

# Prince Frederick's Battery

KOCSA Analysis, Existing Conditions, and Stabilization Report



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12/9/2011

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## **Introduction**

In February of 2011, Arcadia Preservation, LLC and CG Architectural Illustration, LLC were contracted to document the ca. 1777 Prince Frederik's Battery on Hassel Island in the U.S. Virgin Islands through an existing conditions report as well as measured drawings that conformed to the Historic American Building Survey standards, NPS standard digital photographs, photogrammetry, digital modeling, and laser scans. In addition, the project also included a KOCOA analysis for the 1801 Battle of West Kay and a stabilization report for the site's architectural features. The impetuses for the project were the structural problems affecting the site's historic architectural resources. These issues include a failing foundation on the kitchen building, loss of an original wall on the kitchen building, widespread failure of historic mortar, extensive spalling of the historic brickwork, and degradation of the stonework around the structural arches that span several of the windows on both the Quarters building and the Kitchen building.

The existing conditions, stabilization report, and KOCOA analysis found in this report were funded through a grant from the American Battle Protection Program to the St. Thomas Historical Trust (Grant number: GA 2255-10-020). The fieldwork was completed in April of 2011 by Gardiner Hallock, Chad Keller, and Sarah Dyllah (an intern with the National Park Service who was working with the St. Thomas Historical Trust) and the final report was written by Gardiner Hallock of Arcadia Preservation. All treatment recommendations included in the stabilization report conform to the Secretary of the Interior's Standards for Preservation.

## **Site Description**

Located on a rocky outcropping that forms the eastern side of Hassel Island's southern point, Prince Frederik's Battery overlooks a broad expanse of the Caribbean Sea to the south, Muhlenfels Point and Lisenlund Hill to the east, and the town of Charlotte Amalie to the north. The battery is found at the base of a steeply rising hill and holds the ruins of two buildings (one of which has an attached stone masonry cistern) and a large, L-shaped stone-paved terreplein (or terrace) found below. The terreplein is fronted by a low stone parapet that leads down to an approximately 20 foot high rampart that is built directly on top of a bolder strewn littoral area. The west side of the site's upper section is traversed by a stone-paved walk that leads to a set of wide stone stairs and connects the sites' two buildings with the lower terreplein. This paved walk also forms the site's western boundary. Finally, a set of stone steps that lead up to a small platform are found on the terreplein's southwestern corner.

## **Construction History**

The first mention of placing a battery on what is now Hassel Island is recorded in 1767 communications between the General Governor of St. Thomas (Peter Clausen) and the King of Denmark and the Danish Chamber of Customs. The letters state that purpose of the new battery was to make Charlotte Amalie's deep water harbor safe for trade as it was not adequately protected by the existing fort. The Crown, however, did not want to pay for the battery and the letter to the king specifically states that it would be paid for by the residents of St. Thomas and not the Danish government.<sup>1</sup> A more specific reference is found in another 1767 letter to the Danish Chamber of Customs. The letter quotes the suggestion from a sea Captain name Guntelbert that the battery be installed on Hassel Island (or Magens Point as it was called in the 18th century). Furthermore,

Guntelbert suggests that the battery hold 6 to 8 cannons and house 12 to 16 men. All three of Guntelbert's suggestions were eventually accepted and so the basic location and size of the battery had all been defined as early as 1767. Finally, another document from August of 1767 gives specific permission from the King and Governor for the construction of the battery when funds become available or if war breaks out.

No other mention of the battery is recorded until after an English ship sailed into the anchorage at Frederiksted (St. Croix) in 1776 without identifying itself. The ease of the English ship's trespass caused consternation in the Danish Virgin Islands and resulted in a reappraisal of the fortifications on the islands in 1777 by Lieutenant P.L. Oxholm. Oxholm would eventually submit a report in 1780 that provided maps and drawings for the Prince Frederik's Battery (known at the time as the battery at Magens Point), although he may not have actually designed the battery as its construction possibly started prior to his arrival. Oxholm also refers to the structure as the "new battery on the point", which further suggests that it existed before his arrival. Additionally, later in his report he states that the battery was not in the best location and writes that a better location would be at the top of the hill found above the battery. His unhappiness with the location of the existing battery would also appear to indicate that he was not involved with planning the battery.

Construction of the battery is officially recorded as starting in 1777 when 2628 rigsdalers (RD) were spent on expenses for the "Point Battery" and 301.37 RD were spent in materials. Construction of the battery appears to continue through to 1779, although the expenses for 1778 are very small in comparison to the expenses in 1777 and 1779. Additionally, the record of materials spent at the battery also provides evidence that the battery's construction was completed in 1780 and that it was possibly furnished and armed by that point.

Additional expenses for 50 barrels of lime, a canoe and a lock and chain for the canoe are recorded for the battery in 1782. The lack of any additional expenses for workmen or stone/brick suggests that the lime was not used to expand or significantly repair the Battery at this point and instead was used to repair the battery's exterior stucco and to re-whitewash the entire structure. The next expenses occur in 1783 when wheels on the gun carriages are repaired or replaced (possibly by a "master builder" named Cornelius). Nothing else is reported until 1786 when iron chains are installed to secure the cannons by a smith named Johannes Kummer after what was apparently a violent hurricane. Additionally, 15 barrels of lime were also included in the expenses for 1786 and again the lime was probably used to repair the exterior stucco and re-white wash the exterior in addition to being used to set the iron eyes used to hold the chain in place. Finally, small amounts are recorded as being spent in 1793 (25 RD for unspecified expenses) and 1802 when 5 barrels of lime, 100 bricks/stones, and some timber was purchased for 24.36 RD. The items purchased in 1802 suggest that that the window currently found on Kitchen/Latrine's northern wall was added at this time, although this is just an assumption.

After 1802, very little is known about the architectural history of Prince Frederik's Battery. Physical evidence, including what appears to be Portland cement based exterior stucco and pointing mortar, suggests that the buildings underwent repairs or stabilization sometime in the 20th century. The cement pointing and stucco also appears to cover the tops of the walls, suggesting that the roofs had fallen in by the time the cement stucco was applied and that they were not replaced when the walls were repaired.

## KOCSA Analysis for Battle of West Kay

Key Terrain; Observation and Fields of Fire; Cover and Concealment; Obstacles; and Avenues of Approach and Retreat at Prince Frederik's Battery during the Battle of West Kay (March 3<sup>rd</sup>, 1801)

### Introduction

KOCSA analysis, a U.S. military analytical tool used to investigate and define battlefield boundaries, has been adopted by the US National Park Service to help determine the limits of historic battles. KOCSA analysis uses geographical and cultural boundaries categorized into five categories (Key Terrain, Observation and Fields of Fire, Cover and Concealment, Obstacles, and Avenues of Approach and Retreat).

Because the Battle of West Kay was largely a marine engagement occurring in an undefined location between the islands of St. Croix and St. Thomas, the mapping for this report is centered on Prince Frederik's Battery on Hassel Island. The battery is located at the mouth of the principal harbor on St. Thomas and played a decisive role in the battle. A majority of the battlefield defined by the mapping covers portions of the harbor entrance protected by the battery's 6 and 8 pound cannons. In addition to defining the boundaries for the battle, the analysis also demonstrates that the battery was well positioned, and perfectly armed, to secure the mouth of St. Thomas' principal deep water harbor.

### Summary of the Battle of West Kay (Danish Name for the Engagement)

The following is a description of the Battle of West Kay by naval historian Chris Donnithorn:

"On March 3, 1801, as a result of rumors reaching the Danish West Indies that a state of war may have existed with England, the governor of St. Croix dispatched two Danish ships, the brig *HDMS Lougen* (18 guns) and the schooner *Den Aarvagne* (armament unknown) to patrol the waters south of St. Thomas. That afternoon, two British ships, *HMS Arab* and the privateer *Experiment* approached the west end of St. Thomas from the northwest. Upon sighting the Danish ships, the *HMS Arab* fired to bring to the *HDMS Lougen*. The Danish ship replied with a broadside, and a running battle took place along the southwest coast of St. Thomas, in an easterly direction. By 5 pm the Danish ship had come within range of the cannons on Prince Frederik's Battery, which successfully drove off the British ship. The Danish and British reports of the battle differ significantly. The original logs kept by the Captain, the Master and the Lieutenant of the *HMS Arab* all agree that the battle occurred only between the *HDMS Lougen* and the *HMS Arab* and finally the Battery. The damage to the *HMS Arab* is recorded as two shots "between wind and water" and one gun "broke". The Danish schooner *Den Aarvagne* was dispatched at the

beginning of the engagement to warn the Governor in St. Croix, where she was ultimately seized by the British on their occupation of St. Croix on April 1, 1801.

There has been no surviving log of the battle found in Danish archives. The accounts of the battle, including illustrations, differ significantly from the British records. According to the Danes, both the *HMS Arab* and the *Experiment* attacked the *HDMS Lougen*. The *Arab* had its anchor shot away from the cathead, as well as suffering 8 men killed and 10 wounded. The Captain of the Danish ship, Carl Jessen, was awarded a sword of honor by the Danish King for the battle. "

Records indicate that during the battle the battery housed five cannons including two eight pound cannons, two six pound cannons and one 18 pound cannon. However, the 18 pound cannon was listed in poor condition and therefore probably unusable. Additionally, 14 men were recorded as manning the battery on March 28th, 1801 and so a similar number can be assumed to have been stationed there during the battle.

## **Context and Importance of the Battle**

The battle of West Kay occurred as tensions between England and the Second League of Armed Neutrality (which included Russia, Denmark, Prussia, and Sweden) increased with a declaration of war against the Danes by the British towards the end of the French Revolutionary Wars. The League was formed in response to the practice of English man-of-war ships searching neutral ships and seizing their cargoes if it was thought they were trading with France. The alliance was formed in 1800 and was based on the successful first League of Armed Neutrality which similarly protected neutral commercial shipping during the American War of Independence. However, the Second League was not as successful due to the overwhelming superiority of the British navy.

The battle was a small part of a campaign to gain control of the Caribbean region by the British. Prior to the Battle of West Kay the English had already started to detain Danish ships in English harbors and the British navy was aggressively seizing Danish schooners in the area. Consequently the action of the *Arab* can be seen as an escalation of this plan. Eventually these actions would lead to the occupation of St. Thomas by the British on March 28, 1801 and the much larger Battle of Copenhagen in the following month. Both the capture of Danish ships in the Caribbean and the Battle of Copenhagen were part of a larger objective intended to keep the Danish fleet from falling into the hands of the French.

The battle of West Kay was also important because it established the power and effectiveness of the Prince Frederik's Battery. This battle, along with several smaller incidents that occurring later in March of 1801, kept any English ships from entering the harbor. In fact, the battery was so effective that when the English did finally decide to take the Island on March 28, 1801, they did so by first assembling an overwhelming force of 29 warships and 4,000 men.

## **Other actions at the Fort in 1801**

A report from the bookkeeper to the Chamber of Customs records that the battery was involved in several other incidents after the Battle of West Kay and before the British captured the island.

During this period the battery came to the aid of two friendly schooners that were being attacked as part of the British embargo on all Danish ships. The first instance occurred on February 21st when the battery fired at an English frigate that had captured a Danish schooner. The second instance occurred on March 14th when the battery saved another Danish schooner from a pursuing privateer.

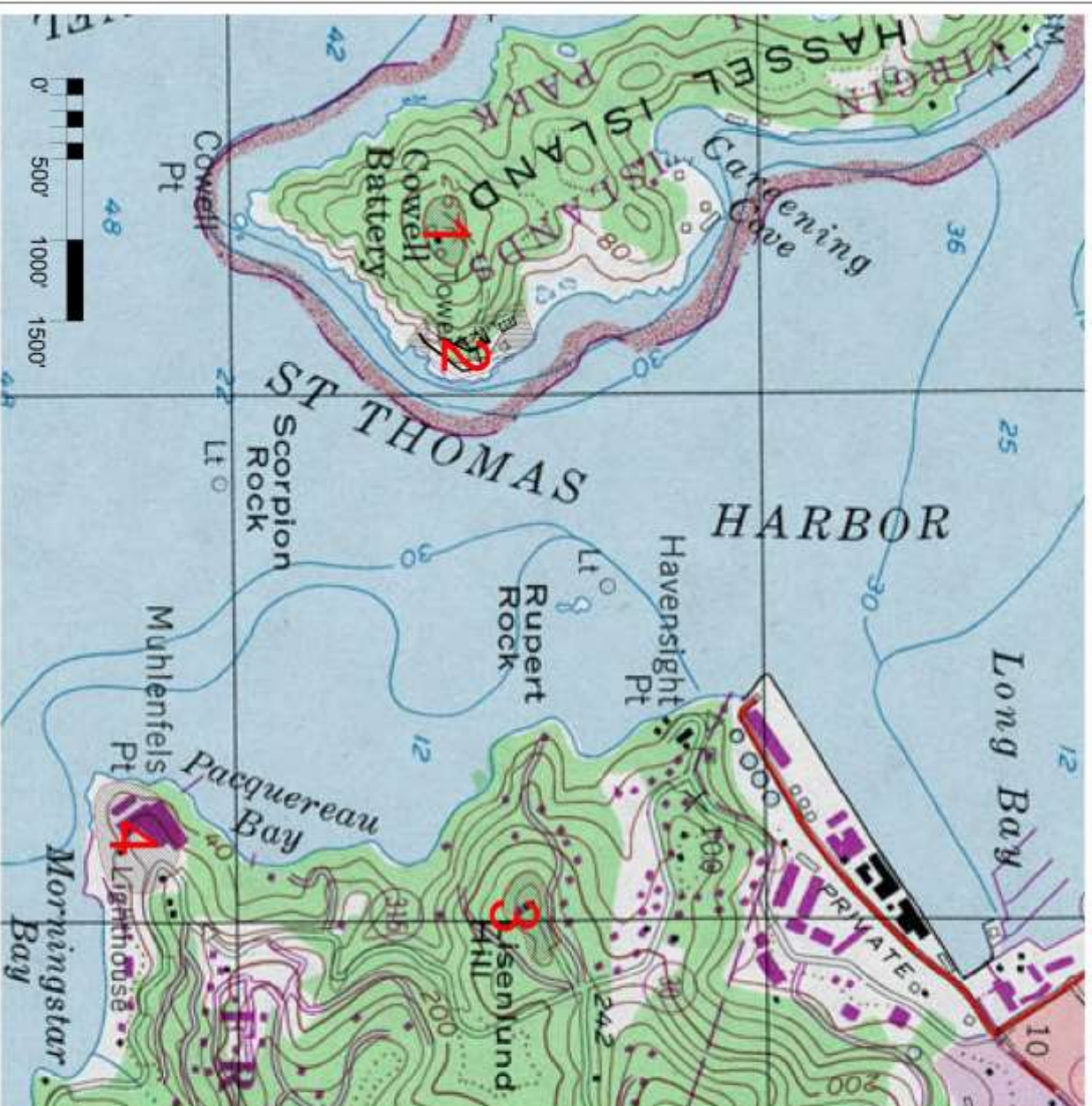
### **Military History after 1801**

After the British returned St. Thomas to the Danes in 1802, no further incidents occurred until 1807 when the island was again surrendered to the British. As in 1801, the British occupied the Island as part of a global effort to neutralize the Danish navy before it fell into French hands. The Battery does not appear to have fired a shot during the 1807 conflict and the island was returned to Danish control in 1815 at the conclusion of the Napoleonic Wars. During the English occupations the name of Prince Frederik's Battery was changed to Fort Willoughby and it was joined by two additional batteries (Cowell and Shipley) on the then peninsula. No additional actions against privateers are found in the historical record.



## KOCSA Maps





## Observation and Fields of Fire Analysis

- 1** Highest Point on Hassel Island
- 2** Prince Frederik's Battery
- 3** Lisenlund Hill (opposite Battery)
- 4** Muhlenfels Point

Prince Frederik's Battery  
KOCO Analysis  
Arcadia Preservation, LLC  
3/16/2011





## Cover and Concealment Analysis

**1** Prince Frederick's  
Battery

Prince Frederick's Battery  
KOCOA Analysis  
Arcadia Preservation, LLC  
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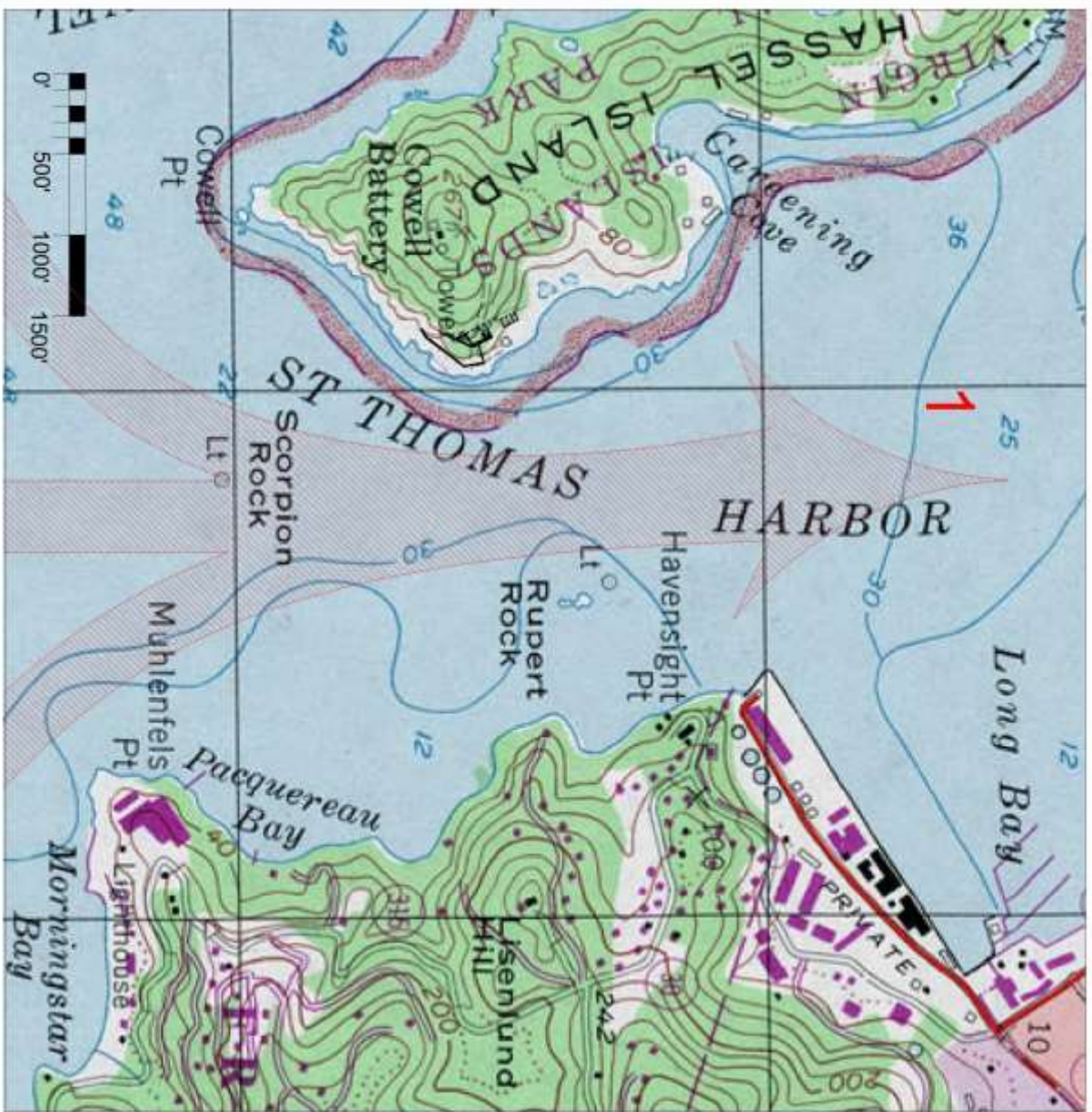


## Obstacles Analysis

- 1** Rupert Rock
- 2** Shallow Water
- 3** Scorpion Rock
- 4** Hassel Island (originally peninsula)

Prince Frederik's Battery  
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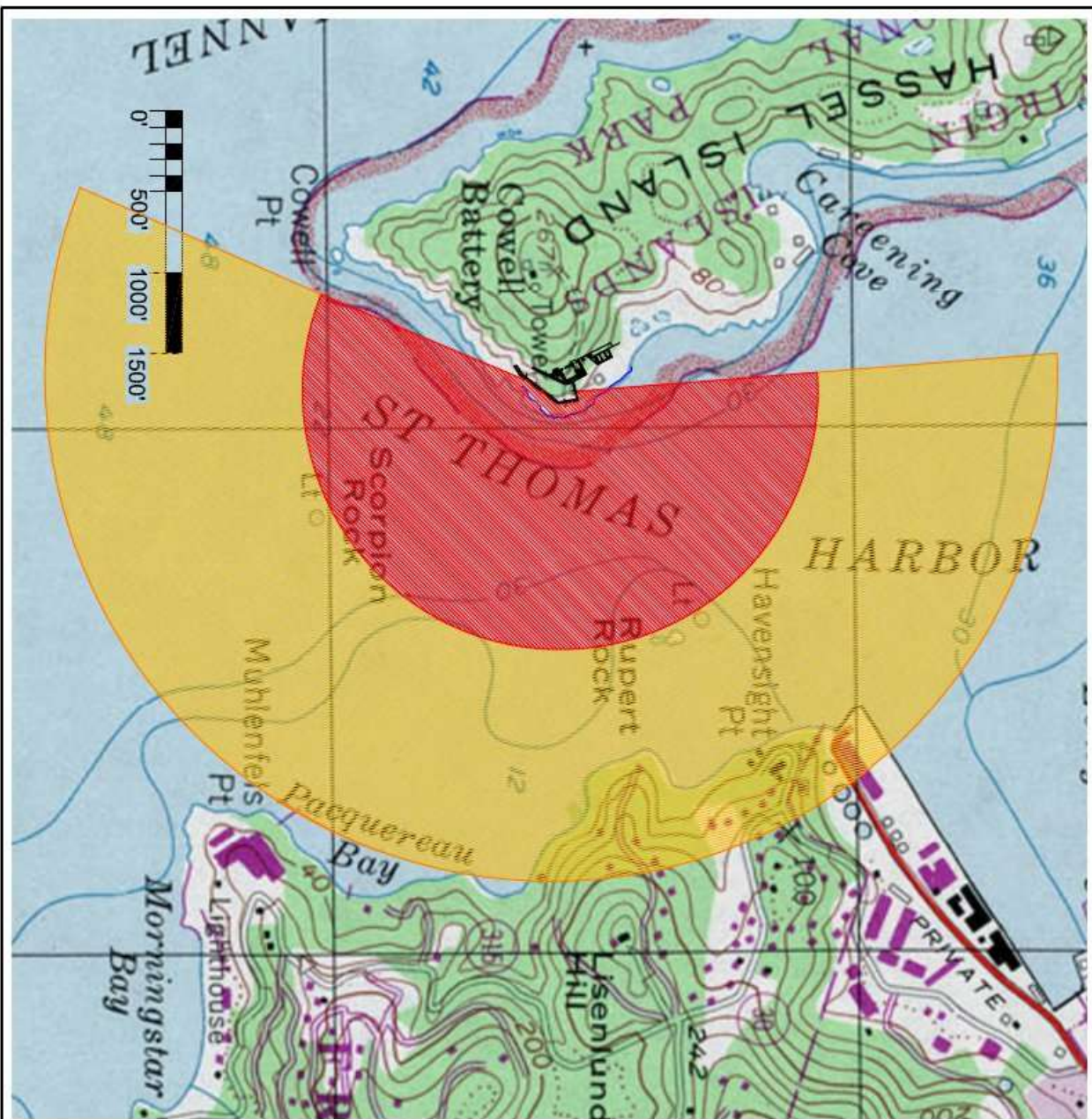


## Avenues of Approach Analysis

**1** Deep Water Entrance into St. Thomas Harbor

Prince Frederik's Battery  
KOCOA Analysis  
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# **Projected Range of 8 Pound Cannons**

- Estimated Effective Range (500 yards)
- Estimated Total Range (1000 yards)

Prince Frederik's Battery  
KOCOA Analysis  
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# Existing Conditions Report

## Construction



**Figure 1 - Brick and Stone Masonry Detail  
from the Kitchen/Latrine Building**

The structures, ramparts, parapets, and retaining walls found at Prince Frederik's battery are built from locally quarried field stone, yellow bricks, red brick rubble, and a small number of interspersed coral fragments. Historic records reveal that these materials were laid in a lime mortar. As is typical of other 18th-century buildings on St. Thomas, the windows, doors and corners of the two structures are formed from light yellow bricks keyed into the surrounding walls. The structures' stone foundations are also built directly onto the site's native rock or, in the case of the quarters, an extension of the rampart.

Portions of the structure's walls are also covered with the remains of cement-based stucco covering (although a small portion of the original lime-based render is found in the hole that once served to drain the latrine in the bathroom/kitchen building and possibly on the ceiling of the powder room). Almost all surviving door and window openings for both structures have segmental-

arched heads and feature masonry rabbets on the exterior sides that appear to have once been used to

secure doors or shutters. Additionally, the remains of surviving wrought iron pintles can be seen anchored into the masonry flanking the exterior of several windows. However, the ruinous structures feature no surviving wooden elements, including shutters, doors, interior trim, or roofs. Finally, the battery's walls and paths also feature similar stone masonry construction.

## **Existing Conditions**

### **Summary**

Considering the chronic lack of maintenance throughout much of the 20th Century, a majority of the site remains in good condition. The quarters building, stone paths, terreplein, parapet and much of the rampart is in good to fair condition. Other than widespread loss of pointing and stucco, only isolated areas of brick failure, minor loss of bricks or stones, and minor structural cracking is seen on these structures. However, the kitchen/latrine building is in very poor condition and is danger of collapse. While the principal issue is the undermining of the eastern elevation's foundation, other serious structural issues include the missing western wall and the deteriorated masonry around the three windows. The loss of the western elevation, the missing masonry around the windows, and the failing foundation will most likely cause the small building to suffer a catastrophic failure in the near future if it is not stabilized.

### **Quarters Building**

The one-story, roofless, three-room, masonry quarters building stands close to the center of the site. It overlooks the terreplein and features windows on all four elevations. Two doorways are found on the western elevation and a large masonry cistern is attached to the southern elevation. A majority of the eastern exterior wall is covered with Portland-cement based stucco while the three remaining elevations feature exposed masonry. A large amount of pointing mortar has been lost across the three exposed elevations and a number of the distinctive yellow bricks have failed at the building's northwest and southwest corners. The yellow bricks that define the windows and doors are also, in general, weathered and several areas show evidence of heavy spalling. While all of these elements remain structurally intact, without repairs and repointing they will begin to fail in the next five to ten years. Additionally, other bricks found across the elevations are spalling and have lost their fire faces. If left exposed (without a new layer of stucco applied over them) they will continue to deteriorate. Finally, no major cracks were seen running through the foundation, suggesting that the foundation and the rocks that support the foundation are stable. However, a large crack is found between the windows on the eastern elevation.

The conditions on the interior are similar to the exterior, with large areas of exposed masonry found throughout (only the ceiling of the barrel vaulted roof of the powder storage room is parged).





Quarters Building - West Elevation

5/2011

Repoint
  Rebuild

### ***West Elevation***

The west elevation features a symmetrical design that includes a central window flanked by two doorways. The doorways access both the large and the small rooms while the window lights the large room. Of primary concern on this elevation is loss of bricks at both corners. While the loss of brick at the corners does not appear to be a structural issue at the moment, the continued failure of the brickwork will result in larger portions of the corners, and possible portions of the wall, failing. Loss of pointing mortar is also visible at scattered locations over the elevation, but the issue is primarily associated with the brickwork found at the corners and around the windows and doors. For both the windows and doors, the most significant issue is the loss of the mortar on the underside of the arches. Due to the way arches are constructed, the loss of even one or two bricks could result in total failure of the window or door head.



Quarters Building - North Elevation

5/2011

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  Rebuild

### ***North Elevation***

The north elevation includes a single asymmetrically placed window similar to the windows found on the west elevation. Comparable to the west elevation, the principal condition issue is the deterioration of the bricks that form the structure's northwestern corner. Additionally, the bricks surrounding the window also show major signs of deterioration on the east side and have lost a large amount of the pointing mortar. Pointing mortar has also eroded away from the scattered sections of the stone work.





Quarters Building - East Elevation

5/2011

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  Rebuild

### ***East Elevation***

The east elevation includes three windows, with the two southern most windows being typical arched-topped windows and the northern window holding a small, square-shaped, flat-headed aperture. Approximately 95% of the elevation is covered with Portland-cement stucco. Extensive cracking can be seen in the stucco from the level of the window sill up to the top of the elevation. Much of the missing stucco is also seen in this zone, suggesting that the two issues are connected. The principal condition issues are the large cracks seen associated with the top of the central window and the failure of the cement stucco (which traps water against the masonry). Finally, an iron pintle is found near the base of the northern window. The pintle is rusting and expanding, which is causing damage to the neighboring bricks.



5/2011

## Quarters Building - South Elevation

Repoint Rebuild

### ***South Elevation***

The south elevation features two symmetrically placed windows and only a small amount of cement stucco near the base of the wall. Similar to the north and west elevations, the principal conservation issues include the major loss/deterioration of the southwestern corner's brickwork and the major loss of pointing mortar around the windows. Additionally, the bricks that line the windows' interior have also lost a large amount of mortar and many show significant signs of deterioration.



## Quarter's Interior - Large Room



Quarters Building - Large Room (West Elevation)

5/2011

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### ***West Elevation***

The west elevation features an exterior doorway to the south and a window to the north. Other than a few deteriorated bricks found around the windows and doors the elevation appears to be in good shape. Some vegetation can also be seen at the base of the wall.



Quarters Building - Large Room (North Elevation)

5/2011

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  Rebuild

### ***North Elevation***

The north elevation holds a single, arch-top door. While there are scattered areas of mortar loss across the elevation, the principal concern is the missing and deteriorated bricks on the doorway's jamb. A few stones are also missing from the top of the wall, although this is not a structural issue.





5/2011

## Quarters Building - Large Room (East Elevation)

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### ***East Elevation***

The east elevation is pierced by two arched-top windows. The jambs on both windows have areas of major brick loss/deterioration as well as major losses of pointing mortar. The interior jambs and soffits of the windows are also missing mortar and several stones are missing from the top of the wall. Additionally, small areas of mortar loss are seen across the elevation.



5/2011

Quarters Building - Large Room (South Elevation)

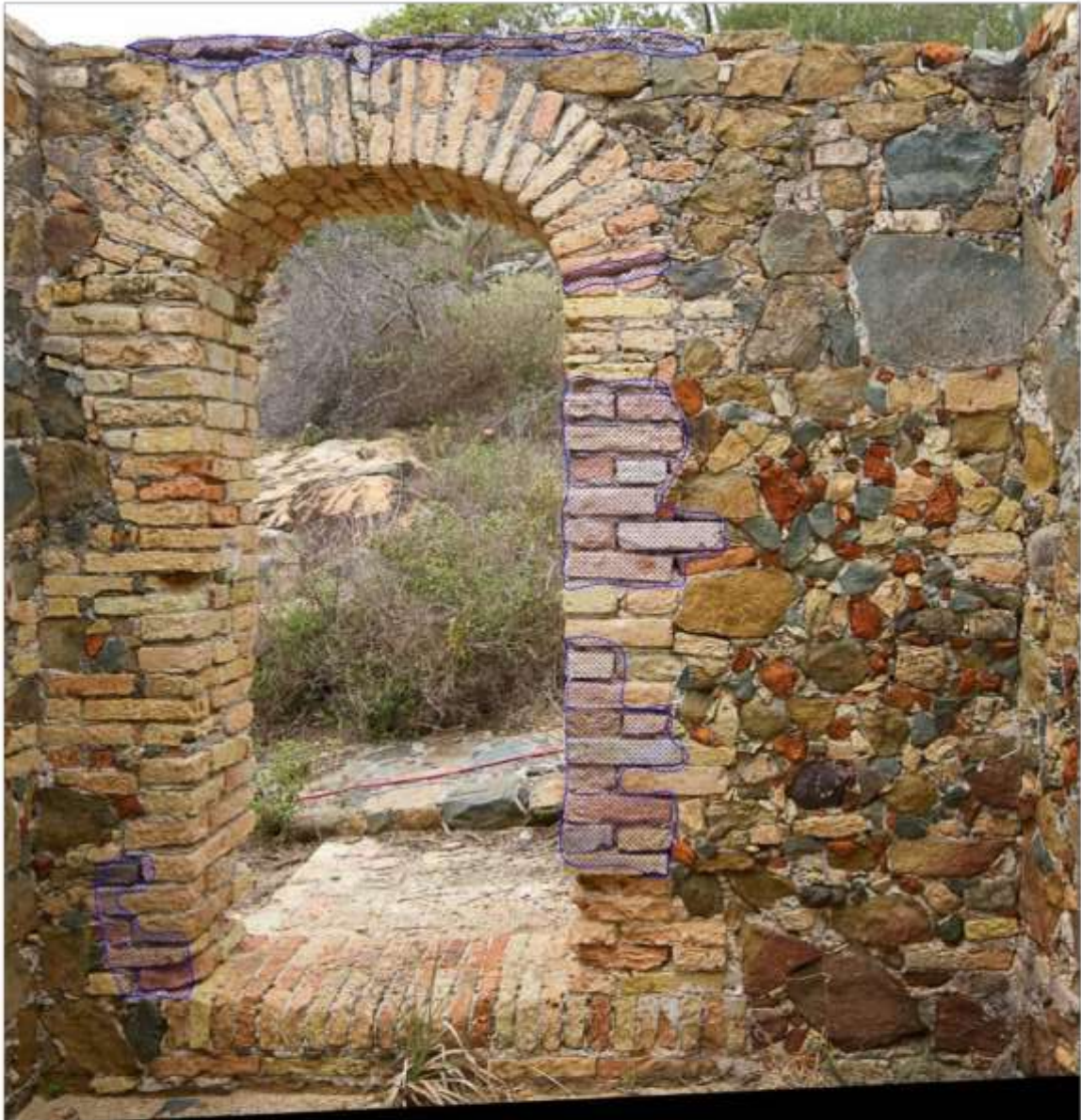
■ Repoint ■ Rebuild

### ***South Elevation***

The south elevation holds two arched-top windows. The elevation remains in fair to good condition and only several bricks are missing from around the windows. However, the brickwork around the windows shows significant mortar loss and there are scattered areas of mortar loss over the entire elevation.



## Quarters Interior - Small Room



Quarters Building - Small Room (West Elevation)

5/2011

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### ***West Elevation***

A single, asymmetrical arch-top door is found on the southern elevation. The brickwork found around the door is missing several bricks and has large areas of mortar loss. Minor areas of mortar loss are also seen across the elevation as a whole.





Quarters Building - Small Room (North Elevation)

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### ***North Elevation***

A single, symmetrical arch-top window is seen on the north elevation. Similar to the west elevation, several bricks are missing from the brickwork that surrounds the window (including approximately 6 bricks from the sill) and there are minor areas of mortar loss across the elevation as a whole.





Quarters Building - Small Room (East Elevation)

5/2011

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### ***East Elevation***

A single, asymmetrical arch-top door is found on the east elevation. The brickwork found around the door shows signs of major deterioration and has large areas of mortar loss. Minor areas of mortar loss are also seen across the elevation as a whole.



Quarters Building - Small Room (South Elevation)

5/2011

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### ***South Elevation***

A single, asymmetrical arch-top door is found on the South elevation. The brickwork found around the door shows signs of major deterioration and is missing several bricks from the arch and jambs. Additionally, large areas of major mortar loss are seen around the doorway and minor areas of mortar loss are found across the elevation as a whole.





West Elevation

5/2011



North Elevation

5/2011



South Elevation

5/2011



East Elevation

5/2011

## Quarters Building - Powder Room

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### Powder Storage Room

The powder storage room is covered by a barrel vaulted roof and the interior remains in good condition. The ceiling and portions of the north and east elevations are covered with what could be an early layer of whitewashed lime plaster. The most significant issue is the moderately large cracks seen in center of the ceiling's plaster. While these cracks indicate that some movement in the vaulting has occurred, the cracks do not appear to be active and will only need to be monitored to make sure they are not expanding. Additionally, a very small amount of mortar loss is seen across the interior.



Figure 2 - Powder Room Ceiling

### **Kitchen/Latrine**

While this structure was once divided into three rooms, both of the interior partitions (one of which appears to have been wooden) have fallen in along with the western exterior wall. In general the structure suffers from the same type of condition issues as the Quarters Building, but in a much more advanced state of disrepair. The most serious issue is the large amount of stonework that has washed out from the underneath the eastern foundation. Other serious condition issues include a collapsed window arch and major losses of bricks and stone around the window jambs.



Kitchen/Latrine - South Elevation

5/2011

■ Repoint ■ Rebuild

### ***South Elevation***

The south elevation once had three small, narrow openings placed symmetrically across the elevation. At some point the two western openings were infilled with the same yellow bricks that are found around the windows and doors. The upper third of the building was also repointed or parged and scattered traces of a cement-stucco finish can be seen on the stones. The lower two-thirds of the elevation, however, was left un-repointed/parged and the un-repointed/unparged section shows major signs of mortar loss. The most serious condition issue is the loss of bricks and mortar on the southwestern corner.





Kitchen/Latrine - East Elevation

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### ***East Elevation***

The east elevation is fenestrated by two symmetrically placed window openings and one small, square opening found to the south of the northern opening. Approximately 60% of the elevation is covered with cement stucco and the arched head of the northern window has fallen in. The elevation's most pressing concern is the large amount of stonework that is missing from the foundation.

The cause of the missing stonework appears to be the result of water flowing down the hillside above the battery and into the small building. Once in the building the water is seeping through the floor of the structure and percolating through the stonework. As it flows through the masonry, it dissolves the lime in the mortar that binds the foundation's stonework, weakening the mortar and causing the stones to fall away. Other issues include missing bricks on the northern side of the southern window's jamb, large amounts of mortar loss where the stone and brickwork is exposed and large cracks found between the two windows that reveal serious structural stresses.



**Figure 3 - Degraded/Missing Foundation Detail**



Kitchen/Latrine - North Elevation

5/2011

Repoint
  Rebuild

### ***North Elevation***

The north elevation features a single, symmetrically placed window and approximately 90 percent of the elevation is covered with cement stucco. The window appears to be a later addition, as it does not appear on the 1780 Oxholm drawing and is constructed slightly differently from the structure's other windows (it uses rougher laid brick work that does not completely surround the window). The principal conservation issue for the elevation is the loss of stone and mortar on the window's jambs. The loss of mortar also extends to portions of the stone and brickwork on either side of the window. Finally, a large crack is seen running upward from the lower corner of the window's western jamb towards the structure's northwestern corner. The crack appears to be structural and may relate to the window's failing masonry.





North Side

5/2011

 Repoint
  Rebuild



South Side

5/2011

## Kitchen/Latrine - West Elevation

### ***West Elevation***

Only two small masonry piers survive on north and south ends of the west elevation. The northern pier is missing several courses of brick near the ground and is, for the most part, cantilevered out over the loose rocks of its foundation. This is a highly unstable situation and needs immediate stabilization. Other than the missing brick, the rest of the pier appears to be in good condition with only small areas of mortar loss being evident near the center of the surviving pier.



Figure 4 - Missing Masonry from North Pier

The southern pier is severely deteriorated and the bricks that define the exterior corner show signs of major deterioration. Additionally, the stonework found to the north of the bricks has lost a substantial amount of material and much of the mortar is lost from between the surviving stones.

## Kitchen/Latrine Building - Interior

The interior of the Kitchen/Latrine is essentially one open space that is entered through the missing west elevation. The interior features many of the same condition issues as the exterior and also displays scattered remnants of stucco.



Kitchen/Latrine - Interior (South Elevation)

5/2011

■ Repoint ■ Rebuild

### *South Elevation*

Similar to the southern exterior elevation the top third of the wall was either covered with cement stucco that has since fallen off or pointed with cement stucco. The lower two-thirds does not appear to have been stuccoed or repointed and shows a significant amount of mortar loss. No structural cracking is seen on this elevation.





5/2011

Kitchen/Latrine - Interior (East Elevation)

■ Repoint ■ Rebuild

### ***East Elevation***

The east elevation includes two symmetrically placed windows and the arched head of the northern window has fallen in. Scattered remains of cement stucco are visible on approximately 10% of the elevation and, as with the south interior elevation, the upper portion of the wall is in better condition than the lower part. The principal conservation issue for this elevation is the missing bricks and stone from the southern window's jambs. The missing stones have structurally compromised the window opening and it is in immediate danger of collapsing (enough stonework has fallen away at this location that it is possible to look through the wall). Finally, mortar is missing from most of the lower wall.



Figure 5 - Missing Masonry at Southern Window



Kitchen/Latrine - Interior (North Elevation)

5/2011

Repoint
  Rebuild

### ***North Elevation***

Both an almost centered window and a small, square aperture pierce the elevation which also features cement stucco over 66% of its surface. The main condition issue is a major loss of stone, brick, and mortar from around the window. Additionally, a large crack has developed that travels downward from the lower part of the window's western jamb to the western side of the wall.



## Cistern



While the cistern is still holding water, which means much of the interior waterproofing is functioning, the heavy lime deposits on the wall below the cistern clearly show that water is slowly filtering through the masonry and dissolving the lime in the wall's mortar. The lime deposits appear to start at the bottom of the cistern and stream down to the surface of the terreplein along the entire length of the wall. The east wall is also covered with cement stucco. Small cracks in parging are found over much of the eastern elevation and a majority of the cracks found near the top where portions of the stucco have also fallen away. A majority of the cistern's small western elevation is also covered with cement stucco and it is in similar condition. The cistern's west elevation is also covered with stucco, a small portion of which has fallen away from the top of the north side. The stairs leading up to the cistern also need a limited amount of repointing. Finally, the top of the cistern is covered with a similar coating of cement stucco and it too is cracking and delaminating from approximately 50% of the masonry surface.



Figure 6 - Cistern, West Elevation



### **Rampart**

The rampart found below the terreplein is built from the same type of stones as the rest of the battery's structures but uses larger stones and features only a few scattered bricks fragments. The bottom two-thirds of the rampart is battered while the top third is plumb (or projecting slightly forward). A whitewashed cement stucco also once covered the rampart, but almost all of it has fallen off the wall. Principal conservation issues include horizontal cracks found close to where the battered section of the wall meets the plumb section. These cracks do not appear to be active and could be the result of earthquakes in the 19th century.<sup>ii</sup>

Other conservation issues include a damaged section of the wall that shows signs of water infiltration and cracks that are forming along the western edge of the rampart where it meets the bedrock. The source of the water infiltrating the rampart wall is not clear. It is unlikely to be coming from the cistern and the terreplein deck does not appear to be holding water. Regardless, the water infiltration is resulting in the loss of mortar from two fairly large areas on the rampart's southern elevation. While these areas can easily be repointed, without first fixing the problem, the mortar will fall away again. Possible solutions would involve repairing any areas of missing mortar on the terreplein, routinely inspecting the weep holes to make sure they are not blocked, and, just to be sure, draining the cistern.



### Parapet

The stonework for the parapet is built of fieldstone masonry similar in appearance to the rest of the battery and shows similar condition issues, including loss of mortar and cement pointing. One exception is a large section of the parapet that is missing from the western end. Additionally, a small section in the center of the eastern parapet wall uses a concentration of red-colored stones, suggesting that it was rebuilt at some point in the past. Finally, almost the entire parapet wall has been at least partially repointed fairly recently with a grey-Portland cement based mortar. The repointing was poorly executed, is failing in some areas (due to too shallow joints), and was not properly struck.



Figure 7 - Detail of Missing Parapet Stonework

### Walks and Retaining Walls

The walks and terreplein remain in good condition. In general, scattered areas of mortar loss are seen and grasses have started to grow out of some of the joints, but very few stones are missing and the surfaces appear to be stable. One exception is the foundation for the long stairs found on the western side of the foundation. A large portion of the stonework that supports the stairs is missing and the stairs are cantilevered over the terreplein.



Figure 8 - Terreplein Stairs with Missing Foundation

The retaining walls at the site are built in a similar manner to the ramparts and, in general, are in fair to good condition with only minor signs of mortar loss. However, the section of the retaining wall found between the Quarters building and the Kitchen/Latrine is missing a large amount of stonework near the Kitchen/latrine. The missing stone is located near the base of the wall and as a result has become highly unstable and needs immediate stabilization work.

## Treatment Recommendations

### Prioritized Treatment Recommendations

The treatment recommendations are broken down into three sections; repairs and maintenance, structural stabilization, and long-term treatment and stabilization recommendations. Below is a prioritized list of treatment recommendations which is followed by longer explanations:

1. Rebuild the eastern foundation of the kitchen/latrine using matching stones laid in a naturally hydraulic lime mortar (naturally hydraulic lime (NHL 5) mixed with sharp sand at a 3 (sand) to 1 (lime) ratio).
2. Rake out all damaged/loose mortar joints to twice their width and repoint with a naturally hydraulic lime. The most important areas to repoint are the undersides of the window and door arches.
3. Rebuild the base of the Kitchen/Latrine's north pier on the western elevation using matching bricks and a naturally hydraulic mortar.
4. Replace the bricks and stones missing from the window jambs and heads. The most important window to rebuild is the southern window on the Kitchen/latrine's eastern elevation. Bed and point new material with naturally hydraulic lime.
5. Rebuild the base of the stairs found on the west side of the terreplein using matching stones laid in a naturally hydraulic lime mortar.
6. Replace any stones or bricks that are missing in kind. Bed and point new material with naturally hydraulic lime.
7. Pump out all of the water from the cistern, plug the weep holes in the top of the cistern, and place a cover over the top hatch.
8. Rebuild the southwest and northwest exterior brick corners on the Quarters building. The new bricks should not be an exact match in color or texture (or order to tell the new materials from the old), but should have approximately the same water absorption/vapor permeability characteristics.
9. Cap the tops of the structures with a rounded weathering of naturally hydraulic lime.
10. Apply a coat of parging/render/stucco to the exterior as a sacrificial coating. This coating will protect the masonry from saltwater and rain, but will need to be periodically replaced. A coat of whitewash over the stucco is optional. Parging the interior with a similar render is also recommended, but the most important surfaces to protect are the exterior elevations.
11. If the northern window on the Kitchen/Latrine building's east wall will not be rebuilt, it should be stabilized by bridging it with threaded stainless steel rods.
12. Remove all vegetation from the walls, paving and interior spaces. Monitor the site bi-annually and remove any new plant growth.



13. The large cracks currently found on the walls and ramparts should be monitored to see if they are actively moving or if they are the result of onetime events like earthquakes or tsunamis. If they are active, then attempts should be made to stabilize them with threaded stainless steel rods

## **Repairs and Maintenance**

### ***Repointing***

Many areas of repointing are needed over the site's walls and structures. While physical and archival documentation reveals that the structures were built with a lime mortar, much of the existing pointing mortar at the site appears to be composed of modern Portland cement. This combination of lime bedding mortar and cement pointing mortar causes moisture to be trapped behind the pointing mortar, forcing the water to either migrate through the lime mortar (which dissolves the lime in the mortar and dramatically weakens the walls) or pushes it into the surrounding brick (causing the bricks to spall and deteriorate). Because these two mortars do not form a sustainable system, ideally the cement mortar should be removed as part of any restoration project.

Replacement Mortar - Because a Portland cement mortar is not compatible with the lime mortar found on the walls interior, it should not be used to repoint the walls. Furthermore, because a pure lime mortar will not survive in a marine environment, a naturally hydraulic lime should be used. These limes were developed and used extensively in the 19th and early-20th century to cover the exteriors of lighthouses and fortifications located along the shores of oceans and seas. They provide a good balance between hardness and vapor permeability and will be a strong and long-lasting mortar that will also be compatible with the surviving historic lime mortar. A typical mixture for a naturally hydraulic pointing mortar is three parts washed, sharp sand to one part naturally hydraulic lime although an experienced restoration mason may have other ratio recommendations that would be more appropriate for the site. The NHL mortar will also conform to the Secretary of the interior's standards for Preservation because it is a compatible material that, with its darker color, is also easily recognizable as a later addition.

A source for the naturally hydraulic lime is deGruchy's Limeworks (<http://www.palimeworks.com> or straight from the source at St. Astier in England) and the type needed is known as NHL 5. Additionally, Virginia Limeworks sells an NHL 5 product, although it is only available through a distributor. Another possible naturally hydraulic lime is called Rosendale cement and it is available from Edison Coatings, Inc (<http://www.rosendalecement.net/>)

### ***Removing Vegetation***

Currently there is only a very small amount of vegetation growing in the historic masonry. However, the site should be monitored bi-yearly and any new plant growth should be removed as soon as it is discovered. The brush that is currently growing in the floors of both buildings should also be removed as the plants' roots will start to impact the subterranean foundation if allowed grow. The use of herbicides containing Glyphosate, such as Monsanto's RoundUp, is not recommended for this site due to the threat it poses to fish and aquatic invertebrates. Instead, removing grasses and small plants by hand or with hand tools and cutting larger woody plants off at the base with clippers or, if they are located away from any masonry or historic surface, stringer trimmers fitted with metal

blades. It is also important to not to pull the larger woody plants out by the roots if they are growing near masonry walls as the roots may have grown into the joints and forcefully removing them may damage the historic masonry. If they must be remove, first clip the plant off at the base and then wait six to twelve months for the roots to decompose.

### ***Replacement Stones***

Any missing stones should be replaced in kind with similar stone quarried (or collected) from Hassel Island or St. Thomas. The stones should be set in a mortar made from naturally hydraulic lime.

### ***Replacement of Bricks***

Any missing or badly damaged/spalled bricks should be replaced in kind with a brick that is similar in color, texture, and absorbency to the original bricks. The bricks should be laid and pointed with a naturally hydraulic lime. Recycled or reclaimed bricks cannot be used if the project is to meet the Secretary of the Interior's standards. New bricks should be sourced that match the original. In general, to get the new bricks made, a firm with experience in producing reproduction brick, such as Old Carolina Brick Company (<http://www.handmadebrick.com/>) should be contacted.

### ***Draining the Cistern***

The cistern is clearly leaking and needs to be drained. The leaking is evidenced by the thick accumulation of calcified lime found below the cistern on the wall of the rampart. This deposit is not only an aesthetic issue but also a structural one as the calcium is at least partially coming from the lime in the mortar that holds the cistern walls and rampart together. The loss of lime from the mortar significantly weakens the structural integrity of the wall and will, eventually, lead to collapse. After the cistern is drained, the weep holes that drain water into the tank should be plugged and a cover should be installed over the main hatch. If the cistern is ever to be used again, a render of hydraulic lime with a coating of cement-based waterproofing should be applied over its interior.

## **Structural Repairs**

### ***Rebuilding Sections of Masonry***

The three main areas of brick work that will need to be rebuilt include the northwestern and southwestern corners of the Quarters building and the southwestern corner of the Kitchen/Latrine. However, several of the window jambs on the eastern elevations of both the Quarters building and the Kitchen/Latrine will also need extensive repairs. If larger areas of brick are to be taken down and reconstructed with new bricks, a slightly denser brick should be considered. These bricks should be similar, but not identical, to the existing bricks in both color and texture. By using denser bricks the repairs should be longer lasting, able to withstand a heavier structural load, and easily identifiable by future conservators and craftsmen as modern replacements.

Any missing stones, including the missing section of foundation under the Kitchen/latrine, should be replaced in kind with stone quarried (or just collected) from Hassel Island or St. Thomas. The stones should be set in a mortar made from naturally hydraulic lime. The fact that these new stones are set in hydraulic lime instead of normal lime putty will mark them as modern replacements to future conservators and craftsmen.

### ***Bridging and stabilization Treatments***

The loss of the Kitchen/Latrine building's interior stone partition does not appear to be causing any structural problems at the moment (as evidenced by the lack of cracks in the northern and southern corners of the eastern exterior wall). However, these corners should be monitored and if cracks do develop, then a structural engineer should be consulted to develop a design to stabilize the wall (potentially through reconstructing the missing wall or using wooden/steel beams to provide support for the eastern exterior wall).

### ***Structural Cracks***

Several large cracks are seen on the walls of the ramparts and the kitchen/latrine building. Before the cracks are repaired they should be monitored to discover if they are active (meaning that they continue to widen and enlarge) or if they were caused by a onetime event like an earthquake (large earthquakes hit St. Thomas in 1842 and 1867 (the 1867 quake was especially violent. It measured 7.5 on the Richter scale and was accompanied by a tsunami that hit the harbor at Charlotte Amalie)). If the cracks are found to be active then, after the cause of the movement has been identified, they can be stabilized using stainless steel rods or, in an extreme situation, the affected area can be partially rebuilt. In the opinion of the consultant, the consultant believes the rampart cracks were caused by the earthquakes while the cracks in the Kitchen/Latrine structure resulted from the failure of the west elevation and the loss of mortar and stone.

The kitchen/latrine building suffers from the most severe structural issues. The loss of the western exterior wall, the missing interior structural stone partition, and the failed window head on the eastern elevation's northern window (as well as the undermined foundation) have all resulted in a much weakened structural system. Other than the missing foundation under the eastern wall (which will need to be repaired/rebuilt), the principal area of concern is the northern exterior wall. Large cracks are seen on the eastern side of the wall's interior and exterior elevations that are either caused by earthquakes, stresses resulting from the insertion of a window into the elevation, or movement caused by the failure of the eastern exterior wall. While the wall does not look to be in immediate danger of falling, the cracks should be monitored to see if they are active. If they are active then a structural engineer should be hired to make an assessment and to develop a plan to either push the wall back into plumb, stabilize the window opening, and/or stabilize the northwestern corner.

Large cracks can also be seen running between the two windows on the kitchen/latrine building's eastern wall. Ideally the failed window head on the eastern elevation will be reconstructed after the foundation is rebuilt, which should help to stabilize the wall. However, if the funds are not available for reconstruction, it is also possible to partially re-establish the structural integrity by bridging the failed window head with stainless steel rods.

### ***Drainage Issues***

While drainage across the much of the site appears to be functioning properly, two drainage failures are undermining the foundations at three different locations. First, a large portion of the foundation under the Kitchen/Latrine building has washed away. In this case the water is washing down the hillside, across the path and into the interior of the building where it apparently pools against the eastern wall. The water then filters down through the soil, hits the rock base that the structure is built on, and then dissolves the lime from the mortar as it seeps out of the masonry foundation. The



same drainage issue is also most likely the major reason why the western exterior wall failed, why the northern pier on the western elevation is missing bricks, and why the retaining wall in front of the Kitchen/Latrine building is losing its foundation. To fix the drainage issue the water should be diverted before it washes over the retaining wall or a French drain should be installed along the remains of the western wall.

The second drainage issue is found on the terreplein. Similar to the drainage issue at the Kitchen/Latrine, a set of stairs on the western end of the terreplein has lost a large amount of its foundation. The stair rests on what appears to be paving stones set in a cement mortar and water drains onto the stair landing from the hillside above and as well as coming down the stone path that runs beside the quarters building. As with the Kitchen/Latrine building the water should be diverted away from the stairs.

## **Long-Term Treatment and Stabilization Recommendations**

### ***Protective/Sacrificial Renders***

The exterior and interior of the structures appear to have once been covered with a lime stucco/plaster. Almost all of the original stucco coating has disappeared and there is currently a Portland-cement based render covering portions of the exterior and interior of the structures. The Portland-cement based render is incompatible with the lime mortar that is found in the walls and should be removed if funds are available. Additionally, in order to further protect the historic stone and brickwork, a new coating of stucco should be applied to the exterior (and possibly the interior) of the building. While the new stucco would replicate the Battery's historic appearance, it is also important because it will act as a sacrificial coating that will protect the historic masonry by taking the brunt of the rain and sea spray. The render will probably start to fail in 10 to 20 years, but in the long run it is also much easier to replace than the historic stone or bricks. The new render should also be made from naturally hydraulic lime. A straight lime (also known as air lime) render could also be used (and perhaps be better for the lime mortar found in the walls), but it would be much weaker and deteriorate much more quickly than the naturally hydraulic lime, resulting in a significant increase in the sites maintenance costs.

Finally, while it is often tempting to skip repointing before applying the stucco due to the fact that the stucco will fill the joints, it is important to repoint and apply the render in two separate steps. The main reason for this is that as the stucco ages and falls off it will also pull the new material out of the mortar joints unless the pointing mortar is applied separately.

### ***Whitewash***

Records of large amounts of lime being purchased for the Battery in the historic records suggest that the structures were whitewashed several times in the past. Whitewash is a traditional coating that was used extensively in the 18th and 19th centuries and so its use is not surprising. There are also some surviving patches of whitewash visible on the 20th-century Portland cement stucco that covers parts of the lower and upper ramparts, suggesting that the structures were also whitewashed in the 20th century.

This report is recommending the structures be whitewashed if the stucco render is restored. This recommendation is based on the evidence for historic whitewashes and the fact that it will help to blend areas where the new, naturally hydraulic lime renders abut any remnants of the existing Portland cement stucco. Whitewashes also have a very minor capacity to protect the underlying stucco from the elements and may partially infill the small cracks and fissures that form as the stucco ages. However, whitewash should not be applied in expectation that it will be a protective coating.

### ***Treatment for Historic Iron Pintles***

Remains of approximately three iron pintles are seen embedded into the masonry found on the exterior side of the windows. These pintles show signs of advanced corrosion and in several cases the expansion caused by the rusting has resulted in the failure of the surrounding stonework. Only one pindle appears to survive intact and only the shafts of the others remain. The essential question is whether to leave the surviving pindle in place, where it will continue to rust (which will damage the stonework) and possibly fall out, or to remove it for conservation and storage. At this point, it is recommended that the pindle be preserved in place with a rust inhibitor, the stone work be rebuilt around it, and then monitored. If the pindle appears to be close to failure or if it continues to rust and damage the surrounding brick work, then it should be extracted, conserved, and placed into storage.

### ***Capping Walls***

The tops of the walls of the Kitchen/Latrine Building and the Quarters building should be capped with naturally hydraulic mortar to prevent water from seeping into the wall. The cap should be rounded and peaked at the center of the wall to ensure even drainage. While the walls of the parapet are similar to the tops of the buildings, they should be parged with lime stucco and not capped in order to maintain their assumed historic appearance.

### ***Removal of Cement Pointing***

Ideally the cement pointing should be removed and replaced with a naturally hydraulic lime mortar. However, other priorities, including the structural stabilization of the Kitchen/Latrine, should take precedence. A compromise would be to only remove the hard cement mortar from the joints between the soft bricks and not the harder stones (which are less absorbent than the cement mortar and also better able to withstand the pressure of the hard cement pointing). This would help to preserve the historic brickwork, which is the material most endangered in the walls.

## **Restoration/Reconstruction Plan**

A successful restoration plan is developed in conjunction with a site's interpretation plan and in consideration of the resources available for restoration and maintenance. Currently, the long-term plan for the site's interpretation includes day trips by groups of local residents as well as visitors staying in hotels or visiting by cruise ship. The visitors would disembark at a small dock near the Garrison house located below the Battery, possibly enter the Garrison house to view exhibits on the site's history, and then proceed to the Battery on foot up the trail. In this scenario the Garrison house would serve as the site's visitor center and so the Battery could remain relatively clear of any infrastructure needed by the visitors (including, possibly, bathrooms, interpreter stations, large exhibits, or retail areas). The restoration plan also assumes that there are no plans to staff the

battery in the near future and no plans to make it a living history site with costumed interpreters (although the options for a living interpretation should remain open). Finally, it is assumed that tourists visiting the site would pay a modest fee and that this fee would be available for maintaining the site and servicing any loans obtained for the Battery's stabilization/restoration.

Considering these factors, the consultant recommends developing the site as a stabilized ruin. Reconstruction of the roof, doors, and window shutters are also not recommended at this time due to the costs and maintenance issues (paint, repairs, monitoring for vandalism, insurance, etc.) which are not justified considering the site's limited interpretation goals. Additionally, the digital, 3D model being created to show what the site looked like during the Battle of West Kay will serve to show visitors the site's original appearance. For similar reasons, refurnishing the site is not recommended unless the decision is made to have an interpreter regularly stationed at the site. However, installation of cannons and cannon carriages that are accurate for the time period would be recommended. Cannons were a significant, if not the most significant, item found at the Battery and they were a vital piece of equipment at the battery. Additionally, they are fairly low maintenance and are heavy enough to not be a vandalism or theft hazard.

The first phase in implementing the stabilized ruin strategy would include the limited reconstruction of missing structural masonry elements, including the foundation of the Kitchen/Latrine, the corners of the building, and any missing or degraded window/door arches as well as repointing areas of missing or degraded mortar. The main purpose of the first phase would be to prevent the loss of additional historic material, particularly walls and windows. Reconstruction is recommended over the possibly less expensive route of using stainless steel rods and plates to stabilize the failed structural elements due to the fact that only a limited amount of reconstruction is needed and because the modern materials can distract visitors from the site's interpretation goals. Additionally, the reconstructed masonry would potentially be more stable and creates a solution that is compatible with the existing historic masonry.

The second restoration phase would reconstruct the missing masonry partition of kitchen/latrine building. Rebuilding the missing interior and exterior walls is necessary to interpret the division of the building's relatively small spaces. If the missing wooden partition is to be reconstructed, it can either be rebuilt with wood or ghosted with powder-coated stainless steel or brass elements. However, because the structure would not have a roof, the wooden partition, while cheaper, would potentially be more expensive in the long run due to the need for regular maintenance/repairs.

Other new elements that should be considered for the site include the locations for signage and benches as well as safety barriers to keep visitors away from hazardous parts of the site. An archaeologist as well as an architectural conservator should also be consulted on the locations in order to limit the impact of the elements on the site's significant features.



## **Cost of Repairs**

The following table provides an estimate for a basic stabilization plan detailed above and includes only the essential work that needs to be done in order to preserve the site. Because of the sites location, the need for highly skilled craftsmen, and the high costs of obtaining materials for the repairs, the consultant has used higher than average per square foot costs. Additionally, there is a 5% island premium as well as a 15% contingency added to the final total to cover the added expense of getting materials and workmen onto the island and to account for unforeseen expenses discovered once the work starts. The pointing totals reflect only the areas of missing or degraded mortar and do not include an estimate for removing all of the existing cement mortar from the joints. The total also does not include removing the existing cement parging from the exterior surfaces or re-parging surfaces that are currently parged. Finally, the cost of an optional coating of whitewash for the structures was not included, although the cost of the wash should not be significant in relation to the overall project cost. If the local costs of masonry repairs and materials turns out to be widely different from what is detailed in the table below, the original excel spreadsheet is included with the project's files. To change the costs based on the local prices, simply insert the new costs into the formulas and the final price will change to reveal the new cost estimate.

## Prince Frederik's Battery - Stabilization Cost Estimate

### *Quarters Building*

<u>Elevation</u>	<u>Repointing</u>	<u>Rebuilding</u>	<u>Replastering</u>
N. Exterior	15.1	4.63	198.28
E. Exterior	12.26	7.63	42.62
S. Exterior	29.89	5.9	130.8
W. Exterior	24.1	19.56	209.44
Large North	7.19	2.79	0
Large East	11.17	3.84	0
Large South	3.75	0	0
Large West	8.52	0	0
Small North	1.54	0.39	0
Small East	6.2	0	0
Small South	4.26	0.49	0
Small West	3.2	0	0
Powder North			
Powder East		1.18	
Powder South	0	0	0
Powder West	1.46	0	0
Window Jambs	53.33	0	0
Door Jambs	14.86	0	0

**Quarters Repairs Totals                      193.4                      46.41                      581.14**

**Cost Subtotal                      \$1,180.98                      \$5,801.25                      \$2,905.70**  
*\$6 sq foot                      \$125 sq foot                      \$5 sq foot*

### *Kitchen/Latrine*

<u>Elevation</u>	<u>Repointing</u>	<u>Rebuilding</u>	<u>Replastering</u>
N. Exterior	3.01	1.02	20
E. Exterior	11.66	39.32	57.54
S. Exterior	19.38	2.88	76.57
W. Exterior	16.72	14.63	54.21
N. Interior	5.4	3.46	0
E. Interior	3.312	5.39	0
S. Interior	9.59	0	0

### **Kitchen/Latrine Repairs Totals**

**69.072                      66.7                      208.32**

### **Cost Subtotal**

**\$414.43                      \$8,337.50                      \$1,041.60**  
*\$6 sq foot                      \$125 sq foot                      \$5 sq foot*

Repointing                      Rebuilding                      Plastering

### **Structure Repair Totals**

**265.902                      113.11                      789.46**

### **Repair Cost Totals**

**\$1,595.41                      \$14,138.75                      \$3,947.30**



***Other Expenses***

<b>Quarters Wall Coping (in sq feet)</b>	153.63	\$6 sq foot	<b>\$921.78</b>
<b>Kitchen Wall Coping (in sq feet)</b>	65.35	<i>\$6 sq foot</i>	<b>\$392.10</b>
<b>Coping Total</b>			<b>\$1,313.88</b>
<b>Parapet Repairs (in sq feet)</b>	10	\$125.00	<b>\$1,250.00</b>
<b>Terreplein Stair Repairs (in sq feet)</b>	9	\$125.00	<b>\$1,125.00</b>
<b>Capping Cistern (Estimate)</b>			<b>\$200.00</b>
<b>Misc. Repointing of Parapet and Ramparts</b>	50	\$6 sq foot	<b>\$300.00</b>
<b>Stair by Kitchen Repairs (in sq feet)</b>	5	\$125.00	<b>\$625.00</b>
<b>Scaffolding Rental (\$1000 a month for 2 months)</b>			<b>\$2,000.00</b>

**Contingency                      15%**  
**Island Premium                5%**

**Total Estimated Cost    \$31,794.41**

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## **Appendix A: Documentation of Prince Frederik Battery from the Danish National Archive**

**Documentation of Prince Frederik Battery from the Danish National Archive**

**a. 1767-1801**

**Prepared by**

**Casper Toftgaard & Marie Veisegaard**



## 1. Introduction

The following presents archival findings from *Rigsarkivet* (RA), the Danish National Archive. It covers the period from 1767-1801 and is concerned with the so-called Prince Frederik Battery by the harbor of St. Thomas. It also briefly refers to the ship battle on March 3, 1801 in which the battery was involved. All the archival documents from RA are from *Generaltoldkammeret – Ældre del. Vestindisk-guineisk renteskriverkontor* (VTK), the Chamber of Customs' West India and Guinea. Only text paragraphs specific referring to the mentioned subjects will be cited, but pictures of each of the original documents wherefrom text is cited is attached to this report. There will sometimes in the text boxes be a short summarization of text. This will be indicated with [...]. Some of the documents have been hard to read. If a word has been impossible to translate or if not sure of the correct word, it will be indicated with (...?).

To ease the reading the report has been divided into six sections. A few historical books are also used to get the full understanding of the situation which the archival texts refer too.

The battery is called several different names in the archival sources. In the following translated texts the original Danish spellings of the battery is kept, though the word "pynt" meaning "point" normally will have been translated. In the beginning of the investigated period the sources refers to the battery's placement as Magens Point, presumably named after Jacob Magens senior who had a plantation on Hassel Island 1755-1773 (Martens & Latif unpublished: 25). But sometimes it's also called Pynt Batteriet (English: The Point Battery). From the 1780s the sources start referring to the battery as Printz Friderichs Battery.<sup>1</sup>

## 2. The planning of the battery

A document from General Governor Peter Clausen to the King and the Chamber of Customs reveals that the battery was being planned as early as 1767. Clausen writes from St. Croix on May 2, 1767 to the Danish King and the Chamber of Customs in very ornate sentences the following:

The construction of the battery by the harbor of St. Thomas, which has been suggested, and by Your Excellence and the high esteemed gentlemen in connection to its expenses still shall be approbated by the King, Since I am quite positive; and together with commandant Roepstorff, in getting it started, as soon as St. Thomas, can answer the expenses itself, and this will not be so hard as presumed; but for the present time, both he and I finds it unnecessary that it is begun, unless minor war trouble should start, when without any rest and salary it shall be built; where the other batteries should be built, neither commandant Roepstorff or I know; because should they be for Contraband imports, or to protect the country from robberies and plunder by Spaniards, which at the moment is great, and which I myself have experienced, in the year 1764, when a Spanish boat, took 3 negroes on St. Thomas which belonged to me and brought them to Puerto Rico, and sold them there, which I have proved for, in year 1765, in a humble letter I notified this robbed estate to Your Excellence and the highly esteemed gentlemen. If so then a battery must be established at every place of disembarkation or bay, which will lead to many batteries which will have many costs for His Majesty, beside that everyone must be occupied with men, and be taken care of from the landside; therefore

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<sup>1</sup> Spelled in many different ways.

for the moment no information about this, can humbly be sent to you [RA, VTK 365:466, Litra A, May 2 1767, P. Clausen)]

A letter from August 6, 1767, from the Chamber of Customs, has collected the present points made about the placement of new batteries on the three West Indian Islands and whose ideas these batteries were. This document reveals the following:

Before colonel lieutenant and commandant Roepstorff from St. Thomas left here to go to the island to take his post given him in 1764, he presented in the chamber the following: that St. Thomas had not been able to be defended by the fort, which only seems to have been built to protect the town, and that more than one vessel in the latest war hostilities was being attached and taken away without the fort being able to stop it. If it came to a battle, foreign war vessels, as well as our own could both lie in this harbor. He suggested: that a small battery could be built on one of the points by the entrance of the harbor with 6 eight pound canons, and a point house, which should cost 1000 Rd, and the cannons could lie in the fort until it came to trouble, when then they could be brought over and used there (RA, VTK 365:466, Aug. 6 1767, Chamber of Customs).

The text continues telling about Sea Captain Guntelberg who because of English depredations has suggested that the redoubt named Lagon in St. Croix be improved and then he has also suggested the following:

A battery must be built on Magens Place or Point in St. Thomas harbor with about 8 cannons and an officer with 12 to 16 men, so that foreign privateers can be prevented from entering the harbor as well as a second small battery at Gregori with 6 to 8 cannons and the needed garrison. This would stop the attacks of the foreign privateers and improve trade. (RA, VTK 365: 466, Aug. 6 1767, Camber of Customs)].

This long text then discusses the other given suggestion and at the end the document returns to talking about Prince Frederik Battery:

These presented posts have by the present General Governor, General Major Clausen been declared (Litra A). – He finds the Chamber's planned establishment of a battery by the harbor of St. Thomas to be quite positive, and has agreed with colonel lieutenant Roepstorff, that it should be begun, as soon as St. Thomas can answer the expenses themselves. – For the present time being it would be disadvantageous to start building, but if war trouble should happen, then it should be built (RA, VTK 365: 466, Aug. 6 1767, Camber of Customs).

The text then talks about necessary repairs of the fort and the Water Battery. The text ends by summarizing:

1. At the so called Magens Plads by St. Thomas to build a battery with 6 or 8 cannons when St. Thomas can pay for it itself unless war trouble should arise, and it then should be built right away (RA, VTK 365: 466, Aug. 6 1767, Chamber of Customs)].

On August 18, 1767 the commanding Governor with the Danish King's approbation decided the following:

As before mentioned by the Chamber it having been presented and a graciously approval having been granted: (1) that on the so called Magens Point by St. Thomas harbor can be placed a battery with 6 to 8 canons, but it still have to wait some time and be left undone, until all its cost can be covered from the incomes from St. Thomas, unless new war troubles arise, when it should be built immediately (RA, VTK 365:466, no. 61, Aug. 18 1767, bookkeeper Meinert).

### **3. Descriptions of Prince Fredrik's Battery by Oxholm**

In 1776 an English ship sailed into Frederiksted's anchorage without indicating its flag. This had the effect of causing the Danish state to have the fortifications on the islands investigated. In 1777 lieutenant P.L. Oxholm was sent out the Danish West Indies to make measurements and produce suggestions for the betterment of the fortifications. Upon Oxholm's return to Denmark in 1780 he submitted a report on the defenses of the islands. He suggested the building of some small batteries to cover the entrances to the harbors and he also made several maps (Vibæk 1966: 48). Prince Frederik's Battery seems to have been built just before or around the time of Oxholm's voyage to the Danish West Indies. Beside documents mention the use of material and the use of artisans at the "new battery on the point" in 1777-1780 (see the following section 4.), Oxholm's report 1778-1780 also notes the following about the battery and its role in defending St. Thomas in connection with two maps made by him:

No. 6 is the drawing of the latest newly established battery at Magens Point. It is good and strong built, but not placed well, before the opposite point also gets a battery, and in this case it will be very useful and good, but if it stays single, it almost gives in no regards the advantage which one would like this battery to have. I believe that it might have been possible to built just as good and strong battery for less expenses, at least if another way of building, than the one used, had been chosen, where you have to cut through the hard rock, and then do bricklaying at the same spot, whereby the pay for the construction work got very high, but it is though a kind of satisfaction; to see the work done well, even if a little expensive. According to my instructions paragraph 5, I have examined, if it was possible to build fortifications that could keep out frigates or war ships, at least for a short while. St. Thomas harbor and its expansive trade would most likely be the first to be attacked. (RA, VTK 365:465, Oxholm's voyage, plan XXI)].

Thereafter Oxholm continues to tell in connection with map no 6. (Plan XXI) what he believe needs to be built and done to secure the harbor of St. Thomas.

Another map which touches on the role of the battery in connection to its role in protecting the harbor is Map No. 1 (Plan XVI).

Map No. 1 Is a situation plan of the town and the fort together with nearby Vaater Island....The harbor at St. Thomas is big and deep, large enough even for the biggest war ships; there are rather many rocks and (...?) : In the narrowest part of the entrance is a rock which is called Prinzt Rupert and it lies close to Paquereau Bay; the water between it and the land is 24 foot deep, so big ships should be able to pass through it, but since it is so narrow it would be dangerous with a squall and as



it also is no use in regards to avoiding the Battery's cannons which can reach out over both channels, so that no one will risk to go through there except some small barks that sometimes go in and out there when the wind is very hard. Von Keulen's drawing of the harbor, that only resembles it a little, writes that this rock stands 14 feet above water, but he is mistaken, it stands 8, and it is not either a solid mass, but a group of pieces of rocks whereof many are hanging together, and form big rocks. It would be very costly to establish a battery on these rocks.. Since the cannons of the Point Battery (Prince Frederik's Battery) can reach across the entrance, I therefore think I can answer that note in my instructions about the usefulness of Prinzt Rupert rock in that way, that it with great cost could be adapted, but since it would be of very little or no use, then I think nothing further has to be said about it (RA, VTK 365:465, Oxholm's voyage, plan XVI).

Oxholm writes more about the harbor and different weather situations.

The present drawing very clearly explains the reasons why I thought it would have been better when only one battery was being built, to have it placed on the Point 1., where you could have covered the whole coast upward, just as the whole entrance of the Gregoriet, but when the high college, should find it too good to built the battery suggested by me, then the harbor have a good defense by the entrance. But the narrowest tongue called Overhale, which lies between Gregoriet and the harbor, is open and unprotected; because you can pull canoes over this place and thereby go in and out of the harbor [Translated by authors (RA, VTK 365:465, Oxholm's voyage, plan XVI)].

#### 4. Correspondence related to Prince Frederik's Battery

This following texts, here placed in a table to ease the reading, refer to reparations of Royal buildings. Only data for St. Thomas and St. John have been translated. In the original document are also data for St. Croix. The prices are in the Danish currency *Rigsdaler*.

For reparations of Royal buildings the Main Book is used

A. the artisans pay

St. Thomas and St. Jan

Year 1777

The Fort at Christiansfort	256,72
The battery on St. Jan	3191,20
The weight-house	9,74
The New Battery on the point	2628,21

The Provision place or the big store house 1190,31

7326,28

1778

The fort in Christiansfort 18,24

The battery on the point 74,72

St. John 548,32

Commandant house 36,48

Custom house bridge 8,48

The battery on the point 88,89

1779

The Battery on the point 2473,72

The Fort Christiansfort 42,42

Provision chamber 301,90

Commandant house 204,72

Weight-house 91,00

On St. John 1699,88

1780

The Battery on the point 11,48

The fort Christiansfort 185,78

The Weight-house 131,56

The General office 3,72

## B. The Value of Material

The Royal buildings used the following materials with the indicated costs:

1777 at St. Thomas

To the big storehouse 554,60

The smaller storehouse 187,27

The Fort 296,74

The Point Battery 301,37

1778

The General Office 654,40

The Commandant house 85,36

The Customs house 33,52

1779

The Point Battery 1792,85

The Mast house 3930,25

The Store house 150,00

The commandant house 568,32

1780

New buildings:

The battery on the point 7320,95

The guard house on the long point 3037,15

(RA, VTK 365:466, no. 336, For reparationer af kongelige bygninger..)

These following passages elaborate on the materials used on Prince Frederik Battery.



## A. Reparations and expenses

Year 1781

By the fort brick work, by the battery,<sup>2</sup> and

No. 6 by the Regnbakken is used lime 11,00

Year 1782

No. 15<sup>3</sup>: for the Printz Frederich Battery is used 90 Barrels lime 120,00

No. 16: A canoe for Printz Frederichs Battery 99,00

No. 17: For this a lock and chain 18,12

(RA,VTK 365:474, Litra A)

The following is taken from a document with the title "Copies of the bills arriving at the Royal buildings reparations for the year 1783 as known by the working people, namely: The Fort and Battery" It is signed by the royal bookkeeper office on St. Thomas August 8<sup>th</sup> 1786:

### The Fort and Battery

Jan. 14<sup>th</sup> For lumberman Thursach, to put and (...?) wheels for the gun carriages on the P. Frid. Battery, certificated with capt. v. Trolle 5,00

Feb. att. For master builder Cornelius bill, certificated by v. Rohr, for brick work and the house end by the baker house from Sep. 23 to Nov. 4 1782. 170,00

Ditto ditto ditto from Nov. 7 to Dec. 12 for work by Printz Frederich Battery. 247,12

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<sup>2</sup> It might be Prince Frederik or perhaps the Water battery?

<sup>3</sup> This is post number 15 out of several posts

(RA, VTK: 365:474, det kongl. bogholdercontoir på St. Thomas den 8 aug. 1786)

In August 1786 extracts from the Town Council's account protocol list the following letter:

A promemorial from general adjutant Haxthausen to the commandant was shown, where he reports: after orders I have, with artillery officer lieutenant Cronenberg and master smith Kummer, gone to the Printz Friderich battery to look at it and investigate how and by what arrangement the standing cannons best can be secured so they are not carried away by the sea, and that they were all of that opinion, that there into the wall of the battery must be built iron staples and then either to be used a strong rope or iron chain to go through these staples where to are attached some iron rings and then the gun carriages should be pinned down, they believed that the iron chain would be a lot more reliable and easier to handle than the rope (RA, VTK 365: 474, Extract af Raadets Referat Protokol pro Anno 1786, Indkomne breve No. 299, brev data den 10 aug, indk. 10 aug, refer: 10 aug. )

The council's resolution, signed by Malleville and Schwartzkopff, was as follows:

The Commandant and the council agree together with the officers and the smith that the iron chain will be the most reliable and durable way to secure the canons and it is believed best if this arrangement is done immediately, since no one can remember how long ago it was since there was such rough and frightful weather as there was this year (RA, VTK 365: 474, Extract af Raadets Referat Protokol pro Anno 1786, Indkomne breve No. 299, brev data den 10 aug, indk. 10 aug, refer: 10 aug. )

The same year the following letter was also found:

The council should also notice that because of unexpected circumstances the brick master has not been able before today to deliver the asked estimation of the council's agreed resolution on no. 299 about the arrangement of the adaption on Printz Friderichs Battery, and for this is found to be needed 15 barrels of lime (RA, VTK 365: 474, Extract af Raadets Referat Protokol pro Anno 1786, Indkomne breve, No. 344, brev data sep 8, ibid, ibid).

The council's resolution, signed again by Malleville and Schwartzkopff was:

The material manager must be instructed to hand over the required 15 barrels of lime, and the master smith Johannes Kummer is ordered to finish the chain to the according adaption (RA, VTK 365: 474, Extract af Raadets Referat Protokol pro Anno 1786, Indkomne breve, No. 344, brev data sep 8, ibid, ibid).

The following boxes refer to different expenses used on Printz Frederik Battery.

Expenses on Royal building 1793

Prinzt Friederik Battery: 25 rd.

(RA, VTK 365: 474, Udgifter til kongelige bygninger 1793)

The following irregular expenses by the Royal buildings on St. Thomas and St. John together with material bought etc. to the most humble approbation anno 1799

novb. 18

for a boat bought to the battery 50 rd.

(RA, VTK 365: 474, De følgende uregelmenterede udgifter ved konglige bygninger på St Thomas og ST. Jan samt indkøbt materialer med videre til allernådigst approbation anno 1799)

List for the year 1802 for the royal buildings on St. Thomas of used materials and other etc. in the same year which have been paid to the artisans.

Printz Friderichs battery

Wood and timber:

(...?) 200

value: 25

building lime

Barrels: 5

value: 7,78

brick stones:



pieces: 100

value:1,54

sum:24,36

signed

The royal magasin on St. Thomas February the 6th 1802

Krüger

(RA, VTK 365: 474, Fortegnelse over de I aaret 1802 til de kongelige bygninger paa St. Thomas, forbrugte materialer sortes med mere samt det i samme Aar til haandværkne udbetalte.)

The following is a statement of artillery and cannons on Prince Frederik Battery made in connection with the English occupation of the Danish West Indies. The information is taken from a larger set of documents stapled together and labeled Litra A to N. It was made in connection with a letter from von Scholten to the Chamber of Customs in August 1801(RA, VTK 365:533, Pro Memoria, Aug 1 1801, von Scholten). Parts of this letter are cited in the following section 5.

*Litra E. No. V*

List

Over how strong the defense was on the 11 of March 1801 when the alarm was raised on the alarm square when an English fleet was sighted.

Detached:

Prinds Frederichs Battery:

Colonel Constable 1

Garrison 5

Free Negroes 34

In total – 40 men

(RA, VTK 365:533, Litra E. No. V)]

*Litre H. No. VIII*

List

The numbers of different corps who met up at the alarm square on March 28<sup>th</sup> 1801.

Notes:

The Garrison efficient strength was beside the staff officers<sup>4</sup> in total 115 men, of these were on

St. John 8 men

Bakkeron Battery<sup>5</sup> 12 men

Prinds Frederichs Battery 14 men

The (full?) canons 19 men

Sick 15 men

66

Remaining 49 men

Strength of the Militia

The Free Negroes efficient strength under the non-commissioned officer in total 185 men

Among these quite useless 4 men

Sick 12 men

A trumpeter by the cavalry 1 man

To the sea and (...?) 30 men

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<sup>4</sup> The Danish title is "Ober officer".

<sup>5</sup> It must be the battery on the hill. The ending of the word is hard to read, it can be "Bakkeren" or as written here "Bakkeron".

The constables 15 men

Thereof being on Bakkeron Battery and Prinds Frederichs Battery 25 men who though only can do the guard but not capable to fight 11 men

(Given free?) 6 men

104

Remaining 81 men

(RA, VTK 365:533, Litra H, No. VIII)

*Litra K, No. X*

Promemoria

n

On Prinds Frederichs Battery:

1 piece 18 pound iron cannon on a long gun carriage<sup>6</sup> in bad shape

2 pieces 8 pounds iron cannons on gun carriages<sup>7</sup>

2 pieces 6 pounds iron cannons on ditto

As the last 4 are in good and useful condition they cannot be considered to do anything else than endure even if several shots are made.

[Then the Bakkeron Battery is described]

Beside these lies in the fort some old canons, 8 pounds as well as 6 pounds, and in addition some guns carriages. On Prinds Frederichs Battery as on the Bakkeron Battery 30 shots per cannon.

St. Thomas the 25th of March 1801

(Stoball?)

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<sup>6</sup> In Danish the word "lavet" is used

<sup>7</sup> In Danish the word "rapert"



(RA, VTK 365:533, Litra K. No. X)

## 5. The Battle with the English Ships

The battle between the English ship *HMS Arab* and the Danish *HDMS Lougen* also involved the Prince Frederik Battery. The following texts elaborate on the events around March 3, 1801 and of the battery's involvement in the hostilities with the English in the beginning of 1801.

The first cited text is from a report written by bookkeeper Melsted to the Chamber of Customs on April 3, 1801. It tells about the tensions built up in February and March between the English and Danes around the harbor of St. Thomas, the English battle on the 3rd of March and how the Prince Frederik Battery was involved:

Since the 3ed of March there has been constant anxiety and confusion; and the more conviction about England's hostile disposition as a frigate of Bermudian *Letter of Mark* attacked the war brig Lougen on its passage from St. Croix to here. Though they cut it off from the harbor and although it, with its use of carronades<sup>8</sup> was able to answer the first salvoes or (escape?) the enemy, it fought itself through with only a little damage on the ropes. Nobody got shot; only by incautiousness one fell overboard. Lieutenant Dodt got a (dull?)<sup>9</sup> bullet on the left shoulder which though did not wound him. The English frigate had 8 dead and 10 wounded by 2 blows, and of other shots from the bow and one cannon blown up. The battle started by the afternoon at 4½ o'clock and lasted about 5/4 hours. On the 5<sup>th</sup> we got confirmation about the embargo put on all Danish ships, and that captain Holm was taken to Montserrat, and that all Danish and Swedish ships were taken there. Already on the 14<sup>th</sup> of February we saw 2 and more English frigates cross over here, (right under the?) coast they searched and kidnapped ships. – On the 21<sup>st</sup> of February the Point Battery shot after a frigate which (.....?) unexpectedly took a Danish schooner by Boiken Island. But from the 6<sup>th</sup> of March the number of frigates blocking the island was increased to 6. – The 11<sup>th</sup> an English fleet showed itself east of the island, which brought shots of alarm here, and everything came in motion, but it sailed eastward. The 14<sup>th</sup> a privateer schooner hunted a Danish schooner close to the harbour, which the Point battery saved. The 17<sup>th</sup> of March we were told that a frigate had cut out ships from Frederiksted's anchorage. The 23ed we got news that an English expedition had left from Martinique to (...?) St. Bartholomæus and St. Martin. The 27<sup>th</sup> in the afternoon we got sight of the hostile squadron, 25 sail strong. The 28<sup>th</sup> they passed the harbor of St. Thomas, and lay to anchor southwest beneath the island. At 12 o'clock in the afternoon under a *flag of truce*, led by brigadier Mailland and captain King of the sea department the surrender of St. Thomas was demanded. (RA, VTK 365:533, Copy Rapport no. 5, April 5 1801, St. Thomas, Melsted).

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<sup>8</sup> The Danish word is "kort-skyts".

<sup>9</sup> It seems the Danish word is "mat".

The report then tells about the capitulation and what kind of military was to be found. The document then continues with the following:

The increased defense consisted of the following: a) A Battery east of the harbor which consisted of 6 Pieces, 4 Americans and 2 French 8 pounds which the commandant just newly had bought. This battery is placed in the middle of a bay close by the beach. b) A battery with 2 short 24 pounders up on a hill above the first one. c) The privateer schooner Eagle, which captain Jessen, immediately after his arrival here brought, and was placed as a floating battery in the western corner of the harbor, to shoot the entrances to the so called Gregori. – Also, sandbags were placed on the parapet of the old batteries, namely Prinds Frederich and the Vand Battery<sup>10</sup>. – On the fort was in total 28 canons. The garrison was thus detached, so at the fort were only 24 men when the alarm was raised. The whole army with guns did not add up to more than 300 men. – On the Vand Battery was approximately 150 men, mostly from the Danish ships which were lying in the harbor. These numbers adding up to 77 (RA, VTK 365:533, Copie Rapport no. 5, April 5 1801, St. Thomas, Melsted).

The next passage is from a document written by Lindemann on St. Croix to the Chamber of Customs on the 15th of April 1801:

On the 3ed it was agreed with captain lieutenant Jessen, commandant of the war brig Lougen which until this date had been lying here in the harbour, to cross over to St. Thomas harbor, to find out what other information had arrived. Moreover it was agreed that the war schooner Den Aarvaagne should follow at a certain distance from the Lougen, and if it should meet something hostile, the brig should find itself useful, and immediately return to inform the government about what had occurred. This happened and late in the evening by lieutenant Munk's report, which a few days thereafter by Captain lieutenant Jessens written report was confirmed (RA, VTK 365:533, Allerunderdanigst Rapport, April 15 1801, Lindemann)

The following citation is from von Scholten's promemoria written on August 1 1801 on St. Thomas.

I found out on the second of March that the Danish ships, according to an order from England, were detained in both English harbors and in the sea. The third of March the war brig Lougen was attacked by the frigate Arab and a privateer from Halifax in sight of the harbor and chased until the cannons on Prinds Frederichs Battery started to play. I therefore made all the same assumptions as last year which I have already in a humble report have sent to you. The defense here on the island is in such a state that one cannot think of anything else than to secure a coup de main, which in a way I have succeed in, since a couple of tries by the English to cut out ships from the harbor, as they have done on St. Bartholomaeus and in Frederikstad in St. Croix, have been beaten off here. The brig's attack made all people but in particular the French inhabitants here dismayed. Everyone who could get ships to sail their goods away, left the country with their money. (RA, VTK 365:533, Pro Memoria, Aug 1 1801, von Scholten)]

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<sup>10</sup> The Water Battery

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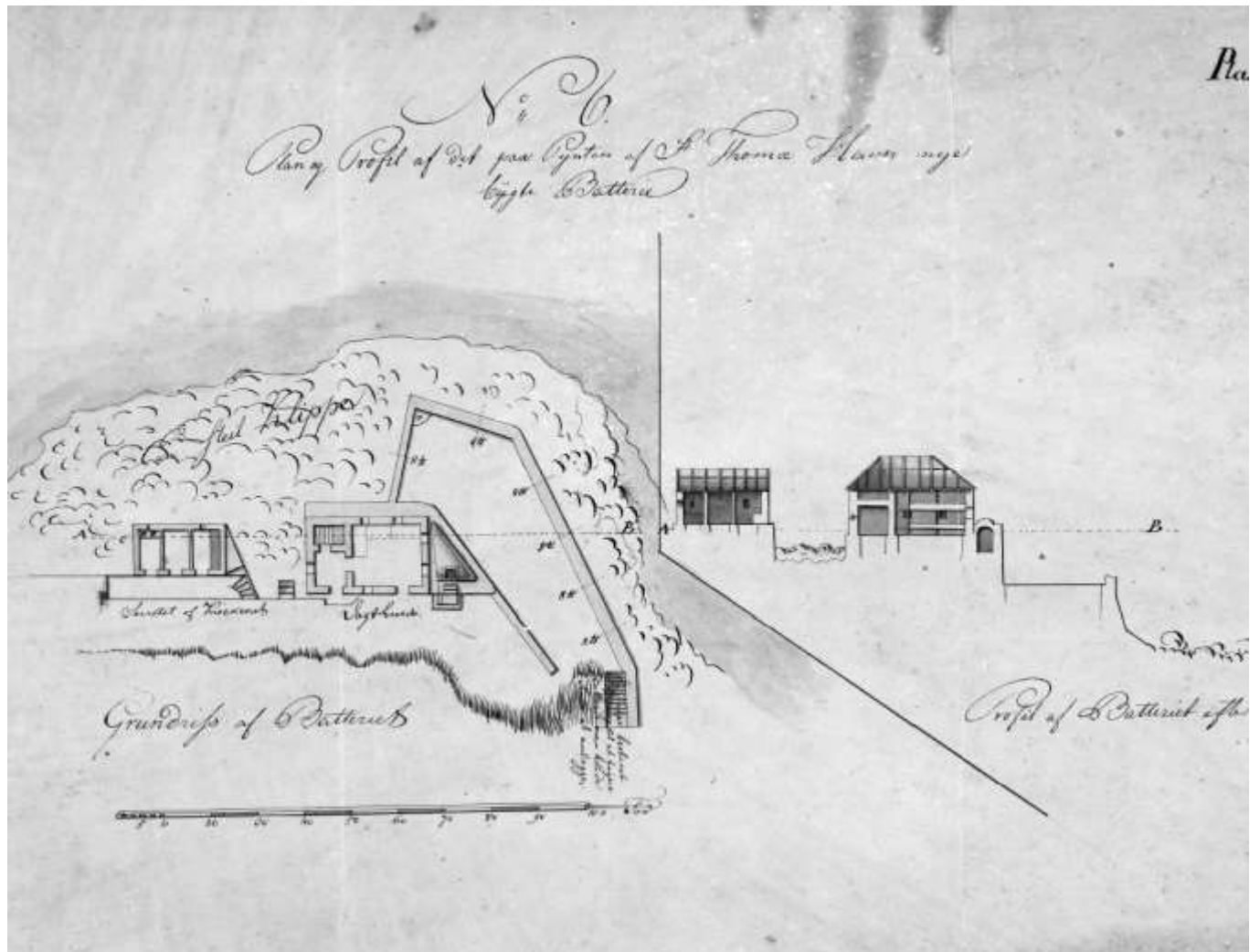
## Rigsarkivet/The Danish National Archive (RA)

Generaltoldkammeret – Ældre del. Vestindisk-guineisk renteskriverkontor/The Chamber of Customs' West India and Guinea (VTK)



- 365: 465      1777-1832 Dokumenter vedk. forsvarsvæsnets og fortifikationerne I Vestindien I-II samt Oxholms rejse 1778-1780/ 1777-1832 Documents concerning defences and fortifications in the West Indies I-II.
- 365: 466      Dokumenter vedk. forsvarsvæsnets og fortifikationerne I Vestindien I-II/ 1777-1832 Documents concerning defences and fortifications in the West Indies I-II.
- 365: 474      1780-1816 Kgl. resolutioner om summen til bygningsvæsenet og andre ubestemte udgifter/1780-1816 Royal resolutions concerning the sum allocated for building activities and other undefined expenses.
- 365: 533      1801-1807 Den engelske okkupation af Vestindien, /1801-1807 The English Occupation of West India.

## Appendix B: 1777 Drawing of the Battery by Oxholm



**Appendix C: DOCUMENTATION OF THE BRITISH SHIPS AND BATTLE  
WITH THE DANES ON MARCH 3, 1801, ST. THOMAS, DANISH WEST  
INDIES (Christopher Donnithorne)**

**DOCUMENTATION OF THE BRITISH SHIPS AND BATTLE WITH THE DANES ON MARCH 3,  
1801, ST. THOMAS, DANISH WEST INDIES**

Christopher H. Donnithorne



## Abstract

On March 3, 1801, the British Frigate, *Arab*, was patrolling her station to the south of the island of St Thomas, two days after receiving orders to stop all Danish, Swedish and Russian ships. She had already been busy, taking a Danish Schooner the day before. This day, she had closed and spoken to the British Privateer, *Experiment*, and in the afternoon sighted another sail to the southwest.

Going to investigate, she encountered the Danish Brig of War *Lougen* who was thought to be attempting to get into St Thomas. A running engagement of about forty minutes took place before the *Lougen* managed to escape under the guns of St Thomas.

Using exclusively British sources, this paper exploits the available records to provide a detailed picture of the *Arab*, the ship, and her state before the action. Captain John Perkins turns out to have been an extraordinary man, and his background, and that of his key officers, is investigated, and an assessment made of the ship's company. A detailed explanation is provided of just how the action was fought, and further information documents what happened, to ships and people, after the event.

## The SHIPS

### *British Man of War, HMS Arab*

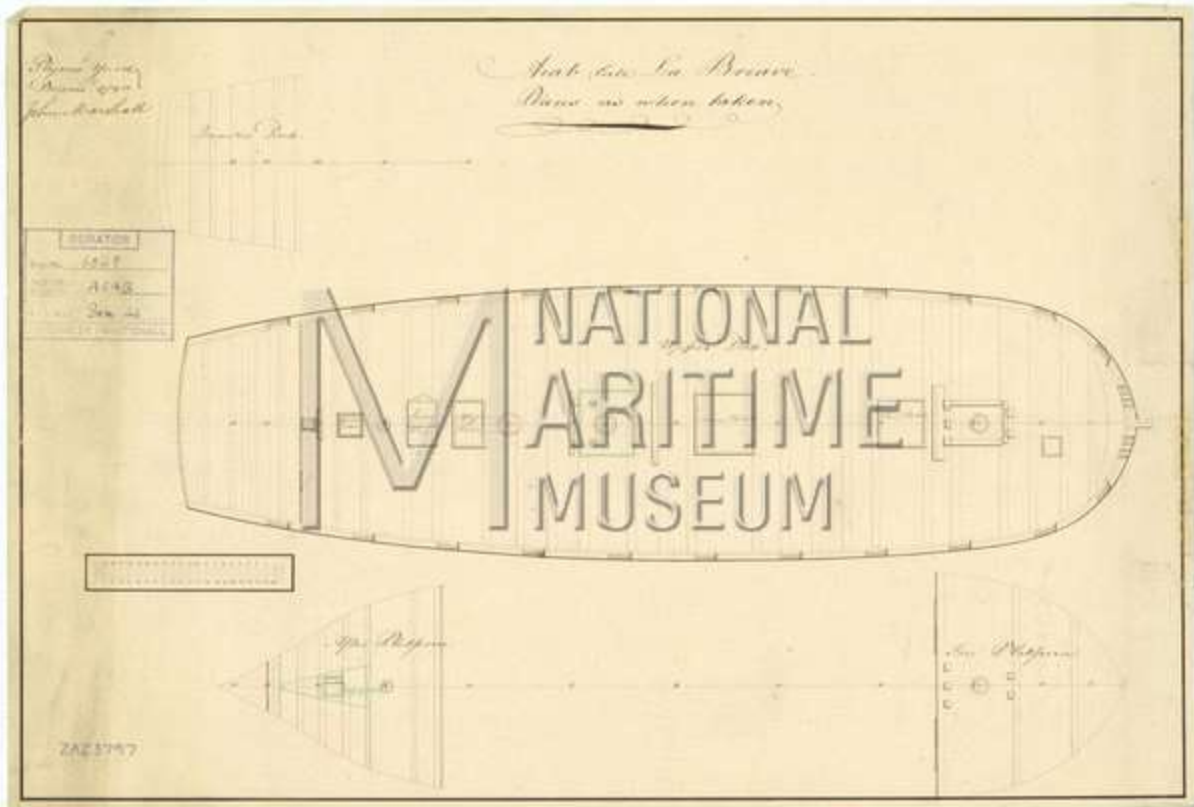
His Majesty's Ship (HMS) *Arab* was a French privateer named *Le Brave* (AL, MSS302/5, 1798), build ca.1797 at Nantes (Winfield 2005:234) and subsequently captured by the British 5th rate *Phoenix* of 36 guns, off Cape Clear on April 24, 1798. As the Captain of the *Phoenix* recorded in his log:

"½ past 3 PM saw a ship to the southward at 4 bore up and made sail in chace ½ past 10 short[ene]d sail & cleared ship for action at 11 came alongside of a French Privateer & commenced action at 1/4 past 11 she struck her colours. Proved to be the *Le Brave* of 18 guns & 160 men. Sent an officer to take possession of her" [TNA ADM51/1243, entry dated April 25, 1798]

She was sent in to Plymouth where she arrived on May 24, 1798 (TNA ADM108/9, p749).



**Figure 19** HMS *Arab* formerly *Le Brave*. Body plan, as taken [NMM, J6553]

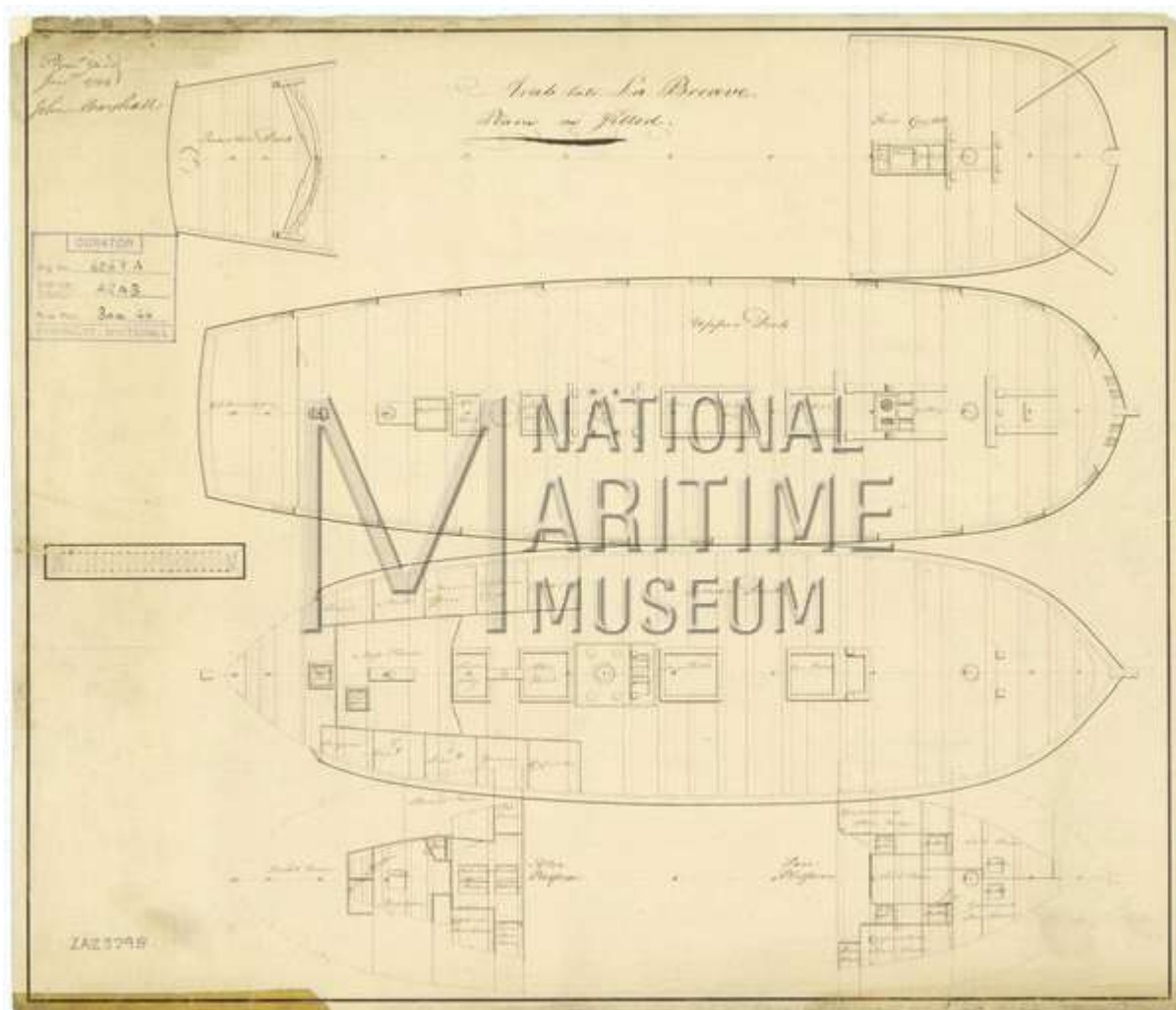


**Figure 210** HMS Arab formerly *Le Brave*. Deck Plan, as taken. [NMM, J6552]

Modified under the supervision of John Marshall, the Master Shipwright at Plymouth Yard, she was registered on the List of the Navy on July 24, 1798, and established as a 6<sup>th</sup> rate with a complement of 155 men (AL MSS302/5, 1798), the armament was to consist of 20 [in number] nine pounder [long] guns [4.082 kg] and two [in number] thirty-two pounder carronades [14.515 kg] (TNA WO55/1832).



**Figure 311** HMS Arab formerly *Le Brave* - body plan, as modified [NMM, J6550]



**Figure 412** HMS Arab formerly Le Brave. Deck plan, as fitted 1798

Dimensions:

Length of the Gundeck	109' 11"	[33.503 m]
Length of the Keel	88' 10"	[27.076 mg]
Extreme Breadth	32' 8 ½ "	[9.969 m]
Depth in the Hold	14' 0 ½ "	[ some sources 14' 32] [4.28 m]
Burthen	505 tuns	[some sources 505 48/94]



[c. 5772.476 kg] ??

She left dockyard hands on April 8, 1799.

### *The British Privateer, Experiment*

Both the Captain's and Master's logs record that the *Arab* had spoken to the *Experiment*, described in both records as a "Privateer of Bermuda" (TNA ADM51/1406 and TNA ADM52/2701 respectively, entries dated 4 March 1801), on the day of the action. However, from these records alone, there is no evidence that the *Experiment* played any part in the action itself, and it would have been very unusual if she had. Indeed, the previous year, the Commander in Chief (Rear Admiral Duckworth), responding to a complaint about privateers from the Governor of St Croix, wrote "I much fear that I shall not be enabled to ... [get] ... further information from the Privateers in question as I am totally ignorant of their movements and equally so of the Ports to which they belong" (TNA ADM1,323, letter to Admiralty, dated 11 July 1800). Privateers may have been licenced by the state, but they were privately financed with the expectation of making an operating profit. For a number of obvious reasons, assisting British warships would not have featured in the business plan, not least because the chance of receiving any payment for resulting damage would have been virtually non-existent.

It is possible that the licences for such privateers could be found in the various Admiralty Court records, but such a search is beyond the scope of the current research.

## *Danish Ships*

The research objective was to search British archives for the British ships. For completeness, included here are the few pointers found in those archives, to the Danish ships.

The Captain of the *Arab*'s log records 'the Danish Man of War Brig & Schooner', and only the Brig was engaged, while the Master mentions only the Brig. It is pure assumption, based on the names given in the research brief, that these two ships are the *Lougen* and *Den Aarvaagne*: neither are mentioned by name.

The *Lougen* is addressed below. Of the Danish ship named *Den Aavaagne*, presumed to be the Schooner referred to in the Captain's Log, the *Aarvaagne* (presumed to be the same) was taken at St Croix on April 1, 1801 (TNA ADM1/323, report dated April 1, 1801). There is no evidence in these sources that she had any part to play in the action.

## **The PEOPLE INVOLVED in the ACTION**

### *General*

The tracing of people, even commissioned officers, during this period is notoriously fraught. The following notes about the officers reflect the entries currently held in the *Naval Biographical Database* (NBD), using 'intelligence gathering' software. To avoid undue interruption of the text, individual sources for information quoted from the NBD, are not recorded here. Due to the method of data entry used for the NBD, there is no guarantee of accuracy or completeness.

### *Captain John Perkins*

Born in Jamaica ca.1745, John Perkins was “described as a mulatto, the child of a white father and a black mother”(Oxford Dictionary of National Biography [ODNB]: online edition). With the probability that his mother was a slave, this would have meant that Perkins, too, was legally a slave, and his formal education necessarily limited, “he could write only to the extent of signing his name mechanically” (Lecky: 1/102).

The sources provide confused signals about the next period of his life. ODNB records that “Perkins must already have been an experienced mariner by the outbreak of the American War of Independence in November 1775, when he entered HMS *Antelope*, flagship at Jamaica, as a pilot, and later claimed to have been ‘from his youth ... engaged in the Sea Service’ ...”, and notes his first command as the *Punch* Schooner, between 1778 and 1779 (ODNB). Another source notes appointment to command the *Punch* after receiving his commission which seems most unlikely (Naval Chronicle [NC]: 27/352). No such appointment or ship (on the List of the Navy) has yet been identified, which raises the distinct possibility that Perkins could, perhaps, have been employed as a semi-official Privateer Captain at this stage. Certainly his fame was spreading, and hence his nickname on the Jamaica station, “Jack Punch” (Lecky: 1/102).

What is certain is that, in October 1781, he was appointed to command the *Endeavour*, a Schooner recently purchased at Kingston, Jamaica “ as an Advice Boat and for gaining intelligence” ( TNA ADM1/242, report from Adm Parker dated Nov 16, 1781). She was commissioned as an armed vessel on the establishment of a sloop on October 15, 1781, the date of Perkin’s local warrant as Lieutenant which was confirmed on February 25, 1782. Unusual is the fact that the latter date was taken as his seniority. He was made Master & Commander (of the *Endeavour*) by Admiral Rowley on July 11, 1782, but this was not confirmed and the ship was put out of commission at Jamaica in July 1783 (TNA ADM34/296, entries 1 and 55).

During the American War, Perkins built an outstanding reputation. “During his command of that vessel [the *Punch*], and several others, he annoyed the enemy more than any other officer, by his repeated feats of gallantry, and the immense number of prizes he took. His knowledge of the different ports &c. in the West Indies was, perhaps, seldom equalled, and never surpassed” (Naval Chronicle [NC]: 27/352). Another source puts a figure on his achievement, “his claim to have taken 315 prizes and captured over 3000 prisoners in the course of the war was officially endorsed by the Jamaican house of assembly” (ODNB).

For the next decade appointments were rare, and circumstantial evidence suggests that he remained in Jamaica, where “he lived with little regard to the decencies of civilisation” [Lecky: 1/102]. He is known to have visited Santa Domingo in 1792, possibly on a spying mission, when he was arrested at Jeremie and sentenced to death. Expediently, whether by design or coincidence has yet to be established, the *Diana*, Captain [later Admiral of the White] Thomas Macnamara Russell, appeared off Jeremie, the day before the planned execution. At a formal dinner given by the Colonial Assembly, he represented that:

“there was a Lieutenant Perkins, of the Royal Navy, cruelly confined in a dungeon, at Jeremie, on the other side of the island, under the pretext of having supplied the people of colour with arms; but, in fact, through malice, for his activity against the trade of that part of St. Domingo, in the American War. Captain Russell stated, that before he had ventured to plead his cause, he had satisfied himself of his absolute innocence; that he had undergone nothing like a legal process - a thing impossible, from the suspension of their ordinary courts of justice, owing to the divided and distracted state of the colony; and yet ... he lay under sentence of death”.

The assembly promised an immediate pardon, but prevaricated the next day, February 16, 1792. From the full account of this affair, it is known that Russell immediately

moved his ship closer to the town, and threatened extreme violence, declaring that “he would sacrifice as many Frenchman as there were hairs on Perkins’ head, if they murdered him”. Perkins was released, “a most adventurous and enterprising officer, and good man [was carried] in triumph to the Commander in Chief in Jamaica” (NC:17/ 458-461)

With the outbreak of the French Revolutionary War, Perkins was an obvious choice for employment on the Jamaica station, commanding the *Spitfire* (Schooner, 4 guns) in 1793; the *Marie Antoinette* (Schooner, 10 guns) later the same year; the *Drake* (Sloop, 16 guns) from 1799 to 1800, during which time he was promoted commander; then acting Captain of the *Meleager* (5<sup>th</sup> rate, 32 guns) from July to Sept 1800. In Sept 1800 he was formally promoted Captain, and exchanged appointments (with Captain, later Admiral Sir Thomas Bladen Capel, GCB) into the *Arab*, joining her on Sept 14, 1800.

#### *Lieutenant James Aberdour [or Aberdeurs]*

Passed for Lieutenant in 1799, his first commission, dated Feb 14, 1799, was to the *Arab* which he joined two days later.

#### *Lieutenant George Andrews*

Born in 1778, he was a Midshipman in the *Orion* in Admiral Howe’s action “the Glorious First of June” in 1794. Promoted Lieutenant on Mar 9, 1797, he was appointed to the *Arab* on September 21, 1800, joining the next day.

#### *Master - Duncan Murphy*

Duncan Murphy was serving in the *Royal George* when the Admiral, Lord Bridport, requested the Board to issue him a warrant as Master of the *Magaera*; from this appointment stems his seniority as a Master of April 22, 1798. His warrant to the *Arab*, his next appointment, was dated March 30, 1799, and he joined her on April 7. The Captain’s



Log notes that he was arrested and confined for disobedience of orders between January 26 and February 1, 1801 (TNA ADM51/1406, entries dated Jan 26 and Feb 1). No further information is recorded but we can assume that there was a clash of personalities of some sort.

*Boatswain - John Phillips*

He came from the *Leviathan* (3<sup>rd</sup> rate, 74 guns), and was appointed Boatswain of the *Arab* on December 13, 1800, joining the next day.

*Master Carpenter - Robert Boddy*

Appointed Master Carpenter of the *Arab* on November 29, 1799; later seniority lists suggest the date was November 25 and that this was his first warrant.

*Master Gunner - James Smith*

Previously the Boatswain, warranted November 29, 1799, he was subsequently appointed as the Gunner on March 26 1800. Such changes were uncommon (TNA 35/178, entry no 188).

*Purser - William Wilson*

Appointed to the *Arab* on September 22, 1800, this was his first warrant.

*Surgeon - Richard Hinds*

Appointed to the *Arab* on August 30, 1800; subsequent lists give his seniority as Aug 26, 1800, making this his first warrant. He joined on September 3.

### *The Ship's Company*

The nominal complement was 155. The ship was well short of this, and had no marines onboard at the time. In the year from March 1799 to February 1800, 42 men had deserted, and in the same period 1800 to 1801, 32 men, while, for the whole period, 13 men had been discharged dead. At the time of the action, the ship's company numbered 110. For a small ship without marines, and ample opportunities, the desertion rate would probably have seemed commendably low. Early in the commission, a previous Boatswain had been court martialled, and, under Perkin's command, the Master had been arrested for disobedience, but a cursory look at the Captain's log indicates a relatively low punishment rate. The ship was, materially in a poor state, but the ship was operating independently (always was, and still is, popular), the company was kept busy with essential repairs and the occasional exercise of the main armament, efforts were being made to supply fresh provisions when opportunity arose, and a steady stream of prizes had been taken. Even so, with so many pressed men (throughout the Navy) morale was never going to be particularly good but onboard *Arab*, it was probably about as good as it got.

### **BEFORE the ACTION**

Commissioned in early 1799, the *Arab* had reached Jamaica by June 1799 (TNA ADM35/178, Pay Book, *Arab*, 1798-1802). In December 1800, now under the command of Captain John Perkins, she was transferred to the Leeward Island Station, then based at the Island of Martinique. The Commander in Chief, Rear Admiral John Duckworth was not amused, quickly registering his opinion in a letter to the Admiralty:

“For the information of the Lords Commissioners of the Admiralty I have to acquaint you of the arrival of His Majesty's Ship *Arab* yesterday from Jamaica, with her

foremast useless, sails and rigging entirely decayed, without a Marine, and 30 Men short of complement ..." (TNA, ADM1/323, letter dated Dec 11, 1800 from RA Duckworth to Admiralty, London)

Even though the Admiral promised to repair her as best he was able, given the slender resources available in the temporary yard at Martinique, the ship needed a proper refit; no additional men or marines were found. On January 6, she was making three inches [7.5 cm] of water per hour, and on the January 7, the company was turned to producing junk (shredded old rope) to stop the leaks "round the bends & stern of the ship which the Carpenter found in a very bad state" (TNA, ADM51/1406, Captain's log, entries dated January 6, 7, and 8, 1801)

Coincidentally, on January 6, the Captain records "AM at 7 sent the boat on shore to the town of St Thomas. At 9 the boat returned with 280 lbs [ ... kg] of fresh beef "(TNA, ADM51/1406, entry dated January 6, 1801). Relations with the local Danish administration were obviously satisfactory. Further afield, matters were not so settled. In December 1800, Russia, Sweden, Denmark (and Prussia) agreed to an Armed Neutrality, to which the British Government took grave exception. "Most secret" orders were issued, dated January 15, which did not reach Admiral Duckworth until late February, a slow passage by the *Pacquet* being lamented by the Commander in Chief who had already heard rumours from other sources (TNA, ADM1/323, letter from RA Duckworth to Admiralty, dated March 4, 1801).

A digression is necessary here. At this period, the British Navy started the day at 12 noon. The log for a typical 'sea' day, say March 2, started with entries for PM ( which would equate to March 1 for everyone else), followed by entries, still for March 2, for AM (which would equate to March 2. For the entries and action following, the reference used in this paper includes AM or PM as appropriate as a guide to interpretation.

On March 2, the *Arab* met with the *Southampton*, who had sailed from Martinique on February 26 to provide back-up to the ships at the Saints and to bring orders from RA Duckworth "to detain all vessels under Danish, Swedish or Russian colours" (TNA

ADM50/35, entry dated February 26, 1801, and TNA,ADM51/1406, entry AM, March 2, 1801). The *Arab* had been busy since the beginning of the year. Despite leaking like the proverbial bucket, she had taken several prizes, and the ship had just finished a very tedious period of convoy work. That day, she took her first Danish prize, a Schooner bound from St Croix to Antigua with Mill Timber (TNA,ADM51/1406, entry AM, March 2, 1801).

### **The ACTION**

The Captain's Log for March 4, 1801 reads (with minor modifications to aid the sense):

"PM Fresh breezes and cloudy. At 4 spoke the Experiment Privateer of Bermuda. Bore up and made sail in chace [sic] of a Brig and Schooner standing in for St Thomas, which proved to be the Danish Man of War Brig and Schooner. Fired to bring too [sic] the Brig at which she returned a broadside then a running fight ensued for about 40 minutes during which time we received 2 shot between wind & water our sails and rigging a little cut and 1 gun broke at 5 came within gun shot of the Fort when they fired round and grape shot at us which obliged us to wear round and to stand off by which means the Brig got into port. Ship making little water Carpenters stopping the shot holes.

AM Moderate and cloudy at day light observing the Brig close under the fort with her topmasts struck" [TNA ADM51/1406, entry dated March 4]

The Master's log reads:

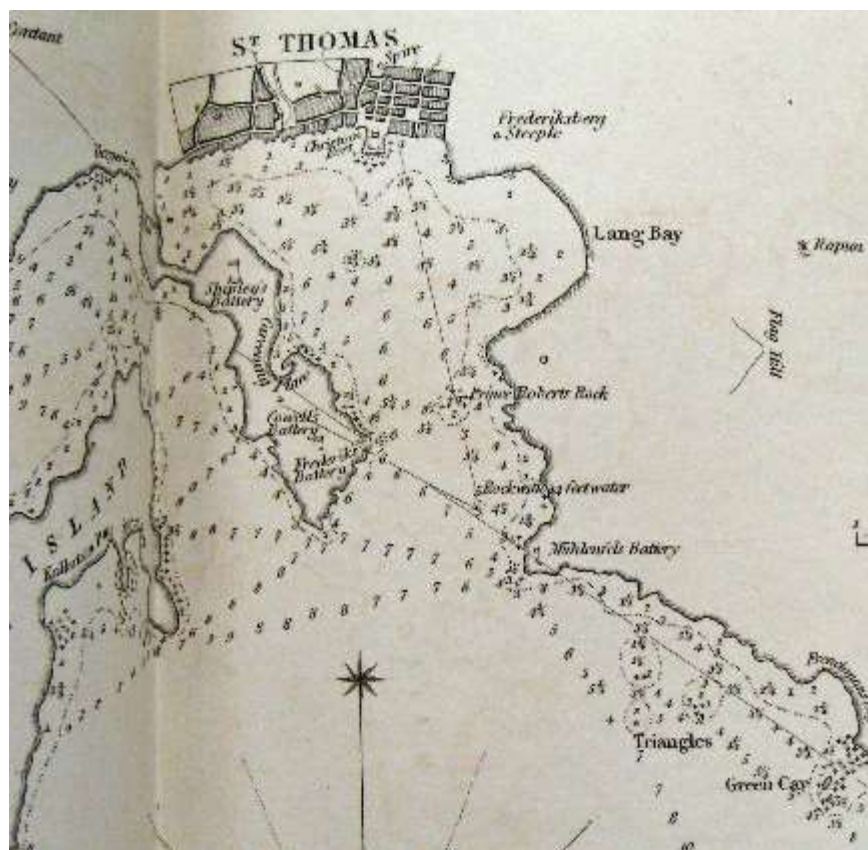
"PM Fresh breezes and clear. Bore up and stood to the southward through the Luger Rock passage at 2 boarded a Sloop from St Thomas to Martinique sent her

into Tortola spoke the Experiment privateer of Bermuda at 3 made all sail in Chace of a Brig in the SW Quarter standing in for St Thomas which proved to be a Danish man of war Brig, fir'd 4 guns to bring her to which she answered with a broadside of Round & Grape wore round across her bow and engaged her. A running fight ensued for about 40 minutes during which time we received several shott between wind and water, the sails and rig[g]ing much injured and one Gun splitt and broke off five [?] feet under [?] the Muzzle ½ past five came within gun shott of the Outer Fort which began to fire at us Round & Grape the Brig stood on past the Fort apparently much damaged in the Hull and Rig[g]ing. Wore & stood to the SE the ship making much water Carpenters emp[loye]d plug[g]ing up the shot Holes. AM fresh breezes and clear standing off and on St Thomas's the ship still making water at noon Tower of St Thomas's NNW 4 Leagues" [TNA 52/2701, entry date March 4]

Comment: There are minor discrepancies between the logs. For example, while the Master records the boarding of a sloop at two [PM], the Captain does not. Likewise the Captain records a brig and schooner standing to St Thomas' while the Master only notes the Brig.



On paper, the two ships are fairly evenly matched, with the slight gun advantage to the *Arab*. Assuming the wind held relatively steady from the ENE (as recorded in the logs) , conjecturally the action unfolds as follows. At 1600 on the afternoon of March 3, with a fresh breeze blowing, the *Arab* speaks to the *Experiment*, Privateer of Bermuda, which has no further part to play in the action. Sighting another sail to the southwest, the *Arab* bears away on a broad reach on the port tack to meet her/them [Comment: The Captain records a brig and a schooner, while the Master records the former only; thereafter there is no further mention of the schooner]



**Figure 513** Approaches to St Thomas  
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The un-named Danish Brig (hereafter referred to as the *Lougen*), is to leeward, tacking up from the south west towards St Thomas. At a range of about a mile, *Arab* fires four guns in the expectation that the *Lougen* will come up into the wind and strike her colours. Whether *Lougen* luffs up is not known but it is reasonable to assume that she now settles on the starboard tack and fires a full broadside, a mixture of round shot and grape, in the hope of achieving a lucky hit on a spar. *Arab* wears round and fires as she crosses the *Lougen's* bow, but likewise fails to make a telling impact. *Arab* is now faced with a dilemma. She cannot bring her other broadside to bear without presenting her vulnerable stern as a target, and she is forced to wear ship again, loses the wind advantage and cannot turn quickly enough to allow her 32pdr carronades [14.515 kg] to influence the action. It now becomes a running fight until *Lougen* manages to get within the protective fire of the fort, when *Arab* is forced to break off what has suddenly become an unequal struggle.

#### *Action - Comment*

From his log, it is obvious that John Perkins was an energetic and effective man, and quick to seize the initiative, and braver than most in those extraordinary times.

There were a number of factors which would have influenced his decisions on the day of the action. He commanded a materially deficient and leaky ship, thirty per cent short on complement. He also knew the Leeward Island command was chronically short of ships and, with the very recent receipt of orders regarding the Armed Neutrality, that he wouldn't be thanked for incurring major damage taking one Danish Brig. These factors would support the conclusion that he ran down to intercept the *Lougen* in the hope that she would strike after a token resistance. When she did not do so, Perkins continued without seeking close action until

the arrival of the *Lougen* under the guns of the fort made further action impracticable. Mission accomplished. The *Lougen*, visibly damaged, would not be a further threat for some time, and the *Arab*, still operationally effective, was free to carry on with her current task.

### **AFTER the ACTION - the SHIPS**

#### *Arab*

*Arab* had taken some damage, a few shot holes and a damaged gun, and nobody killed. The number possibly wounded is more difficult to assess, although an entry would be expected in the Captain's log if the numbers were noteworthy: no such note was made. The Master reported the ship was making "much water", described by the Captain as "a little water", and the main sail was unbent and repaired on March 6. A month later, on April 7, the Captain recorded the ship making "6 feet water in 24 hours", alarming but exactly the same leakage rate as reported in January (see above) (TNA ADM51/1406, various entries]. There is no evidence of anything other than superficial damage and, in the ten days after the action, she detained four sloops, including the Danish Sloop "Loven", and two schooners, including the "Neptune" from St Thomas.

Apart from the action at St Thomas, the ship was present when that island subsequently capitulated on March 28 (TNA ADM50/35, entry dated March 28, 1801), and instrumental in the formal capitulation of the island of Eustatia on April 22, 1801 (TNA ADM1/323, letters including from *Arab* and terms of capitulation). She returned to Plymouth Yard in 1802, was refitted and re-coppered, and left the yard in Dec 1803 (TNA, ADM1/180/9, p749).

In 1805, then commanded by Keith Maxwell, she was part of a squadron in action, near Cape Grisnez, on July 17<sup>th</sup>, and was involved in driving ashore several small brigs of a combined Franco-Batavian flotilla. At one stage of the action, *Arab* was reported as "within musket-shot

of the shore, in two fathoms' water". Such efforts were not without risk. She had seven men wounded, much damage to the rigging, and "several shot in the hull; one of which, or the fragment of a shell, set fire to her on the poop, but the flames were fortunately extinguished" (James: 3/312).

By July 1810, she was considered unfit for further service. Ordered by the Admiralty to be sold or taken to pieces; she was sold for £3,000 to Mr Christopher Smith on September 20, 1810 (AL, MSS302/9, p57)

### *Lougen*

The Danish Man of War, *Lougen* (of 20 guns and 87 men) was at St Thomas when the island capitulated (TNA, ADM1/323, Report dated March 28, 1801). There is evidence of damage on both sides and, if the Master of the *Arab* is to be believed, the Danish brig was "apparently much damaged in the hull and rigging" (TNA, ADM52/2701, entry dated March 4, 1801). It is therefore possible that the same ship remained at St Thomas until the end of the month. Subsequently there are some mentions of the *Lougen*, including, on April 16<sup>th</sup>, when Rear Admiral Duckworth notes arriving at Martinique "this day in His Majesty's Ship *Leviathan*, accompanied by the Danish Brig of War *Logen* [sic]" (TNA, ADM1/323, letter to Admiralty, dated April 16, 1801), indicating that she may have been allowed to retain her identity. Later, a further rather cryptic note has been found, as the Admiral prepared to leave Martinique for a few days, "gave an order for the Lougin Brig to remain in the charge of Mr Marshall who is to keep a good look out to prevent surprise from the enemy placing her in such position as may best suit for that purpose" (TNA ADM 50/35, entry dated May 10, 1801)

## **AFTER the ACTION - the PEOPLE**

*Surgeon - Richard Hinds.*

Remained with the ship until the end of the commission. He died in 1856.

*Purser - William Wilson*

He was still with the ship when she re-commissioned in October 1803, under the command of the Rt Hon Lord Cochrane. Wilson is known to have been appointed as Purser of the *Gloucester* (3<sup>rd</sup> rate, 74 guns ) on April 6, 1812, and to have died in early 1855.

*Master Gunner - James Smith*

In 1802 he became ill, was discharged to the hospital at Antigua, and marked as "Run" on June 30, 1802 (TNA 35/178, entry no 188).

*Master Carpenter - Robert Boddy*

He was still with the ship when she re-commissioned in Oct 1803 under Rt Hon Lord Cochrane. Noted in the Navy List in 1816. Possibly died November 1838 (TNA ADM45/10/307)

*Boatswain - John Phillips*

Known to have left the *Arab* on October 18, 1801.



### *Master - Duncan Murphy*

He remained with the ship for the rest of the commission, and, on leaving, his (then) Captain wrote that he was “worthy of promotion” [TNA ADM106/2932, letter dated Sept 10, 1802].

He was appointed Master of the *Blanche* (5<sup>th</sup>, 36 guns) in 1802; *Lion* (3<sup>rd</sup> rate, 64 guns ) and *Invincible* (3<sup>rd</sup>, 74 guns) in 1806; *Polyphemus* (3<sup>rd</sup> rate, 64 guns ) in 1808; *Clarence* (3<sup>rd</sup> rate, 74 guns ) in June 1812; and to the *Minden* (3<sup>rd</sup> rate, 74 guns ) in July 1812, by which time he was formally qualified to be Master of a 1st rate ship. He had gone from the Navy List between Dec 1815 and May 1816, which would suggest that he died in early 1816.

### *Lieutenant George Andrews*

He left the ship due to illness, being invalided to the *Tromp* on March 22, 1802, which didn't stop his promotion to Commander on Apr 29, 1802. Between 1806 and 1809, he commanded the *Ringdove* (Sloop) and *Intrepid* (3<sup>rd</sup> rate), the latter probably as acting Captain to which rank he was promoted on September 22, 1809. He died at Weymouth, Dorset, on June 16, 1840, aged 62.

### *Lieutenant James Aberdour [or Aberdeurs]*

He remained with the ship until the end of the commission in 1802. Subsequently employed with the Sea Fencibles between 1803 and 1804, he commanded the *Pincher* (Gunboat) from 1804 to 1808, being promoted Commander on Oct 13, 1807. He commanded the *Muros* (Sloop) from 1811 to 1813, promoted to Captain on Dec 2, 1812. He died ca 1820.

### *Captain John Perkins*

By the time of his arrival back in Martinique in the *Arab* on May 7, 1801, Perkins was not well. The Admiral's journal records "arrived His Majesty's Ship Arab, and a Schooner Prize to Captain Perkins, having stated the alarming state of his health, and requesting a Survey." This was quickly done and, the following day, the Admiral "received the reports of the Captains and Surgeons recommending a change of climate to be indispensably necessary for the preservation of the health of Captain Perkins". Perkins is known to have been an asthmatic, better served by a hot rather than cold climate which would not have helped his condition, so what 'change of climate' the doctors had in mind will have to wait further research (NC: 27/352). On May 9, the *Arab* was ordered to sail under the command of the Captain of the *L'Aimable* (TNA ADM50/35, entries dated May 7, 8, 9, 1801). Perkins was formally invalided on May 17, 1801 (TNA ADM35/178, entry no 258).

Perkins recovered sufficiently to be given another command, the *Tartar*, a 5<sup>th</sup> rate of 32 guns, a new ship only completed the year before, and also based at Jamaica. He was actively involved in the taking of the French 74 Gun *Duquesne* off Santa Domingo in July 1803, an action which must have given him particular pleasure after the events of 1792. In company with the *Vanguard* and *Bellerophon* "he fell in with the *Duquesne*, a French 74, and two brigs of 16 guns each; and had it not been for the superior sailing of the *Tartar*, and Captain Perkin's bravery, the *Duquesne* would have escaped; he kept her engaged, by raking her, until the *Vanguard* and *Bellerophon* came up, when she instantly struck, as also the two brigs" (NC 27/352).

He was also involved off St Dominique during the struggle between the French and the slaves:

“There he found himself caught between, on the one hand, Edward Corbett, ‘extra minister’ sent from England to assess the situation, who complained that Perkins was unduly friendly to the black population, and, on the other, his admiral, Sir John Duckworth, who firmly backed him” [ODNB].

This was his last recorded sea command. Now about 59 years old, and ill, he resigned his command in December and retired to Jamaica. There is some slight evidence that he came to England ca. 1806 or 1807, seeking employment and was “offered a command either in the Channel or Mediterranean, which he declined” for health reasons but, from the evidence to hand, this seems unlikely. He probably remained at Jamaica where he died at Kingston on January 27, 1812 (NC27/351/2).

Every officer of the day dreamed of glory, promotion and prizes. John Perkins prospered in a system apparently loaded against him. Possibly for reasons of background, he was denied the important confirmation of his Master & Commander’s appointment to the *Endeavour*, but he rose above this setback and continued to make a positive contribution. In his way, John Perkins realized the dream and, for seizing the initiative at St Eustatia, he achieved the accolade, granted to relatively few, of a letter printed in the *London Gazette*. Reading between the lines of the rather starchy records, it is little wonder that Admiral Duckworth seemed so sorry to lose such a successful and decisive officer. What an extraordinary man.

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J6550 HMS *Arab*, Body Plan, as modified 1798

J6551

J6552

J6553



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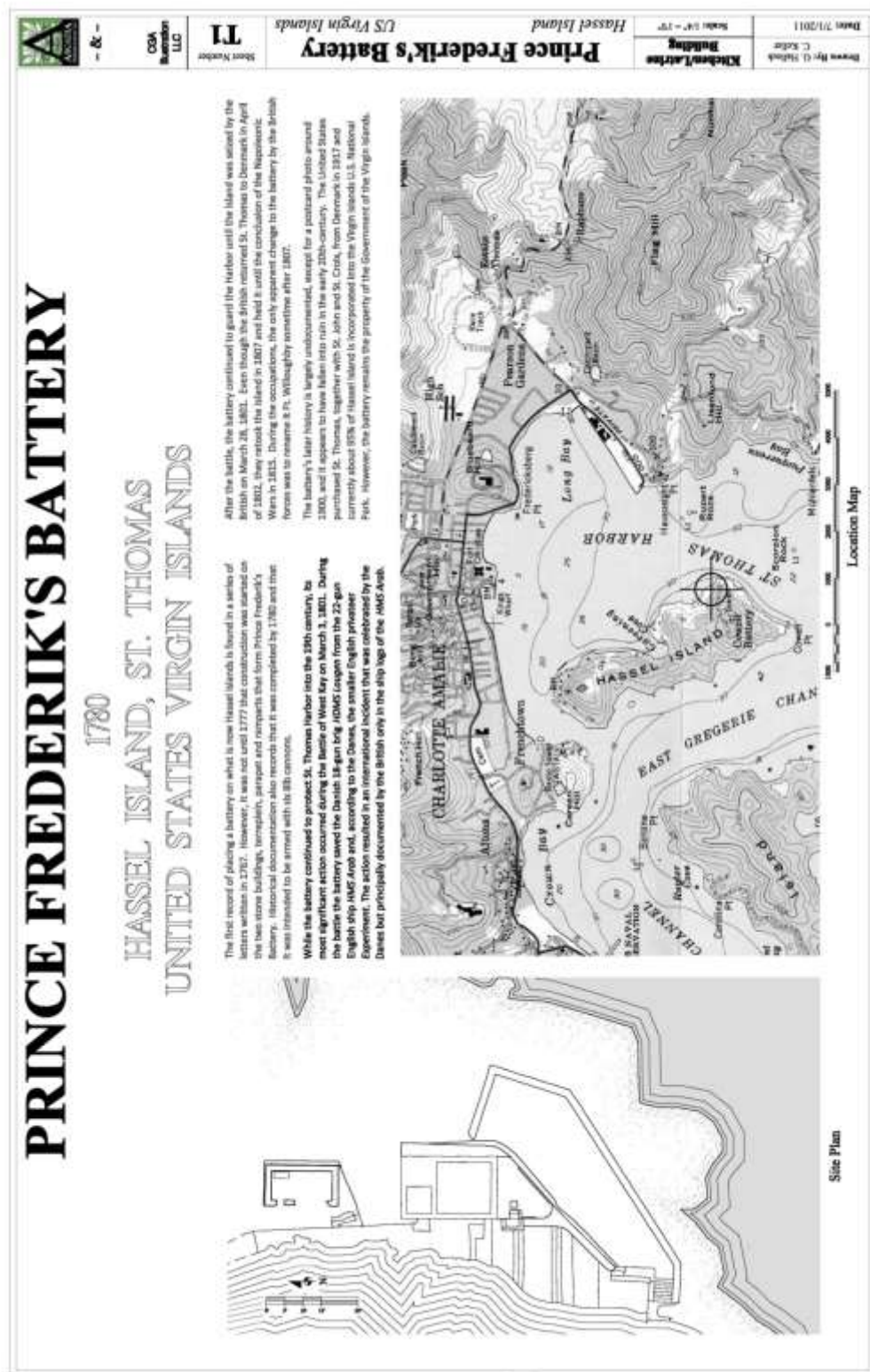
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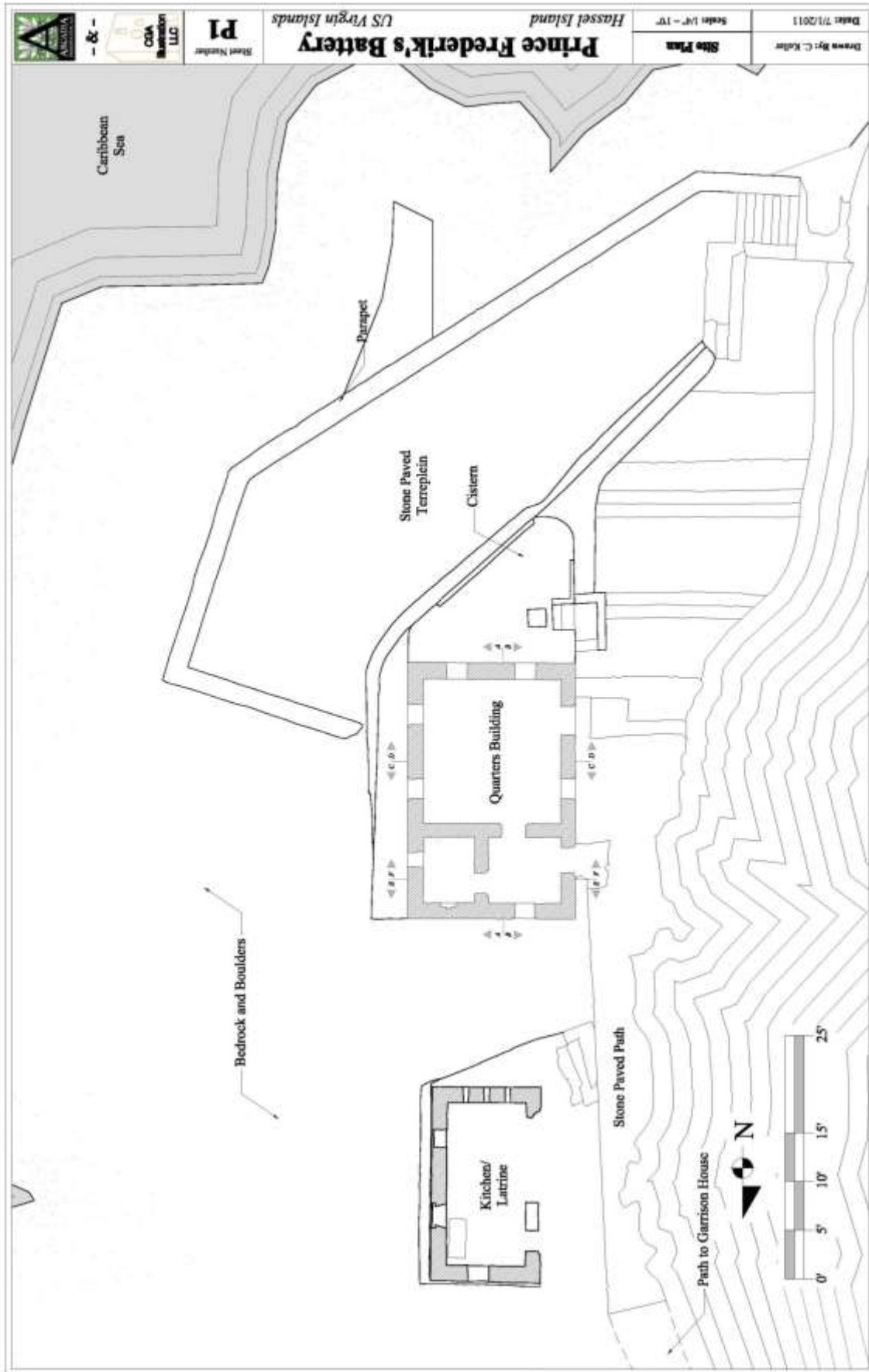
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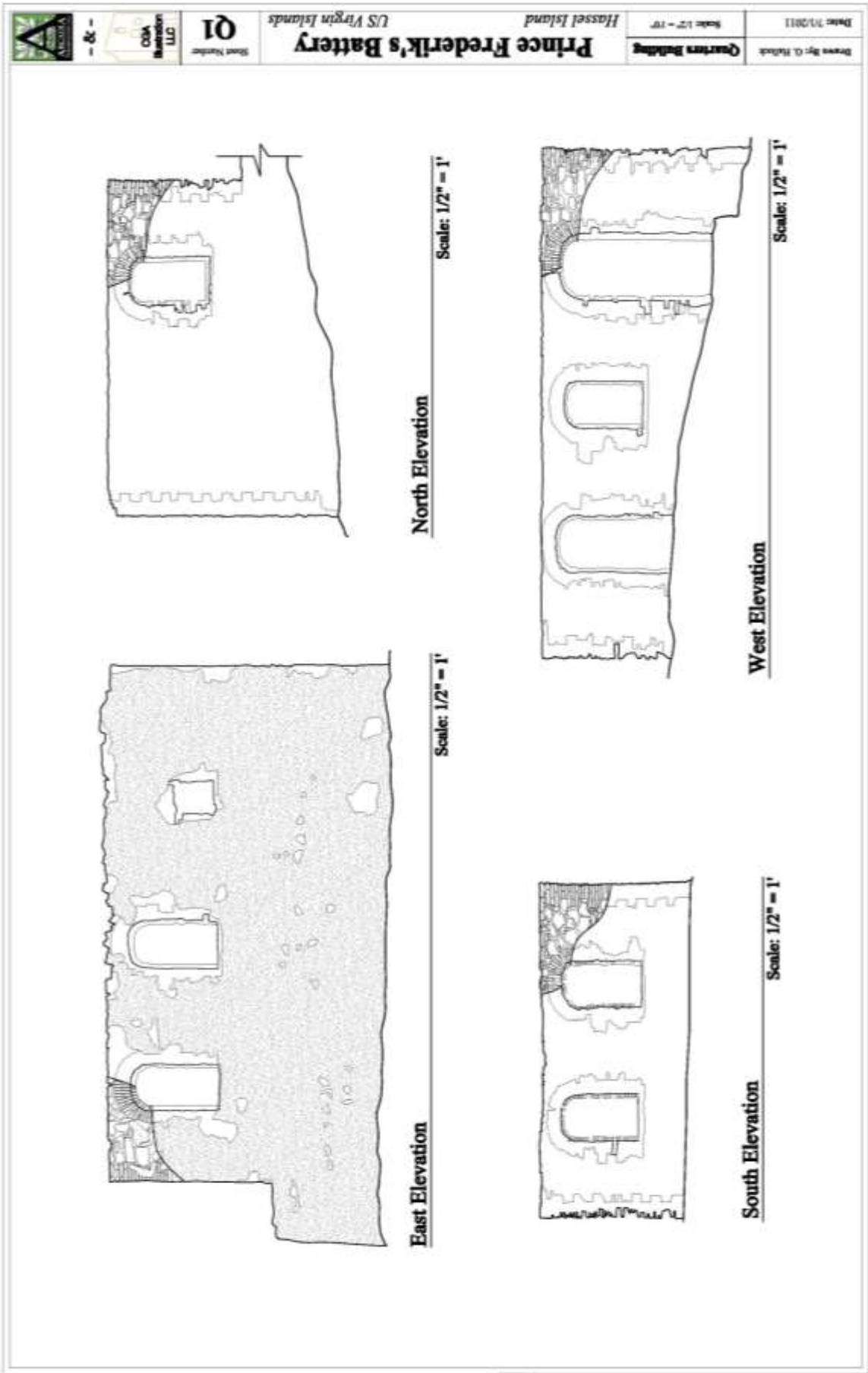
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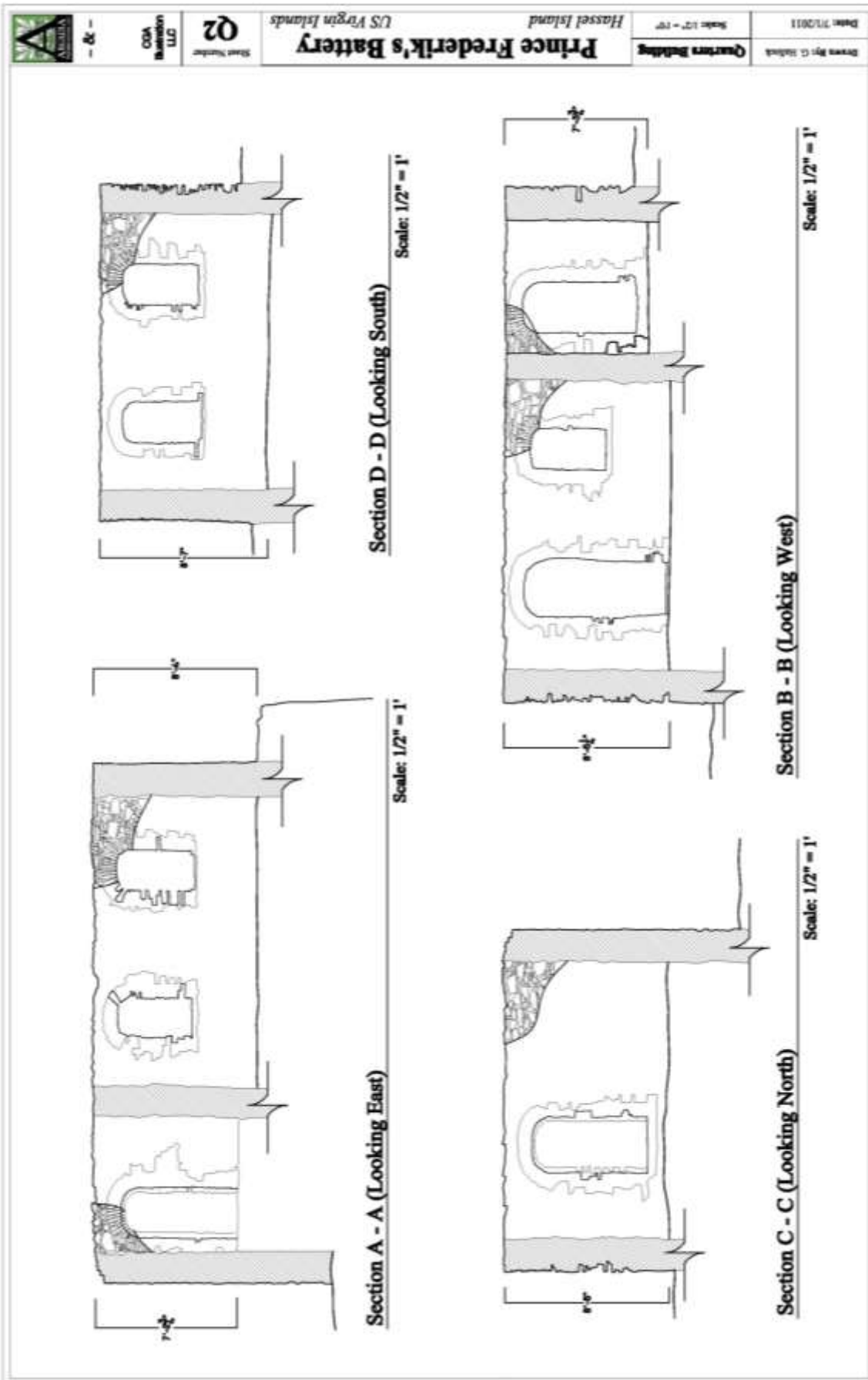
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## Appendix D: Measured Drawings and Site Plan Showing Existing Conditions (not to scale)















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<sup>i</sup> Toftgaard Report. 2 - 4. (RA, VTK 365:466, Litra A, May 2 1767, P. Clausen) and (RA, VTK 365: 466, Aug. 6 1767, Camber of Customs)

<sup>ii</sup> A brief history of earthquakes that affected the Virgin Islands -  
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