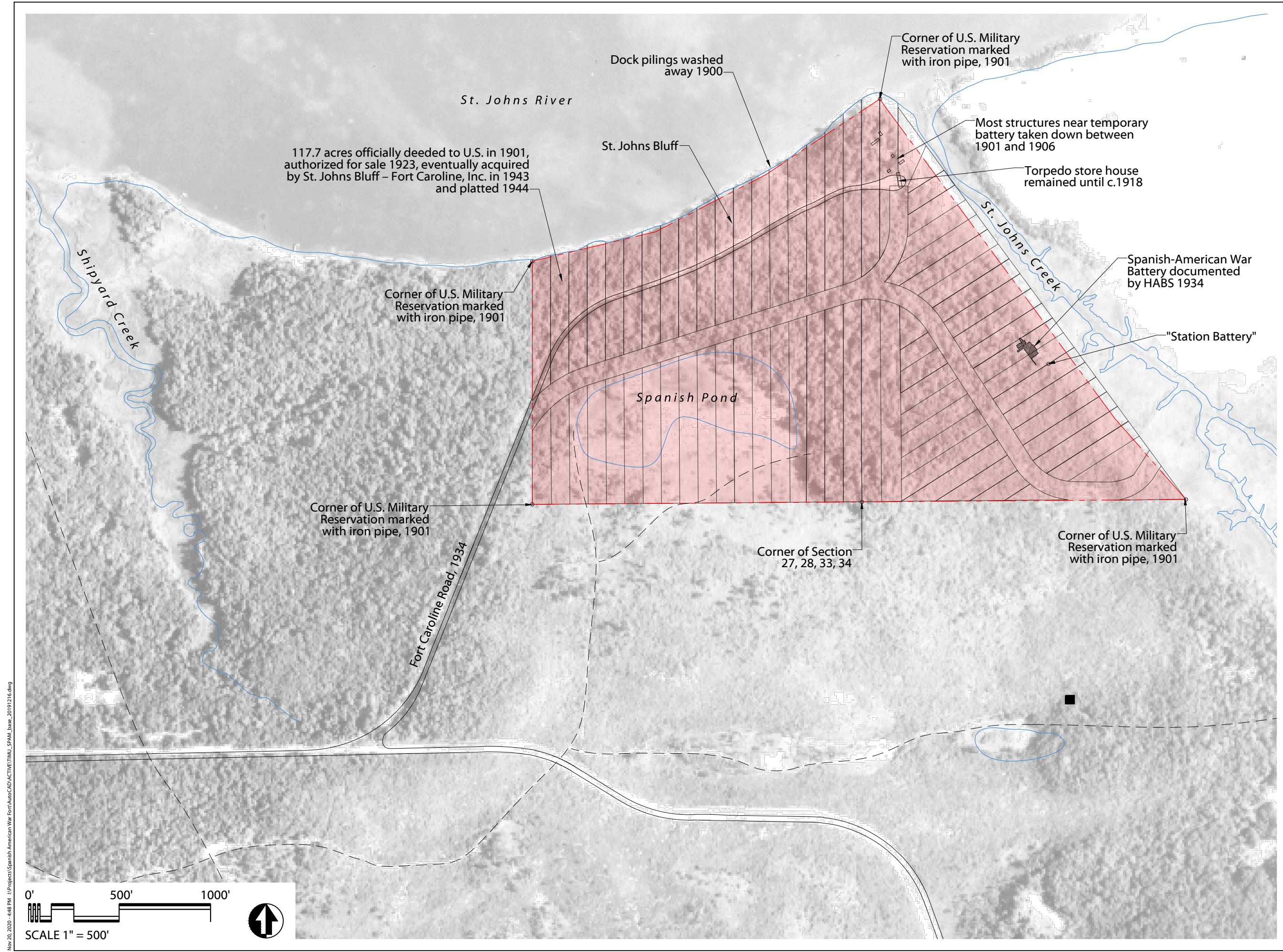
Buker, George E. *Spanish-American War Fortifications, St. Johns Bluff*. 1989.

Historic American Buildings Survey. *Spanish-American War Fort, St. Johns Bluff, Duval County, Florida*. HABS No. FL-15-2. 1934.

McKinstry, Captain C.H. *St. Johns Bluff, Florida*. December 28, 1899. NARA RG 77, Drawer 191, Sheet 4-1.

Thompson, E.B. *Sketch of a Portion of St. Johns Bluff, Florida*. Surveyed November 1898. NARA RG 77, Drawer 191, Sheet 2.

Figure 30.
Period Plan 1863-1899



Legend

- Waterways
- Roads
- Unpaved roads/trails
- Buildings
- Structures
- Abandoned buildings
- U.S. Military Reservation
- Plat lines

- Notes:**
1. Dimensions and locations are approximate, based on field observations, NPS-provided GIS data, and GIS data from the Florida Geographic Data Library.
 2. Aerial underlay source: Historical Imagery 1943, provided to report authors by NPS.

Sources:

Buker, George E. *Spanish-American War Fortifications, St. Johns Bluff*. 1989.

Historic American Buildings Survey. *Spanish-American War Fort, St. Johns Bluff, Duval County, Florida*. HABS No. FL-15-2. 1934.

Shunk, Francis R. *U.S. Military Reservation St. Johns Bluff, Florida., Surveyed February 25, 1904*. NARA RG 77, Drawer 191, Sheet 4-4.

St. Johns Bluff-Ft Caroline, Inc. *St. Johns Bluff Estates, State of Florida County of Duval Plat Book 18, Page 50*.

USGS. 1:62500 Series. Jacksonville and Mayport quadrangles. 1918, revised 1932.

Figure 31.
Period Plan 1900–1944

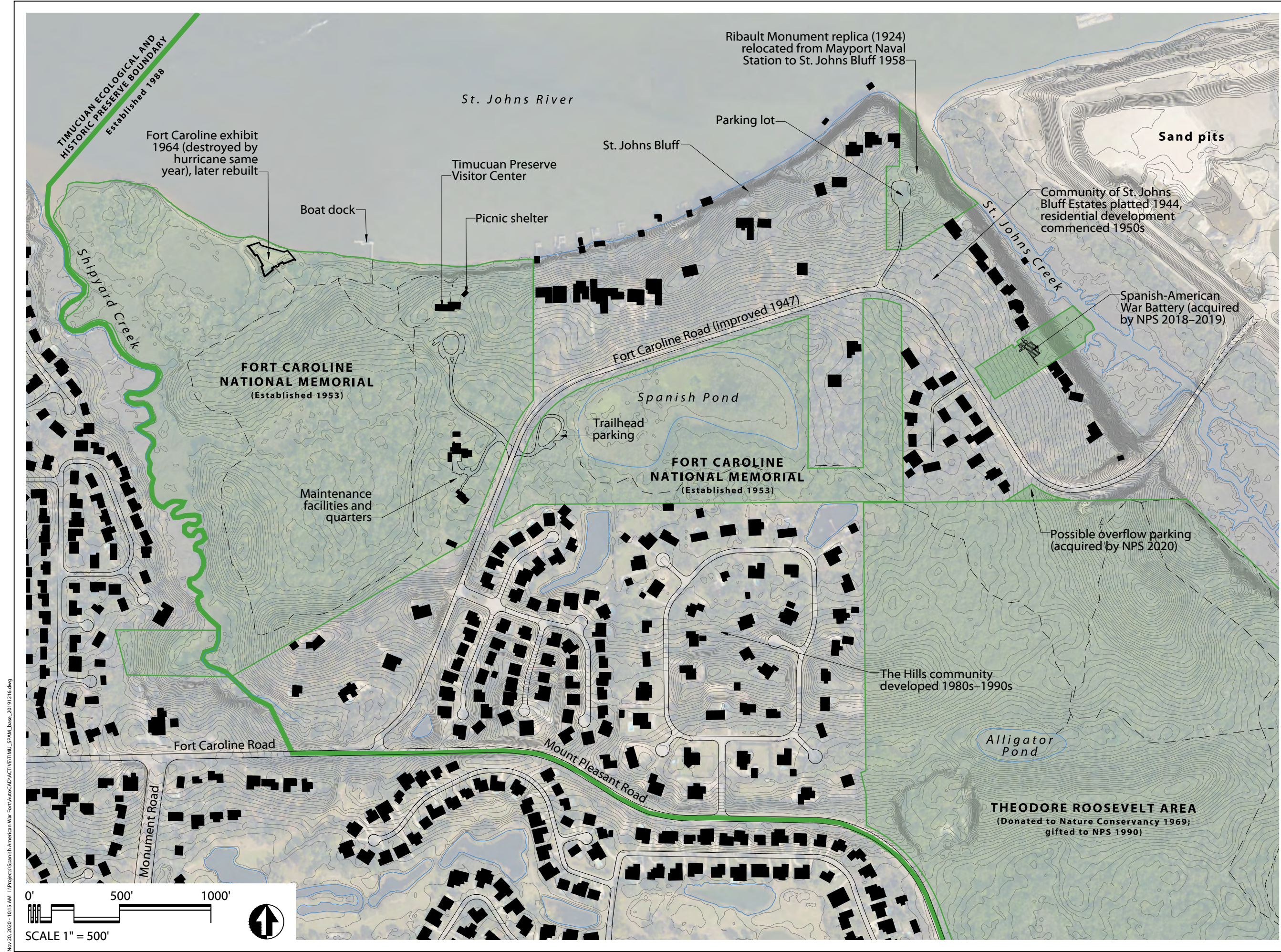


Figure 32.
Period Plan 1945–2020

Existing Conditions

Introduction

This chapter describes, through narrative text, photographs, labeled base mapping, and analytical diagrams, the current conditions and extant landscape features associated with the Spanish-American War Battery property and its setting within the St. Johns Bluff community of Duval County, Florida.

The chapter is composed of four sections. The first section addresses the Environmental Context and Setting for the Spanish-American War Battery property. The section sets the property within a physiographic, geologic, topographic, and hydrologic framework, while also describing the plant and animal communities present, and climatic conditions associated with the region. The second section addresses the Cultural Context and Setting for the property, describing regional important road corridors, community demographics, and nearby cultural attractions. The third section describes the Spanish-American War Battery in its entirety. The fourth and final section describes each of the individual landscape features that together comprise the Spanish-American War Battery property. The features are organized by landscape characteristic.

Landscape characteristics range from large-scale patterns and relationships to site details and materials. The following landscape characteristics are used to document existing conditions within this section:

- **Natural systems and features.** These are the environmental resources and qualities that have influenced the development and physical form of a landscape. They include the underlying landform, soils, and water

resources, as well as attendant native plant communities.

- **Topography.** Topography is the three-dimensional configuration of the landscape surface characterized by features and orientation.
- **Spatial organization.** This is the three-dimensional organization of physical forms and visual associations in the landscape, including the articulation of ground, vertical, and overhead planes that define and create spaces.
- **Land use.** This addresses the principal activities in a landscape that form, shape, and organize it as a result of human interaction.
- **Circulation.** This represents the patterns, features, and applied material finishes that constitute the systems of movement in a landscape.
- **Vegetation.** This includes the deciduous and evergreen trees, shrubs, vines, ground covers, and herbaceous plants that have been introduced in a landscape by cultural activities.
- **Buildings and structures.** These are elements constructed primarily for sheltering any form of human activity in a landscape and 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. Vistas are deliberately designed views often meant to orient the gaze to a linear feature or focal point.

- **Small-scale features.** These are the elements providing detail and diversity for both functional needs and aesthetic concerns in a landscape.
- **Archeological sites.** These are the traces, or deposited artifacts, in a landscape that suggest former activities and uses.²⁸⁶

Environmental Context and Setting

Timucuan Ecological and Historic Preserve is a 46,000-acre unit of the National Park System located along the North Florida coast (Figure 33). More than 75 percent of the preserve's acreage is composed of inland waterways and wetlands associated with an extensive estuarine system of salt marsh, coastal hammock, and marine and brackish waters. The remainder of the preserve is composed largely of sea and marsh islands.²⁸⁷

The Nassau River forms the northern boundary of the preserve, while Little Talbot Island and the Atlantic Ocean bound Timucuan Ecological and Historic Preserve on the east. St. Johns River edges portions of the preserve to the south, except for the parcels associated with Fort Caroline, the Ribault Monument, Theodore Roosevelt Area, and the Spanish-American War Battery, which are edged by residential and commercial development. The western preserve boundary is irregular, and generally follows the margins of coastally impacted marshland south of Nassau River and north of St. Johns River. Within the authorized boundary of the park there are also three inholdings associated with residential

developments on Pearson Island, Fanning Island, and Black Hammock Island.²⁸⁸

Physiography

The eastern portion of North Florida lies within the lower Atlantic Coastal Plain physiographic province and spans the embayed and Sea Island physiographic sections. Landforms associated with the Atlantic Coastal Plain include barrier islands, lagoons, estuaries, coastal ridges, sand dune ridges, and relict spits and bars with intervening valleys. Much of the preserve lies within the St. Marys Meander Plain, a subdivision of the Atlantic Coastal Plain. Within the confines of the St. Marys Meander Plain are the Nassau and St. Marys Rivers and a network of abandoned river channels and tributaries. The area south of St. Johns River is a separate subdivision referred to as the Eastern Valley.²⁸⁹

The Sea Islands are part of a barrier island system that extends between the Santee River in South Carolina and the north bank of the St. Johns River. The Sea Islands are separated from the mainland by meandering tidal creeks that flow through fluvial and tidal sedimentation and the salt marshes that occupy the area between beach ridges. As barrier islands, these landforms absorb energy from tides and waves before it reaches the mainland and allow sediments from mainland rivers to be deposited in the sheltered area behind the islands. Fort George and Big and Little Talbot Islands are part of the Sea Island system. The Eastern Valley located to the south of the St. Marys Meander, which encompasses the Spanish-American War Battery, is less embayed.

286. Definitions derived from Robert R. Page, Cathy A. Gilbert, and Susan A. Dolan, *A Guide to Cultural Landscape Reports; Contents, Processes, and Techniques* (Washington, DC: US Department of the Interior, 1998), 7–11; and Linda Flint McClelland, J. Timothy Keller, Genevieve Keller, and Robert Z. Melnick, *National Register Bulletin 30: Guidelines for Evaluating and Documenting Rural Historic*

Landscapes (Washington, DC: US Department of the Interior, 1990), 53.

287. Stowell, 2.

288. Ibid.

289. National Park Service, *Timucuan Ecological and Historic Preserve General Management Plan Development Concept Plans* (Denver, Colorado: US Department of the Interior, 1994), 35.



FIGURE 33. Timucuan Ecological and Historic Preserve. (Source: National Park Service, https://www.nps.gov/timu/planyourvisit/upload/timu_preserve_map_2005_sm.pdf)

Landforms associated with the Atlantic Coastal Plain in this area are composed of ancient marine terraces that parallel the coast. The terraces formed during the Pleistocene Epoch when sea levels rose and fell several times due to the advance and retreat of ice sheets associated with various ice ages. The fluctuations in sea level that occurred during the Pleistocene profoundly influenced the topography of Florida, as evidenced by present-day marine terraces. Each time sea level dropped, part of the sea floor was left exposed as a level plain or terrace. The terraces corresponding to the various Pleistocene-era shorelines are referred to as Wicomico, set 100 feet above mean sea level (AMSL); Penholoway, set 70 feet AMSL; Talbot, set 42 feet AMSL; and Pamlico, set 25 feet AMSL.²⁹⁰ Over time, the level plains of the terraces have been altered by stream erosion.

The barrier islands were formed by sand deposition resulting from wind, water, and wave action. The height and form of sand deposits and dunes depends on wind patterns and the trapping of windblown sand by vegetation. Over time, dunes can become stabilized by salt-tolerant vegetation. St. Johns Bluff, where the Spanish-American War Battery is located, is a relict dune that rises approximately 60 to 70 above the surrounding terrain. It likely constitutes the highest point in the preserve.²⁹¹ In contrast, many other areas within the preserve are relatively level and are at elevations below 5 feet AMSL.

Geology and Soils

The preserve is geologically young and continues to evolve through deposition and erosion of unconsolidated materials. At a broad scale, Timucuan Ecological and Historic Preserve is underlain by undifferentiated sediments derived during the Pleistocene and more recent eras. The sediments include quartz sands and scattered clay lenses that contain shell and soft clay marl. These sediments occur within the terraces listed above with marine materials overlain by freshwater

sediments. Below the Pleistocene deposits are Pliocene and Late Miocene sediments composed of unconsolidated sand, shell, clay, and limestone. The limestone at the base of these deposits is an important water-yielding zone of a surficial aquifer. Beneath the surficial aquifer, the Hawthorne Formation, which dates to the Middle Miocene, consists of gray to olive-green clay, sandy clay, and sandy limestone, with abundant interbedded phosphatic sand, limestone, and dolomites. The Hawthorne Formation ranges between 300 and 500 feet in thickness and functions as an aquitard or confining bed between the surficial aquifer and the lower Floridan aquifer. Below the Hawthorne Formation lies Eocene era limestone.²⁹²

Soils of northeast Florida are partly sedimentary and partly derived from the weathering of underlying formations. As noted above, soils consist of quartz sands and clays. A principal source of Pleistocene sediments is erosion of the Piedmont physiographic province and the South Appalachian Mountains and the movement of materials southward by streams and long-shore currents. The St. Johns River is a natural barrier to this movement, and little or no silt or clay have accumulated farther south than the St. Johns River inlet because Florida upland rocks do not weather to produce such materials, and none of the rivers to the south drain true interior areas.²⁹³

The soil types that underlie the Spanish-American War Battery parcel are Tisonia mucky peat and Kureb fine sand.²⁹⁴ The Tisonia mucky peat soil is described as very frequently flooded, which occurs daily through tidal inundation.

Hydrology

Timucuan Ecological and Historic Preserve is associated with both the Nassau and St. Johns Rivers. The Nassau River, forming the northern boundary of the preserve, originates in Duval County. The 54.8 river miles of the system drains approximately 400 square miles of Duval and

290. National Park Service, *General Management Plan*, 35.

291. *Ibid.*, 36.

292. *Ibid.*

293. *Ibid.*

294. *Ibid.*, 36–39.

Nassau Counties, discharging into the Atlantic Ocean through a 10-square-mile estuary. The Nassau River is not maintained as a navigable waterway by the US Army Corps of Engineers.²⁹⁵

The St. Johns River basin is the largest watershed to fall entirely within the state of Florida and the third largest drainage basin in all of Florida. It is also one of the few northward flowing rivers in the western hemisphere.²⁹⁶ The St. Johns River drains 9,430 square miles, nearly one-sixth of the land area of Florida. The lower third of the 318-mile-long river, the longest river in the State of Florida, is perennially tidal. It extends generally north until it turns eastward at Jacksonville to its mouth at the Atlantic Ocean, six miles east of St. Johns Bluff.²⁹⁷ The section of the river in Duval County is approximately 39 miles in length. Although the river is generally navigable almost to its source, portions are dredged for navigation and development. A major navigation channel is maintained between the mouth of the river and port facilities situated along both banks of the lower 24 miles of the waterway. Cultural uses of the river and its margins range from ecological and historic preserve, residential, port, commercial, industrial, military, and undeveloped open space that includes saltwater marshland.

Although the St. Johns River is dependent on rainfall for its flow, flooding occurs rarely since the capacity of the main stem to store water is tremendous because of the width of the channel between Palatka and Jacksonville, the low hydraulic gradients, several large lakes upstream from Palatka, and the low floodplain, which in places, is more than 10 miles wide. However, during periods of drought, the upper section can go nearly dry. Low water usually occurs between March and June, while high water is more typical between October and December.

Timucuan Ecological and Historic Preserve occurs near the confluence of the Nassau and St. Johns Rivers where an extensive estuarine system of salt marshes, coastal hammocks, and marine and brackish waters has formed. Portions of the salt marsh located within the preserve are considered among the least disturbed along the Atlantic Coast.²⁹⁸

Estuaries, partly sheltered areas near river mouths where saltwater is diluted by freshwater from land drainage, perform a variety of valuable ecological functions that include atmospheric, climatological, and meteorological stabilization; groundwater discharge and recharge; flood, erosion, and storm surge control; water purification; nutrient accumulation and cycling; primary and secondary production; and wildlife refuge, including fish spawning and nursery habitat.

Underlying the region is the Floridan Aquifer, the principal groundwater source in the coastal lowlands of North Florida. The aquifer underlies all of Florida, southeast Georgia, and small parts of Alabama and South Carolina. In North Florida, the aquifer consists of a series of hydrologically connected, water-bearing zones composed of soft, porous limestone, dolomite, and sand beds.²⁹⁹

Plant Communities

Thirteen plant communities have been identified within the preserve. The most prevalent of these is coastal salt marsh.³⁰⁰ Pinelands occupy 5 percent of the total area of the preserve. Other communities include Hardwood Hammock and Forest, Xeric Oak Scrub, and Mixed Hardwood Pine Forest.³⁰¹

Prevalent species include longleaf (*Pinus palustris*), slash (*P. elliotii*), loblolly (*P. taeda*), and pitch (*P. rigida*) pines, as well as live (*Quercus virginiana*), southern red (*Q. falcata*), water (*Q. nigra*), swamp chestnut (*Q. michauxii*), and post oak (*Q. stellata*).

295. Ibid., 45.

296. Ibid.

297. US Department of Agriculture, "St. Johns River," accessed August 9, 2019, <https://www.fs.usda.gov/recarea/ocala/recarea/?recid=40316>.

298. Ibid., 40.

299. Ibid., 44.

300. Ibid.

301. Ibid., 66.

Other species present are Southern red cedar (*Juniperus virginiana* var. *silicicola*), water tupelo (*Nyssa aquatica*), winged elm (*Ulmus alata*), cabbage palmetto (*Sabal palmetto*), flowering dogwood (*Cornus florida*), and black cherry (*Prunus serotina*).

Several non-native plant species are classified as invasive and serve as a threat to the health of native plant communities within the preserve.³⁰²

Wildlife Habitat

The various ecological zones in the preserve serve as habitat for pods of dolphins, flocks of migratory birds, and several rare and sensitive species, such as the Atlantic loggerhead sea turtle, West Indian manatee, wood stork, bald eagle, and smalltooth sawfish. Other abundant native species include white-tailed deer, gray fox, raccoon, opossum, marsh rabbit, gray squirrel, and the eastern mole.

The marshes and the coastal hammocks on the uplands are a part of the Atlantic flyway. These provide wintering and stopover habitat for many migratory bird species. North Florida is considered the lower breeding limit for many northeastern bird species.³⁰³ Permanent residents include the great egret, Great blue heron, white ibis, wood stork, osprey, red-shouldered hawk, great horned owl, and many others.

Most of the amphibians and reptiles within the preserve are found in upland areas. Species present include the American alligator, spotted turtle, gopher tortoise, and diamond-back terrapin.

Based on a 1983 inventory, there are approximately 55 freshwater and 115 marine and estuarine fish species associated with the St. Johns River basin.³⁰⁴ Among the species present are several families of finfish as well as blue crabs, which contribute to important recreational and commercial fisheries in the lower St. Johns River

and north Florida. The St. Johns River has been characterized as a vital nursery to the shrimp populations of the northeast coast of Florida; juvenile penaeid shrimp depend on the estuaries here as a nursery ground.

There are also several non-native mammals present within the park. Among them are feral pigs and the nine-banded armadillo.³⁰⁵

Weather and Climate

Rainfall in the Jacksonville, Florida, area averages 50 inches per year, with rain occurring on average 113 days. The summer months are hot and humid, with an average high temperature in July of 91 degrees Fahrenheit. Winters are mild, with an average low in January of 44 degrees Fahrenheit. Snow occurs very rarely.

Cultural Context and Setting

Timucuan Ecological and Historic Preserve falls within Duval County in the northeastern corner of the state of Florida. Duval County is composed of the city of Jacksonville and four incorporated areas—Atlantic Beach, Neptune Beach, Jacksonville Beach, and Baldwin. Jacksonville serves as the county seat. The population of Jacksonville was recorded as 864,263 in the 2010 census and was estimated at 950,181 as of 2018.

As noted previously, Timucuan Ecological and Historic Preserve comprises several noncontiguous park units that include Fort Caroline National Memorial, Ribault Monument, Theodore Roosevelt Area, Kingsley Plantation, American Beach, and the Spanish-American War Battery (refer to Figure 33 and Figure 36). Currently, federal ownership of the preserve amounts to between 20 and 30 percent of the land that falls within the park's authorized boundary, and includes land administered by the US Army Corps of Engineers. The state of Florida also owns

302. Florida Exotic Pest Plant Council, "Florida Exotic Pest Plant Council Invasive Plant Lists," (accessed July 20, 2020), available at <https://www.fleppc.org/list/list.htm>.

303. Ibid., 70.

304. Ibid., 67.

305. National Park Service, "Timucuan Park Species Lists," accessed August 12, 2019, <https://www.nps.gov/timu/learn/nature/species.htm>.

a considerable portion of the land within the preserve, including most of Fort George Island, much of Big Talbot Island, and the Yellow Bluff Fort site. The City of Jacksonville, Jacksonville Electric Authority, Duval County, private corporations, conservation organizations, and individuals also own property with the preserve boundaries.³⁰⁶

More than 1.2 million visitors were recorded as traveling to the park in 2019, the year prior to visitation impacts associated with the COVID-19 pandemic.³⁰⁷ Park visitor and interpretive services are provided at Fort Caroline and Kingsley Plantation. From the Timucuan Preserve Visitor Center at Fort Caroline, visitors often travel to the Ribault Monument, a five-minute drive to the east along Fort Caroline Road. The site features a walk leading to the monument set high atop St. Johns Bluff (Figure 34). From the monument, visitors can experience expansive views of the preserve and St. Johns River. The monument is found near the Spanish-American War Battery.

Farther to the south is the Theodore Roosevelt Area where visitors can follow self-guided walks or ride bikes on several trails. Preserve personnel also offer scheduled guided tours. North of St. Johns River is Kingsley Plantation, where visitors can enjoy self-guided and scheduled guided tours and take advantage of the offerings at the Kingsley Plantation visitor contact station and bookstore.

Recreational opportunities afforded within the preserve include boating and boat-related activities, as well as fishing and birding. The preserve is part of the Great Florida Birding and Wildlife Trail and East Coast Greenway trail system. Many other historical, natural, and recreational areas are found throughout the region.



FIGURE 34. The Ribault Monument with views toward the St. Johns River beyond.

The accessible areas of the preserve can be reached via several major roads and highways and by the St. Johns River Ferry. Timucuan Preserve Visitor Center is located approximately 12 miles northeast of downtown Jacksonville and can be reached via Interstates 95 and 295. From I-295, visitors can follow an exit onto Monument Road that leads to Fort Caroline Road, which provides access to Fort Caroline National Memorial, the Ribault Monument, the Spanish-American War Battery, and Theodore Roosevelt Area. The St. Johns River Ferry carries both automobiles and passengers and connects Mayport Village with Fort George Island near the eastern edge of the preserve.

In addition to the St. Johns and Nassau Rivers, visitors can access the preserve from Sisters Creek, which is part of the Intracoastal Waterway. It serves as a portion of the primary water connection between Fort Caroline National Memorial and Kingsley Plantation.

The preserve contains at least 200 archeological sites that provide physical evidence of some 6,000 years of regional human occupation and use. In addition to the archeological sites, the preserve also encompasses a variety of historic buildings and structures beyond the Spanish-American War Battery on St. Johns Bluff. Prominent among them are the Kingsley Plantation and Ribault Club

306. National Park Service, *General Management Plan*, 94.

307. National Park Service, Stats Report Viewer, accessed November 30, 2020,

[https://irma.nps.gov/STATS/SSRSReports/Park%20Specific%20Reports/Annual%20Park%20Recreation%20Visitation%20\(1904%20-%20Last%20Calendar%20Year\)?Park=TIMU](https://irma.nps.gov/STATS/SSRSReports/Park%20Specific%20Reports/Annual%20Park%20Recreation%20Visitation%20(1904%20-%20Last%20Calendar%20Year)?Park=TIMU).

building complexes, both located on Fort George Island, and the Yellow Bluff Fort near Dames Point. In addition to the historic resources, the reconstructed model of Fort de la Caroline at the foot of St. Johns Bluff and the Ribault Monument atop St. Johns Bluff commemorate the sixteenth-century French settlement of the region thought to have occurred within preserve boundaries.

Site Description

See, Figure 35. Existing Conditions Context Map, and Figure 36. Existing Conditions Parcel Map.

The Spanish-American War Battery property is generally rectangular in form and is oriented in a southwest to northeast direction between Fort Caroline Road and St. Johns Creek (Figure 35 and Figure 36). The western-southwestern boundary of the property follows the Fort Caroline Road right-of-way, while the eastern-northeastern margin of the property is somewhat irregular as it follows St. Johns Creek and a small tributary. The property is 200 feet wide and 518.06 feet long. It is composed of Lots 33 and 34, and a portion of Lot 32, of the St. Johns Bluff Estates subdivision platted in 1945 (Figure 37).

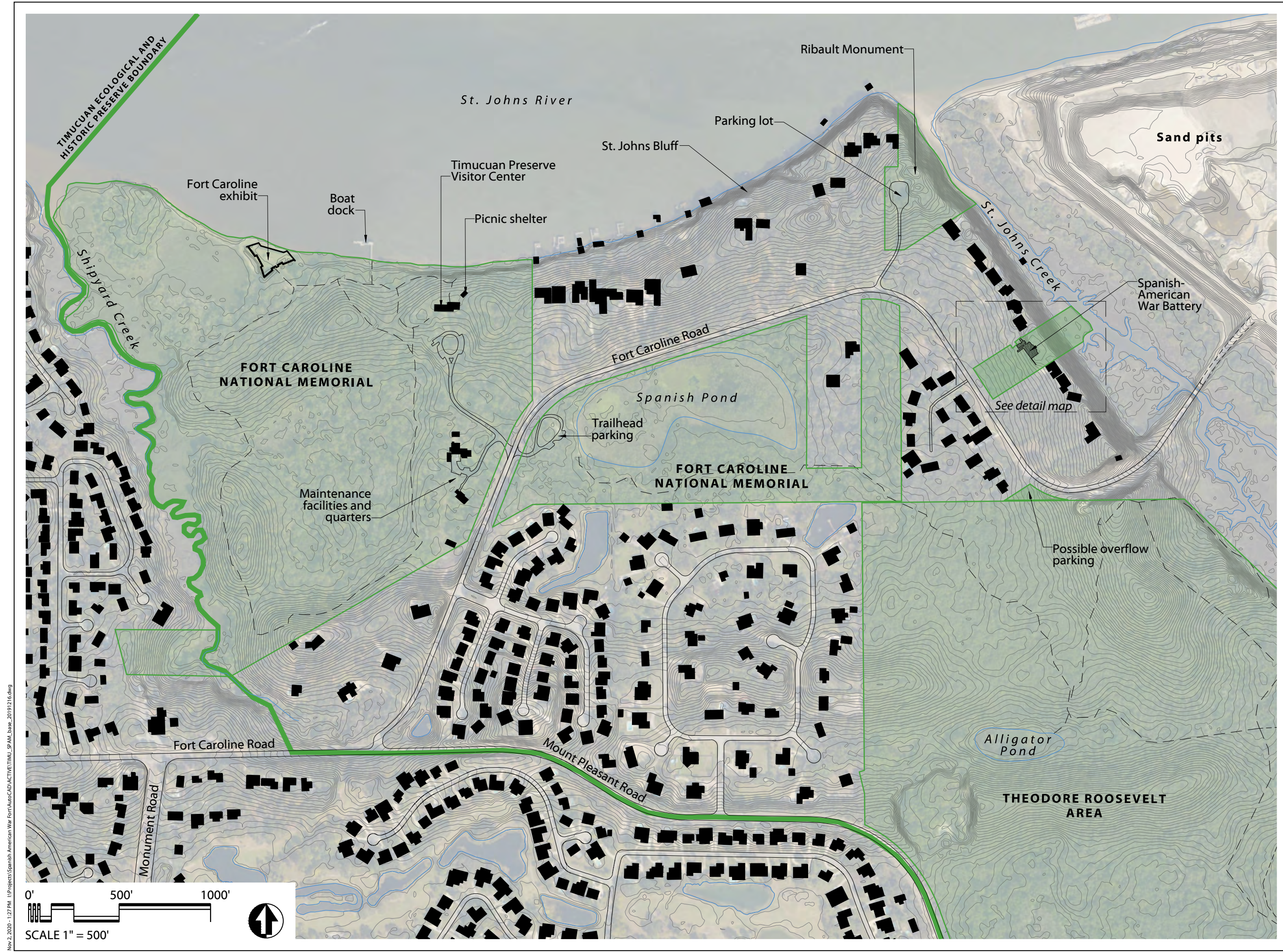


Figure 35.
Existing Conditions,
Neighborhood
Context

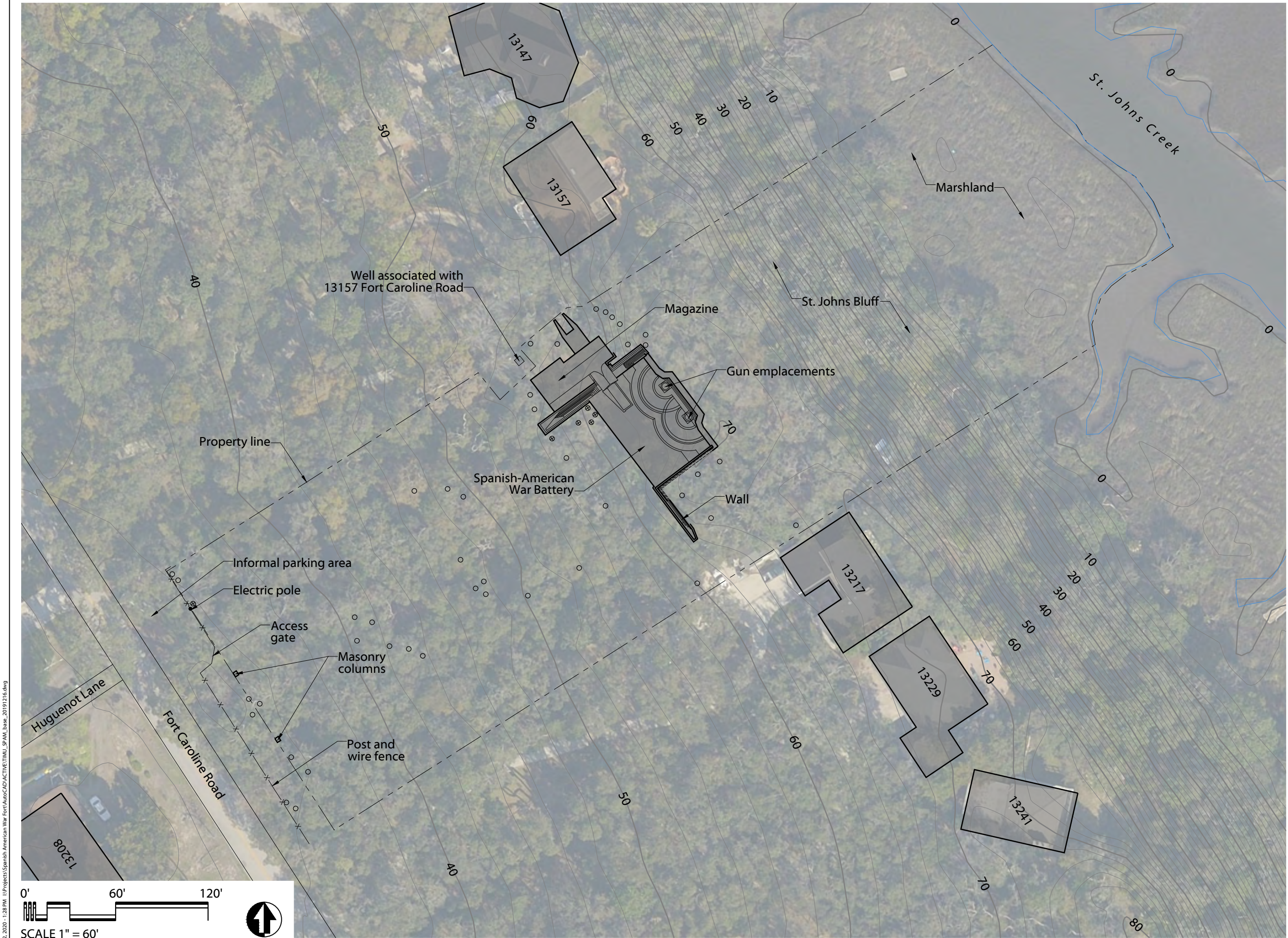


Figure 36.
Existing Conditions,
Battery

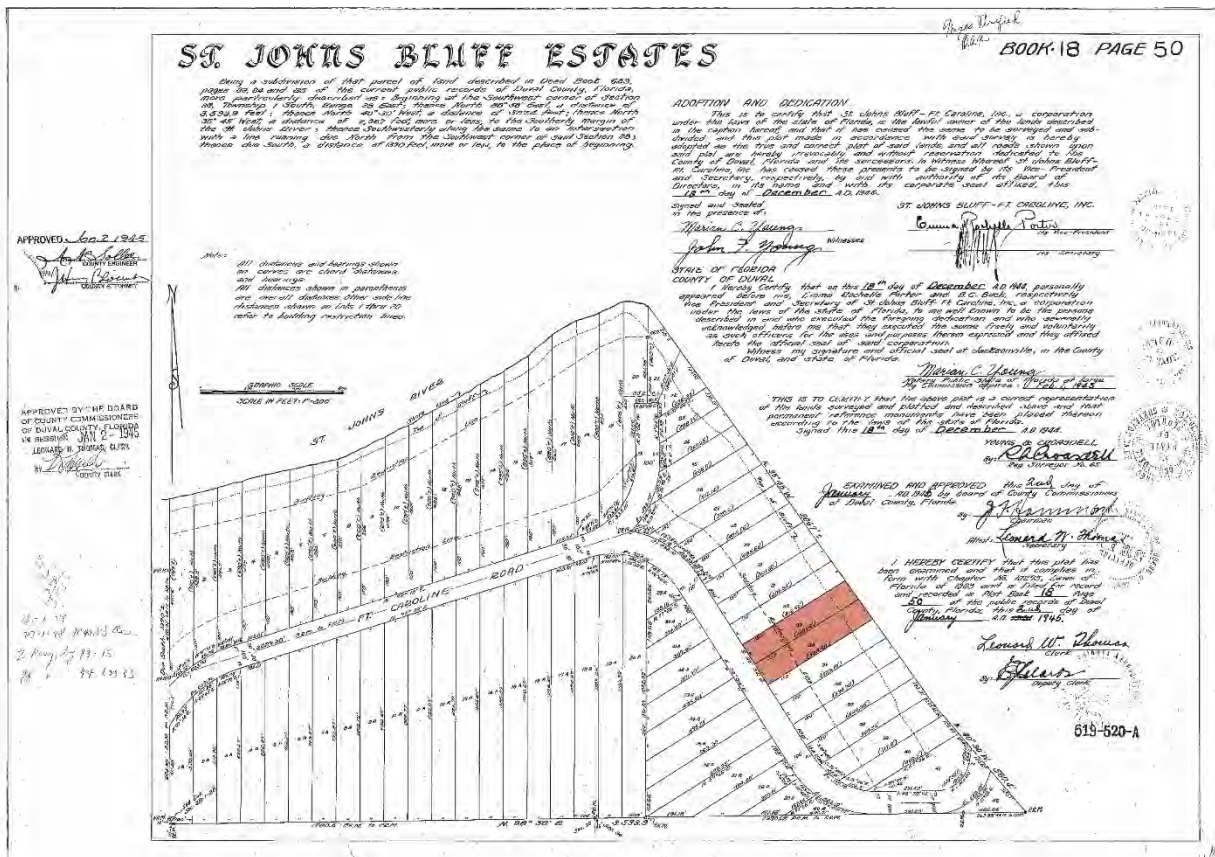


FIGURE 37. 1945 plat of St. Johns Bluff Estates (lots 33 and 34 shown in red). (Source: National Park Service, Timucuan Ecological and Historic Preserve (TIMU) archives. Map amended by CLR team)

A wood post and boxwire fence, with strands of barbed wire, edges the property at the edge of the Fort Caroline Road right-of-way. Access to the property occurs via a tubular metal gate that is closed with a metal chain and lock. A telephone pole is located just outside the fence. Just inside the fence is a pair of mortared masonry columns. Similar columns are visible marking driveways associated with other properties along Fort Caroline Road, suggesting that they may have been used to mark properties when lots in the subdivision were being sold. The property is edged by residential properties to either side. Fencing and tree and shrub plantings are located along the property boundaries.

Most of the property is wooded (Figure 38). Mature live oak (*Quercus virginiana*) trees cast dappled shade over the land as it slopes upward to the northeast toward the concrete gun emplacement platform and other features of the Spanish-American War Battery located near the top of the bluff. Also found on the property are

Southern magnolia (*Magnolia grandiflora*), saw palmetto (*Serenoa repens*) and hackberry (*Celtis laevigata*) trees, shrubs, ferns, vines, yucca (*Yucca filamentosa*), grasses, and examples of invasive species such as air potato vine (*Dioscorea bulbifera*) and tuberous sword fern (*Nephrolepis cordifolia*).



FIGURE 38. Wooded character of the Spanish-American War Battery parcel.

The landform of the parcel slopes from a low point along Fort Caroline Road at approximately 35.1 feet AMSL to a high point above the concrete retaining wall that edges the battery's gun emplacement platform and marks the top of St. Johns Bluff at a height of approximately 70.6 feet AMSL. North and northeast of the top of the bluff, the land falls away steeply toward St. Johns Creek. The creek is effectively at sea level, while the base of the slope stands at approximately 10 feet AMSL. At the base of the bluff, the terrain levels off and is edged by marshland along St. Johns Creek.

The battery is composed of the concrete gun emplacement platform, which measures approximately 170 feet in length and is 7 feet 7 inches tall, edged to the north and east by retaining walls. Two iron gun mounts face the northeast elevation 23 feet apart. To the northwest of the gun emplacement is a partially buried concrete magazine that contains two large rooms and a tunnel providing access into the space from the gun emplacement platform (Figure 39). The tunnel continues past the rooms to the west to an arched entrance or exit (Figure 40).

The original plat line associated with Lot 32 extended across the entrance into the battery from the west. The owners of Lot 32 worked with the owners of Lot 33 to amend the property line by extending Lot 33 west to encompass the battery entrance, while a portion of Lot 33 to the south was added to Lot 32. Land transferred to the battery property contains a well house used to provide water for the dwelling on Lot 32 (Figure 41).



FIGURE 39. View northeast toward the gun emplacement platform of the Spanish-American War Battery from the magazine.



FIGURE 40. View northeast of the tunnel leading to the Spanish-American War Battery from the adjacent residential property.

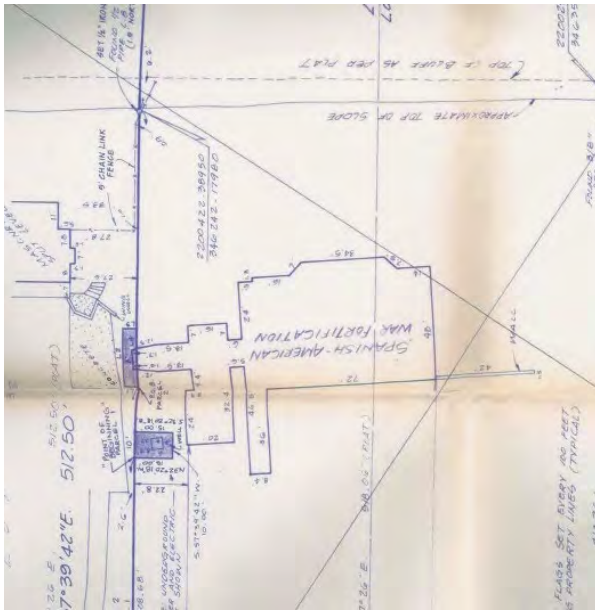


FIGURE 41. Portion of a 1991 survey map of the Spanish-American War Battery parcel and adjacent properties indicating the land transfer of the western end of the concrete structure and well site (dark blue areas). (Source: TIMU archives)

Existing Conditions

Documentation by Landscape Characteristic

Refer to Figure 35 and Figure 36, Existing Conditions Maps.

Natural Systems and Features

St. Johns Creek. St. Johns Creek edges the Spanish-American War Battery property to the north (Figure 35). The creek empties into the St. Johns River northwest of the property. Like the river, St. Johns Creek is brackish where affected by tidal action.

Drainage emptying into St. Johns Creek. A drainageway arising from the bluff empties into the creek at the northeastern corner of the Spanish-American War Battery property.

Marshland along St. Johns Creek. At the base of St. Johns Bluff, the landform levels out. The lower-lying ground along the margin of St. Johns Creek is characterized by marshland.

Topography

St. Johns Bluff. St. Johns Bluff, where the Spanish-American War Battery is located, is a relict dune that rises, as noted previously, approximately 60 to 70 feet AMSL in height. It likely constitutes the highest point in the preserve. The elevated topography has long served as a point of prospect. The Spanish-American War Battery is one of a series of coastal defense structures established on the bluff since the colonial era. The battery sits near the top of the bluff. To the north, beyond the high point, the land drops away steeply toward St. Johns Creek with a slope of between 25 and 30 percent.

Gently sloped landform rising to St. Johns Bluff. From the property boundary along Fort Caroline Road to the concrete structure of the Spanish-American War Battery, the topography of the parcel rises steadily yet gently at a slope of approximately 3 percent near the road, and 8 to 10 percent as it approaches the battery structure (Figure 42). The concrete gun emplacement platform is set at the base of a concrete retaining wall set near the apex of St. Johns Bluff with an elevation at the southwestern side of approximately 60 feet AMSL and at the northeastern side of approximately 70.6 feet AMSL.



FIGURE 42. The topography of the Spanish-American War Battery parcel slopes gently upward between Fort Caroline Road and the concrete gun emplacement platform.

Level marshland along St. Johns Creek. At the base of St. Johns Bluff is a low-lying terrace of land that edges St. Johns Creek. The terrace is characterized by marshland.

Spatial Organization

Rectilinear property. The Spanish-American War Battery property occupies two of the long-narrow lots created through subdivision of the area to establish St. Johns Bluff Estates in 1945. The lots extend from Fort Caroline Road to the base of the bluff. To either side of the property are long linear residential lots. Large residences occupy the high points of each adjacent property to take advantage of the expansive views toward St. Johns River.

Spanish-American War Battery structure built into the bluff. The Spanish-American War Battery is generally rectangular in form and is sited parallel to the bluff. The structure is set below the brow of the hill behind a concrete retaining wall (Figure 43). The wall was designed to protect the guns of the battery from view from the river while allowing for the guns to be raised and fired over top of the wall toward an approaching enemy.



FIGURE 43. The concrete gun emplacement platform of the Spanish-American War Battery is set below a concrete retaining wall set into the slope near the top of the bluff.

Land Use

Conservation. The Spanish-American War Battery property was acquired by NFLT and the city of Jacksonville in 2015–2016 to protect the

historic concrete military defense structure. The property was later transferred to the federal government in 2018–2019 to be administrated by the NPS as part of Timucuan Ecological and Historic Preserve. As such, the property is associated with a conservation land use.

Undeveloped open space. The Spanish-American War Battery property currently does not support any other land uses. Much of the property is characterized by undeveloped open space. Future land uses are anticipated to include museum/education/interpretation.

Circulation

Access to the Spanish-American War Battery from Fort Caroline Road. Entry into the Spanish-American War Battery property occurs via a metal gate set within the fence that marks the boundary along Fort Caroline Road (Figure 44). The gate is locked to discourage trespassing. There are no roads or paths within the property.



FIGURE 44. Access to the Spanish-American War Battery occurs via a metal gate set within a fence along the property boundary at Fort Caroline Road.

Tunnel leading between the gun emplacement platform, the magazine, and the west entrance. A concrete tunnel connects the concrete gun emplacement platform behind the two gun emplacements with the covered interior of the magazine to the west (Figure 45). The tunnel also leads to an arched opening that serves as a western entrance or exit to the battery that closely abuts the residential property on Lot 32.



FIGURE 45. The Spanish-American War Battery contains a concrete gun emplacement platform and a concrete magazine. A concrete tunnel links the two features and continues to a western arched opening.

Vegetation

Temperate Mixed Hardwood and Evergreen Hammock Woodland. The landscape associated with the Spanish-American War Battery property is characterized by woodland representative of a temperate mixed hardwood and evergreen hammock community. The woodland is layered and contains canopy and understory trees, shrubs, vines, and a grassy herbaceous layer that is maintained through mowing (Figure 46). The species associated with the hammock woodland include live oak, Southern magnolia, and Southern hackberry trees. Saw palmetto and oak saplings form the understory and shrub layer. Vines include catbrier (*Smilax rotundifolia*) and grape (*Vitis sp.*). There are several ferns present, likely including species of the maiden fern genus *Thelypteris*, Boston fern genus *Nephrolepis* and representatives of the shield fern genus *Dryopteris*. There is also Spanish moss (*Tillandsia usneoides*), an epiphyte, associated with the canopies of many live oak trees. Yucca are growing in the masonry columns near the southwestern perimeter fence. Invasive species are present throughout.

Additional species often included in the hammock woodland type in northeast Florida include laurel oak (*Quercus hemisphaerica*), swamp cabbage (*Sabal palmetto*), redbay (*Persea borbonia*), and

hollies (*Ilex spp.*) These species may also be present on the Spanish-American War Battery property or nearby.



FIGURE 46. A hammock woodland community dominated by live oak trees characterizes much of the Spanish-American War Battery property.

Invasive species. Air potato vine is one of the invasive plant species found growing throughout the Spanish-American War Battery property (Figure 47). Another is tuberous sword fern. The park currently controls air potato vine and sword fern through mowing. During the late 2010s, a youth conservation team spent between one and two weeks participating in a sword fern removal project. The park also releases air potato leaf beetle (*Liliocercia cheni*) as a control mechanism.

Air potato vine spreads by twining around available foliage of other plants and climbing into the tree canopy, where it upsets the tree's ability to resist wind loads. The invasive sword fern is similar in character to a native species, also named sword fern, but it can displace all other low growing plants in a stand and form dense monocultures. Sword fern as well as air potato vine are included on Florida's Exotic Pest Plant Council's Category 1 list of invasive species, meaning that they are found to be altering native plant communities by displacing native species, changing community structure or ecological functions, or hybridizing with natives."³⁰⁸

308. Florida Exotic Pest Plant Council, "Florida Exotic Pest Plant Council Invasive Plant Lists."



FIGURE 47. Air potato vine growing on one of the masonry columns at the Spanish-American War Battery property.

Buildings and Structures

Spanish-American War Battery

The Spanish-American War Battery is a concrete structure sited atop St. Johns Bluff. The battery was constructed in 1898 to aid in the defense of the St. Johns River from potential naval attacks on nearby ports by the Spanish fleet, the battery faces northeast over the St. Johns River.

The battery consists of a concrete magazine to house ammunition; pylons; two concrete gun emplacement platforms; a concrete parapet; and a concrete traverse wall (Figure 48 through Figure 52). The base concrete used to construct the battery features a large granite aggregate. On exposed surfaces, the concrete walls are covered with a 3/8-inch-thick cementitious layer with fine aggregate. A concrete topping approximately 1/2 inch thick, with fine aggregate and a smooth finish, is present over most of the slabs and horizontal surfaces.

On the northwest side of the battery are a major pylon and minor pylon, separated by a 6-foot-wide ramp that leads into the battery's magazine. The major pylon is 45 feet in length, while the minor pylon is 17 feet 6 inches in length. A dry moat separates the major pylon and the magazine. The battery's magazine is mostly rectangular in plan, measuring approximately 53 feet in length and 20 feet in width at its widest point. The southwest room is 12 feet by 16 feet and 3 inches and was used for the storage of ammunition. An ammunition pass with an opening at either end separates the storage room from the ramp leading up to the guns. A second entrance to the magazine is located on the northwest elevation of the magazine. The roof of the magazine, which is 12 inches thick, has two 10-inch-diameter vents above the ammunition storage room and the ammunition pass.

Iron reinforcement is present in the ceiling roof slab of the magazine. The reinforcement consists of iron purlins embedded into the concrete with the bottom flange exposed to view. Within each room of the magazine, the reinforcing is evenly spaced and spans the length of the room. Iron

channels are present at the corners of the load-bearing concrete walls, upon which the ceiling/roof slab rests, such as at the openings to the ammunition pass. Where exposed at either side of the openings, the channels measured 4-1/16 inches (web) by 1-5/8 inch (flange) by 5/16 inch thick.

The southeast side of the battery has a traverse wall approximately 50 feet in length running southwest to northeast. The wall turns to the southeast and continues 43 feet, near the edge of the concrete slab.



FIGURE 48. Overall view of the gun mounts and parapet wall.



FIGURE 49. The ramp leading down to the battery's magazine. Note the major and minor pylon visible in this photo.



FIGURE 50. A view of the magazine from one of the gun platforms.



FIGURE 51. A view to the southeast of the traverse wall and a gun platform.

Two raised gun platforms support pivots for the 8-inch breech-loading guns that were stationed at the battery in January 1899. Three 18-inch-wide iron semicircular tracks, measuring 2 feet 11 inches, 8 feet 4 inches, and 16 feet 6 inches in radii, surround the gun pivots and were used to aid in rotating the guns. The guns were placed behind a 7-foot-high, 4-foot-thick concrete parapet and interior crest, with the superior slope of the parapet extending northeast toward the bluff.

The 8-inch guns were removed in October 1899 and sent to Pensacola. Although the guns were never replaced at the battery, the raised gun platform and tracks remain in place today.

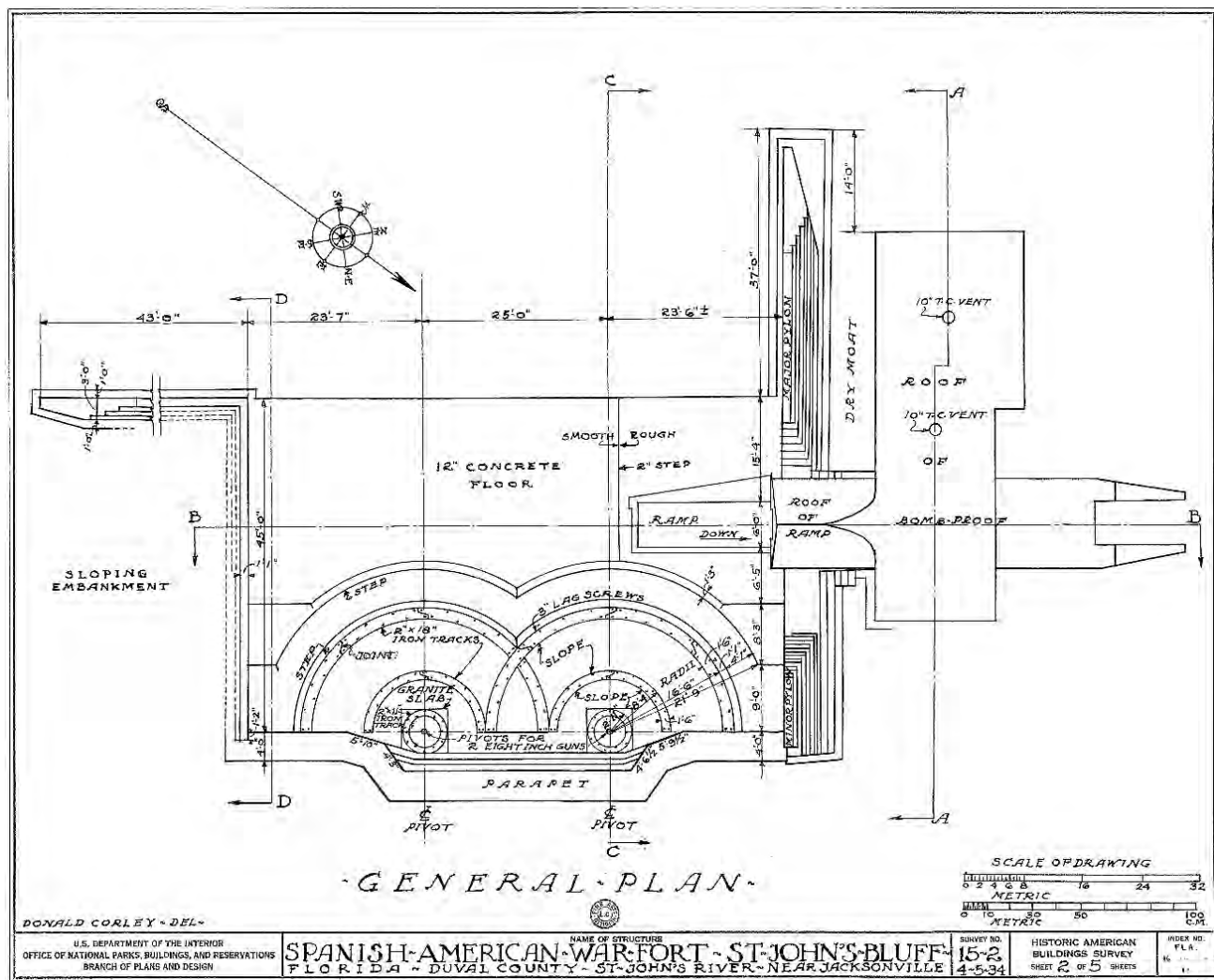


FIGURE 52. Historic American Buildings Survey drawing (1934) showing the plan and primary components of the battery. (Source: Library of Congress)

The floor of the structure is a 12-inch-thick concrete slab with a concrete topping. The slab is approximately 72 feet wide from the inside of the pylons to the traverse wall, and 45 feet from the edge of the concrete slab to the parapet. The concrete used in the construction of the battery walls, roofs, and floors contains granite aggregate; where exposed, this concrete has a rough surface. The topping concrete present on most areas of the slab has a finer aggregate than the base concrete, and a smooth finished surface. The floor surrounding the ramp leading to the magazine does not have a concrete topping and has a rough surface.

Battery Condition Assessment

No voids were identified from the sounding of the concrete, and no reinforcement was found during the metal detector survey other than the iron members observed in the magazine. Other notable conditions observed during field investigations conducted on behalf of the CLR project in July 2019 include the following:

Cracking

- Vertical and horizontal cracks were observed within the traverse wall. Crack widths and lengths varied, with some running the entire height of the wall.
- The horizontal cracks appeared to have occurred at cold joints formed during the

placement of the concrete in lifts (Figure 53). These cracks were typically at regular intervals along the height of the traverse wall and varied in length.

- Map cracking was observed in several areas of the traverse wall, consisting of a pattern of interlocking hairline and fine cracks (Figure 54).
- Frequent cracks were observed at the intersection of the traverse wall and the parapet wall.
- Both vertical and horizontal cracks were observed along the parapet. Similar cold joint patterns were present in the parapet as in the traverse wall.
- A large crack approximately 1 inch in width was noted in the roof of the ramp leading to the magazine (Figure 55). No reinforcing steel was observed crossing the crack.
- A large crack was observed extending across the roof of the magazine, intersecting the vent shaft (Figure 56). Debonding adjacent to the cracks was not detected during sounding of the concrete.
- Small hairline cracks were observed in the roof and walls of the northwest entrance to the magazine. Continuous cracks were observed extending vertically along the exterior north and south walls of the magazine and were connected by horizontal cracks running across the roof of the magazine.
- Cracks approximately 1-1/2 inches in width were observed within the base of the major pylon in the section adjoining the ramp to the magazine (Figure 57). No reinforcing steel was observed crossing the crack.
- Cracks were also present in the topping of the floor of the loading platform.
- Efflorescence was present along some of the cracks observed in the exterior walls,

indicating moisture movement through the concrete.



FIGURE 53. Horizontal cracks at cold joints in the traverse wall. Vertical cracking and efflorescence are also visible.



FIGURE 54. Map cracking in the traverse wall and efflorescence.



FIGURE 55. Cracks at the roof of the ramp leading to the magazine. Also visible is the corroded iron channel.



FIGURE 56. A large crack extending along the roof of the magazine. Also visible is the vent shaft located in the roof.



FIGURE 57. A crack observed in the base of the major pylon as seen from the roof of the magazine.

Spalls

- Spalls in the parge coat were present along the parapet and traverse walls. Some spalls extended through the 3/4-inch-thick parge coat into the underlying concrete. Numerous smaller spalls measuring between 1 and 2 inches in diameter were present in the traverse wall. Larger spalls on the traverse wall were approximately 4 to 5 inches in diameter and extended into the structural concrete. A large spall was observed in the parapet that measured approximately 2 feet 6 inches high by 1 foot wide (Figure 58).
- A large spall was observed in the concrete roof of the ramp leading down to the magazine (Figure 59).

- Numerous cracks and small spalls were observed within the floor topping throughout the landing platform.



FIGURE 58. A large spall in the wall of the parapet.



FIGURE 59. A large spall observed at the corner of the roof of the ramp leading to the magazine.

Corrosion and moisture

- The iron channels at the top of the magazine walls were corroded, resulting in spalling and cracking of the surrounding concrete (Figure 60).
- The exposed metal reinforcing in the magazine ceiling exhibited surface corrosion. Ferrous staining was present on the concrete adjacent to the corroded members (Figure 61 and Figure 62).



FIGURE 60. Corroded channel at the southwest side of the roof of the ramp to the magazine. Staining of the concrete is also visible beneath the channel.



FIGURE 61. Efflorescence on the interior of the magazine. Corrosion of the exposed reinforcing in the ceiling is also visible.

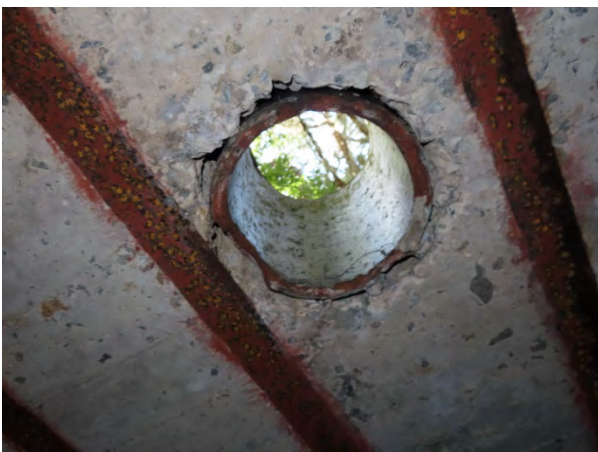


FIGURE 62. Corrosion of the exposed reinforcing in the ceiling. Note the vent shaft in the ceiling and roof slab as seen from the interior of the magazine.

- Efflorescence was observed inside the magazine on all interior elevations, as well as on the traverse wall and parapet. Inside the magazine, efflorescence was concentrated around horizontal cracks in the concrete and covered approximately 25 percent of interior surfaces (refer to Figure 61).

Organic Growth

- Vegetation was observed to be growing out of the wider cracks in the traverse wall (Figure 63). Plants were also observed growing on the top of the wall.



FIGURE 63. Vegetation growing through a crack in the traverse wall.

- At the northwest entrance to the magazine, vegetation was observed growing from the cracks in the roof and walls (Figure 64).
- Moss and other vegetation were observed on the major and minor pylons (Figure 65).
- Plants were growing in the vertical cracks along the exterior of the magazine. Biological growth was present in various areas of the battery on the surface of the concrete. The growth varied in color from green and orange to black (Figure 66).



FIGURE 64. Vegetation growing over the entrance to the magazine.



FIGURE 65. Organic growth present on the surface of the major pylon.



FIGURE 66. Darker organic growth on the parapet wall.

Views and Vistas

View from the bluff to St. Johns River.

From the elevated position of the bluff north of the battery, long views are afforded to the St. Johns River beyond. These views are becoming increasingly obscured by woody growth associated with the top of the bluff and steep slopes below (Figure 67).

Views of adjacent residences. Contemporary residences built atop the bluff to either side of the Spanish-American War Battery property are visible from the area around the gun emplacement platform and from the top of the magazine structure (Figure 68).



FIGURE 67. Generally expansive view from St. Johns Bluff north of the Spanish-American War Battery now filtered by trees and shrubs.



FIGURE 68. View of a house on the lot to the northwest of the Spanish-American War Battery as seen from atop the magazine. (*Image intentionally blurred*)

Small-scale Features

Boundary fence and gate. The property's southwestern boundary is marked by a wooden post and wire fence that extends to the adjacent residential properties (Figure 69). At the eastern end, the fence is 14 feet from the margin of Fort Caroline Road. The fence then jogs north, after which it follows a line that is 31 feet from the edge of the road. A tubular metal gate is in the section that lies further from the road. Wood posts supporting the fence measure 5 feet in height. Steel boxwire and strands of barbwire are nailed to the posts. The gate measures 11 feet 8-1/2 inches in length. It is supported by an 8-inch post at the left end; another 8-inch post at the right end is used to lock the gate with a metal chain. The gate is 4 feet 2 inches in height.



FIGURE 69. View of the entrance gate and post and wire fence marking the Spanish-American War Battery property boundary along Fort Caroline Road.

Masonry columns (2). Two masonry columns sit just inside the property boundary north of the fence along Fort Caroline Road. The columns are mortared rubble fieldstone and of marginal construction quality (Figure 70). The column to the east measures 2 feet in height and 3 feet by 3 feet 6 inches in plan. The column to the west measures 2 feet 6 inches in height and is 3 feet 6 inches square in plan. Yucca plants are growing within one of the columns.

Signs. A sign affixed to one of the posts associated with the entrance gate notes “No trespassing / violators will be prosecuted / Fla. St. Stat. 810.08.” This same sign is posted in two additional locations along the fenceline marking the property boundary at Fort Caroline Road.



FIGURE 70. One of the two masonry columns located near the property boundary along Fort Caroline Road.

Archeological Sites

Based on documentary research and archeological investigations, St. Johns Bluff exhibits a long history of cultural use and occupation. Previous investigations have yielded artifacts and other information potential related to pre-Contact cultural use and occupation of the area in the form of pottery sherds, bone fragments, and worked stone material. In addition to American Indian artifacts, investigations have yielded evidence of Spanish, French, and British occupation, followed by American occupation and use.

The first investigations were conducted during the latter part of the nineteenth century along the river margins, focusing on shell and sand middens. Alfred Manucy, an NPS historian, conducted a historic site survey of St. Johns Bluff in 1940. His investigations suggested the location of the possible campsite of Pedro Menéndez de Avilés, founder of San Agustín (Saint Augustine), during his attack on Fort Caroline in the 1560s. Manucy also claimed to have located a British fort near the northeast angle of the bluff, the town sites of St. Johns Town and San Vicente de Ferrer, a Confederate battery site near the northeast angle

of the bluff, the Spanish-American War Battery, and a Timucua Indian mound on the southeastern part of the bluff. Manucy indicated his belief that Fort Caroline was located on a plain northwest of the bluff.³⁰⁹

During the 1950s, Charles Fairbanks of the University of Florida explored the area believed to have been the site of sixteenth-century Fort Caroline. Based on his findings, it was believed that the site of Fort Caroline had eroded into St. Johns River. William H. Sears also investigated the land associated with the bluff during the 1950s and discovered American Indian artifacts from the Late Woodland period.³¹⁰

During the 1970s, several investigations were conducted on the bluff. A late eighteenth-century work camp was excavated by William Jones and was believed to have been of British origin.³¹¹

Investigations conducted during the 1980s in the vicinity of the Ribault Monument revealed colonial ceramics of the British occupation era and Civil War ordnance. However, a paucity of Spanish and Civil War-era materials was interpreted as the result of the hasty construction of defensive structures during the Spanish-American War.³¹² Work conducted by William Jones in 1986 revealed a late eighteenth-century post in the ground structure, Spanish-era wares, and English creamware and scorched brown saltglaze stoneware. He suggested that the discoveries were associated with St. Johns Town and were related to the naval stores industry conducted by the British during their occupation of Florida between 1763 and 1783.³¹³ An Archeological Overview and Assessment completed in 1988 by the NPS identified thirteen sites in the vicinity of Fort Caroline ranging in age from 6000 BCE to 1763.³¹⁴

In August 2011, NPS personnel from Timucuan Ecological and Historic Preserve conducted a cleanup of the Spanish-American War Battery,

although the property was not owned by the federal government at the time. The owner granted permission to remove overgrown vegetation, litter, and eroded soil from the exterior and interior rooms of the structure. During the cleanup, artifacts were collected from the top of the structure, from the ground surface immediately surrounding the structure, and from the soil removed from the floor of the west interior room.³¹⁵

Of the 4,512 grams of artifacts recovered, more than 92 percent were either glass or metal fragments. Also found were bone, clay, and plastic. The report on the cleanup noted that the site has long served as a destination spot for Jacksonville residents to visit with or without the permission of the owner. Most of the metal fragments recovered were believed related to the corrosion of the metal channels in the ceiling of the west room. Most of the glass fragments were pieces of soda or alcoholic beverage bottles.³¹⁶

309. Prettyman, 7–8.

310. *Ibid.*, 8.

311. *Ibid.*, 8.

312. *Ibid.*, 9.

313. *Ibid.*, 9–10.

314. *Ibid.*, 10.

315. *Ibid.*, 1.

316. *Ibid.*, 4–7.

Analysis and Evaluation

Introduction

This chapter consists of three sections: an evaluation of the significance of the landscape of the Spanish-American War Battery at Timucuan Ecological and Historic Preserve; an integrity assessment; and a comparative analysis of historic and existing landscape conditions.

The significance evaluation section identifies the property's important historical associations over time, as well as its architectural, archeological, and social value in accordance with National Register of Historic Places criteria. The property's significance is tied to a discrete period of time in which its important contributions were made. The property is also evaluated based on relevant historic contexts, which are patterns and trends in history and prehistory that can be used to understand a specific occurrence, property, or site, and to make clear its meaning and importance.

The integrity assessment section summarizes to what degree the property retains its ability to convey its historic associations with the period of significance identified in the significance evaluation section.

Based on the significance evaluation and the identified period of significance, the CLR team prepared a comparative analysis of historic and existing landscape conditions. The analysis conveys an understanding of change over time and suggests which resources today were present during the period of significance and continue to reflect their historic character and appearance. Resulting from the analysis is a list of features

determined to contribute to the historic significance of the property or its setting. Resources that originated after the period of significance, and those that have lost integrity, are indicated as not contributing to the historic significance of the property. The CLR also identifies features that existed during the period of significance but no longer survive, except perhaps in the archeological record. These are categorized as indicated as missing resources.

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 NPS'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.³¹⁷

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; comments on its architectural, archeological, and social value as they relate to the National Register of Historic Places, and its relationship to relevant national, state, and local historic contexts; and identifies the discrete period of time in which the property's important contributions were made.

317. National Park Service, "National Register of Historic Places," accessed December 10, 2020,

<https://www.nps.gov/subjects/nationalregister/index.htm>.

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:

- 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.³¹⁸

318. *Code of Federal Regulations*, Title 36, Part 60,

"The National Register Criteria for Evaluation."

National Register Significance of the Spanish-American War Battery

A Determination of Eligibility (DOE) for listing in the National Register of Historic Places was prepared by NPS cultural resources staff for the Spanish-American War Battery in 2019 using the Florida Preliminary Site Information Questionnaire.³¹⁹

The findings of this CLR concur with those of the Preliminary Site Information Questionnaire, which notes that the Spanish-American War Battery is eligible for listing in the National Register under National Register Criteria A and C at the statewide level for its association with the Spanish-American War and the development and engineering of US Coastal Defense systems during the Endicott era.³²⁰ The property is eligible under Criterion A in the area of Military History for its association with the Spanish-American War and the development of coastal defenses. In 1898, following a survey of existing coastal defenses and the recommendation for new fortifications by the US Department of War, construction began on concrete coastal fortifications at harbor mouths and riverheads along the east and west coasts. At the same time, following the explosion of the USS *Maine* in Havana on February 15, 1898, and the onset of the Spanish-American War in April, the US Department of War and coastal residents became concerned about the ability of existing defenses to resist and attack. Control of St. Johns River had historically been recognized as an important military strategy, with fortifications established by the French at nearby Fort Caroline in the 1560s. St. Johns Bluff was the site of a

Confederate base and Union victory during the Civil War. With the onset of hostilities with Spain in 1898, the citizens of Jacksonville obtained permission from property owners for construction of a battery at St. Johns Bluff. Two batteries were built concurrently: a temporary structure near where the Ribault Monument stands today, and the permanent battery that is the subject of this study. Construction of the permanent battery began on April 27, 1898.

The battery property is also eligible under Criterion C in the area of Engineering as an example of an Endicott era battery. Although minor alterations were made after the Spanish-American War ended, the battery is a representative example of Endicott period military defenses. In response to the concerns about the viability of existing coastal fortifications, the US Department of War convened the Board of Fortifications—known as the Endicott Board after its chairman, William C. Endicott, who served as Secretary of War from 1885–1889—to conduct a national survey of coastal defense systems. The Board recommended a modernization program for harbor and coastal defenses, which included construction of new concrete fortifications with artillery guns, mortar batteries, and mined water systems. The Spanish-American War Battery exhibits the characteristic Endicott period open-topped concrete walls protected by sloped earthworks, although a final layer of sand covering was never placed atop the battery as originally intended. The Endicott design represents the response to changes in weapons technology. Prior to this point, defensive construction focused on structures; the Endicott board began constructing defenses based on gun power. Twenty-eight Endicott style batteries were constructed at coastal

319. National Park Service, *Timucuan Ecological and Historic Preserve, National Register of Historic Places Preliminary Site Information Questionnaire: Spanish American War Battery*, February 25, 2019.

320. As discussed during the project start-up meeting for the CLR, the team understands that the park has concluded through its research that the battery is significant at a state level; the concurrence letter from the

Division of Historical Resources indicates that it is significant at a local level. The findings of this CLR support the park's conclusion, in that the battery represents events that were significant beyond the local context. In addition, the battery is one of a series of coastal fortifications in Florida developed during the Endicott period that have significance on a statewide level.

forts in Florida between 1896 and 1908, primarily at Fort Dade, Fort DeSoto, Fort McRee, Fort Pickens, and Fort Taylor. The Spanish-American War Battery is the only battery of this group not attached to a large coastal fort.

The Spanish-American War Battery on St. Johns Bluff was still under construction when the US and Spain signed a cease fire on August 12, 1898; the Treaty of Paris ending the war was signed on December 10, 1898. Construction of the battery continued, although with modifications. The 8-inch guns were mounted in January 1899. However, within months the guns were removed to Fort McRee near Pensacola, and the battery was decommissioned.

The Preliminary Site Information Questionnaire concludes, “Though the battery never saw battle, it stands as a tribute to the late 19th century push for proactive coastal defenses, and to the citizens of Jacksonville for their commitment to protecting their city against perceived threat.”³²¹

A letter of concurrence was issued by the Florida Division of Historical Resources on March 4, 2019, and states:

... the property is eligible for listing in the National Register of Historic Places (NR) at the local level under Criterion A: Military for its significance in the fortification of Jacksonville during the Spanish-American War, and under Criterion C: Engineering as a locally significant examples of Endicott period coastal defenses.³²²

Period of Significance

The findings of this CLR regarding the period of significance are consistent with those of the Preliminary Site Information Questionnaire. The recommended period of significance for the Spanish-American War Battery is 1898–1899, consistent with its period of construction and primary association the Spanish-American War and the Endicott period of coastal defenses.

321. Ibid.

322. Ruben Acosta, Supervisor, Survey and Registration, Division of Historical Resources,

Florida Department of State, letter to Morgan Baird, re: Spanish American War Battery (DU00124), March 4, 2019.

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 based on the survival of physical characteristics representative of conditions present during the period of significance. Historic integrity is the composite of seven qualities that include location, design, setting, materials, workmanship, feeling, and association. Historic properties either retain integrity or they do not. Retention of the qualities, also referred to as 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 the Spanish-American War Battery property and consideration of change over time within the landscape, the cultural landscape that is the focus of this CLR retains all aspects of integrity to the circa 1898–1899 period of significance, and it continues to convey its historic associations with important military coastal defense activities. Qualities for which integrity has been impacted by changes occurring after the period of significance include design and setting. Integrity of design has been affected by removal of the rifled artillery mounted in the battery during the period of significance, the rail line and position finder that were used in construction and operation of the battery, and the loss of an open or cleared field of fire that would have been established for the artillery between the battery and potential avenues of approach. Integrity of setting is affected by views of adjacent twentieth-century residential development to the northwest and southeast. The lot to the northwest more intrusively affects the visual and physical integrity of the battery due to the way in which the dwelling, associated driveway, fence line, plantings, and a well house closely edge the concrete structure of the Spanish-American War Battery.

Integrity by Quality

Location

Location is the place where the cultural landscape was constructed or the landscape where the historic event occurred.

The Spanish-American War Battery retains integrity of location since it survives on its original site and continues to overlook the surrounding landscape of St. Johns River.

Design

Design is the combination of elements that create form, plan, space, structure, and style of a cultural landscape.

The Spanish-American War Battery also retains integrity of design as an intact example of an Endicott-era coastal defense battery built by the US War Department based on standard plans and principles. The gun emplacements that illustrate the way the rifles could be pivoted to direct fire, the concrete and earthen materials, and the way in which the emplacements are hidden from enemy view are all representative of these design principles. During the period of active use of the coastal defense emplacement on St. Johns Bluff, the battery was supported by mining of the river, also characteristic of the design of Endicott System batteries. This activity can be understood via interpretation.

Setting

Setting is the physical environment of the cultural landscape.

Overall, the Spanish-American War Battery possesses the integrity of setting to convey its historic associations due to the ongoing presence of expansive views from the bluff, and the relatively undeveloped nature of the parcel and its environs. Integrity of setting is, however, affected by views of adjacent residential development to either side of the concrete structure. At the time the battery was constructed, St. Johns Bluff was little developed and conveyed an isolated and

remote character. Few dwellings or other cultural features were visible from the property, or along the approach to the property from the land side. From the bluff, clear views were afforded to St. Johns River. These qualities contributed to the ability of the military to establish and operate coastal defense systems on the bluff during the late nineteenth and early twentieth centuries.

During the mid-twentieth century, the land was subdivided as St. Johns Bluff Estates. The formerly open landscape of the battery parcel became wooded, and residences were gradually built on parcels surrounding the fort. Now residences closely edge the battery to either side; both adjacent residences are visible from the Spanish-American War Battery parcel, as is Fort Caroline Road, also a later addition. These features postdate the period of significance. Despite these changes to the setting, the Spanish-American War Battery possesses integrity of setting due to the presence of and views afforded to St. Johns River, and the undeveloped character of the bluff below the battery structure to the north, and behind the structure to the south.

Materials

Materials are the physical elements that were combined or deposited in a recognizable pattern or configuration during the period of significance and help characterize the cultural landscape.

The Spanish-American War Battery retains integrity of materials due to the ongoing presence of the original concrete and iron structure of the battery, tunnel, and magazine.

Workmanship

Workmanship is the physical evidence of the crafts of a specific culture or people during a given period in history or prehistory.

The Spanish-American War Battery retains integrity of workmanship as a result of the surviving original concrete structure, which

exhibits construction techniques from 1898–1899, and has not been disturbed.

Feeling

Feeling is a cultural landscape's expression of the aesthetic or historic sense of place and time.

The battery retains integrity of feeling due to the protected character of the late-nineteenth-century structure, and the connection of the structure to the bluff and the defensive and strategic views afforded of the St. Johns River approach to Jacksonville, Florida. The battery continues to convey the feeling of a coastal defense battery of the Endicott era and the Spanish-American War.

Association

Association is the direct link between an important historic event or person and a cultural landscape.

The battery remains in good condition for its age, helping to convey its association with the original structure as designed and constructed to defend the river approach to Jacksonville.

Comparative Analysis of Historic and Existing Conditions

Refer to Figure 88, contributing resources.

Landscape Characteristics

Historic landscapes are composed of tangible and intangible landscape characteristics that survive from the period of significance either individually or collectively and aid in understanding the importance of the place. Understanding the individual landscape characteristics of the Spanish-American War Battery—the natural features and systems, patterns of spatial organization, land uses, circulation features, cultural vegetation, buildings and structures, views and vistas, and small-scale features—that contribute to its historic significance are essential

to the development of appropriate preservation and management strategies.

The section that follows—a comparative analysis of historic and existing landscape conditions—identifies those features that survive with integrity from the period of significance and continue to convey their historic appearance and function. The comparative analysis addresses the same landscape characteristic categories used to structure the existing conditions chapter: natural systems and features, topography, spatial organization, land use, circulation, vegetation, buildings and structures, views and vistas, and small-scale features.

Natural Systems and Features

Summary Analysis

The composition of landform, soils, geology, and water resources associated with St. Johns Bluff and its position overlooking St. Johns River in the vicinity of Jacksonville, Florida, played a key role in the siting, design, and orientation of the Spanish-American War Battery. The battery, built to emplace two powerful artillery pieces aimed toward the river to the north-northeast, occupies a

high point associated with St. Johns Bluff, a sand dune oriented facing northeast that sits above St. Johns Creek, rising to a height of approximately 70 feet above mean sea level (AMSL). The bluff looms over much of the surrounding low-lying terrain, which generally ranges in elevation from between sea level and 5 feet AMSL. The conspicuous and prominent landform of St. Johns Bluff affords long views across a broad swath of terrain to the north and northeast that includes the meandering course of the river. The bluff has been the focus of coastal defense strategies since the days of early European settlement, beginning with the French in the sixteenth century and continuing with the British during the eighteenth century. Nineteenth-century defenses sited on the bluff included both the Spanish-American War Battery in 1898–1899 (Figure 71), as well as an earlier of a Confederate battery during the Civil War. The repeated use of the bluff to site strategic coastal defensive systems illustrates the importance of controlling the high ground in military tactics. The important strategic visual and physical relationship between the landform of St. Johns Bluff, the Spanish-American War Battery, and the St. Johns River approach to the industrial and commercial port at Jacksonville survives today.

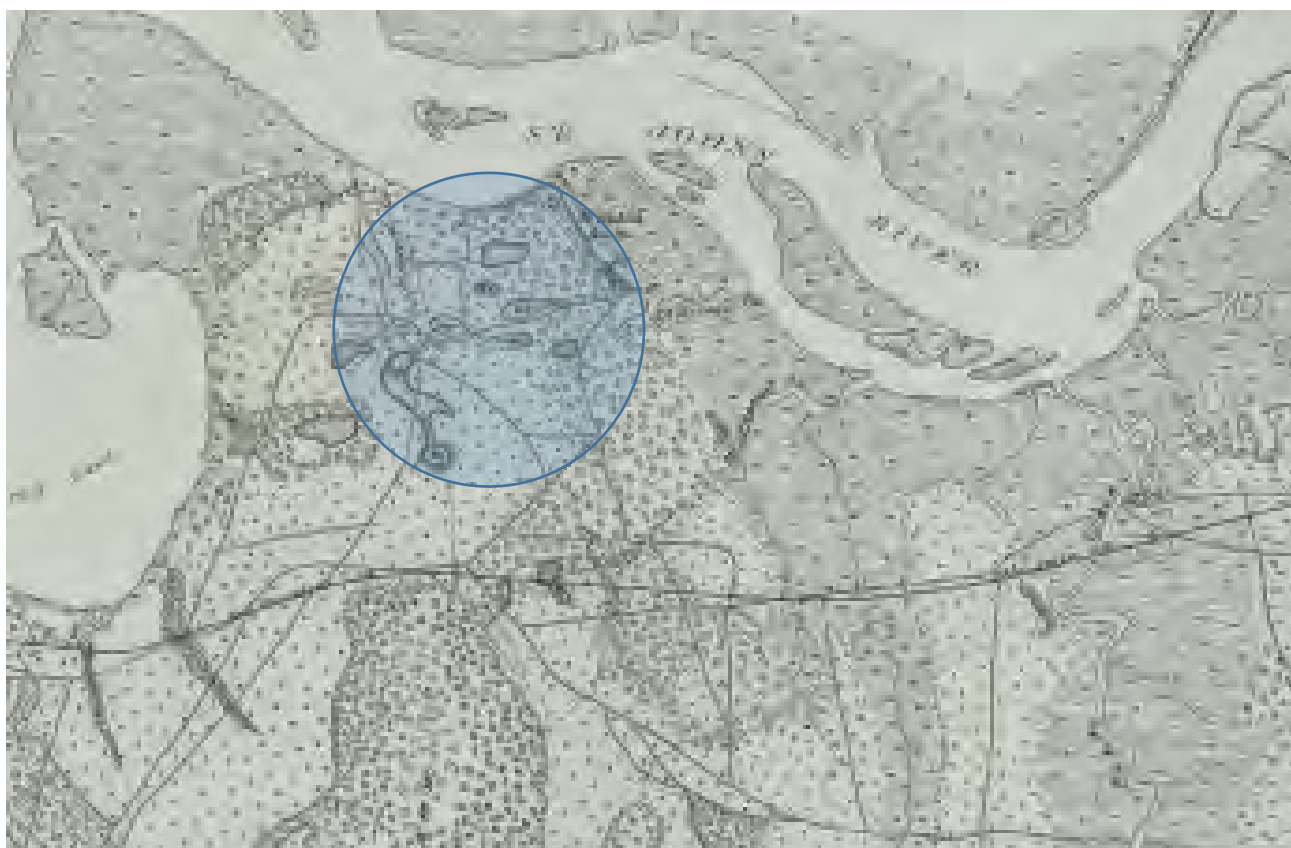


FIGURE 71. Map of St. Johns Bluff and vicinity developed for coastal defense planning purposes. The map shows St. Johns River and the orientation of St. Johns Bluff as it sits above St. Johns Creek. (Source: NARA RG 77, File Drawer 191, Sheet 9, March 5, 1905; blue shaded circle added by the authors)

Historic Conditions

The position selected for the construction of the Spanish-American War Battery is a high point associated with St. Johns Bluff (Figure 72). Both a temporary and a permanent battery were constructed in 1898–1899 atop the elevated knoll to protect against incursions by enemy ships headed towards Jacksonville. As designed, the permanent battery followed military engineering practices of the era where artillery was emplaced below grade, and thus out of view from enemy ships on the river. The guns were designed to occupy open topped concrete platforms protected by concrete retaining walls. When fired, the guns could be raised above the height of retaining wall, pivoted to fire on an approaching craft, and lowered again to avoid detection. Artillery designed to be raised and lowered in this way became known as disappearing guns.

In addition to the relationship between the landform of St. Johns Bluff and the siting of the battery, other natural features of the site played a role in the design and construction of the Spanish-American War Battery. The US War Department built a wharf along the river to be used in delivering construction materials. The wharf was connected to the temporary and permanent battery sites by a rail line that initially followed the gentler grade of a drainage swale to facilitate passage up the steep slopes of the bluff landform. Access to the bluff also required the removal of trees to clear a route of passage to the battery construction sites; period accounts describe the landscape through which the railway traveled as a “jungle.”³²³ Trees were also removed in front of the batteries to ensure a clear field of fire.

323. HABS.

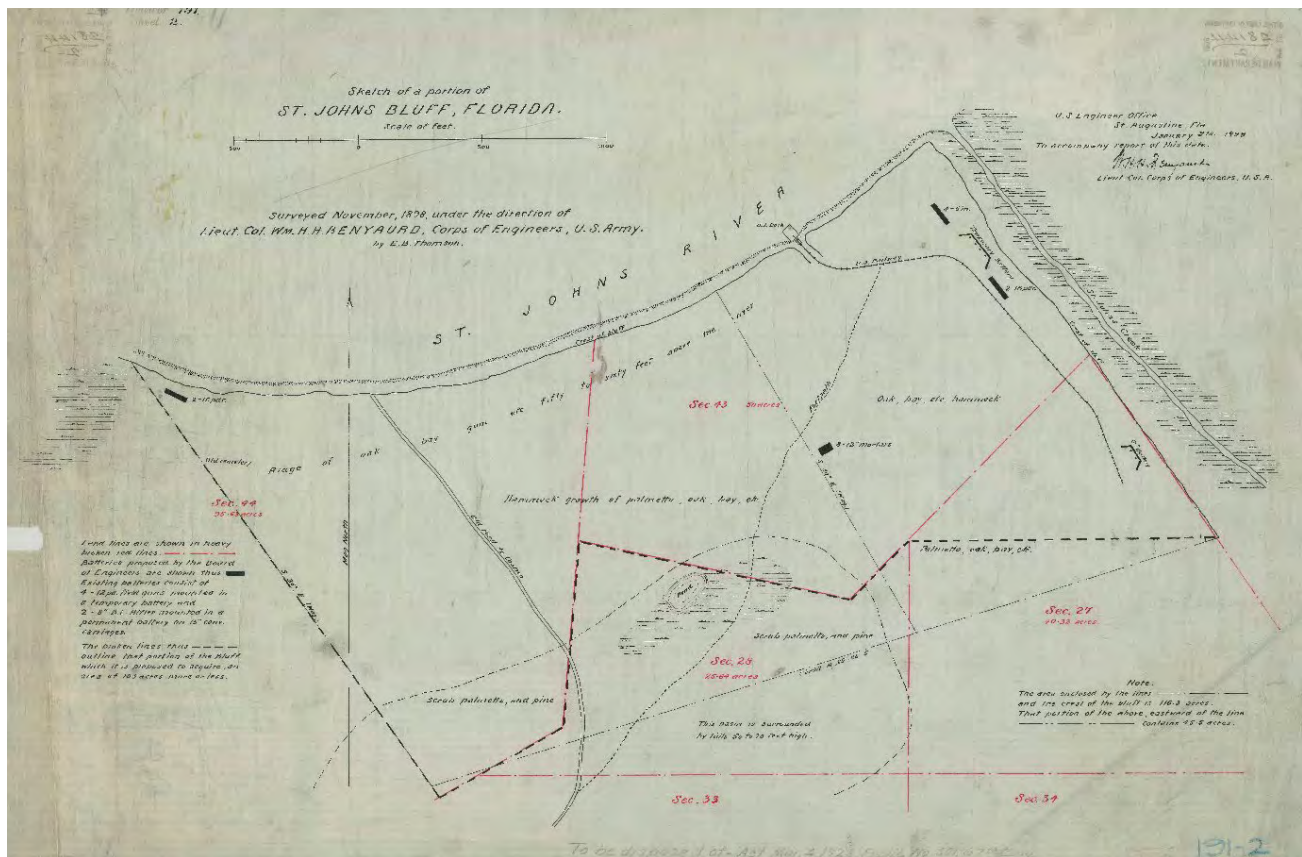


FIGURE 72. Sketch of a portion of St. Johns Bluff showing the relationship between St. Johns River, St. Johns Bluff, St. Johns Creek and associated marshland, as well as the temporary and permanent Spanish-American War Battery sites and the rail line used to convey construction materials to the bluff from the river in 1898–1899. (Source: NARA RG 77, File Drawer 191, Sheet 2, January 9, 1899)

Existing Conditions

Natural features and systems associated with the Spanish-American War Battery property include the underlying soils and geology, the dramatic landform of St. Johns Bluff that affords a broad prospect towards the St. Johns River to the north, and the water resources associated with St. Johns Creek that drains part of the bluff and land to the southeast. The creek is inundated twice daily by ocean tides that flow upstream into St. Johns River.

Residential properties edge the Spanish-American War Battery property to either side. Like the battery, the residences sit atop the bluff to take advantage of views and thus parallel the concrete structure.

Evaluation

The predominant natural systems and features associated with St. Johns Bluff--the underlying

soils and geology, the landform, and the hydrology of St. Johns Creek and associated drainageways--appear to survive with integrity from the historic period of significance.

Historic natural systems and features contributing to the significance of the setting

- St. Johns Bluff
- St. Johns Creek and associated drainages
- Underlying soils and geology
- Hammock woodland vegetation

Non-historic natural systems and features

- None

Topography

Summary Analysis

As noted above, the Spanish-American War Battery was sited atop a high point associated with one of the most elevated landforms in the region—St. Johns Bluff. The location was chosen by the Naval Militia for the specific purpose of protecting the North Florida coastline from a possible military attack following the sinking of the USS *Maine*, a Navy ship docked in the harbor at Havana, Cuba—the act that led to the declaration of the Spanish-American War of 1898. The bluff was to be used to emplace modern siege guns, while a minefield was to be placed in the river as a further deterrent against enemy incursions toward the important industrial and commercial complex at Jacksonville. In fact, the citizens of Jacksonville themselves indicated the high point of the bluff, located 18 miles downriver from the downtown area, as the most suitable location for a battery to protect their coastal defense interests in spring 1898.

Following completion of a temporary battery and buildings to support the coastal defense project, the US War Department initiated construction of a permanent battery to house larger and more powerful artillery. The effort entailed excavating the military brow of the hill, constructing a concrete retaining wall, and establishing a concrete platform containing two gun emplacements and an ammunition magazine to the rear of the landform. Sited as they were behind the military brow of the hill, the elements of the battery would remain out of sight from the river.

These topographic conditions remain evident today and few alterations appear to have been made to the topography within the property since 1899.

Historic Conditions

On February 15, 1898, the USS *Maine* sunk in Havana Harbor, Cuba, under suspicious circumstances. Five days later, with tensions rising between the US and Spain, Florida governor

William D. Bloxham requested that the Jacksonville Naval Militia make a reconnaissance of the Atlantic Coast of his state to locate appropriate positions for establishing signal and other military defensive systems to protect against a potential attack by Spain. Even as the Naval Militia was conducting the survey, a group of Jacksonville citizens sent political and resident representatives to Washington, DC, to convey the urgent need for defenses for their city to authorities. By April 2, 1898, the citizens of Jacksonville had received a telegraph from Gen. John M. Wilson, Chief of Engineers, indicating that the US Secretary of War had ordered guns and mines to be emplaced to protect the city.

Following the delivery of the telegraph, General Wilson instructed the district engineer, Lt. Col. William H. H. Benyaure, to work with Jacksonville citizens to select an appropriate site to emplace four modern siege guns where they might best intercept an enemy on approach to Jacksonville. Benyaure, however, soon learned that the citizens had already settled on St. Johns Bluff as the site for a defensive battery.³²⁴ Upon review, Benyaure quickly agreed with the site selection proposed by the citizens for the commanding view it afforded of the river approach to Jacksonville.

At the time, the land associated with the bluff was owned by Florida Finance Corporation, Sarah F. Williams, and W. D. Browne.³²⁵ After contacting the owners to gain permission for the endeavor, Benyaure hired John M. Cook of Spartanburg, South Carolina, to oversee construction of a temporary battery on the bluff, which was to be sited in the general vicinity of the present-day Ribault Monument.

Work began on April 11, with the clearing of vegetation. Cook then ordered construction of a small railway track from a boat landing on the St. Johns River to the top of the bluff to haul construction materials using a stationary engine (Figure 73). Two 5-inch breech-loading rifles and two 7-inch breech-loading howitzers were mounted in the temporary battery on April 22, 1898. These guns were soon removed, however,

324. Prettyman, 2.

325. Ibid.

and shipped to Tampa on May 18 for use by the American Expeditionary Force preparing to invade Cuba.

In the meantime, General Wilson issued orders on April 27 to Cook to begin work on a permanent battery on St. Johns Bluff that would house more powerful artillery than the temporary battery—two 8-inch breech-loading rifles. The permanent battery was to be located 1,200 feet to the southeast but several feet higher in elevation near the high point of the bluff as it faced St. Johns Creek. The position afforded the advantage of a broader field of fire. As indicated in record drawings of the project, the high point of the battery, which was shown as the topo of the concrete wall in front of the guns, was at an elevation of 73.27 feet, while the earthwork crest used to protect it from view, was shown as 11 inches above the wall.³²⁶

As work was being carried out to construct the battery, however, a peace protocol was established between the United States and Spain on August 12, 1898. Work continued through the summer and fall. After the Treaty of Paris was signed in December 1898, the US War Department determined that the battery should nonetheless be completed.

As work continued, Cook indicated that he would need more money to finish the project. Colonel Benyaurd was unable to increase the funding for the project once the war was over, so asked Cook to identify ways to cut costs by reducing the planned height of the concrete pit and not installing the heavy metal doors included in the plans. Guns were finally emplaced in the Spanish-American War Battery in January 1899 and were later removed without ever being fired.

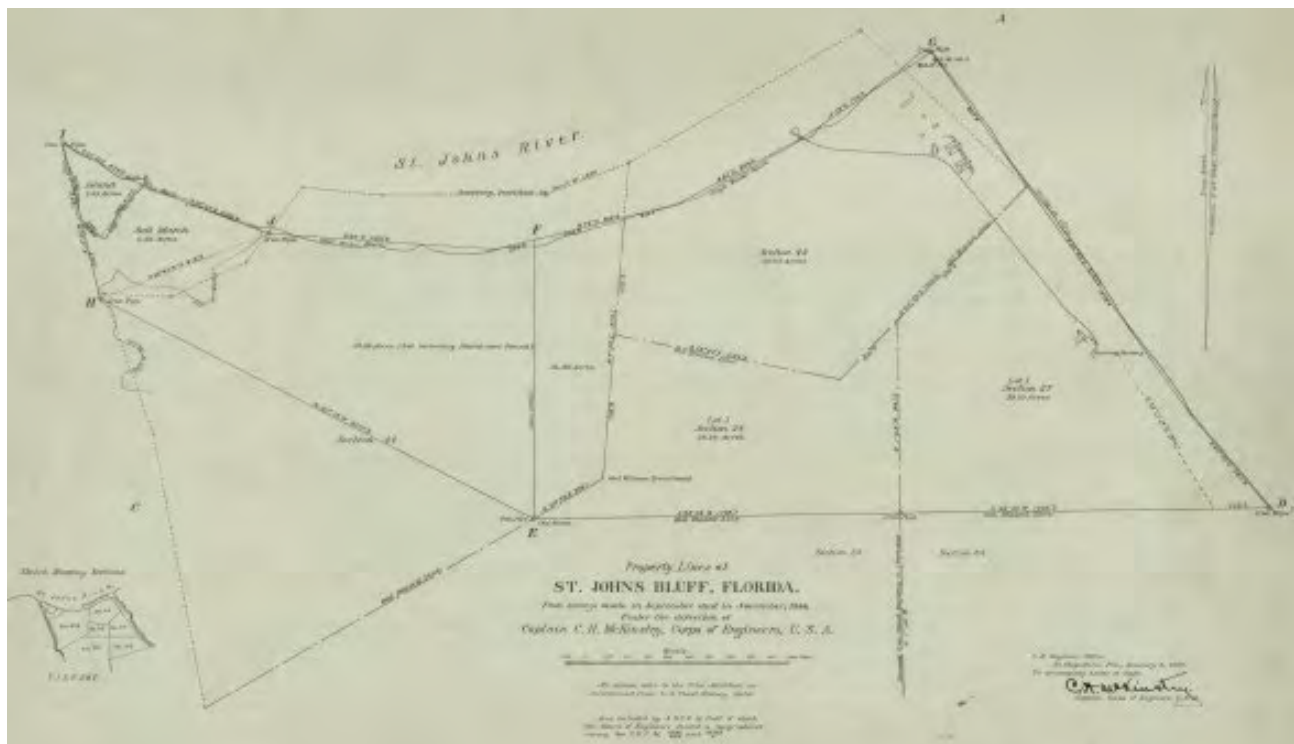


FIGURE 73. 1904 sketch of the military reservation established on St. Johns Bluff in 1898 showing the location of the temporary battery, rail line, and permanent battery sited to take advantage of topography that afforded a commanding view of St. Johns River. (Source: NARA RG 77, File Drawer 191, Sheet 4-2, January 5, 1900)

326. Benyaurd, March 11, 1899, Sheet 3-2.

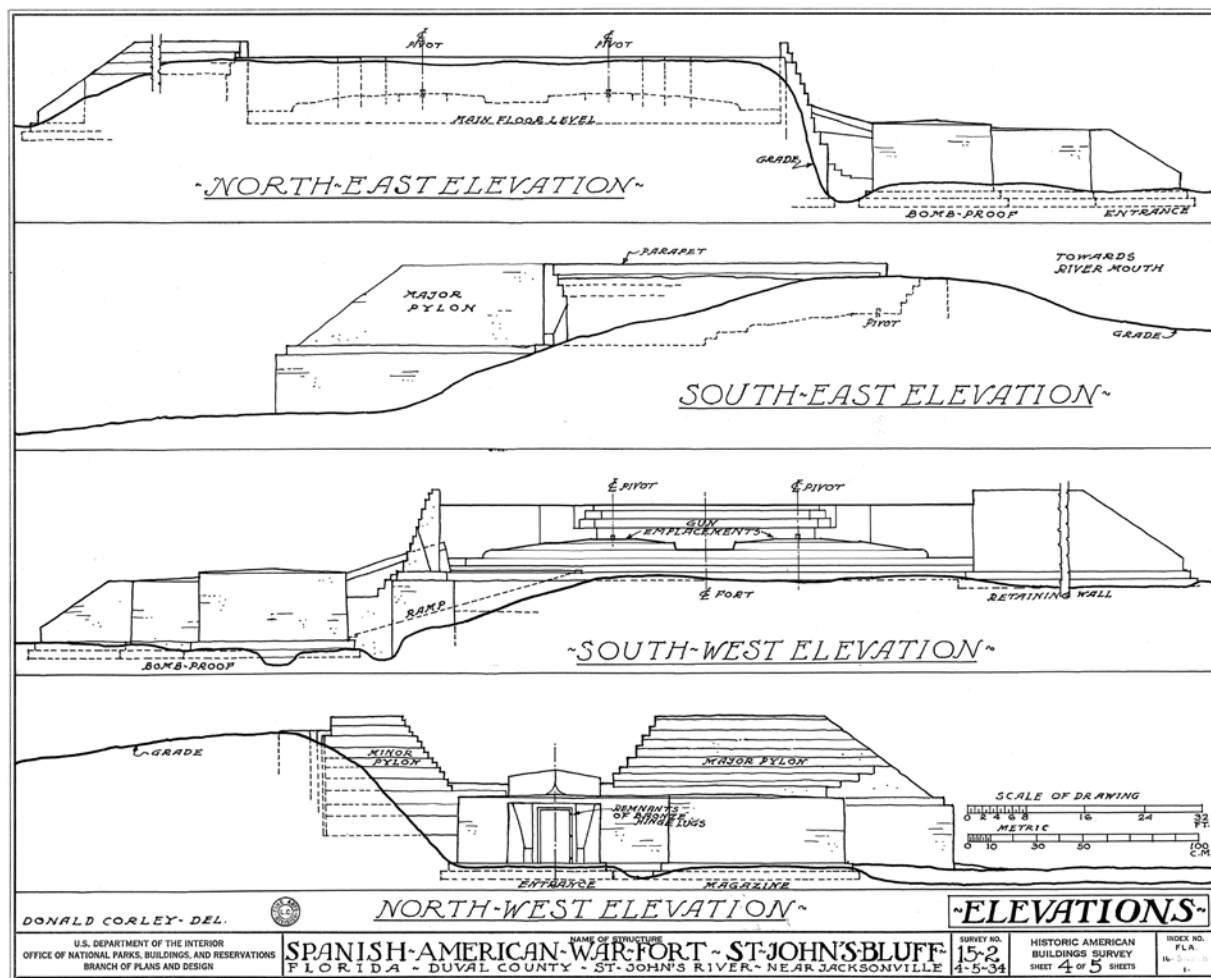


FIGURE 74. Sections of the Spanish-American War Battery and site prepared in 1934 by the Historic American Buildings Survey. (Source: Library of Congress)

Existing Conditions

The concrete permanent battery built by the US War Department in 1898–1899 atop St. Johns Bluff survives today as built, with two gun emplacements and a magazine set below the military brow of the hill behind a concrete retaining wall (Figure 74). The retaining wall sits near the top of the bluff, but is set just below the high point, with the gun emplacement platform set several feet below the top of the wall. The guns were designed to be raised into position to be fired and lowered again to avoid detection from the river. The connection between the elevated position of the knoll, the views toward the St. Johns River, and the battery remain evident today.

Evaluation

The topography associated with the Spanish-American War Battery property, and the direct

connection between topography, the siting of the battery, and the views toward the St. Johns River survive with integrity today and contribute to the historic setting of the property. It appears that no topographic modifications have occurred within the property since 1899.

Historic topography contributing to the significance of the setting

- St. Johns Bluff composed of a high point with a commanding view of St. Johns River, steeply sloped topography to the northeast, and more gently sloped topography to the southwest

Non-historic topography

- None

Spatial Organization

Summary Analysis

Present-day spatial conditions associated with the Spanish-American War Battery—composed of the gun emplacement platform edged on three sides by concrete retaining walls and set below the military brow of the bluff—as well as the adjacent contained space of the magazine and tunnel-like passageway leading to the western entrance, remain consistent with historic conditions. The surviving landscape, composed of undeveloped open space, survives on the property, but has been replaced over much of the remainder of the bluff by a subdivision of linear residential properties that extend to either side of Fort Caroline Road.

Historic Conditions

As built, the Spanish-American War Battery was composed of a retaining wall that formed a U-shape around the two gun emplacements, an extension to the east for stability, and a longer section to the west that framed a tunnel and entrance into a covered magazine (refer to the HABS drawing provided as Figure 22). A position finding station was located to the south of the battery and was marked by tack driven into a maple stake squared off roughly and driven within 10 inches of the surface of the ground. The site appears to have been cleared of woody vegetation to the north to allow for views of the river and establish a field of fire for the artillery, but likely remained wooded behind and to the east of the battery structure. The spatial composition of the property appears to have remained little changed during the early twentieth century while the property remained part of a military reservation. After the battery was deaccessioned by the US War Department in 1923, the property passed into private ownership. Ground and aerial photographs of the site taken in the 1930s and 1940s indicate that the property was wooded at that time, with tree cover present that likely obscured portions of the view toward the river from the battery. The bluff was subdivided as the St. Johns Bluff Estates in the 1940s. Over time, parcels associated with the subdivision have been developed as residential properties, establishing a series of linear boundaries between Fort Caroline

Road and the top of the bluff. Parcels have been developed to either side of the Spanish-American War Battery, establishing a formal sense of containment to the battery that was not present historically.

Existing Conditions

The Spanish-American War Battery property is a long, linear parcel edged to either side by similarly shaped residential parcels containing formal plantings, driveways, and boundary fences and hedges. The Spanish-American War Battery property slopes gently up toward the bluff from the environs of Fort Caroline Road from southwest to northeast through a stand of temperate hammock woodland vegetation that is sufficiently open that views and passage are afforded to the battery. Denser vegetation edges the more open center, providing a sense of containment and screening views of the adjacent residential parcels. The battery is edged by concrete walls that form a U-shaped space set below the brow of the bluff. At the top of the bluff, expansive views north can be glimpsed through the tree and shrub growth. West of the gun emplacement platform is a concrete tunnel that leads to a sunken interior space built as part of a concrete tunnel that continues to an arched opening at the western end of the battery.

Evaluation

The landform and topography associated with the Spanish-American War Battery property, and the direct connection between topography, the siting of the battery, and the views toward the St. Johns River survive with integrity today and contribute to the historic setting of the property. It appears that no topographic modifications have occurred since 1899.

Historic spatial organization contributing to the significance of the setting

- Spanish-American War Battery gun emplacement platform and retaining walls forming a U-shaped space, connected to an ammunition magazine via a tunnel that continues to a western entrance

- Wooded character southwest of the battery

Non-historic spatial organization

- Long rectilinear property

Land Use

Summary Analysis

Two historic land uses were associated with the Spanish-American War Battery property during the period of significance. These include military, which was associated with the construction of the temporary and permanent batteries and mining operations; and transportation, which was related to the construction of the rail line used to convey building materials to the site from the river. Both uses effectively ended in 1899, when the artillery was removed, and the battery was decommissioned. The property, however, remained a US Military Reservation until 1923, when the property was sold to private interests.

Current land uses include conservation, related to NPS protection of the battery, and undeveloped open space that constitutes the remainder of the property. Anticipated future use includes museum/education/interpretation of the historic significance of the battery to the public by the NPS.

The property is presently set within a residential subdivision that occupies portions of the area formerly included in the late nineteenth/early twentieth century military reservation. The Ribault Monument, part of Timucuan Ecological and Historic Preserve, occupies part of the former collection of buildings erected to support construction of the Spanish-American War Battery.

Historic Conditions

Military use of St. Johns Bluff to erect the Spanish-American War Battery was undertaken in response to its position overlooking the St. Johns River, long recognized for its strategic military and economic value as a vital interior route into eastern Florida.³²⁷ The river also flows through the city of

Jacksonville, which includes a port, as well as commercial, industrial, and military developments. In addition to the Spanish-American War Battery built in 1898-1899 to defend the port and other commercial and industrial interests, military positions were also built atop St. Johns Bluff by the British in the 1770s and the Confederate Army during the Civil War. As noted, transportation land uses were associated with construction of the Spanish-American War Battery when a wharf or dock and rail line were built to supply the materials needed to construct the battery in 1898.

Military use of St. Johns Bluff ended in 1923 when the US Army deaccessioned the reservation on which the battery was constructed. Residential land uses were introduced beginning in the 1940s after the bluff was subdivided for development of St. Johns Bluff Estates in 1945. Conservation land uses were introduced in 2016 when NFLT acquired the property to protect it from being developed for residential use and have continued since the NPS became stewards in 2018.

Existing Conditions

The Spanish-American War Battery stands as a well-preserved reminder of the conflict anticipated to reach United States soil in 1898 during a conflict with Spain. The efforts conducted by the NPS to protect and maintain the structure constitute a conservation land use. No other active land uses are currently associated with the property. The rest of the parcel is characterized by undeveloped open space; within view are adjacent parcels associated with residential land uses.

Evaluation

The present-day land uses of conservation and undeveloped open space are non-historic, while the historic land uses associated with the significance of the property—military and transportation—are characterized as missing today.

327. Stowell, 121; US Department of Agriculture, "St. Johns River," accessed August 9, 2019.

Historic land uses contributing to the significance of the setting

- None

Non-historic land uses

- Conservation
- Undeveloped open space

Missing land uses

- Military
- Transportation

Circulation

Summary Analysis

The Spanish-American War Battery property does not contain any examples of formal circulation systems, except for the tunnel that leads between the gun emplacement platform, the ammunition magazine, and an arched entrance at the western end of the concrete structure. The only other circulation feature is a contemporary gate that provides access into the property through the perimeter fence fronting Fort Caroline Road. Once inside the gate, there are no roads, walks, or paths present.

Circulation features present during the period of significance include the temporary rail line built between a wharf along the river and the temporary and permanent batteries for the transportation of construction materials as shown on late nineteenth- and early twentieth-century maps. No evidence of the rail line survives on the property today.

Historic Conditions

Work to build coastal defenses on St. Johns Bluff began with a temporary battery located northwest of the present-day Spanish-American War Battery. Because the bluff remained undeveloped at the time, it lacked transportation infrastructure. To address the need to transport construction materials to the proposed battery location, the US

War Department built a wharf along the river at the northeast corner of the bluff in early April 1898. By mid-April, workers had cleared a route through the woody brush for passage between the riverbank and the upper slopes of the bluff, initially following the gentler slopes of a ravine. Metal rail was rented from a local merchant with the understanding the iron would be returned at the completion of the work, in roughly six or eight weeks. Workers then began to lay track from the wharf to the proposed site of the temporary battery. Once completed, a stationary engine was used to haul the construction materials along the track.³²⁸

On April 27, 1898, two days after the United States declared war against Spain, General Wilson issued an order to build a second, permanent position upslope and southeast of the temporary battery that would be designed to house two 8-inch breech-loading rifles.³²⁹ Construction of the permanent battery entailed additional clearing of a travel route and extending the railroad track 1,200 feet.³³⁰ Once built, the railway extended southeast along the west side of the temporary battery and terminated west of the Spanish-American War Battery.³³¹

Other circulation features present near, but not within, the present-day Spanish-American War Battery property during the period included a footpath that crossed the bluff from a point along the railroad track between the wharf and the temporary battery and led southwest through a swamp and pond to a route identified on period maps as “Old Road to Cosmo.”

Although the Spanish-American War ended before the battery was completed, the US War Department determined that it would be prudent to emplace the proposed 8-inch guns anyway. Thus, work continued at the site through the end of 1898 and into 1899. Circulation associated with the battery included a tunnel that linked that gun emplacement platform, which was not covered by a roof, and the enclosed and partially subterranean ammunition bombproof magazine to the west. The tunnel continued beyond the magazine, providing

328. Buker, 14.

329. Ibid., 17.

330. Ibid.

331. Thompson, November 1898.

an arched opening that served as an entrance into the structure along the west side.

After emplacement of the guns was authorized, additional rail track was rented and used to extend the railway to the front of the Spanish-American War Battery so that the rifles could be brought directly to the area adjacent to the gun platform and emplacement area (Figure 75). Although the guns were brought to St. Johns Bluff by the end of 1898, they remained at the foot of the bluff past the deadline for the return of the rented rail tracks. To ensure completion of the project, General Wilson secured the necessary \$400 in funds to purchase the rails from the owner.³³² In January 1899, the two 8-inch breech-loading rifles were finally brought to the top of the bluff along the

railroad tracks and mounted at the Spanish-American War Battery.³³³ After the guns were in position, all work on the batteries ceased. The railroad tracks were likely used for the last time to convey the guns back to the wharf when they were removed from the battery later that year, and potentially salvaged by the US War Department.

The property remained undeveloped after 1899, although it later fell within a residential subdivision and may have been made available for sale beginning in the 1940s. A pair of masonry columns located near Fort Caroline Road may mark the location of a proposed residential driveway associated with one of the parcels associated with St. Johns Bluff Estates subdivision dated 1945.

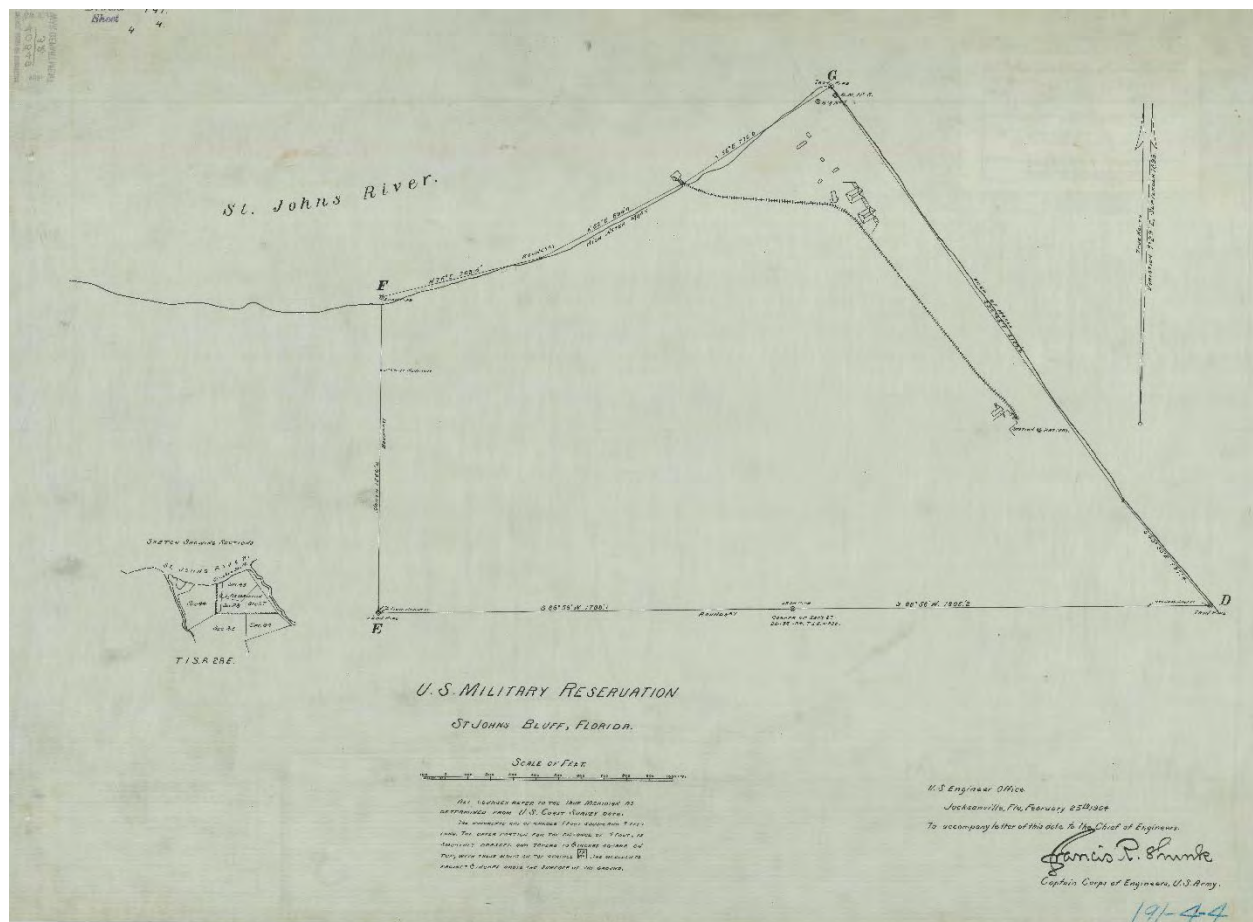


FIGURE 75. Detail of US Corps of Engineers map showing the alignment of the rail line built to supply materials for construction of coastal defenses on St. Johns Bluff, and transport the guns emplaced at the Spanish-American War Battery, 1904. (Source: NARA RG 77, File Drawer 191, Sheet 4-4, February 25, 1904)

332. Ibid.

333. Ibid.

NPS personnel at Timucuan Ecological and Historic Preserve indicate the former presence of a footpath that once crossed the bluff, including the Spanish-American War Battery property, prior to development of some of the residential parcels that provided access to a commercial enclave to the west. No longer extant, this footpath is often referred to as “Sam’s Trail.”

Existing Conditions

As noted above, the only circulation features present on the Spanish-American War Battery property today are the concrete tunnel that connects the gun emplacement platform with the magazine and a western entry portal into the structure and a gate set within the perimeter property boundary at Fort Caroline Road.

Evaluation

Of the two circulation features present today, only the tunnel is a historic feature that dates to the period of significance. The gate is a contemporary addition that postdates the period of significance. Missing circulation features include the railroad tracks used to transport construction materials to the top of the bluff during the period of significance, and a later footpath referred to as Sam’s Trail.

Contributing circulation

- Tunnel connecting the gun emplacement platform, ammunition magazine, and western entrance into the battery

Non-contributing circulation

- Gated entrance into the property from Fort Caroline Road

Missing circulation

- Railroad tracks that led to the western and northern edges of the Spanish-American War Battery to deliver construction materials and artillery in 1898-1899

- Sam’s Trail

Vegetation

Summary Analysis

Vegetation present on the Spanish-American War Battery property today is composed of native tree and shrub species representative of temperate mixed hardwood and evergreen hammock woodland, as well as invasive vines, turf grasses, and other herbaceous plants. Marsh forms the northern edge of the property as it abuts St. Johns Creek. The vegetation present within the property has likely experienced little in the way of management over the years due to a lack of active use since the battery was decommissioned in the early twentieth century.

During the period of significance, period accounts indicate that existing woody growth and brush was cleared on the bluff to establish an access route from the wharf, and to lay the railroad tracks ahead of construction of the temporary and permanent batteries. Also likely cleared was any woody growth that obscured the intended field of fire for the artillery emplaced within the batteries. The land to the southwest of the battery may have been left in tree cover, except where trees might have been removed for construction or firewood purposes. Period maps label vegetation in this area as dominated by oak trees, with underbrush composed of oak, myrtle, holly, and bay. The present-day hammock woodland community may approximate the vegetation present during the period of significance with the exception of the grassy ground plane that has been managed since circa 1913 by the NPS through mowing as a way to permit access and to control invasive species. Woody vegetation is also located today atop the bluff and along the steep slopes to the north of the battery where clearing would have occurred to establish a field of fire in front of the gun emplacements.

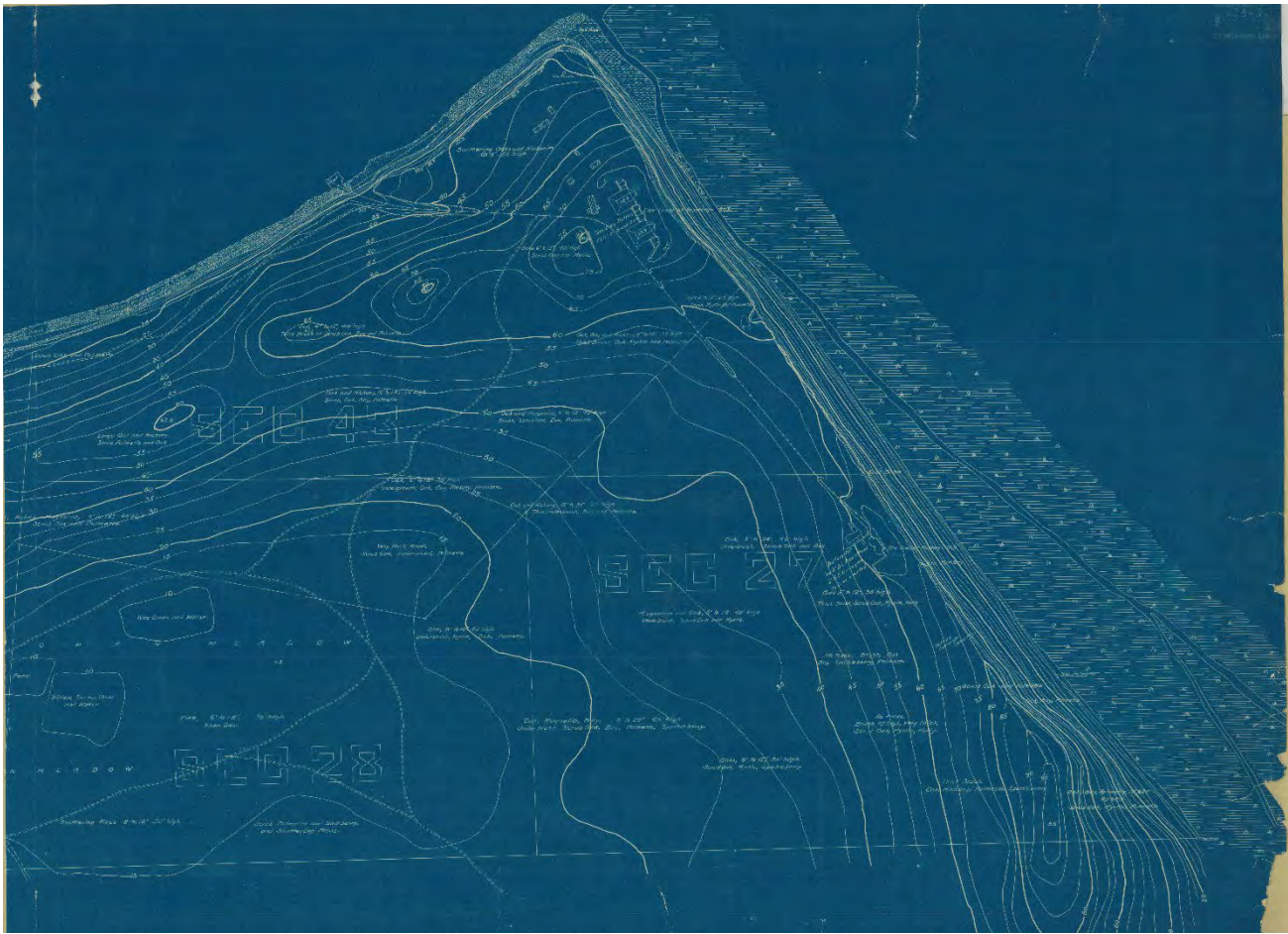


FIGURE 76. Map dated December 28, 1899, of the St. Johns Bluff area and military reservation. Labels on the map indicate the character and composition of vegetation encountered by the US War Department when establishing the batteries. (Source: NARA RG 77, File Drawer 191, Sheet 4, 2 of 2)

Historic Conditions

Information regarding the composition of vegetation at the time of the construction of the Spanish-American War Battery is available in the form of period construction records and notes included on historic maps and plans prepared by the US Engineers Office. Period construction accounts suggest that work on the temporary battery began on April 11, 1898, when superintendent of construction John M. Cook ordered workers to begin clearing vegetation from the bluff in order to facilitate construction as well as ensure a clear field of fire for the artillery to be emplaced in the batteries.³³⁴ One account of the work suggests that the tram that carried the guns

along the rail line to the battery was built through a “jungle.”³³⁵ Although tree cover was likely removed in front of on the proposed site of the Spanish-American War Battery, a map dated December 1899 indicates the landscape to the south of the battery to be composed of “oak 5” to 12” 30’ high; Thick Brush, Scrub Oak, Myrtle, Holly.” The same map shows vegetation along the bluff to the northwest of the battery as “Oak, 8” to 24”, 40’ high. Underbrush, Scrub Oak and Bay.” Another map prepared in 1899 describes the vegetation on the bluff as “oak, bay, etc. hammock.” Both maps indicate the presence of marsh along St. Johns Creek (Figure 76).³³⁶

334. Davis, 208-209: George E. Buker, *Jacksonville: Riverport-Seaport* (Columbia, South Carolina: University of South Carolina Press, 1992), 118-20.

335. HABS.

336. Lieut. Col. Wm. H. H. Benyard, “Sketch of a portion of St. Johns Bluff” (St. Augustine, Florida: US Engineer Office, January 9, 1899).

Two photographs looking toward St. Johns Bluff circa 1900 provide information about the character of the landscape around the time the guns were mounted at the Spanish-American War Battery. The photograph taken from farther away (Figure 77) shows the slope of the bluff generally denuded of woody vegetation with a dense stand of trees growing on top of the bluff. Although the tree species cannot be determined from the photograph, the stand appears relatively well-established and mature. Most of the trees are in leaf, but some are not, suggesting that the photograph was taken in winter and that there were both deciduous and evergreen trees present on the bluff. The second photograph, taken closer to the shoreline (Figure 78), similarly shows the slope of the bluff covered with low-growing woody vegetation and grasses. A stand of mature trees is visible atop the bluff, although many of the trees appear to have been cleared to the east (left) in the photograph, likely reflecting efforts to prepare the battery sites.



FIGURE 77. Circa 1900 photograph of St. Johns Bluff from the St. Johns River. The photograph shows a dock and a cut in the bank of the river near the center of the image where a rail line was established to convey construction materials to the top of the bluff for construction of the Spanish-American War Battery. To the right is a possible mine field terminal to the right. (Source: State Library & Archives of Florida)³³⁷



FIGURE 78. Circa 1900 photograph of St. Johns Bluff and the military reservation associated with the Spanish-American War Battery from the river. Buildings erected to support the project are visible, along with riprap placed along the river shoreline to protect against erosion. (Source: State Library & Archives of Florida)³³⁸

337. *View of Saint Johns Bluff from the Saint Johns River.* 1900. Black & white photoprint, 8 x 10. State Archives of Florida, Florida Memory. accessed December 15, 2019. <https://www.floridamemory.com/items/show/257569>.

338. *View of Saint Johns Bluff from the Saint Johns River.* 1900. Black & white photoprint, 8 x 10. State Archives of Florida, Florida Memory. accessed December 15, 2019. <https://www.floridamemory.com/items/show/257569>.

Little else is known about vegetation on the bluff at the time the battery was constructed. No additional information exists regarding the character or composition of vegetation during the early twentieth century prior to photographs taken as part of the 1934 HABS documentation effort. Although the landscape appears more open in 1934 than it is today in 2021, the photographs suggest the battery setting was generally wooded. Eastern red cedar and live oak trees can be identified in the photographs (Figure 79 and Figure 80).



FIGURE 79. View northwest toward the battery showing the wooded nature of the top of the bluff beyond, 1934. (Source: HABS)



FIGURE 80. Photographic view of the Spanish-American War Battery in 1934 showing trees edging the structure. The evergreens visible are likely eastern red cedar trees. (Source: Library of Congress, 052286pu)

A 1943 aerial photograph taken just before the bluff was subdivided to establish the St. John Bluff Estates residential community indicates that the site was entirely wooded at the time (Figure 81). Another archival aerial photograph from 1960 shows much of the bluff remained wooded while several of the residential lots had been developed with dwellings set within small clearings (Figure 82).



FIGURE 81. Aerial photograph of St. Johns Bluff in 1943 indicating the dense woodland present on the bluff and the sites of the Spanish-American War Battery and other military features developed in 1898–1899. Yellow arrow shows location of the Spanish-American War Battery. (Source: National Park Service)



FIGURE 82. Aerial photograph of St. Johns Bluff in 1960 that indicates where several dwellings had been built within St. Johns Bluff Estates. Yellow arrow shows location of the Spanish-American War Battery. (Source: National Park Service)

Existing Conditions

Currently, vegetation on the Spanish-American War Battery property is representative of the temperate mixed hardwood and evergreen hammock community found throughout northeastern Florida.³³⁹ Species present include predominantly live oak, with some Southern magnolia and Southern hackberry in the canopy layer and saw palmetto and oak saplings in the understory and shrub layers. Spanish moss (*Tillandsia usneoides*), an epiphyte, is a pervasive component of the live oak canopy. Yucca and several vines, including catbriar and grape, are found in the herbaceous layer, while grasses, ferns, and saplings are present in the groundcover layer. These species can also be observed growing in cracks and crevices in the battery structure.

The vegetation is generally denser along the property margins and more open in the center where the NPS mows the grassy ground cover layer for access. The denser stands include saw palmetto, saplings, and tangles of vines.

The trees near Fort Caroline Road are more diverse in terms of species, while upslope most of the trees are live oak. Although the trees vary in size, several are quite large. Several are leaning, while others have low-hanging branches.

Vegetation located on the steeper northern slope leading to St. Johns Creek is also dense but generally lower growing. Trees and saplings are found near the top of the bluff.

Marsh vegetation occurs along the southern margin of St. Johns Creek. This vegetation, which was not surveyed on behalf of this project, generally appears undisturbed and may remain representative of native salt marshes in the area. The marsh is characterized by species tolerant of saltwater since St. Johns River is tidal and brackish water flows into St. Johns Creek twice daily with the high tides.

Two invasive species—air potato vine and sword fern—are present throughout the property along the southern side of the bluff. These non-native exotics have the potential to disrupt native plant communities through their aggressive growth and ability to establish monocultures that exclude other species. Both are classified as Category 1 invasives, suggesting that they pose a threat to native plant communities.³⁴⁰

The residential parcels located to either side of the Spanish-American War Battery property are relatively manicured and planted with turf grasses, and ornamental native and exotic trees and shrubs. The Spanish-American War Battery property is among a very few parcels within the St. Johns Bluff subdivision that contains undisturbed stands of native vegetation.

Evaluation

Several of the trees present on the Spanish-American War Battery property are large, mature specimens that may survive from the period of significance. Review of aerial photographs dated 1943 and 1960, the site appears to have been heavily wooded less than 50 years after the battery was constructed, suggesting that woodland was also likely present south of the battery during the period of significance. Additional evidence that suggests present-day woodland southwest of the battery may be characteristic of the period of significance are labels included on circa 1898-1904 maps that describe the presence of oak hammock vegetation. Where woody vegetation was likely cleared to establish the field of fire to the north of the battery, trees and shrubs have grown up to partially obscure the viewshed. Marshland and lower growing woody vegetation continue to occupy the steeper northern slopes of St. Johns Bluff and the lower lying area along St. Johns Creek, which also appears on historic period maps.

The temperate evergreen and mixed hardwood species hammock community present at the

339. Ronald L. Myers and John J. Ewel, *Ecosystems of Florida* (Orlando, Florida: University of Central Florida Press, 1990), 211–213.

340. Florida Exotic Pest Plant Council Invasive Plant Lists. Available at <https://www.fleppc.org/list/list.htm>.

Spanish-American War Battery is likely representative of vegetation present during the period of significance. The community differs likely from historic conditions in several ways. For example, the groundcover and herbaceous layer has been altered through mowing to allow access to the site and control invasives. Native ferns are often a component of hammock forests. A shrub and understory layer is often present when the canopy is not entirely closed.

Historic vegetation contributing to the significance of the setting

- Temperate mixed hardwood and evergreen hammock woodland community with mature trees that may survive from the period of significance
- Woody vegetation on the bluff slope managed to maintain a view of St. Johns River
- Marsh vegetation along St. Johns Creek

Non-historic vegetation

- Invasive species
- Woody growth obscuring the historic field of fire viewshed

Buildings and Structures

Summary Analysis

The only built structures currently associated with the Spanish-American War Battery property are those associated with the permanent battery built in 1898-1899—the gun emplacement platform, ammunition magazine, tunnel, and retaining walls. No other buildings or structures were present historically on the property or have been built since 1899.

Located to the northwest of the permanent battery, however, was a temporary battery built in 1898, as well as additional buildings and structures built to support the construction and operation of

the coastal defense features. These included a dock along the St. Johns River, a kitchen, stable, dwelling, watchman's house, storehouse, and torpedo storehouse. Little or no evidence of these features survive today. It appears that many of the features were located within the Timucuan Historic and Ecological Reserve unit associated with the Ribault Monument today.

Historic Conditions

As noted previously, construction of coastal defenses along the St. Johns River occurred in response to conflicts arising between the United States and Spain following the sinking of the USS *Maine* in Havana Harbor on February 15, 1898. Five days after the sinking of the USS *Maine*, Governor Bloxham directed the Jacksonville Naval Militia to conduct a detailed reconnaissance of the Atlantic coast to locate sites suitable for establishing signal stations and to identify other relevant information from a strategic military standpoint.³⁴¹ The governor's directive was one of the earliest set of military orders issued by any state before the Spanish-American War.³⁴² US Congress soon appropriated funds for the improvement of military coastal defenses on March 9, 1898, as the threat of Spanish naval attack on US coastal positions loomed. On April 25, 1898, America declared war on Spain after learning of plans to attack Key West and blockade the American coast.

Based on the history of military activity within Jacksonville during the Civil War, citizens requested assistance from the US War Department in defending their city. By early April, military personnel were planning to erect a temporary battery along the St. Johns River and provide mines that could be placed in the river. Artillery to be emplaced within the temporary included two modern rapid-fire 5-inch rifles and two 7-inch howitzers (Figure 83).³⁴³ Consideration was also being paid to establishing a permanent battery where larger guns might be emplaced.³⁴⁴

341. Buker, 1989, 8; Davis, 208.

342. Buker, 1989, 8.

343. Thompson, November 1898; Buker, 1989, 18.

344. Ibid.

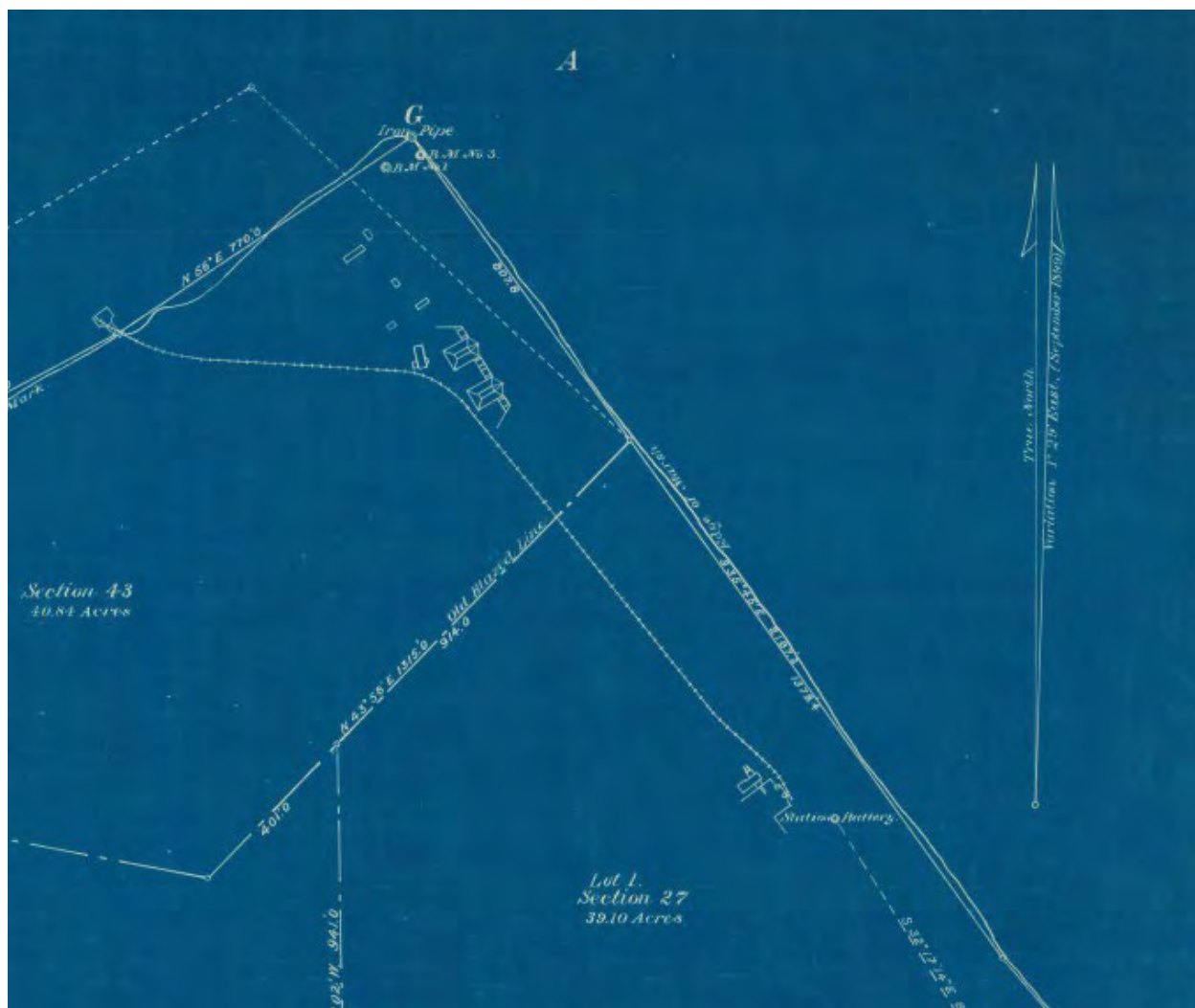


FIGURE 83. A 1900 map of the coastal defense features erected at St. Johns Bluff between 1898 and 1899. (Source: NARA RG 77, File Drawer 191, Sheet 4-3, January 5, 1900)

Work began on the project in April 1898. The first structure to be built was a landing wharf, known as the US Dock, that could be used to unload building materials conveyed to the remote and relatively inaccessible site by boat. Four small temporary buildings were then erected nearby, with two added later. These buildings included:

- a 22-by-12-foot kitchen
- a 50-by-12-foot stable used to store wheelbarrows, iron pipe, and batters
- a 16-by-12-foot dwelling
- a 30-by-12-foot watchman's house
- an 18-by-12-foot storehouse
- a cross-shaped torpedo storehouse composed of an 81-by-17-foot main block and lesser wings designed to store river mining material³⁴⁵

Railroad track was then laid between the wharf and the location partway up the bluff where the temporary battery would be built. The battery was subsequently built using 10-inch-by-10-inch timbers to establish the revetment and magazine. These were then covered with a sand embankment partly surfaced with “marsh muck.”³⁴⁶ Later that month, four guns were mounted in the temporary battery.

345. Ibid., 34–35.

346. Buker, 1989, 12–13.

An electrically controlled mine field, a key part of Endicott System defenses, was planned for St. Johns River. Although the project experienced delays due to shortages of materials and funding, in May a temporary mine casemate, a wooden building measuring 16 by 25 feet, was built near the cluster of temporary structures on the bluff to hold the terminals of the submarine cables used in the planted mines.³⁴⁷ On June 10, however, the temporary casemate was destroyed by an accidental explosion caused during the testing of some mine plugs.³⁴⁸ After the United States signed a peace protocol with Spain in August 1898, the remaining mine material was removed from the bluff.

In the meantime, the US War Department issued orders to begin work on the permanent battery at St. Johns Bluff on April 27, 1898, two days after the United States declared war on Spain. Construction of the permanent battery entailed preparation of the site, charting the lines for a new gunpit, extending the railroad track to the site, drilling for water, and constructing a building to store the 700 barrels of cement that would be needed to complete the new battery.³⁴⁹ Over the course of the project, some seven hundred barrels of cement were shipped to and stored on St. Johns Bluff.³⁵⁰ Shell for the concrete was also procured and piled near the construction site. Crushed stone was supplied by Georgia Quincy Granite Company near Sparta, Georgia, and transported to Jacksonville on the F. C. & P. Railroad.³⁵¹

During the spring and into the summer months, the structure slowly rose to include a concrete retaining wall along the northern edge, two gun

emplacement platforms, a covered magazine, and a tunnel connecting the features to an outer entrance at the western side (Figure 84).

By July 1898, around the same time that the American forces won victories at San Juan and El Caney, excavation for the Spanish-American War Battery's 8-inch gun emplacements was complete, and the magazine nearly finished.³⁵² Since crushed stone for the foundations proved difficult to obtain during the war, a rock crusher was rented in Jacksonville to increase the supply of crushed stones.³⁵³ Work continued even after the peace protocol was signed in August.

In November, however, John Cook notified Colonel Benyaurd that additional funds would be necessary to finish construction.³⁵⁴ Because the war had ended, Benyaurd was unable to supply additional funds for the project. To cut costs, Benyaurd suggested that the original height planned for the concrete pit should be reduced.³⁵⁵ He also indicated that installation of the doors shown in the plans for the battery would not be necessary.³⁵⁶

The concrete structure as it exists today was completed in early January 1899, followed by mounting of two 8-inch breech loading rifles.³⁵⁷ Each gun weighed 32,480 pounds and could fire a 300-pound projectile capable of penetrating 10.6 inches of steel at 3,500 yards.³⁵⁸ The concrete cover over the magazines was left unfinished and sand was not placed over the magazine as intended. Further work on St. Johns Bluff was suspended following emplacement of the rifles.³⁵⁹

347. *Ibid.*, 23.

348. *Ibid.*, 24.

349. *Ibid.*, 17.

350. *Ibid.*

351. *Ibid.*, 26.

352. *Ibid.*

353. *Ibid.*, 29.

354. *Ibid.*

355. *Ibid.*

356. *Ibid.*

357. *Ibid.*, 30.

358. *Ibid.*

359. *Ibid.*

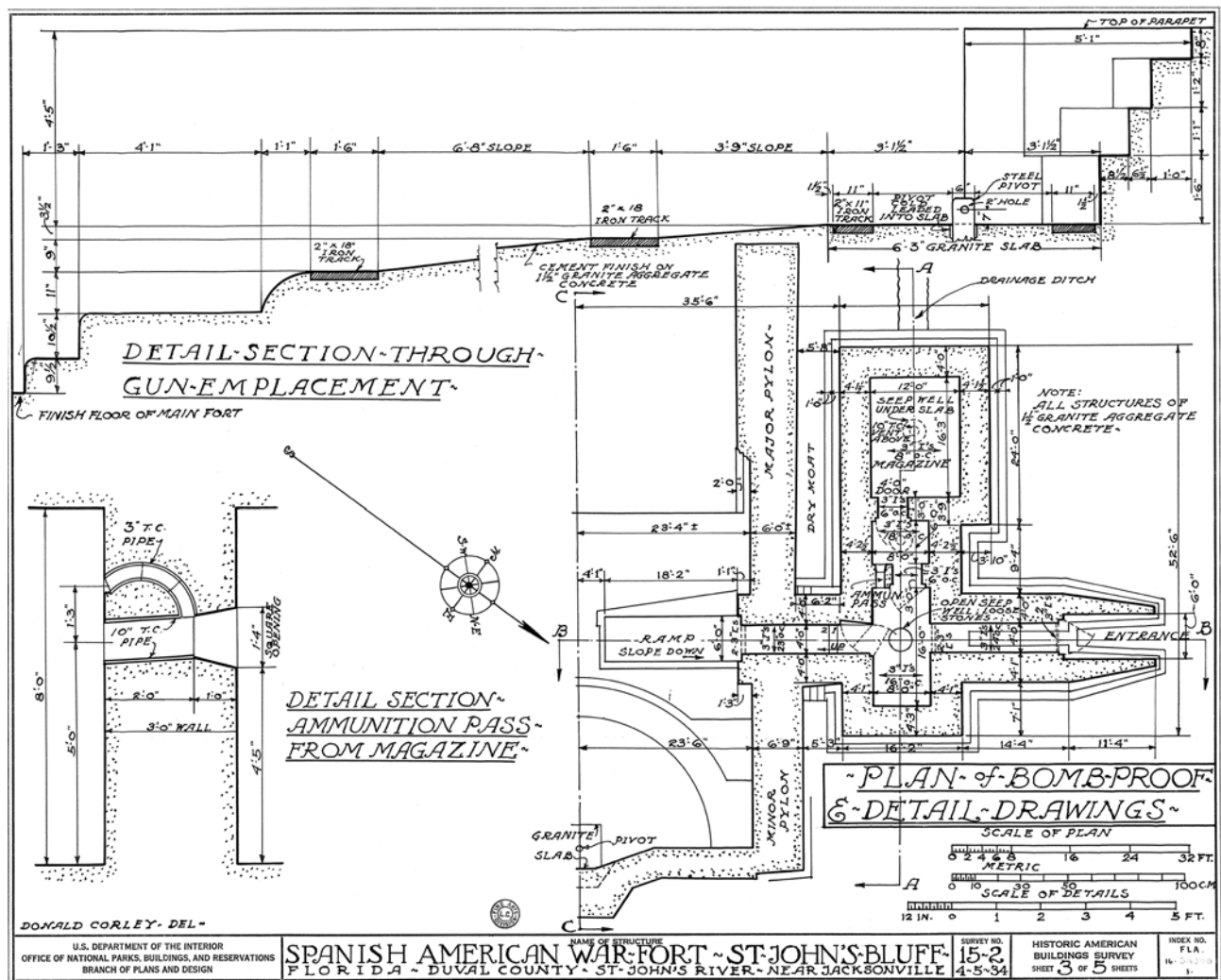


FIGURE 84. HABS measured drawing of the “bomb proof” ammunition magazine associated with the Spanish-American War Battery, 1934. (Source: Library of Congress)

The 8-inch guns were never serviced by troops or test fired by the US Army Corps of Engineers.³⁶⁰ Later that year, Benyaurd hired a watchman to live on the military reservation while performing minor repairs to the buildings and equipment as needed.³⁶¹ The buildings were all demolished during the early 1900s, leaving only the permanent battery.³⁶² The military reservation was deaccessioned and later sold in 1923 to a group of local investors. Even after St. Johns Bluff was subdivided in the 1940s, and dwellings were built nearby, the battery has since remained relatively undisturbed.

Existing Conditions

Today, the only structure on the Spanish-American War Battery property remains the concrete structure completed by early January 1899.

Evaluation

The Spanish-American War Battery structure survives relatively unchanged and with a high degree of integrity today.

360. Ibid.

361. Ibid., 30-31.

362. Charles Sperry to McKinstry, RG 77, Entry 1170, ox 1, folder September 1899, Atlanta Federal Archives & Record Center, East Point, Georgia.

Contributing buildings and structures

- Spanish-American War Battery, composed of the gun emplacement platform, ammunition magazine, tunnel, and retaining walls

Non-contributing buildings and structures

- None

Views and Vistas**Summary Analysis**

Views were an essential component in the siting of the Spanish-American War Battery. The US Board of Engineers constructed the permanent battery on a high point of St. Johns Bluff in 1898-1899 to take advantage of the strategic views over St. Johns River, an important waterway for US coastal defense. The siting of the battery was part of a broader plan for improving and enhancing military coastal defenses based on the Endicott Board plan devised beginning in 1886. To support coastal defense needs associated with Florida, the US Engineers Office analyzed regional landforms, topography, and waterways for their suitability for military emplacements during and after the Spanish-American War. Maps prepared at the time indicate the potential field of fire that could be achieved by placing batteries at certain locations along the St. Johns River (Figure 85 and Figure 86). The Spanish-American War Battery was built as part of a larger system of artillery emplacements that took advantage of views of the river to protect against enemy attack. These same views have been an important factor in the siting of residences atop the bluff since St. Johns Estates was subdivided in 1945.

Although views from the battery have become partially blocked by woody vegetation, the key visual relationship between the Spanish-American

War Battery, the apex of the bluff, and the strategic views of St. Johns River that were important factors in the siting of the structure in 1898 survive today.

Historic Conditions

Historic maps from the period during which the Spanish-American War Battery was constructed indicate the intention for the battery and the associated emplaced artillery to face the river with direct views of potential approaching enemy ships, and with the ability to fire upon them without impediments. To this end, vegetation was likely cleared as part of the construction of the battery to ensure a clear field of fire to the north and in front of the artillery.

The battery was also sited in such a way with views from the river in mind. The gun emplacement platform is set below the military brow of the bluff behind a concrete retaining wall which ensured that it was screened from the view of enemy ships approaching on the river below. The guns were raised above the retaining wall to be fired and quickly lowered again to evade visual detection.

Other features related to views and viewsheds associated with the battery include the position finder station used to spot approaching enemy ships and calculate their positions so that the guns could be properly oriented to fire on an approaching ship.

Beyond the present-day property, there were other locations on St. Johns Bluff where the elevated terrain and views toward the river played a key role in siting military defenses. These included the temporary battery that preceded the existing permanent battery in 1898, a Confederate battery established in 1862, and a British military defensive position emplaced with cannon in 1777.



FIGURE 85. Map titled "General Project for Defense Proposed by the Board of Engineers," 1900. (Source: NARA RG 77, File Drawer 191, Sheet 9-3, February 28, 1900)

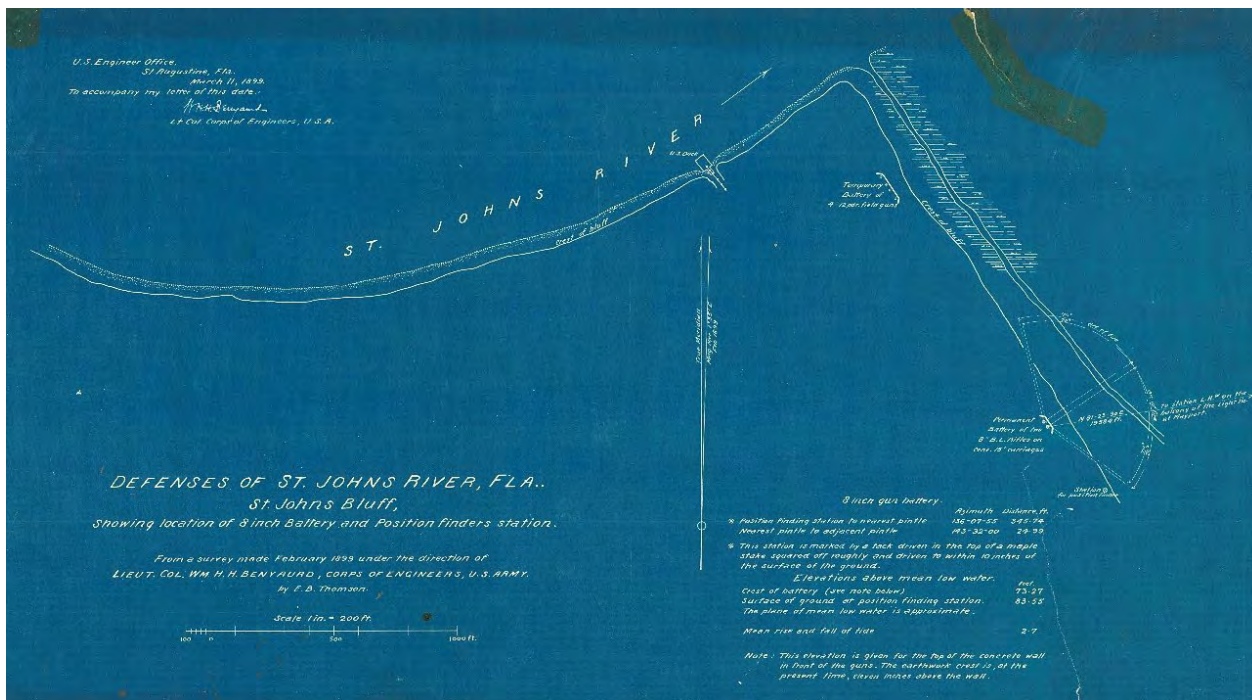


FIGURE 86. Map titled "Defenses of St. Johns River, Fla.," showing the intended field of fire for the Spanish-American War Battery, 1899. (Source: NARA RG 77, File Drawer 191, Sheet 3-2 1899)

Existing Conditions

Views and viewsheds associated with the Spanish-American War Battery property today are limited due to the extent of tree cover present, and the limited size of the parcel as closely edged to either side by twentieth-century residential properties. From Fort Caroline Road, views are afforded into the property through breaks in the tree cover and other woody vegetation. Once inside the gate, views are afforded toward the battery structure except where they are blocked by vegetation. Along portions of the property boundaries to the southeast and northwest views are afforded of the adjacent residential properties. Dwellings are located within each of the properties, sited atop the bluff to take advantage of the views. From the Spanish-American War Battery property, views of the dwellings occur only in the vicinity of the battery structure as woody vegetation typically blocks views from further to the southwest.

In association with the battery there are two important views: a linear directed view through the tunnel that links the gun emplacement platform, the ammunition magazine, and the arched entrance to the west; and an expansive view towards St. Johns River from the top of the bluff above the retaining wall. The western end of the tunnel affords a view of the adjacent residential property, which closely abuts the arched opening. Trees and shrubs partially obscure the views toward St. Johns River from the top of St. Johns Bluff.

Evaluation

The historic strategic view from the battery toward St. Johns River survives today but is partially obscured by tree cover. No evidence of the position finding station indicated on historic maps survives today. The view through the tunnel survives but now encompasses an adjacent twentieth-century residential property to the west. It is possible that the views through hammock woodland toward the battery from the southwest are similar to those present historically.

Views afforded of adjacent residential properties and dwellings from the Spanish-American War

Battery property postdate the period of significance and are non-contributing.

Historic views and vistas contributing to the setting

- View from the battery toward St. Johns River to the north
- Views through the tunnel
- View toward the battery from the open space southwest of the structure

Non-historic views and vistas

- Woody growth on the bluff that partially obscures the historic field of fire view
- Views of the residential property to the west through the tunnel
- Views of adjacent residential properties and dwellings to the southeast and northwest from inside the property

Small-scale Features

Summary Analysis

The only small-scale features associated with the Spanish-American War Battery property are two masonry columns, a fence and gate, and signage located along the property margin that abuts Fort Caroline Road. All of these features are contemporary additions to the property that date to the mid to late twentieth and twenty-first centuries. Any small-scale features that may have been associated with the battery during the period of significance are no longer extant. There are no contributing small-scale features on the property.

Historic Conditions

Little is known about small-scale features present prior to construction of the Spanish-American War Battery on the property. Documentation to the period of significance suggests that there was a position finding station located to the south of the battery marked by a tack driven into a maple stake squared off roughly and driven within ten inches of the surface of the ground. A 1901 map shows a 30-

inch search light in the vicinity of the Spanish-American War Battery to the southeast.

Beyond the present-day property, within the area to the northwest of the Spanish-American War Battery were buildings and a temporary battery were constructed by the US War Department in 1898. According to period records, an American flag was raised on a pole in association with the cluster of buildings. The flag and flagpole are no longer extant.³⁶³

Existing Conditions

Three small-scale features are present on the Spanish-American War Battery property today. These features, a fence and gate, signs posted along the property boundary, and a pair of masonry columns, are all located near the property boundary as it edges the Fort Caroline Road right-of-way.

Evaluation

Although the date of origin of the columns is not currently known, they likely were built to support development of the parcel following subdivision of the bluff as St. Johns Estates in 1945. Similarly, although the dates of origin of the boundary fence and gate and signage are not known, they are contemporary additions to the property that likely date to the late-twentieth- or early-twentieth-first centuries (Figure 87).

Contributing small-scale features

- None



FIGURE 87. View of the perimeter fence, gate, and signage along the southern boundary of the Spanish-American War Battery property, 2019.

Non-contributing small-scale features

- Masonry columns (2)
- Boundary fence and gate along Fort Caroline Road
- Signage along property boundary fencing

Missing small-scale features

- Position finding station
- Search light

Resilience to Natural Hazards

Emerging trends in the severity of weather events, rising temperatures, and increasing rainfall totals are currently affecting ecosystem processes such as forest and marshland structure, composition, and function along the eastern seaboard of the United States. Increased temperatures, pollution, non-native insect pests, disease, and invasive plants are all contributing to the altered ecosystem processes observed by scientists and others. An analysis of environmental conditions and ecological processes at Timucuan Historic and Ecological Preserve conducted during the 2010s indicates that climatic conditions are shifting faster than formerly anticipated.³⁶⁴ The environmental

363. HABS, 4.

364. Bill Monahan and Nicholas Fisichelli, "Recent Climate Change Exposure of Timucuan Ecological and Historic Preserve," *Climate Change Resource Brief* (US Department of the Interior, National Park Service, Natural

Resource Stewardship & Science, August 1, 2014). See also William B. Monahan, and Nicholas A. Fisichelli, "Climate Exposure of US National Parks in a New Era of Change," *PLoS ONE* 9 (7), US Department of the Interior,

changes are affecting all aspects of preserve management, including natural and cultural resources and the visitor experience.³⁶⁵

Annual temperatures predicted for the preserve are forecast to increase between 1.9 and 6.5 degrees Celsius by sometime between 2070 and 2099 compared to the baseline established in 1990.³⁶⁶ Precipitation is predicted to increase from 6.2 to 11.9 percent within the same time frame from a baseline of 52.1 inches of annual precipitation.³⁶⁷ Because predicting climate change and sea-level rise is not an exact science, various future scenarios have been developed and modeled in an attempt to quantify the anticipated degree of future deviations from historic records, suggesting the need for the ranges indicated above.³⁶⁸

Based on some of these models, the NPS has considered how park resources may be impacted by the predicted change of temperature and precipitation in the future. The models consider potential changes anticipated to occur to vegetation and the complex and uncertain interactions between environmental conditions, non-native biotic stressors, and plants. The models suggest how changes in forest structure, composition, and function are likely to have associated impacts on habitat and its suitability, availability, and quality to support the habitat of

species now present within the preserve. In the preserve, potential forest change in tree species is projected to be 45 to 55 percent by 2100, with much uncertainty in forest change projections.³⁶⁹ Anticipated increases in temperature may correlate with a drier landscape, decreased availability of both surface and groundwater, and result in impacts on aquatic and wetland environments.

Plant community changes anticipated using the models include the loss of some species due to increased temperature, higher or lower precipitation levels, increased carbon dioxide levels, and changing patterns of inter-specific competition.³⁷⁰ The influence of non-native plant species on native communities could be increased as a result of climate changes, particularly in areas where native plant species are unable to adapt to changing conditions.³⁷¹

Sea-level rise is another result of climate change that is already impacting the preserve and is anticipated to play an increasing role in ecosystem process adaptation. In the environs of the preserve, sea level has risen more than 8 inches over the past 80 years. Sea levels are likely to rise substantially over the course of the current century, with projected increases of 1.8 to 5 feet by 2100. Storm intensity and storm-surge heights are also likely to increase. Sea-level rise and coastal

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- accessed December 2019, <http://dx.plos.org/10.1371/journal.pone.0101302>.
365. The NPS has defined resilience as the ability of a system and its component parts to anticipate, absorb, accommodate, or recover from the effects of a hazardous event in a timely and efficient manner, including through ensuring the preservation, restoration, or improvement of its essential basic structures and functions. In addition, the NPS has defined mitigation as the lessening of the potential adverse impacts of natural hazards through actions that reduce hazard, exposure, and vulnerability. Correspondence with NPS SERO, August 2018.
366. Monahan and Fisichelli, 2014.
367. Ibid.
368. S. Solomon et al., ed., *Climate Change 2007: The Physical Science Basis* (New York, New

- York: Cambridge University Press, 2007); Monahan and Fisichelli, 2014.
369. Monahan and Fisichelli, 2014.
370. S. L. Shafer, P. J. Bartlein, and R. S. Thompson, "Potential changes in the distributions of Western North America tree and shrub taxa under future climate scenarios," *Ecosystems* 4, (2001):200–215.
371. J. C. DeVivo, C. Wright, M. Byrne, E. DiDonato, and T. Curtis, *Vital signs monitoring in the Southeast Coast Inventory and Monitoring Network*. Natural Resource Report NPS/SECN/NRR-2008/061 (Fort Collins, Colorado: National Park Service, National Resource Program Center, 2008), accessed December 2020, <https://irma.nps.gov/DataStore/DownloadFile/153409>.

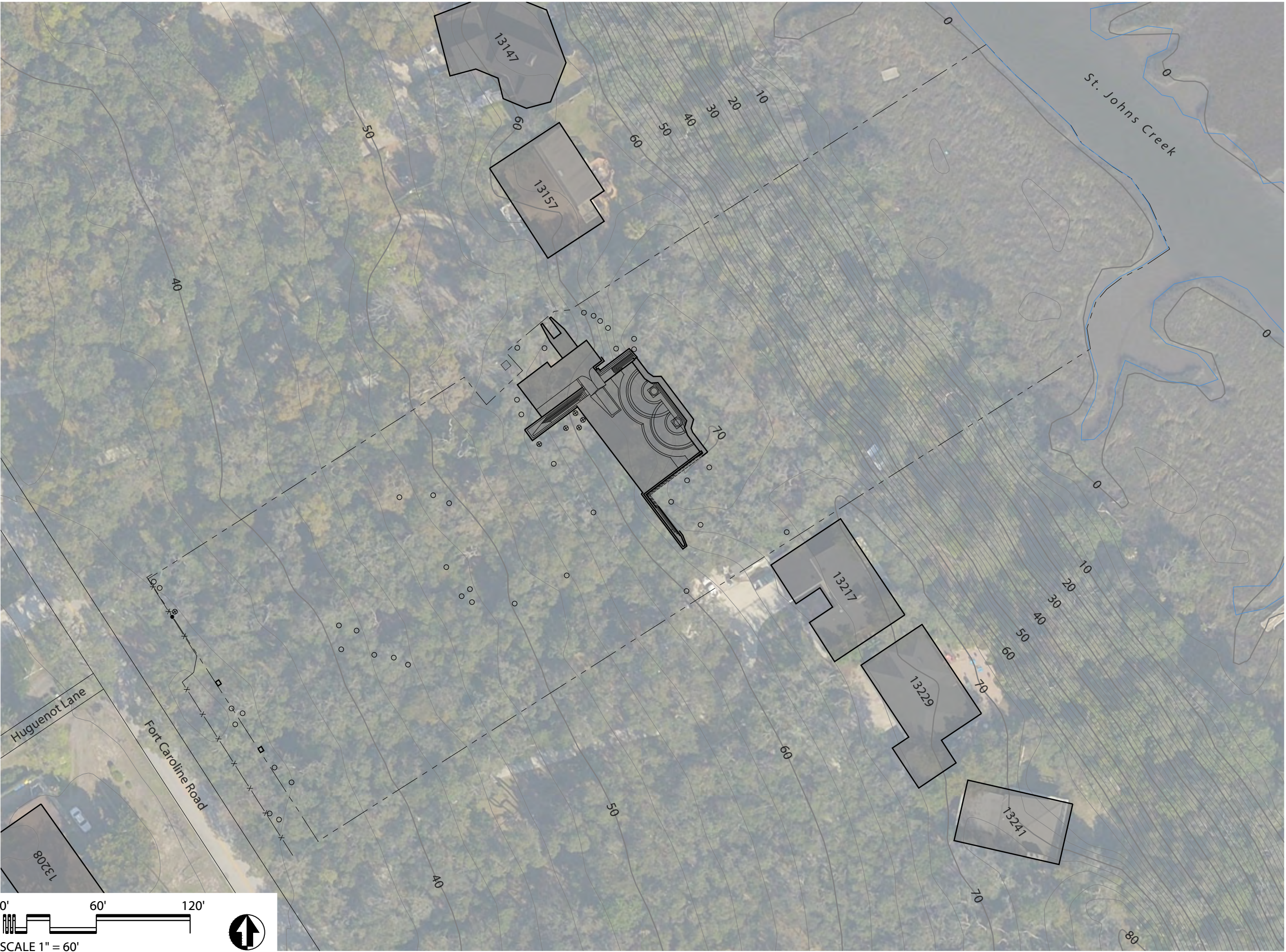
inundation will impact natural resources in several ways, including a reduction in habitat for juvenile estuarine finfish and crustacean shellfish and a related decrease in fisheries production. Changes in temperature, ocean pH, local acidification, sea level rise, and saltwater intrusion could impact molluscan shellfish and change their distribution. Warmer water may result in an increase in harmful algal blooms and in pathogens that affect shellfish and subsequently humans when consumed. The combination of sea-level rise and increased storm surge will also likely exacerbate shoreline erosion at the preserve.³⁷²

Sea level rise may lead to loss of vegetation along the margins of St. Johns Creek, which in turn might contribute to erosion of the slope. Within the Spanish-American War Battery property itself, it is anticipated that increases in temperature may result in droughty conditions and a lowered water table that will stress the hammock woodland community. This may lead to a decline in the health of the trees as well as an increase in the prevalence of invasive species and additional challenges associated with their control. Invasive species that are present to the south of Timucuan Ecological and Historic Preserve may begin to spread northward if temperatures continue to rise, leading to new species of concern that the park will need to manage. It is also possible that changes to current climatic conditions may lead to the introduction of insect species of concern to the health of the vegetation community and visitors.

An anticipated increase in temperature as well as the frequency and severity of storms are also likely to affect visitors in the future, suggesting that it may be useful to provide potable water and shelter for the public in accessible locations.

More intense storm events, such as hurricanes, involving heavy rains and high winds may impact the Spanish-American War Battery structure by causing trees or tree limbs to fall and penetration of moisture into the cracks in the structure that would adversely affect the concrete and metal materials.

372. National Park Service, State of the Park Report.



- Legend
- Parcel boundary
 - Waterway
 - 10-foot contours
 - 2-foot contours
 - Roads
 - Buildings
 - Fence
 - Tree locations
 - Dead trees

- Notes:
1. Dimensions and locations are approximate, based on field observations, NPS-provided GIS data, and GIS data from the Florida Geographic Data Library.
 2. Aerial underlay source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community.

Figure 88.
Contributing Resources

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. This treatment plan has been prepared to provide the NPS with an overall vision for the cultural landscape of the Spanish-American War Battery at Timucuan Ecological and Historic Preserve. The plan is intended to guide and support long-term management and interpretation of the property and its significant historic resources. The plan is composed of treatment guidelines and recommendations, suggestions for future implementation projects, and planning level estimates of probable costs related to the work proposed in the implementation projects.

The treatment plan addresses stewardship of historic natural and cultural resources associated with the Spanish-American War Battery in accordance with federal guidelines including the Secretary of the Interior's Standards for the Treatment of Historic Properties. The treatment plan has also been developed based on the assumption that both natural and cultural resources merit careful stewardship and conservation strategies, which may at times suggest the need for further research, adaptive management, and archeological investigation.

The treatment plan also responds to the specific management issues, concerns, and objectives conveyed to the CLR team in the project statement of work and by park and regional NPS personnel during meetings conducted on behalf of the project and a civic engagement process conducted with the public.

The treatment plan is divided into six sections as follows:

1. **Park Management Goals, Issues, and Concerns** describes the issues to be addressed by the CLR as identified in the project statement of work and during project meetings.
2. **Recommended Treatment Approach** presents the four approaches recognized by the Secretary of the Interior for treating historic properties, and identifies the approach recommended for the long-term management of Spanish-American War Battery as part of this CLR.
3. **General Management and Design Guidelines for Treatment** provides a set of overarching guidelines that to be considered as part of all resource management activities conducted within the property in the future.
4. **Treatment Concept** conveys the overarching vision or concept for landscape treatment for addressing the goals, issues, and concerns identified by the NPS to be addressed as part of the CLR treatment plan.
5. **Treatment Recommendations** provides cultural landscape treatment recommendations that identify individual actions required to address the park's management goals, issues, and concerns.
6. **Implementation Projects** identifies projects that the NPS might undertake to effect implementation of the CLR treatment recommendations. The implementation

projects are supported by planning level estimates of probable cost.

Park Management Goals, Issues, and Concerns

The management goals, issues, and concerns to be addressed by this treatment plan were identified in the project statement of work prepared by the NPS in June 2018; during a project start-up meeting held on July 9, 2019, at the park; through subsequent conference calls conducted by the project team with NPS; and as part of a civic engagement process that occurred on November 12, 2020. Additional management goals, issues, and concerns were gleaned from field investigations, and from review of available NPS park planning documents. They include:

1. Provision of guidance regarding preservation strategies for the long-term management and maintenance of historic landscape resources, particularly the battery, which is exhibiting some condition issues of concern related to the concrete and metal elements of the structure
2. Identification of, and the provision of restoration and management strategies for significant views and vistas
3. Consideration of alternatives for accommodating vehicular and pedestrian access to the property
4. Consideration of alternatives for accommodating parking within the property for cars and oversized vehicles
5. Consideration of alternatives for how to render the site accessible in accordance with Architectural Barriers Act Accessibility Standards (ABAAS)
6. Consideration of alternatives for providing visitors with orientation to the property and

visual and physical access to key views and vistas

7. Consideration of alternatives for providing interpretive information to the public
8. Provision of options for addressing visual separation of the property from neighboring properties
9. Provision of options for controlling access to the property
10. Consideration of methods for addressing visitor safety
11. Identification of opportunities for potentially connecting the property to city and regional trail systems

Treatment Approach

The four treatment approaches recognized by the Secretary of the Interior for historic properties—preservation, rehabilitation, restoration, and reconstruction—were considered to determine the approach most suitable for the Spanish-American War Battery as part of the CLR. These approaches are described in *The Secretary of the Interior's Standards for 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.” They are defined as follows:³⁷³

Preservation is defined as the act or process of applying measures necessary to sustain the existing form, integrity, and materials of an 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. The limited and sensitive upgrading of mechanical, electrical, and plumbing systems and other code-required work to make properties functional is appropriate within a preservation project. However, new exterior additions are not within the scope of this treatment. The Standards for Preservation require retention of

373. Page et al., 82.

the greatest amount of historic fabric along with the building's historic form.

Rehabilitation is defined as 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. The Rehabilitation Standards acknowledge the need to alter or add to a historic building to meet continuing or new uses while retaining the building's historic character.

Restoration is defined as 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 means of the removal of features from other periods in its history and reconstruction of missing features from the restoration period. The limited and sensitive upgrading of mechanical, electrical, and plumbing systems and other code-required work to make properties functional is appropriate within a restoration project. The Restoration Standards allow for the depiction of a building at a particular time in its history by preserving materials, features, finishes, and spaces from its period of significance and removing those from other periods.

Reconstruction is defined as 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 Reconstruction Standards establish a limited framework for recreating a vanished or non-surviving building with new materials, primarily for interpretive purposes.³⁷⁴

Recommended Treatment Approach for the Spanish-American War Battery

Based upon the park's need to meet current and projected future visitor access, safety, interpretation, and resource management goals, the CLR recommends *rehabilitation* as the most appropriate treatment approach to be applied to management of the Spanish-American War Battery cultural landscape. 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, ecological maintenance and restoration, and the provision of visitor amenities.

As part of the rehabilitation approach, stabilization, protection, and preservation of historic and natural resources are assumed even when new uses are accommodated. Areas of the landscape that are particularly sensitive to change and disturbance, such as sites of known and potential archeological resources, should be treated with great care; the CLR recommends preservation of archeological resources unless a compelling research question or informational need justifies disturbance or excavation, or mitigation to accommodate unavoidable change, as necessary.

In considering the other treatment alternatives recognized by the Secretary of the Interior for the Spanish-American War Battery cultural landscape, the CLR found them inappropriate for the following reasons:

374. Anne E. Grimmer, ed., *The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring & Reconstructing Historic Buildings* (Washington, DC: US Department of the Interior, National Park Service, 2017), 2-3, accessed March 11, 2021, <https://www.nps.gov/tps/standards/treatment-guidelines-2017.pdf>; National Park Service,

"The Secretary of the Interior's Standards for the Treatment of Historic Properties," accessed March 11, 2021, <https://www.nps.gov/tps/standards.htm>; National Park Service, "The Secretary of the Interior's Standards for the Treatment of Historic Properties + Guidelines for the Treatment of Cultural Landscapes," accessed March 11, 2021, <https://www.nps.gov/tps/standards/four-treatments/landscape-guidelines/index.htm>.

Preservation is overly restrictive because it does not allow for the changes to the landscape to accommodate contemporary needs, such as visitor access systems.

Restoration and **reconstruction** are not practical 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 associated features present at the Spanish-American War Battery during the period of significance and accurately portray missing conditions.

Secretary of the Interior's Standards for Rehabilitation

The Secretary of the Interior's Standards for Rehabilitation consist of ten basic principles intended to help preserve the distinctive character of a site 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. The standards form a baseline of guidance to which intended changes to the historic landscape must be compared. These standards are neither technical nor prescriptive but promote responsible preservation practices. They include:

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.³⁷⁵

375. Grimmer, 76, accessed March 11, 2021, <https://www.nps.gov/tps/standards/treatment-guidelines-2017.pdf>.

General Management and Design Guidelines for Treatment

The following section provides general guidelines for the treatment of the Spanish-American War Battery that are intended to support the rehabilitation approach and the treatment recommendations provided later in the chapter. They are to be used in conjunction with the Secretary of the Interior's Standards for Rehabilitation cited above and in connection with each of the proposed landscape treatments included later in this report. The guidelines relate to a philosophy of cultural landscape treatment based on *The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes*, Preservation Brief 36, and a comprehensive view of the property.³⁷⁶ The guidelines should be used when planning for any and all landscape change.

Role of Preservation Specialists

- Undertake all treatment projects under the direction of appropriate specialists, including historical landscape architects, historical architects, archeologists, 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.

Documentation

- Document, through drawings, photographs, and notes, all changes and treatments made to the historic landscape. Consider the use of the most current cartographic technology in documentation efforts, including digital scanning, which might also be used to support interpretation.
- Maintain records of treatments and preserve documentation according to professional archival standards.

Sustainability

- Institute cultural and natural resource treatment and maintenance methods that are environmentally and culturally sensitive and sustainable over the long term.
- Minimize areas of disturbance, earth grading and compaction, and drainage pattern alteration.
- When introducing any new intervention, consider limiting the extent of grading involving cut and fill, particularly cut which has the potential to disturb belowground archeological resources and information potential.
- Implement the least-intrusive measures and those involving stabilization first, and subsequently proceed to the more invasive, as necessary.
- Limit major new interventions to areas that have previously been disturbed.

376. See also Charles A. Birnbaum, ASLA, Preservation Brief 36: "Protecting Cultural Landscapes: Planning, Treatment and Management of Historic Landscapes" (National Park Service, 1996), accessed March 11, 2021. <https://www.nps.gov/tps/how-to-preserve/briefs/36-cultural-landscapes.htm>; National Park Service, "Standards for Rehabilitation," accessed March 11, 2021,

<https://www.nps.gov/tps/standards/four-treatments/treatment-rehabilitation.htm>; and National Park Service, "Guidelines for Rehabilitating Cultural Landscapes, The Approach," accessed March 11, 2021, <https://www.nps.gov/tps/standards/four-treatments/landscape-guidelines/rehab/approach.htm>.

- Take into consideration life-cycle costing of materials to assess their long-term wearing capacity and maintenance costs.
- Consider materials that are non-toxic, durable, long lived, and low maintenance.

New Design and Construction

- Avoid adding new features or altering existing features in ways that adversely affect the landscape's historic character. New construction should be limited to the least impactful alterations and additions necessary to accommodate visitor access, interpretation, and management of the property. This might include pedestrian and interpretive systems such as trails and paths, and unobtrusive and minimal wayside, informational, identity, and regulatory sign systems.
- Ensure that new or altered features are as unobtrusive as possible while allowing for accessibility and meeting safety codes and regulations.
- Consider the potential to utilize off-site facilities to accommodate contemporary uses.
- Undertake sufficient study and recordation of landscape features requiring modification, repair, or replacement before work is performed to protect research and interpretive values.
- 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 the historic resources in materials, size, scale and proportion, and massing.
- Differentiate new work from existing 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. When replacement is recommended due to severely deteriorated conditions, the replacement feature should be designed based on all available archeological, documentary, and/or physical evidence. New replacement features should match the old in design, color, texture, and, where possible, materials.
- Avoid, when possible, 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 the provision of information is important to the visitor experience.
- Design new features, systems, and programs to be as accessible as possible for the widest audience.
- Minimize the visual and physical impacts of visitor access facilities on cultural resources and natural systems. Develop the least-intrusive visitor access improvements possible.
- 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.
- Minimize disturbance associated with the installation of visitor access facilities.

Interpretation

- Develop an interpretive program that addresses cultural resources, natural systems, and their interrelationships, as well as layers of landscape history.
- Establish new waysides in the least intrusive manner possible to fulfill proposed interpretive goals.
- Provide an alternative means for interpretation, such as a visitor center exhibit, for those features located in areas that cannot be made accessible or where new interpretive features would be a visual intrusion.
- Minimize the visual and physical impacts of interpretive facilities on cultural resources and natural systems. Develop the least-intrusive interpretive improvements possible.
- Develop interpretive programs and media to be as accessible as possible for the widest range of visitors.

Natural Systems and Features

- Encourage 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.
- Promote the health and viability of native vegetative cover in all management and maintenance practices and ensure that any plants installed on site are suited to local soil and moisture conditions.
- Evaluate the potential impact to wildlife habitat prior to undertaking any construction or removal project.
- Avoid altering the habitats of rare, threatened, or endangered species or species of special concern.

Land Use

- Monitor and regulate use of the landscape to minimize immediate and long-term damage to natural and cultural resources.
- Avoid land use activities, permanent or temporary, which threaten or impair known or potential archeological resources.
- Limit, monitor, and control access to areas that are vulnerable to damage from human access or use.
- Consider equally both natural and cultural features in treatment and land use decisions.

Vegetation

- Evaluate the management and maintenance needs of historic vegetation by identifying the species and age of communities, plantings, and important individuals and evaluating their condition.
- Protect and maintain historic vegetation by appropriately applying non-destructive methods of care employing daily, seasonal, and cyclical tasks.
- Address the need to rejuvenate historic vegetation by corrective pruning, fertilizing, soil aeration, and propagating important historic individuals for in-kind replacement.
- Utilize maintenance practices that respect the inherent form, habit, color, texture, and other characteristics of historic vegetation.
- Use physical evidence to replace declining vegetation in kind or with an appropriate species that matches the historic in terms of form, habit, color, texture, but may be disease resistant or otherwise well suited to environmental conditions.
- Design replacements for missing vegetation to be either an accurate restoration using historical documentation, or a compatible

substitution in terms of habit, form, color, texture, and other characteristics.

- Design new vegetation features to be compatible with the historic character of the landscape.

Buildings and Structures

- Avoid conjectural reconstruction of historic buildings and structures.
- Repair and maintain historic buildings and structures in accordance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties*.
- Protect historic buildings and structures during work on adjacent landscape features.

Circulation

- Consider the impact of proposed new circulation systems on natural and cultural resources.
- Minimize the visual impacts of any proposed pedestrian access systems.
- Construct new circulation systems in as minimal a fashion as possible to access points of interest.

Small-scale Features

- Keep the number of contemporary small-scale features to the minimum required for visitor and staff comfort and safety.
- Erect the minimal number of signs possible for identity, directional, interpretive, and regulatory needs.
- Incorporate site furnishings that are compatible with the character of the property in terms of concept as well as materials and finishes.
- Ensure that the style of site furnishings is uniform throughout the property.

- Develop a plan for site furnishings that identifies the style and products appropriate for use within the property.

Archeological Resources

- Protect and preserve archeological resources in place. If such resources must be disturbed, undertake mitigation measures such as recovery, curation, documentation, and interpretation.
- Limit the use of destructive techniques, such as archeological excavation, for situations where information is anticipated to support critical research, interpretation, and management goals.

Treatment Concept

The section that follows is intended to convey the overarching vision or concept for landscape treatment at the Spanish-American War Battery.

The Spanish-American War Battery protected as part of Timucuan Ecological and Historic Preserve is significant at the statewide level as one of a series of coastal fortifications in Florida developed during the Endicott period. These fortifications represent advances in military engineering and improvements made by the federal government to address coastal defense needs in response to the threat posed by the Spanish-American War. The battery also occupies terrain that has served military defense purposes for centuries due to its visual command of the St. Johns River and its strategic relationship to the important port at Jacksonville, Florida. The battery is a significant historic resource that merits careful protection and preservation.

The battery and an associated magazine are the only surviving evidence of a military reservation designed on St. Johns Bluff in the late nineteenth century. The structure is in relatively good condition and possesses a relatively high degree of integrity, helping to convey its historic associations with military defenses of the period. Key visual relationships with the St. Johns River that were essential to the siting and operation of the battery

survive today. The primary goal of treatment of the cultural landscape at the Spanish-American War Battery is long-term preservation and protection of these resources, which contribute to the historic character and significance of the property. As the steward of the property, the NPS intends to balance protection of the battery with the provision of public access and interpretation.

The treatment plan provides recommendations for appropriate care of concrete and metal components of the battery, as well as vegetation, some of which contributes to the significance of the property and some of which threatens the condition or integrity of historic resources. The recommendations provided herein are considered in conjunction with long-term ecological and economic sustainability in mind, and with the understanding that treatment of the cultural landscape balances natural and cultural resource management within a broader framework of sustainable land management practices. Efforts conducted by the NPS to address landscape management using ecological principles should be considered for inclusion in interpretive programming at the park.

The treatment plan recommends that the native woodland that currently occupies the site be retained to the extent possible, with existing trees maintained for the safety of visitors and protection of the battery structure. The existing woodland composed of temperate evergreen and deciduous hammock species contributes to the significance of the property. Perpetuating this woodland by retaining all extant healthy trees, managing or eradicating invasive species, and either planting or allowing the growth of understory and replacement canopy species associated with the hammock plant community are recommended. Trees are to be evaluated regularly by a certified arborist to determine whether they pose a hazard to the battery or visitors, with appropriate pruning or removal to follow. Replacement in kind is recommended where trees are removed.

The treatment plan also recommends that the view to the St. Johns River from the top of the bluff be maintained as open and clear of woody trees and shrubs at eye level. This objective might be achieved

through removal of woody vegetation within the desired viewshed at or near the top of the bluff, or through limbing up existing trees and pruning other vegetation between 4 and 15 feet above grade. At the same time, a protective barrier is recommended at the top of the bluff to protect visitors from accessing the steep and dangerous slope. The design of the proposed barrier is intended to have a limited visual impact on the view.

Although the battery structure and its relationship to St. Johns Bluff survive today, residential properties abut the property to either side. To limit the impact of the views of adjacent residences, the treatment plan provides guidance regarding the establishment and maintenance of a screen buffer along the boundaries of the property where there are adjacent residences. Plantings of native evergreen trees and shrubs are recommended to supplement the existing woodland where the screen planting does not entirely buffer views of adjacent residences, or where care of existing plantings, including removal of invasive, diseased, or hazard species results in gaps in the buffer.

Finally, the treatment plan provides a conceptual plan for the provision of visitor access to the property and an understanding of the history and significance of the battery, including the context within which it was built. The conceptual plan identifies the appropriate means for visitors to enter the property, circulate through the site, and gain an understanding of the historical events and associations through the provision of interpretive information. Access is proposed to be controlled through the establishment of fencing along Fort Caroline Road and the adjacent residential properties with a gate used for access when the property is open to the public. The conceptual plan carefully addresses these needs in such a way as to limit the impacts on significant cultural and natural resources.

Several of the recommendations suggest a series of action items to be pursued by the NPS in implementing the CLR treatment plan. These are described in detail in the Implementation Projects section that follows the treatment recommendations section below.

Treatment Recommendations

Refer to Figure 107, Preservation Treatment Plan.

General Recommendations

- Prepare a NRHP nomination for the Spanish-American War Battery property.
- Protect and maintain all contributing cultural landscape features in good condition. These include:
 - Spanish-American War Battery, composed of gun emplacement platform, ammunition magazine, tunnel, and retaining walls
 - St. Johns Bluff
 - Views from the battery to the St. Johns River to the north
 - View from the tunnel to the northwest
 - View toward the battery from the southwest
 - St. Johns Creek
 - Drainage emptying into St. Johns Creek
 - Marshland along St. Johns Creek
 - Temperate mixed hardwood and evergreen hammock woodland vegetation and wooded character of the parcel southwest of the battery
 - Lower-growing vegetation on the steep slope north of the battery
 - Gently sloping landform rising to St. Johns Bluff
- Initiate an annual monitoring program to evaluate the condition of historic features, such as the battery and the trees on site.

Record the results and use them to plan for necessary corrective actions.

Archeological Recommendations

- Complete an archeological survey of the Spanish-American War Battery property to determine the presence of any belowground resources and information potential associated with the property. Consider conducting archeological excavation to locate the buildings and tram associated with the battery shown on maps prepared in 1898 and 1899, including an 1899 sketch prepared by Chares Sperry entitled “Relative Positions of Buildings at St. Johns Bluff.” Use this information to identify areas sensitive to change.
- Use non-invasive techniques to locate potential subsurface resources. These techniques might include ground-penetrating radar (GPR), gradiometer survey, landscape archeology, LiDAR (light detection and ranging), and metal detector survey.
- Utilize the findings of non-invasive methods to identify areas of possible interest for conducting subsurface investigations. Prior to conducting any subsurface investigations, develop research questions to be addressed by the endeavor. Shovel test the entire property at 20-meter intervals in coordination with geophysical remote sensing of the grounds to locate buried archeological sites. Conduct further Phase II testing of any anomalies based on Phase I results.
- Determine integrity and potential NRHP eligibility of archeological sites identified through the survey.
- Ensure that all archeological investigations are fully documented, and that the findings as well as the artifacts are archived at the park.
- Utilize information gained through archeological investigations to guide interpretation of the historic landscape and the siting of proposed new park features.

Natural Features and Systems Recommendations

- Assess the structural stability of the bluff terrain associated with the battery. As part of this assessment, evaluate whether the condition of the bluff presents a threat to the battery, and how removal of existing trees to protect the battery or to reestablish the historic viewshed might affect the stability of the bluff.
- Protect and maintain the native vegetation associated with the bluff and the marshland at the northeastern end of the property.
- Manage stormwater by allowing it to sheet flow across the open grassy area southwest of the battery. Where erosion should occur, correct channelization and encourage the broad spread of overland flow of stormwater and infiltration into the ground with modest grading.
- Consider the establishment of a vegetated swale or rain garden along the lower slope to capture, retain, and detain stormwater, and encourage its infiltration before it reaches current or proposed circulation features. (*See Implementation Project 3: best management practices.*)

Spatial Organization Recommendations

- Protect and maintain the spatial organization of the property composed of the linear space edged by property fencing and shrubs, a central sloped area shaded beneath a canopy of mature hardwood trees, the architectonic form of the battery set near the brow of the hill, and the apex of the hill that historically afforded sweeping views toward the St. Johns River.
- Avoid altering the spatial organization of the Spanish-American War Battery structure, composed of the concrete platform with two gun emplacements, L-shaped retaining wall, tunnel, and ammunition magazine set into the military brow of the slope near the top of St. Johns Bluff.

Vegetation Recommendations

- Complete an inventory of the vegetation present on the property, including identifying trees and shrubs by location and by genus and species, and the size of trees measured by the diameter of their trunk at breast height as well as the size of shrub masses.
- Maintain the battery free of vegetative growth. (*See Implementation Project 1: vegetation management plan; and 3: best management practices.*)
- Engage a certified arborist at least annually to evaluate the health of the trees and address any pruning or removal needs relate to hazards to the public, park personnel, and the battery. (*See Implementation Project 1: vegetation management plan.*)
- Prepare a vegetation management plan for the property that identifies protocols for tree and shrub care, invasive plant control, replacement of existing plants, buffer establishment, and the approach to using plants to support the design of new visitor access and interpretive improvements. (*See Implementation Project 1: vegetation management plan.*)
- Initiate an invasive plant-control program. Considering working with a volunteer group to address recommended invasive plant-control measures. (*See Implementation Projects 1: vegetation management plan and 3: best management practices.*)
- Establish and maintain screen plantings along the east and west property boundaries to protect the feeling and character of the historic property and to protect the privacy of adjacent property owners. (*See Implementation Project 3: best management practices.*)

Buildings and Structures Recommendations

- Complete a Historic Structure Report for the Spanish-American War Battery. Assess the condition of the battery and develop

treatment recommendations as part of this project suitable to guide repair and long-term management and maintenance of the structure.

- Prepare a stabilization and repair plan to address any immediate measures recommended as part of the Historic Structure Report.
- Prepare a preservation protocol guide for the battery that addresses appropriate treatment, including both repair and maintenance, of concrete and metal materials associated with the structure. (*See Implementation Project 2: preservation protocol guide.*)
- Conduct appropriate care of the battery based on condition issues of concern and using the guidance afforded in the protocol guide.
- Maintain the battery free of vegetation. Remove all vegetation growing and within cracks and crevices associated with the structure.
- Address instances of vandalism, including graffiti, as outlined in the preservation protocol guide prepared based on the recommendations included herein. (*See Implementation Project 2: preservation protocol guide.*)
- Address the need to prune or remove trees and other vegetation that poses a threat to the Spanish-American War Battery either through the potential to fall on or dislodge the structure. Follow best management practices in tree care and removal. (*See Implementation Projects 1: vegetation management plan; 2: preservation protocol guide; and 3: best management practices.*)

Small-scale Features Recommendations

- Erect boundary fencing along the property perimeter and mark the property as administered by the NPS.

- Install protective barriers at the top of the bluff to protect visitors from accessing or falling down the steep northeastern slope.
- Document the stone planters located on the property near Fort Caroline Road. These features, while not historic, are part of the history of the property and should be documented even if removed to accommodate visitor access.

Views Recommendations

- Ensure a clear site line exists between the property near Fort Caroline Road and the battery structure for the benefit of visitors.
- Clear and maintain a view to the St. Johns River from the top of the bluff. (*See Implementation Project 1: vegetation management plan.*)
- Ensure that views of neighboring properties are screened using a combination of perimeter fencing and vegetation.

Interpretation Recommendations

- Assume that the property will accommodate self-guided tours. It is unlikely that park staff will be stationed at the property. However, the park may offer guided tours from the Fort Caroline Visitor Center to supplement self-guided tour opportunities.
- Provide interpretive information for visitors. Consider a range of options for providing the information, including posting historic information on the park web site, in the Fort Caroline Visitor Center, using QR codes on small signs, through other virtual means, through audio tours, and/or using wayside exhibits and information panels installed at the site.

Treatment Concept for Providing Visitor Access and Interpretation

Refer to Figure 108, Concept Plan and Figure 109, Concept Section.

Accommodating visitors to the Spanish-American War Battery can occur in a variety of ways and using a range of approaches; each can be anticipated to impact the property in different ways. The concept presented below is based on a range of options presented to park and regional NPS personnel for consideration. As a result of a series of conference calls convened to review and consider the options, the CLR team honed a treatment concept plan that met the goals for future visitor access and interpretation, while endeavoring to protect cultural landscape resources to the extent possible.

The treatment concept was later presented to the public as part of a civic engagement meeting held in November 2020. Comments provided by the public during the meeting were positive and supportive of the concept.

The treatment concept assumes that the NPS will permit the public to enter the property during prescribed hours and provided access in such a way as to experience the character of the site and learn about the history of the Spanish-American War Battery. The property will be fenced and gated to limit access when the park is closed. A one-way road will lead into the property from Fort Caroline Road and provide access to a small parking area composed of eight parking spaces, two of which will be accessible. The parking area will be maintained under a canopy of trees to provide shade for visitors and their cars and to diminish the visual impact of the road on the battery.

A paved walk will lead into the property from Fort Caroline Road and connects to a walkway edging the parking area. The walkway, which will be designed to meet accessibility standards, will in turn lead to an accessible orientation space edged by interpretive panels and benches. Views to the battery structure will be afforded from the orientation space.

From the orientation space, visitors will be able to follow an accessible, elevated boardwalk as it winds through the stand of canopy trees up the slope toward the battery structure. The elevated walk will be designed to limit the impact of the

structure on the historic topography of the site and any ground disturbance that might impact archeological resources and natural systems. At the base of the structure, the boardwalk will turn to follow the southwestern edge of the battery and a new platform edged by barrier fencing where views will be afforded of the structure. Wayside exhibits will be provided along the barrier fencing of the platform to interpret the history of the structure and its features. The battery will not be accessible to visitors from the boardwalk or platform. Signs will advise visitors to refrain from climbing the barrier and walking on the structure.

A second boardwalk will arise from the point where the accessible route turns to follow the southwestern edge of the battery. This boardwalk will lead to the top of the bluff. However, due to the steep nature of the slope in this location, the boardwalk will include several stair sections and thus not meet accessibility standards. At the top of the bluff, the boardwalk will end in a second platform, also edged by barrier fencing, where visitors can experience the expansive view of the St. Johns River to the north, northeast, and northwest. The barrier fencing will protect visitors from the steep slope to the north and discourage access to the battery. Wayside exhibits will be sited along the margins of the platform along with signs advising visitors to avoid accessing the battery structure. Should the park determine it feasible, visitors engaged in guided tours may be permitted limited access to the battery.

Boundary fencing will edge the property to the southeast and northwest where it abuts residential lots. This fencing will potentially have an open form, such as chain link, to the south, but transition to a privacy-style fence where adjacent residences become visible from the Spanish-American War Battery property. Screen plantings of trees and shrubs will be used to further buffer views between the battery and neighboring residential properties.

Beneath the canopy of existing hammock trees southwest of the battery, the NPS will establish a meadow of native grasses and forbs to augment or replace existing turf grasses and invasives. Native grasses and forbs, in combination with shrub

plantings ranging in height from 18 to 36 inches, will be used along the margin of the boardwalk to help hide the posts and the elevated structure.

The character and materials to be considered in the design of the proposed new access and interpretation features are illustrated below in Figure 89 through Figure 106.



FIGURE 89. Parking area to be shady and set within a grove of trees. (Source: DIRT Studio)



FIGURE 90. Road and parking surface to be warm colored concrete with exposed aggregate or similarly colored pervious paving. (Source: LSHLA)



FIGURE 91. Detail of exposed aggregate road surfacing materials options. (Source: LSHLA)



FIGURE 92. Parking wheelstops to convey a park-like but relatively informal character, such as wooden barriers. (Source: DIRT Studio)



FIGURE 93. Property boundary fencing to be dark in color and metal to have little visual impact. (Source: LSHLA)



FIGURE 94. Property boundary fencing to be dark in color and metal to have little visual impact. (Source: Jerith Patriot Ornamental Wire Fence)



FIGURE 95. Dark colored privacy fencing to be used where adjacent residences are visible. A trellis with vines may be considered in addition to fencing and planting to create an effective screen. (Source: Dakota Fence)



FIGURE 96. Dark colored privacy fencing to be used where adjacent residences are visible. A trellis with vines may be considered in addition to fencing and planting to create an effective screen. (Source: Riprin-70)



FIGURE 97. A trellis with vines may be considered in addition to fencing and planting to create an effective screen. (Source: Tenth Acre Farm)



FIGURE 98. The elevated walk is proposed to be a durable wood such as lpe or a sustainable wood such as black locust that has a high slip resistance, is naturally rot resistant and does not become hot in the sun. (Source: DIRT Studio)



FIGURE 99. The elevated walk and platforms will be edged by barrier fencing composed either of wood or wood and metal cable. (Source: AGS stainless express rail cable)



FIGURE 100. Signage will provide for orientation, wayfinding, and interpretation but will be kept minimal and unobtrusive. (Source: LSHLA)



FIGURE 101. Provisions will be made for self-guided tours with features such as QR codes. (Source: Followthegiraffe.co.uk)



FIGURE 102. Site furnishings should include benches with backs that are simple and contemporary in design and character. (Source: SantaCole, NeoCombo-16)



FIGURE 103. Benches without backs might also be provided in some locations that should also be simple and contemporary in design and character. (Source: Forms+Surfaces)

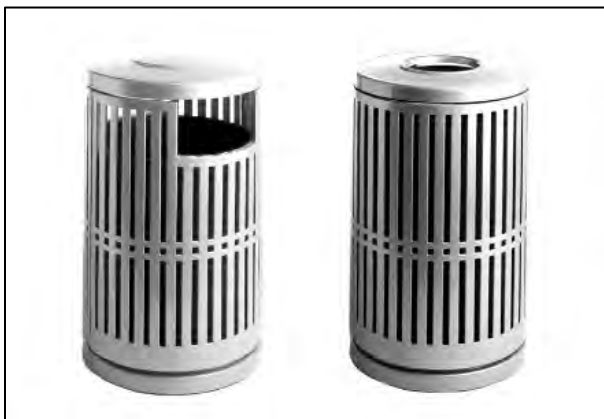


FIGURE 104. A compatible palette of trash receptacles should also be provided, similarly simple and contemporary in design and character. (Source: Landscape Forms_ChaseParkLitter)



FIGURE 105. Recycling receptacles should also be provided. (Source: Park Warehouse, RC Series Enclosed Recycling Receptacle)



FIGURE 106. Bike racks will be provided for visitors in addition to parking. (Source: SF Bola)

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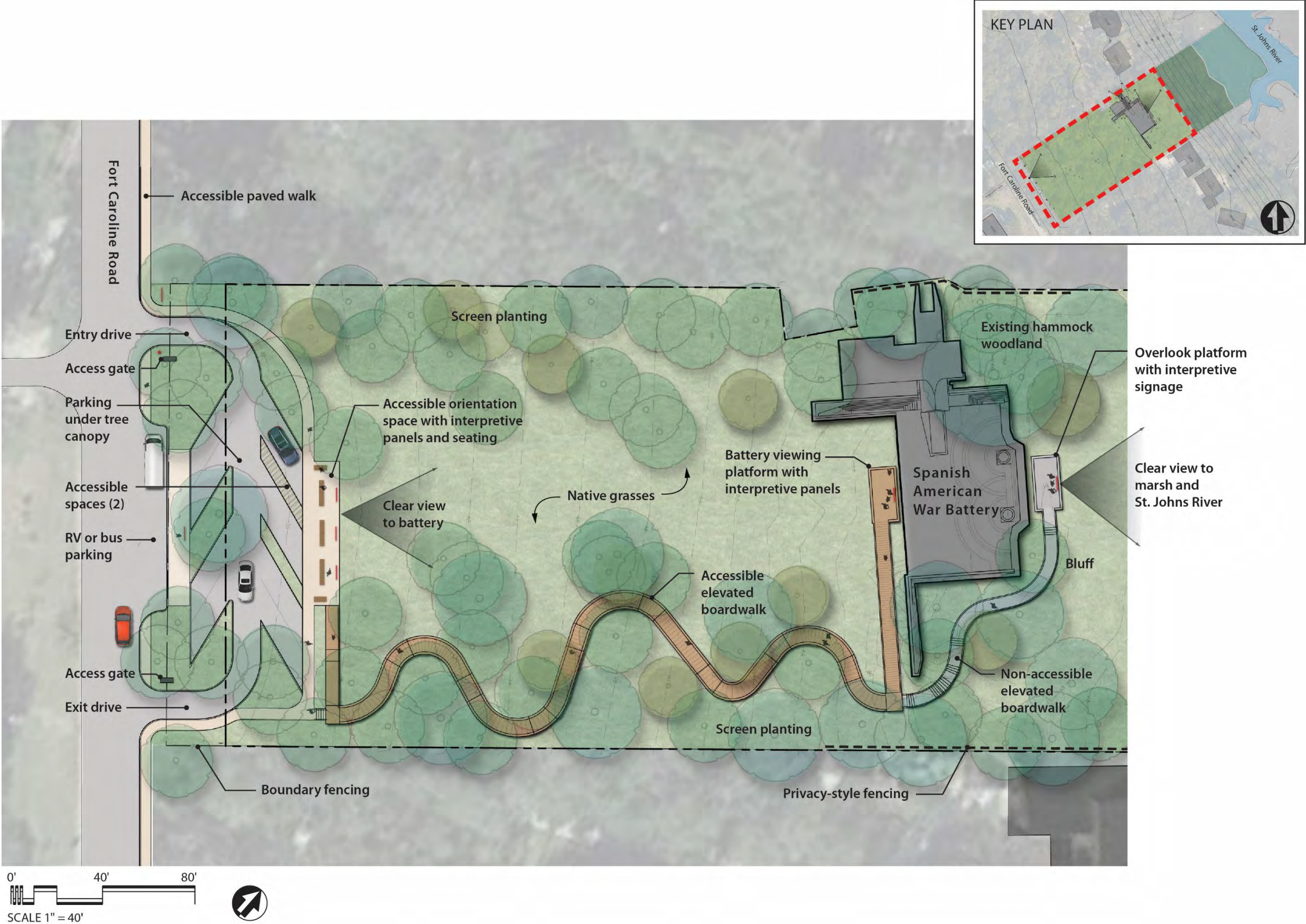


FIGURE 108. Concept Plan.



FIGURE 109. Concept Section.

Implementation Projects

This section provides guidance for implementation of the specific treatment recommendations indicated above. The recommendations are grouped into three projects associated with resource protection, maintenance, and visitor accessibility, safety, and interpretation.

Each project is presented in a consistent format intended to be compatible with NPS Project Management Information System (PMIS) and Facility Management Software System (FMSS) data recordation forms which are often used in seeking funding. Each project is described using the following six sections: 1) description; 2) location; 3) considerations; 4) additional studies recommended; 5) related implementation projects; and 6) project implementation process. The projects are followed by a section that indicates estimates of probable cost related to implementation.

The three implementation projects conveyed over the pages that follow include:

1. Prepare a vegetation management plan for the property.
2. Prepare a preservation protocol guide for the concrete and metal components of the battery.
3. Adopt Best Management Practices for storm water management, tree removal, new landcover establishment, and invasive plant species control.

1. Prepare a vegetation management plan for the property

Description

A vegetation management plan is needed to identify short- and long-term goals and appropriate maintenance procedures for plants at the Spanish-American War Battery. Specific goals for vegetation management include perpetuation of the hammock woodland, clearing woody plant material from the viewshed toward the St. Johns River from the top of the bluff, managing plant communities for ecological health, and controlling invasive plant species. Such a plan would specifically address:

- The need for baseline inventory data
- Strategies for maintaining specific conditions such as native woodland communities, screen plantings, native grass and forb meadow plantings, and bluff and marsh vegetation
- Methods for enhancing the integrity of the key viewshed toward the river by clearing non-historic woody vegetation
- Protocols for invasive species control

Location

The vegetation management plan would pertain to plants and plant communities located throughout the Spanish-American War Battery property.

Considerations

A vegetation management plan would serve a crucial role in implementing the recommendations included in this CLR. Such a plan would address the inherent needs of the species present in the most sustainable manner, while also establishing processes and methods for maintenance and care that support historic landscape preservation and interpretation. *(See also Implementation Project 3: best management practices)*

Vegetation inventory. As a first step in developing a vegetation management plan, park personnel would inventory, document, and evaluate existing vegetation communities. Inventory protocols developed for the project would include species identification in terms of location, genus and species, an approximation of age, the size by diameter at breast height (dbh) for trees, and condition issues of concern. If in-house expertise is not available, a certified arborist would be engaged to assist in this process. The presence and location of invasive species would also be recorded as part of the inventory.

Establishment of management zones. Based on the findings of the vegetation inventory, the park may decide to establish management zones that would be documented in the vegetation management plan. Each management zone would encompass a specific vegetation type that may be tied to specific management protocols and maintenance schedules. For each management zone, the vegetation management plan would identify associated maintenance tasks and protocols, and the timing or frequency of each action. These may include a tree management zone, buffer management zone, groundcover management zone, and bluff and viewshed management zone. Each is discussed below.

Suggested management zone protocols

Tree management

The CLR recommends maintaining open views from the visitor parking and orientation area to the Spanish-American War Battery. To establish this viewshed, it may be necessary to remove the lower limbs of some trees located within the central portion of the space, remove a limited number of trees, or avoid replacing trees removed from within this zone because they are hazardous. Because live oak trees can have substantially sized limbs, however, care should be taken to determine whether removal of lower limbs might be harmful to the tree. Thus, proposed thinning and limb removal to establish a desired viewshed should only be considered in consultation with a certified arborist. Trees within this zone should generally be replaced in kind; however, where trees are

removed due to age or hazardous conditions, replacements may be sited to respect the desired viewshed between the orientation area and the battery.

Buffer management

The CLR recommends maintaining a thickened screen of canopy and sub-canopy trees and shrubs along the northwestern and southeastern property boundaries to maintain the integrity of the historic character of the property as well as privacy for adjacent landowners. The vegetation management plan would address appropriate techniques for conducting tree pruning and limbing, removal of hazard trees, and replanting, along with a schedule for regular evaluation of tree health and monitoring for hazardous conditions within the buffer zone. The vegetation management plan would provide a list of appropriate native tree and shrub species to be used to maintain the buffer zone.

Groundcover management

The CLR recommends maintaining the ground plane southwest of the battery in native grass and forb meadow. Augmenting, or removing and replacing the existing turf grass with native grasses and forbs would enhance biodiversity, reduce soil erosion and sedimentation, improve water quality, and enhance the appearance of the space. The vegetation management plan would identify an appropriate approach for removing the existing turf grass and establishing native grasses and forbs, including site preparation designed to control or reduce competition from other vegetation present, particularly invasive species. The vegetation management plan would identify the appropriate equipment to be used on site, as well as a schedule for maintenance procedures and monitoring activities. A list of appropriate native grass and forb species to be used in establishing the meadow would be provided in the vegetation management plan.

Bluff and viewshed management

The CLR recommends clearing woody vegetation that obscures the view toward the St. Johns River from the top of the bluff and maintaining the viewshed over time. Key to this recommendation is evaluating the potential to prune, trim, or clear sufficient vegetation to allow for the intended view. Because the trunks of some trees may not obscure the view sufficiently that the tree needs to be removed, consideration should be paid to retaining trees as possible and limbing up the lower branches. The dense foliage associated with tall shrubs, saplings, and the lower branches of trees within a vertical zone between approximately 4 and 15 feet in height above the ground plane could instead be removed, taking into consideration the topographical relationship between the viewpoint of the proposed overlook platform and the desired viewshed.

The vegetation management plan would address procedures for removing woody vegetation within the vertical zone of the viewshed, and either establishing lower growing species, or procedures for regularly removing woody growth as needed to protect the view. The vegetation management plan would identify the appropriate equipment to be used on site, as well as a schedule for maintenance procedures and monitoring activities. In addition, the vegetation management plan would address the need to ensure structural stabilization of the bluff, which might entail promoting fibrous rooted shrub and grass species that will help to retain the slope and control erosion.

Invasive management protocols. The CLR recommends controlling invasive plant species within the Spanish-American War Battery property. Appropriate control measures, follow-up monitoring, early detection and treatment, and the establishment of native plant cover following invasive control are all critical components of

successful invasive management.³⁷⁷ The vegetation management plan would provide guidance for the process of control, beginning with specific information related to two species currently present at Spanish-American War Battery: air potato vine and sword fern. While eradication of invasives is a desirable goal, this can be difficult to accomplish given the constant influx of germ material through transport by wind, water, and animal dispersal. Thus, control rather than eradication may be the focus of the vegetation management plan.

Methods for invasive plant management may include mechanical, chemical, and/or biological treatments that comply with NPS practices. Sources of information to be consulted include the Florida Exotic Pest Plant Council Invasive Plant Lists and Management Plans.³⁷⁸

The vegetation management plan would provide monitoring protocols to guide follow-up management and maintenance. Monitoring is an essential part of the process since once initial efforts of removal are undertaken, early detection and treatment will be far easier to address than well-established plants or extensive infestations.

In addition to treatment of existing stands, invasive management also entails the establishment of appropriate native plant cover to discourage the establishment of new stands of invasives. The vegetation management plan would include a list of native plant species to be planted in disturbed areas and where invasives have been removed.

Tree removal and replacement protocols.

Over time, it may be necessary to remove trees that pose a threat to visitors and/or the concrete battery structure because they have weak limbs,

double trunks, are diseased or dying, or are at risk of falling due to winds or storms.

The vegetation management plan, in combination with guidance from a certified arborist, would identify protocols to determine when a tree poses a risk of falling or dropping limbs due to damage, age, and/or its morphology. In addition, the plan would identify an approach for conducting tree removal that includes appropriate equipment, specific removal procedures such as sectioning and lowering limbs and trunks to the ground rather than dropping them, and how to deal with stumps, such as promoting decay, grinding, or extracting.

Tree replacement would also be addressed in the vegetation management plan. Where hazard trees are removed, and replacement is desirable to perpetuate the canopy of the live oak hammock community, trees should be replaced in kind. Generally, it is desirable to plant younger trees where possible since they can become adapted to a site more quickly than larger or mature trees. The vegetation management plan would provide guidance on best practices for planting trees, caring for them during the establishment period that typically lasts a year, appropriate species to be used, and sources.

Viewshed management and clearing protocols. Currently, views from the bluff east of the battery to the St. Johns River are obscured by woody growth that is not consistent with historic conditions during the period of significance. The CLR recommends clearing the desired viewshed by pruning or otherwise removing overgrowth within a vertical clear zone atop the bluff and maintaining open site lines toward the river from a designated viewpoint such as the proposed overlook platform. The vegetation management

377. James H. Miller, *Nonnative Invasive Plants of Southern Forests: A Field Guide for Identification and Control* (Asheville, North Carolina: US Department of Agriculture, Forest Service, Southern Research Station, 2003).

378. Florida Exotic Pest Plant Council, "Florida Exotic Pest Plant Council Invasive Plant Lists," available at <https://www.fleppc.org/list/list.htm> (accessed March 11, 2021), and "Management Plans," available at <https://www.fleppc.org/publications.htm> (accessed March 11, 2021).

plan would consider the appropriate extent of clearing and pruning as well as a strategy for plant thinning and removal that takes into consideration the limited access to the bluff. The plan would also include a proposed schedule for maintenance of the viewshed.

Buffer planting protocols. Due to proximity of the Spanish-American War Battery to adjacent residential properties, the CLR recommends screening along the property boundary. The CLR recommends the use of privacy fencing where the property closely abuts residences to either side, as well as buffer plantings. These plantings may be composed of trees, shrubs and/or vine plantings trained on trellis structures appropriately sited along the southeastern and northwestern property lines.

The vegetation management plan would provide strategies for establishing and maintaining the buffer plantings as well as a list of appropriate plants designed to provide variation in terms of texture, height, and color and avoid the establishment of a monoculture. The buffer plantings would have a varied height composed of canopy and subcanopy trees, both deciduous and evergreen, and shrubs to provide a natural character and support biodiversity. Due to the limited area for planting along the northwest side of the battery, and the need for careful screening, consideration might be paid to using a trellis structure to support climbing vines.

Operational guidelines. Maintaining vegetation at the Spanish-American War Battery is anticipated to require ongoing maintenance on the part of park staff. Establishing operational guidelines for park personnel would be useful to include in the vegetation management plan. Operational guidelines would provide a clear outline of tasks for park maintenance staff based on articulated objectives and benchmarks for meeting the objectives. The vegetation management plan would identify the specific maintenance equipment that will be required to manage the property as well as equipment maintenance procedures. It would also provide a schedule with annual, seasonal, monthly, and

weekly tasks aimed at meeting the objectives for the property. The operational guidelines would also identify procedures for record keeping and monitoring.

Additional Studies Recommended

- Soil testing and subsequent soil amendment as needed
- Documenting, using Global Positioning System (GPS) equipment, the locations of existing vegetation species and communities, including invasive species

Related Implementation Projects

- Implementation Project 2. Prepare a preservation protocol guide for the concrete and metal components of the battery.
- Implementation Project 3. Adopt Best Management Practices for stormwater management, tree removal, new landcover establishment, and invasive alien plant control.

Project Implementation Process

- Develop the vegetation management plan following the steps indicated below:
 - Inventory, document, and evaluate existing species and vegetation communities found at the Spanish-American War Battery site. Engage an arborist as needed.
 - Address hazard tree removal needs and replacement in kind before opening the property to the public.
 - Establish management zones related to the different plant communities with appropriate maintenance protocols that identify the vegetation maintenance strategies, routines and schedules that are necessary to maintain the natural and cultural resources of the Spanish-American War Battery site.

Treatment Plan

- Establish a strategy for the removal of invasive plant species, particularly species that threaten the resources of the Spanish-American War Battery.
- Provide a clear site line to the battery from the orientation area and to the north from the top of the bluff.
- Establish a strategy to maintain the cleared site lines.
- Plant vegetation to establish a buffer between the Spanish-American War Battery and adjacent residential property.
- Follow operational guidelines for vegetation management at the site.

2. Prepare a preservation protocol guide for the concrete and metal components of the battery

Description

A preservation protocol guide is currently needed to identify short- and long-term management goals and appropriate preservation, repair, and maintenance procedures for the battery. Specific goals for preservation include removing vegetation and organic growth, repairing materials, and providing for future maintenance. Such a guide would be developed in concert with planning for and preparation of a Historic Structure Report, which would provide baseline inventory data about the battery as well as specific treatment recommendations. The preservation protocol guide would specifically address:

- Strategies for assessment, maintenance, and repair of the historic battery
- Best management practices for preservation of the battery and its materials

Location

The preservation protocol guide would pertain to the Spanish-American War Battery structure.

Considerations

The Spanish-American War Battery exhibits deterioration including cracking and spalling of the concrete walls, cracking and spalling of the cementitious parge coat covering the concrete; corrosion of iron and steel elements; and deterioration of the paving. In addition, the battery is affected by vegetation growing adjacent the structure, as well as organic growth on the concrete surfaces.

A preservation protocol guide would serve as a guide to development and implementation of the treatment recommendations to be prepared as part of a future Historic Structure Report for the battery. The guide would address key short-term and long-term preservation, repair, and

maintenance needs of the battery in accordance with preservation precepts and technical best practices for care of the historic structure.

Additional Studies Recommended

- Prepare a Historic Structure Report, including detailed documentation and assessment of the battery and development of specific treatment recommendations. As part of the Historic Structure Report, conduct materials analysis to characterize and document historic materials and past repairs.

Related Implementation Projects

- Implementation Project 1. Prepare a vegetation management plan for the property.
- Implementation Project 3. Adopt Best Management Practices for stormwater management, tree removal, new landcover establishment, and invasive alien plant control.

Project Implementation Process

- Develop the preservation protocol guide, in coordination with preparation of a Historic Structure Report, to establish guidelines for assessment, preservation and repair and maintenance of the battery.
- Develop guidance for all work on the structure in compliance with the *Secretary of the Interior's Standards for Preservation*.
- Identify best management practices for preservation, repair, and maintenance of the battery and its materials. Establish protocols for care of the structure, as well as for reporting any problems and documenting existing conditions. Take into consideration information available based on the experience of others conducting similar efforts, including guidance afforded by NPS publications.
 - NPS preservation briefs, www.nps.gov/tps/how-to-preserve/briefs.htm, in particular *Preservation Brief 15: Repair of Historic Concrete*.

- NPS National Center for Preservation Technology and Training (NCPTT), www.ncptt.nps.gov.
- Coordinate protocols with guidance developed for the cultural landscape, for example, management of vegetation affecting the battery and measures to address safety of visitors and protection of the historic resource.
- Establish guidelines for preservation, repair, and maintenance, including the following:
 - Preserve the historic fabric and character of the battery, including all repairs necessary to stabilize and preserve the battery for continued interpretation by the park.
 - Incorporate sustainable design principles that respect preservation goals in all projects.
 - Assess all proposed work for its potential to affect archeological resources and conduct archeological investigations, as necessary.
 - Prioritize treatments to the battery to address stabilization and more significant distress issues first, following by minor repairs.
 - Develop preservation protocols to address cleaning of the concrete; repair of cracks and spalls in the concrete; repair of corroded iron and steel elements; repair of the deteriorated cementitious parge coating; and repair of deteriorated of paving materials. Identify conditions that do not require repair (e.g., hairline cracks in the concrete).
 - Conduct trial repairs and mock-ups prior to implementation of repairs to historic materials.
 - Ensure that repairs to historic features are performed only by those with proven experience in the preservation of historic materials.
- Identify recommended maintenance tasks such as inspection, monitoring of cracks, cleaning of concrete, and coating of exposed steel, as well as vegetation management tasks. (*See Implementation Project 3: best management practices.*) Determine appropriate maintenance cycles to reduce the need for large-scale repair projects in the future.
- Document all work performed on the battery through notes, photographs, and measured drawings and/or sketches, or with as-built annotations to construction documents at project completion. Retain documentation in park archives as part of the permanent record of the battery, and to provide information for future repairs and ongoing maintenance.

3. Adopt Best Management Practices for stormwater management, tree removal, new landcover establishment, and invasive plant species control

Description

Landscape maintenance and management techniques can serve to enhance environmental quality or contribute to its degradation. Practices aimed at enhancing and protecting the environment can be consistent with the management of historic landscapes. Green and sustainable practices should be applied in specific ways and locations within the Spanish-American War Battery property to support environmental quality without diminishing the integrity of the historic landscape.

The CLR treatment plan recommends that the park adopt Best Management Practices (BMPs) to guide many of the actions and long-term management protocols for resources associated with the Spanish-American War Battery property, particularly those involving environmental features such as wetlands, soils, and vegetation. It is recommended herein that the park develop BMP information relating to five topics that relate to the treatment plan recommendations, including:

- removal of vegetation potentially impacting the battery structure.
- stormwater management
- tree removal
- new landcover establishment
- invasive plant control

Location

The BMPs would pertain to wetlands, soils, and vegetation located within the Spanish-American War Battery property.

BMPs for the Removal of Vegetation Potentially Impacting the Battery Structure.

Where landscape maintenance is conducted at and adjacent to the battery, care should be taken to protect the battery structure. If trees are limbed up or removed near the structure, the structure should be protected. If roots cannot be removed without damaging the structure, it may be necessary to leave them in place. Vegetation growth, if present on the concrete structure, should be removed as part of cyclical maintenance so that plants are removed when small. Organic growth should be removed periodically by treatment with a mild detergent/biocide as part of cyclical maintenance.

In addition, stormwater-management measures should direct water away from the battery and prevent water from collecting in and adjacent to the concrete structure. (*See Implementation Project 2: preservation protocol guide*)

Stormwater Management BMPs. One of the critical factors affecting environmental quality is the way in which stormwater is handled. Within park boundaries, the NPS has the ability to apply engineering and landscape architectural solutions to managing stormwater runoff quantity and quality and to enhance water quality through various means.

Stormwater-management BMPs are measures used to minimize on-site and off-site hydrologic and water quality impacts due to runoff by attempting to work with natural hydrologic processes, incorporate them into the built environment, and continually consider ways to promote infiltration of stormwater into the ground to avoid contributing to closed systems. Stormwater-management BMPs have the capability of significantly improving the quality of stormwater runoff. These measures can be designed and implemented in new developments as well as retrofitted into existing landscapes in cost-efficient ways.

As good stewards of the land, the NPS can serve as a model for nearby landowners, broadening local understanding of sustainable land management practices. Land uses that contribute to the

degradation of water resources include paved roads, walks, and parking areas as well as ditches, lawns, buildings, and agricultural land. Mitigation measures in the form of BMPs can be used in conjunction with these land uses to offset degradation of water resources without affecting the integrity of the historic landscape. These include green parking area design, naturalized detention, porous pavements, rain gardens, vegetated swales and filter strips, and use of native plants for landscaping.

Green parking area design. Green parking area design promotes sustainable stormwater management. Components include the use of tree plantings to reduce the heat island effect caused by solar absorption and reflection. Additional components considered in green parking design include porous pavements to enhance stormwater infiltration, and the addition of vegetated swales, filter strips, naturalized detention, and rain gardens along the margins of parking areas (see below).

Porous pavement. Porous pavement is circulation system surfacing composed of a permeable or perforated materials, or pavers set with spaces between them, that allow transmission of water to an aggregate or subsoil base beneath. Runoff is temporarily stored in the base to allow for infiltration into the subsoil or slow release into a storm drain system or catchment. Porous pavements can filter some pollutants from stormwater. Porous pavements could be considered for use in developing the new parking facilities at the Spanish-American War Battery property.

Vegetated swales and filter strips. A vegetated swale is a form of bioretention used to partially treat stormwater, attenuate flooding potential, and/or convey overland flow away from critical infrastructure. A filter strip is a linear swale or basin established near a potential pollutant source and planted with herbaceous vegetation to slow runoff, allowing sediments, organic matter, and other pollutants or contaminants conveyed in overland flow to be removed by settling out.

Vegetated swales and filter strips can be used to remove sediment, nutrients, and other contaminants, increase infiltration, and enhance aesthetics alongside or near paved circulation routes. Vegetated swales can be established where swales surfaced with grass already exist by altering the composition of the plant material. Vegetated swales and filter strips could be considered in conjunction with the design of the paved walkways, access road, and parking area planned for the Spanish-American War Battery.

Naturalized detention. Naturalized detention uses the properties of clump forming native grasses and forbs to help slow, collect, and capture rainwater that would otherwise sheet flow onto paved circulation surfaces. By promoting infiltration, naturalized detention helps slow and limit the amount of stormwater flowing directly into streams, ponds, and drainageways through overland flow as well as closed collection systems associated with road design. The native grass and forb meadow proposed for the understory/ground plane at the Spanish-American War Battery property is intended to serve in part as a natural detention strategy for stormwater management.

Rain gardens. Rain gardens are landscaped areas designed to retain and detain stormwater runoff collected from paved surfaces, roofs, and planted areas that may be subject to erosion. Rain gardens are ornamental features that serve a sustainable function by helping infiltrate stormwater into the ground. Rain gardens help to reduce the potential for local flooding as well as bank and shoreline erosion. Rain gardens could be used in conjunction with the proposed parking area and/or visitor orientation space to redirect stormwater away from the paved surfaces while also providing a visual amenity.

Tree Removal BMPs

- Manage tree removal operations to protect environmental resources.

- Avoid clearing native woodland in areas with slopes that are steeper than 15 percent, and on soils that are classified as highly erodible, although removal of invasive species should be undertaken even in these as possible. The exception is the desired viewshed from the bluff summit, where thinning, pruning, and limited clearing should be undertaken in such a way as to retain native vegetation as possible.
- Avoid vegetation clearing or thinning in sensitive ecological areas and plant communities.
- Delineate wetlands before any clearing begins.
- Ensure that any contractor engaged to remove trees on the property can demonstrate successful experience working at historically significant sites.
- Regularly inspect tree removal operations conducted by a service to monitor compliance with the terms of the contract and applicable laws. An NPS archeologist should participate in these inspections.
- Minimize the use of heavy vehicles and equipment, use low tire-pressure vehicles, protect the ground from compaction using plywood or other protective material, and avoid accessing the site when the soil is wet to reduce the potential for ruts and compaction. Employ measures to stabilize soil and minimize erosion.
- Employ silvicultural methods that minimize the impacts and threats to cultural and natural resources and known and potential archeological resources.
- Remove felled trees without dragging, which gouges the ground surface.
- Ensure that the tree removal process is monitored by a historical landscape architect and archeologist. An archeologist should be present during any clearing operation.

- Cut stumps to the ground; do not uproot or grind them.
- Consider treating stumps and sprouts with a systemic herbicide to discourage and control woody regeneration. Chemical control of woody plant regeneration should be conducted by a certified herbicide applicator—either qualified park staff, or a landscape contractor.

New Landcover Establishment BMPs

All new landcover established at the Spanish-American War Battery should feature native plant species, including those used around the parking area, as part of proposed screen or buffer plantings, and in the treatment of the ground plane south of the battery.

- Re-vegetate all disturbed soils in a manner that optimizes native plant species establishment.
- Use local seed and appropriate mixes of native species to establish new landcover, such as meadow south of the battery.
- Minimize soil disturbance when planting new vegetation.
- Monitor all revegetation efforts and evaluate them to determine the need for additional interventions in terms of seeding, planting, fertilization, weeding, and/or mulching.
- Seek to achieve at least 90 percent control of stands of invasive vegetation before attempting native plant revegetation.
- Remove, thin, and/or prune native woody vegetation that blocks the desired view toward St. Johns River from the top of the bluff north of the Spanish-American War Battery by establishing a clear zone at eye height. Endeavor to retain native plant species as part of the process that will help to stabilize and hold the bank and inhibit invasive plant growth.

Invasive Plant Control BMPs

- Before starting any ground-disturbing activities, inventory invasive plant infestations both on-site and in the adjacent area.
- Begin activities in uninfested areas before operating in infested areas.
- Use uninfested areas for staging, parking, and cleaning equipment. Avoid or minimize all types of travel through infested areas or restrict to those periods when spread of seed or propagules are least likely.
- Retain a closed canopy wherever possible to prevent the establishment of invasives and suppress their growth.
- Minimize soil disturbance and retain desirable vegetation to the maximum extent possible.
- Plant desirable species after removing invasives.
- Monitor infested areas for at least three growing seasons following completion of activities. Provide for follow-up treatments based on inspection results.
- Quarantine soil from infested areas to prevent off-site spread of invasives.
- Inspect material sources at site of origin to ensure that they are free of invasive plant material before use and transport since invasive plants can be introduced and spread by moving infested equipment, sand, gravel, borrow, fill, and other off-site material.
- See “Invasive Plant Responses to Silvicultural Practices in the South” by C. W. Evans, D. J. Moorehead, C. T. Barger, and G. K. Douce (Tifton: The University of Georgia, The Bugwood Network, 2006), available on-line at www.bugwood.org, for more information.

Additional Studies Recommended

- Ensure that any landscape management activity that moves, breaks, or disturbs soil is

subject to review under Federal Section 106 and NEPA compliance.

- Consider applying green building principles to any new construction project.
- Undertake appropriate investigations relating to cultural and archeological resources before conducting any ground-disturbing activities.
- Examine current site conditions to determine appropriate plant species selections and planting seasons for features such as filter strips, naturalized detention areas, rain gardens, and vegetated swales by evaluating the following elements:
 - soil type
 - slope
 - stability of the soil organic layer
 - nearby vegetation types and communities
 - hydrology
 - land use history

Related Implementation Projects

- Implementation Project 1. Prepare a vegetation management plan for the property.
- Implementation Project 2. Prepare a preservation protocol guide for the concrete and metal components of the battery.

Project Implementation Process

1. Develop BMPs for the topics indicated herein as they relate to proposed treatment recommendations and implementation projects.
2. Implement BMPs when undertaking development of the site to accommodate visitor access.
3. Ensure that sensitive natural and cultural landscape features are protected prior to the implementation of BMPs.

4. Engage an archeologist to monitor BMP installation.
5. Follow BMPs when establishing new landcover, removing existing trees, and constructing new pavement. Follow proper installation methods, including erosion control, and mulching and watering techniques to ensure survival of vegetation and protection of the environment.
6. Monitor post-installation site conditions. Evaluate plant health and monitor for the presence of invasive plants. Replace failed vegetation immediately and remove any invasive species observed.

Estimate of Probable Costs

Following is an estimate of probable costs for future treatment of the Spanish-American War Battery property based on the treatment concept plan presented herein. The costs indicated below are based on circa 2019 averages for products and materials as installed, not taking into consideration elevated construction costs based on 2020-2021 COVID-19 pandemic conditions. Local costs may vary and deviate as a result of unforeseen factors. Some costs may be lower than estimated should

the work be conducted in-house by NPS personnel.

These estimates of probable costs have been prepared for planning purposes only and should be revisited as the concepts are formalized through a future design process. The costs indicated below should also be escalated by a factor of between 3 and 6 percent per year beginning in 2022.

Planning Studies and Preservation Maintenance Efforts

	<i>Project</i>	<i>Basis of costs</i>	<i>Anticipated costs</i>	
1	Engage an arborist to document and evaluate trees on the property	Assume two days on site; report with recommendations, annotated map, and photographs	\$5,000	
2	Prepare a Vegetation Management Plan	Assume preparation of a report that specifies a process and identifies species for establishing screen plantings, meadow establishment, view clearing, and maintaining site vegetation, including invasives control	\$20,000	
3	Prepare a Historic Structure Report	Assume preparation of a report to guide repair and maintenance of the battery structure	\$75,000	
4	Undertake an archeological survey	Assume preparation of a report that summarizes known and potential archeological resources based on research, documentation, non-invasive investigation, and potential Phase I and Phase II investigations	\$50,000	
	Total of Additional Studies			\$150,000

Implementation of Proposed Concept Plan – Preliminary Cost Estimate for Planning Purposes Only

	<i>Project</i>	<i>Quantity</i>	<i>Unit Measure</i>	<i>Unit Price</i>	<i>Cost</i>	
1	Site Clearing					
	Remove hazard trees and those in road/parking lots/pedestrian paving areas	Assume 8	EA	\$2,000	\$16,000	
	Subtotal					\$16,000

	Project	Quantity	Unit Measure	Unit Price	Cost	
2	Site Demolition					
	Demolish (salvage?) existing fence	100	LF	\$50	\$5,000	
	Demolish (salvage?) existing gate	1	EA	\$500	\$500	
	Relocate and store stone planters	2	EA	\$250	\$500	
	Subtotal					\$6,000
3	Site Earthwork					
	Grade proposed road/parking lots/pedestrian paving areas	2000	CF	\$4	\$8,000	
	Subtotal					\$8,000
4	Site Preparation					
	Erosion controls	1	LS	\$5,000	\$5,000	
	Site clearing at improved areas	20000	SF	\$0.21	\$4,200	
	Tree protecting fencing	500	LF	\$2	\$1,000	
	Site preparation for meadow grass establishment	37500	SF	\$0.21	\$7,875	
	Subtotal					\$18,075
5	Roadways					
	Install compacted gravel at a depth of 6 inches	2400	SF	\$4	\$9,600	
	Install concrete paving with welded wire reinforcing	2400	SF	\$15	\$36,000	
	Subtotal					\$45,600
6	Parking Lots					
	Install compacted gravel at a depth of 6 inches	2240	SF	\$4	\$8,960	
	Install concrete paving with welded wire reinforcing	2240	SF	\$20	\$44,800	
	Subtotal					\$53,760
7	Pedestrian Paving					
	Install compacted gravel at a depth of 6 inches	2580	SF	\$4	\$10,320	
	Install concrete paving for sidewalks with welded wire reinforcing	1500	SF	\$15	\$22,500	

	Project	Quantity	Unit Measure	Unit Price	Cost	
	Install concrete paving for orientation space with welded wire reinforcing	1080	SF	\$15	\$16,200	
	Install concrete paving for bus drop off area with welded wire reinforcing	650	SF	\$15	\$9,750	
	Install sealed expansion joint where road meets sidewalks, orientation space, bus drop off	165	LF	\$12	\$1,980	
	Subtotal					\$60,750
8	Site Development					
	Elevated wood boardwalk on framing	3725	SF	\$30	\$111,750	
	Overlook Platform 1	240	SF	\$30	\$7,200	
	Overlook Platform 2	240	SF	\$30	\$7,200	
	Elevated walk with stairs	660	SF	\$35	\$23,100	
	Railings for elevated boardwalk	850	LF	\$200	\$170,000	
	Railings at steps	220	LF	\$200	\$44,000	
	Railings at Overlook Platforms	124	LF	\$200	\$24,800	
	New boundary fencing	800	LF	\$45	\$36,000	
	New privacy fencing	200	LF	\$55	\$11,000	
	Gates-automatic exit	2	EA	\$7,000	\$14,000	
	Subtotal					\$449,050
9	Landscaping					
	Topsoil	2075	CY	\$30	\$62,250	
	Meadow seeding	37500	SF	1	\$37,500	
	Trees	5	EA	\$1,000	\$5,000	
	Shrubs	20	EA	\$400	\$8,000	
	Subtotal					\$112,750
10	Site Furnishings					
	Identity signs	2	EA	\$5,000	\$10,000	
	Benches	5	EA	\$1,500	\$7,500	
	Trash receptacles	2	EA	\$2,500	\$5,000	
	ADA signage at parking area	2	EA	\$500	\$1,000	
	Upright informational panels at orientation space	4	EA	\$5,000	\$20,000	

	Project	Quantity	Unit Measure	Unit Price	Cost	
	Wayside exhibits along elevated walk and at overlook platforms	4	EA	\$3,500	\$14,000	
	Subtotal					\$57,500
	Estimated Base Construction Cost					\$827,485
	Design and Development Fees (10%)					\$82,748
	Profit and Overhead (10%)					\$82,748
	Project Management Fees (10%)					\$82,748
	Total Construction Cost					\$1,075,730
	Construction Contingency (20%)					\$215,146
	Total Estimated Construction Cost					\$1,290,876

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12713 Fort Caroline Road
Jacksonville, Florida 32225
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