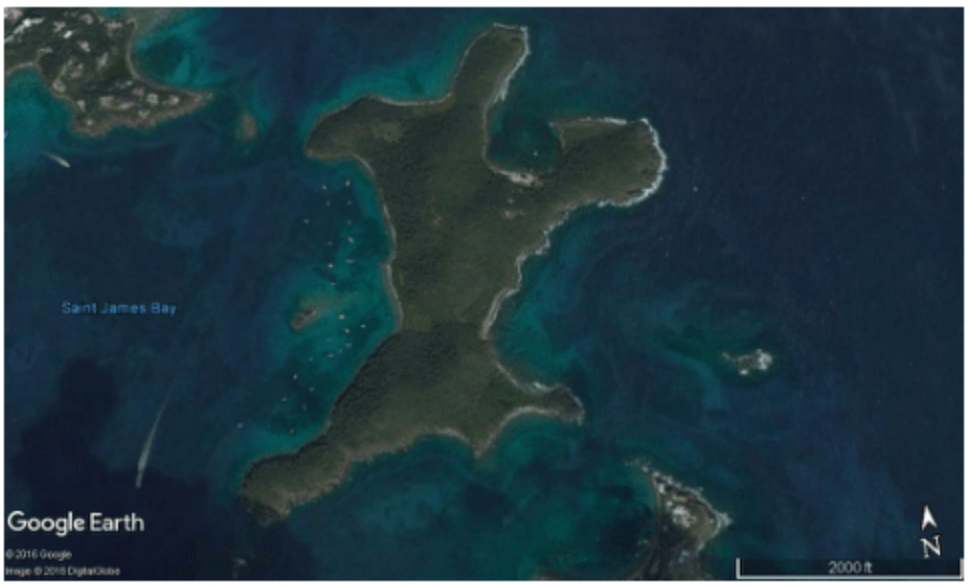
APPLICATION FORMS AND ENVIRONMENTAL ASSESSMENT FOR THE CONSTRUCTION OF TWO DOCKS AND A BARGE LANDING ON GREAT ST. JAMES ISLAND U.S. VIRGIN ISLANDS



PREPARED FOR

GREAT ST. JIM, LLC.

PREPARED BY

BIOIMPACT, INC.
[redacted]. BOX 132
KINGSHILL, ST. CROIX
U.S. VIRGIN ISLANDS 00851
bioimpact@islands.vi

JANUARY 2017

Dawn L. Henry Commissioner
Department of Planning and Natural Resources
Cyril E. King Airport Terminal, Second Floor
St. Thomas, Virgin Islands 00802

Re: Major Water Permit Application for the Construction of a Temporary Barge Landing, an Access Dock, and a Combination Dock and Barge Landing

Dear Commissioner Henry,

Great St. Jim, LLC wishes to make application to the Virgin Islands Government and the Secretary to the Army for a Coastal Zone Permit to construct two docks, one of which is a combination dock and barge landing and a temporary barge landing to provide access to Great St. James Island.

A temporary barge landing is being proposed on the northwestern facing beach. This site is to the west of the sand pond and the associated wetlands. This a shoreline ramp which is 25'wide and 40' in length extends to the Mean Water Line (MWL). Two bollards will be placed to either side of the ramp and two moorings will be installed 75' offshore on either side of the ramp in just over 7' of water depth. The moorings will be installed using helix anchors and will use floating lines as to not disturb the seafloor when not in use. The landing is free of both coral and seagrass colonization, this landing can be quickly constructed and utilized while the combination dock and barge landing on the southeastern side of the island is constructed.

The western dock is proposed on the northern end of Christmas Cove. Historically there was a dock in this location and there are still old concrete piles lying in the shallow water. The proposed dock will be 10' in width and 195' in length extending 187' from MLW and 193' from mean high water (MHW). The dock will connect to an access slab 12' in length and 2' thick. All the ESA listed coral species within the area were located and the dock footprint avoids all ESA listed species. The dock extends beyond the nearshore hardbottom to a depth of 15' out in the uncolonized sand to allow for safe dockage for deeper vessels.

The southern dock is located off the point closest to Little St. James. Again, all the ESA corals were located and the dock was designed to avoid these corals. The dock is "L" shaped and is 20' wide (to allow for barge landing) and 150' in length extending 141' from MLW and 148' from MHW. The "L" then turns east and extends 100' by 20'. A wave attenuating/reef creating system is proposed beneath the dock which will allow for more protected docking inside the dock when seas from the south are rough. The dock has 9' of water depth off the southern end and 7' to 8' on the inside of the "L". The dock has been designed so that barges can approach and land on the end of the dock while vessels can dock along the "L".

The existing dock in Shallow Bay which is not permitted by the USACE in its current configuration will be removed upon completion of a usable new dock.

It is understood that your approval of the renewal must be first obtained by virtue of the authority vested in you by Act No. 4248 of the Virgin Islands Code. Your favorable endorsement is, therefore, respectfully requested.

We also respectfully request that this application be forwarded to the U.S. Army Corps of Engineers Antilles District, Annex Building, Fundacion Angel Ramos, 2nd Floor, Suite 202, Franklin Delano Roosevelt Ave. #383, San Juan, PR 00918 for their review and approval.

Early advice concerning your decision in this matter will be appreciated.

Very truly yours,

Erika Kellerhals

GOVERNMENT OF THE VIRGIN ISLANDS OF THE UNITED STATES
DEPARTMENT OF PLANNING AND NATURAL RESOURCES
DEVELOPMENT PERMIT APPLICATION

FORM L&WD-2
PERMIT APPLICATION

Date Received: _____

Date Declared Complete: _____ Permit Application No._____

Application is hereby made for an ☐ Earth Change ☑ Coastal Zone Permit

1. Name, mailing address, email address and telephone number of Applicant (person/entity with legal interest in the property, to which permit will be issued)

Great St. Jim, LLC
9053 Estate St. Thomas, Suite 101
St. Thomas, VI 00802
340 779-2564

2. Name, title, mailing address and telephone number of Owner of property and Agent (if any)

Owner of Property(s)	Agent
Great St. Jim, LLC	Erika A. Kellerhals
9053 Estate St. Thomas, Suite 101	Kellerhals Ferguson Krobbin PLLC, 9053 Estate St. Thomas, Suite 101
St. Thomas, VI 00802	St. Thomas, VI 00802 340 779 2564

3. Location of activity. Plot No. Great St. James, Red Hook Qtr and C1 & C2, No.64 Red Hook Qtr. PIN No. 109801010100 & 109801010300

Estate Great St. James Island St. Thomas

4. Zoning District R-1 Residential Low Density

4.a State type of Land Uses as specified in the VI Zoning Law, which are applied for (e.g., restaurant, hotel, single-family dwelling, etc.)

Private Dock and Barge Ramp

5. Name, mailing address, email and telephone number of project designer.

Jeffrey Bateman, PE, PLS, Bateman Civil Survey Company, PC, BCSC Dospiva, LLC
5001-12 Chlanders Wharf
Christiansed, St.Croix, VI 00820
340 778-7474

6. Summary of proposed activity. Include all incidental improvements such as utilities, roads, etc. (Use additional sheets if necessary).

A temporary barge landing is being proposed on the northwestern facing beach. This site is to the west of the sand pond and the associated wetlands. This shoreline ramp which is 25'wide and 40' in length extends to the Mean Water Line (MWL). Two bollards will be placed to either side of the ramp and two moorings will be installed 75' offshore on either side of the ramp

Continued:

FORM L&WD-2/PERMIT APPLICATION [redacted]

7. Date activity is proposed to start as soon as permits are granted; be completed 5 months

8. Classification of minor or major permit. Check one:

☐ Minor Permit Application

☑ Major Permit Application

State below which criterion applies in making above check.
Size of Project/ Dock Sizes

9. Application is hereby made for a permit to authorize the activities described herein. I agree to provide any additional information/data that may be necessary to provide reasonable assurance or evidence to show that the proposed project will comply with the applicable territorial water quality standards or other environmental protection standards both during construction and after the project is completed. I also agree provide entry to the project site for inspectors from the environmental protection agencies for the purpose of making inspection regarding this application and that to the best of my knowledge and belief, that such information provided herein, is true, complete and accurate. I further certify that I possess the authority to undertake the proposed activities.

Signature of Applicant or Agent (if not owner) Date

Sign Print

Signature of Owner(s) (Required) Date

Sign Print Jeffrey Epstein, President of Poplar, Inc., Sole member of Great St. James, LLC 1/10/17

Sign Print

FOR DEPARTMENT USE ONLY
Inspector Record

Date Inspected: _____

☐ Application Approved
☐ Application Disapproved

Inspector's Remarks: _____

Inspector Date

Commissioner, Planning & Natural Resources Date

7. Cont.

in just over 7' of water depth. The mooring will be installed using helix anchors and will use floating lines as to not disturb the seafloor when not in use. The landing is free of both coral and seagrass colonization, this landing can be quickly constructed and utilized while the combination dock and barge landing on the southeastern side of the island is constructed.

The western dock is proposed on the northern end of Christmas Cove. Historically there was a dock in this location and there are still old concrete piles lying in the shallow water. The proposed dock will be 10' in width and 195' in length extending 187' from MLW and 193' from mean high water (MHW). The dock will connect to an access slab 12' in length and 2' thick. All the ESA listed coral species within the area were located and the dock footprint avoids all ESA listed species. The dock extends beyond the nearshore hardbottom to a depth of 15' out in the uncolonized sand to allow for safe dockage for deeper vessels.

The southern dock is located off the point closest to Little St. James. Again, all the ESA corals were located and the dock was designed to avoid these corals. The dock is "L" shaped and is 20' wide (to allow for barge landing) and 150' in length extending 141' from MLW and 148' from MHW, the "L" then turns east and extends 100' by 20'. A wave attenuating/reef creating system is proposed beneath the dock which will allow for more protected docking inside the dock when seas from the south are rough. The dock has 9' of water depth off the southern end and 7' to 8' on the inside of the "L". The dock has been designed so that barges can approach and land on the end of the dock while vessels can dock along the "L".

The existing dock in Shallow Bay which is not permitted by the USACE in its current configuration will be removed upon completion of a usable new dock.

GOVERNMENT OF THE VIRGIN ISLANDS OF THE UNITED STATES
DEPARTMENT OF PLANNING AND NATURAL RESOURCES
DEVELOPMENT PERMIT APPLICATION

FORM L&WD-3
ZONING REQUIREMENTS TABLE

The following table shall be completed by the applicant with entries as appropriate for the zoning district in which the activity is taking place. **Not all the requirements will necessarily apply to a particular zone.** Consult the Zoning Law for guidance.

Applicants Name: Great St. Jim, LLC Signature: Poplaw, Inc., Sole Member By _____ Date: 1/10/17

Location of Activity (Plot No.): _____ Estate: Great St. James Zoning District: R-1

1. Proposed use (residential etc.) Residential Access Docks/Barge Ramp
2. Accessory use if any Residential Access Docks/Barge Ramp
3. Number of onsite parking spaces: Existing n/a Proposed n/a
4. Area of lot: n/a ft² _____ acres
5. Area covered by existing buildings n/a ft²; Area covered by proposed buildings _____ ft²
6. Total area of disturbance (includes footprint of all buildings, structures and parking areas) Upland 1550 ft²
7. Setback of building from street property line: Required n/a ft. Proposed none ft.
8. Side yard setback: Required n/a ft. Proposed _____ ft.
9. Rear yard setback: Required n/a ft. Proposed _____ ft.
10. Height of building: n/a ft. Stories n/a
11. Lot width at street line (ft.) n/a
12. Area of usable open space: n/a ft. _____ % of lot
13. Persons per acre ratio n/a
14. Floor area ratio n/a
15. Number of onsite parking and loading spaces n/a
16. Building setback (yards 11, W-2 only) n/a

FOR DEPARTMENT USE ONLY

Inspector: _____ Date: _____ Permit Application No. _____

GOVERNMENT OF THE VIRGIN ISLANDS OF THE UNITED STATES
DEPARTMENT OF PLANNING AND NATURAL RESOURCES
DEVELOPMENT PERMIT APPLICATION

FORM L&WD-4
MAJOR PROJECT SUMMARY DATA

Section I. Applicant

1. Name, address and telephone number of applicant.

Great St. Jim, LLC

9053 Estate St. Thomas, Suite 101

St. Thomas, VI 00802, 340 779-2564

2. Name, address and telephone number of owner of Property and of developer.

Same

Section II. Summary of Proposed Development

3. Describe the proposed development

A temporary barge landing is being proposed on the northwestern facing beach. This site is to the west of the sand pond and the associated wetland. This shoreline ramp which is 25'wide and 40' in length extends to the Mean Water Line (MWL). Two bollards will will be placed to either side of the ramp and two moorings will be installed 75' offshore on either side of the ramp in just over 7' of water depth. The mooring will be installed using helix anchors and will use floating (cont.)

Section III. Description of Proposed Development

4. Name of development Great St. James Access Dock, Temporary Barge Ramp and Dock/Barge Ramp

5. Plot No. _____

6. Zoning District: R-1 Residential

7. PWD Map No. D9-2825-T84 and D9-7346-T004

8. Proposed use (residential, etc. as listed in Zoning Law): Private Dock/Barge Ramp for Residential Property

9. Accessory use if any Access Dock, Temporary Barge Ramp and Dock/Barge Ramp

FORM L&WD-4
MAJOR PROJECT SUMMARY DATA [redacted]

10. Area of Lot(s) (acreage) 80.7 acres and 26.9 acres

11. Area covered by existing buildings (sq. ft.) n/a

12. Area covered by proposed buildings (sq. ft.) n/a

13. Floor area total n/a

14. Floor area ratio (B-1, B-2 zones only) n/a

15. Number of buildings n/a

16. Number of units total n/a

		Person		Persons
17.	Schedule of units:	Efficiencies n/a	x 1.5 Unit	-
		1 bedroom n/a	x 2	-
		2 bedroom n/a	x 3	-
		3 bedroom n/a	x 4	-
		Other	x	-
		Total Persons		

18. Number of on-site parking and loading spaces n/a

19. Maximum building height (stories/ft) n/a

20. Adjoining property land use(s) Private Island no Adjoining Properties

21. Setback of building from street property line (ft.) n/a

22. Side yard setback (ft.) n/a

23. Rear yard setback (ft.) n/a

24. Density (person/acre) n/a

25. Area of usable open space (sq. ft. % of lot) n/a

FORM L&WD-4
MAJOR PROJECT SUMMARY DATA [redacted]

Section IV. Comments

26. Proposed Potable Water Supply (method & quality estimate gal/day)

No Potable Water Proposed

27. Proposed Sewage Treatment (method & quality estimate gal/day)

No sewage treatment proposed

28. Proposed Solid Waste Disposal (method & quality estimate lbs/day)

No solid waste should be created. Any trash brought off vessels will be disposed of in existing trash receptacles on island

29. Proposed Electrical Supply (method & demand estimate KWH for single & 3 phase)

Solar lights will be utilized on the docks

30. Air Conditioning (method & demand estimate (KWH)

No air conditioning is proposed.

31. Other Utilities

32. Other

Section V.

33. Will the development extend onto or adjoin any beach tidelands, submerged lands or public trust lands?

The application is for 2 docks and a temporary barge landing. All are on beach tidelands and extend into submerged lands.

34. Will the development maintain, enhance or conflict with public access to the shoreline and along the coast?

The docks will not conflict with public access to or along the shoreline.

35. Will the development protect or provide moderate income housing opportunities?
Will it displace moderate income housing?

The projec will have no impact on moderate income housing opportunities.

36. How will the development affect traffic on the coastal access roads?

The project is on a private island and will not affect coastal access roads.

By: Porter, Inc, Sole Member
Signature of owner or authorized agent

1/10/17
Date

3. Cont.

lines as to not disturb the seafloor when not in use. The landing is free of both coral and seagrass colonization, this landing can be quickly constructed and utilized while the combination dock and barge landing on the southeastern side of the island is constructed.

The western dock is proposed on the northern end of Christmas Cove. Historically there was a dock in this location and there are still old concrete piles lying in the shallow water. The proposed dock will be 10' in width and 195' in length extending 187' from MLW and 193' from mean high water (MHW). The dock will connect to an access slab 12' in length and 2' thick. All the ESA listed coral species within the area were located and the dock footprint avoids all ESA listed species. The dock extends beyond the nearshore hardbottom to a depth of 15' out in the uncolonized sand to allow for safe dockage for deeper vessels.

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The existing dock in Shallow Bay which is not permitted by the USACE in its current configuration will be removed upon completion of a usable new dock.

GOVERNMENT OF THE VIRGIN ISLANDS OF THE UNITED STATES DEPARTMENT OF PLANNING AND NATURAL RESOURCES DEVELOPMENT PERMIT APPLICATION

FORM L&WD-5
PROOF OF LEGAL INTEREST

AFFIDAVIT

I, Jeffrey Epstein being duly sworn depose and say that:
Applicant(s)* (or John Doe of Entity Applicant)

1. Great St. Jim, LLC ~~am~~ is the (check one)
(I or Entity/Applicant)

☑ Record title owner (fee simple) ☐ Lessee ☐ Other (specify) _____

Of the real property described as Parcel No(s) Great St. James Island and C1 & C2

Estate Great St. James Island Quarter Red Hook & No. 6A Red Hook Island ST. Thomas

***Applicant(s) is required to provide documentation for legal interest stated above (e.g. deed, lease, etc.)**

2. I have the irrevocable approvals, permission, or power of attorney from all other persons with a legal interest in the property to undertake the work proposed in the permit application as more fully set forth in the exhibit (s) attached hereto:

Poplar, Inc, Sole Member

By: _____ 1/10/17 _____
Signature Date Signature Date

Jeffrey Epstein, President of Poplar, Inc, the Sole Member of Great St Jim, LLC _____
Print Print

The foregoing instrument was acknowledged before me this 10 day of January

20 17 by Great St. Jim, LLC at New York county
(Name or Name/Title of Entity)

of the State of New York

Habibe Avdiu October 14, 2018
Notary Public My Commission expires

HABIBE AVDIU
NOTARY PUBLIC-STATE OF NEW YORK
No. 01AV6313116
Qualified in Richmond County
My Commission Expires October 14, 2018

GOVERNMENT OF THE VIRGIN ISLANDS OF THE UNITED STATES DEPARTMENT OF PLANNING AND NATURAL RESOURCES DEVELOPMENT PERMIT APPLICATION

FORM L&WD-7
CORPORATION/ASSOCIATION APPLICATION
(To be used when a corporation or association is making a Permit Application in Tier I)

Great St. Jim, LLC
(Corporation or Association Name)

Poplar, Inc., Sole Member

By: _____
(Signature)
President or Vice-President or equivalent

Jeffrey Epstein, President of Poplar, Inc., Sole Member of Great St. Jim, LLC
Print

WITNESS:
Della Klein

Darren Indyke, Secretary of Poplar, Inc., Sole Member of Great St. Jim, LLC
Secretary Name

ATTEST: Darren Indyke
Secretary Signature Seal

The foregoing instrument was acknowledged before me this 10 day of January 2017 by Great St. Jim, LLC (Name or Name/Title of Entity) at New York county of the State of New York.

Habibe Avdiu
Notary Public

October 14, 2018
My Commission expires

HABIBE AVDIU
NOTARY PUBLIC-STATE OF NEW YORK
No. 01AV6313116
Qualified in Richmond County
My Commission Expires October 14, 2018

Attached Supporting Documents:
1. Tax clearance letter from the Bureau of Internal Revenue
2. Property tax clearance letter from the Lieutenant Governor's Office.
3. Corporations and Associations: Certificate of Good Standing or equivalent, organizational documents & Amendments (Articles, Bylaws, Operating Agreement, Declarations)

(Form L&WD-8) 1:08:96

Flood Plain Determination and Permit Application

To be completed by all applicants

1. Owner: Great St. Jim, LLC

   Mailing Address: 9053 Estate St. Thomas, Suite 101,St. Thomas, VI 00802

   Home Tel. #: _____ Business Tel. 340 779-2564 #: Cellular #: _____

2. Designer: Jeffrey Bateman

   Lic. #: 1052-E Tel. #: 340 778 7474 Cellular#: 340 513 4684

3. Plot #: C1&C2 Estate: Great St. James Island Quarter: Red Hook & No. 6A Red Hook

   Flood Zone Designation: VE EL 8

If your flood zone designation is Zone A, AE, AO, Al-30, A99, V, VO, Ve or Vl-V30 as shown on the NFIP FIRM Map, then complete this section.

**********NFIP Flood Zone Designation**********

1. Type of development:

   1 or 2 Family dwelling ☐ Mobile Home ☐ Non-Structural ☐

   3 Family or more, Apartment or Condo Structure ☐ Non- Residential Structure: ☑

   Commercial Structure ☐ New Construction ☑ Non-Structural ☐

   Addition to Structure ☐ 50% Substantial Improvement of Existing Structure ☐

   Description of Activity: Construction of an Access Dock, a Temporary Barge Landing and an Access Dock/Barge Landing

2. Base Flood Elevation at the Development Site is n/a ft. above mean sea level (msl).

3. Elevation of the First Floor, Basement or Flood proof level for proposed structure is n/a .ft.

4. Describe the Non Structural Activity i.e. septic tank, waste water treatment plants etc. (including the location and development: n/a

5. Attach a certified copy of site plan (8.5" x 11) showing Base Flood Elevation. See sample attached.

FOR OFFICE USE ONLY

Is the property located in an identified Flood Hazard Area? ( ) YES ( ) NO

NFIP Zone Designation: _____ Forward to Flood Plain Manager: ( ) YES ( ) NO

Application: APPROVED ( ) DENIED ( ) RESUBMIT ( )

Plan Reviewer Name: _____

Signature: _____ Date: _____

GOVERNMENT OF
THE VIRGIN ISLANDS OF THE UNITED STATES
-0-
VIRGIN ISLANDS BUREAU OF INTERNAL REVENUE

(DPNR FORM L&WD-6)
APPLICATION FOR TAX FILING AND PAYMENT STATUS REPORT**

Date: 1/10/17

The applicant identified below hereby requests a letter certifying his or her tax filing and payment status for the purpose of receiving a Coastal Zone Management Permit from the Virgin Islands Department of Planning and Natural Resources pursuant to Act 5270, amending Sections 910 (a)(2) and 911 (d)(2) of the Coastal Zone Management Act (Title 12, Chapter 21, Virgin Islands Code). The applicant authorizes the Bureau of Internal Revenue to disclose any taxpayer information necessary to process this application to the Virgin Islands Department of Planning and Natural Resources, who may make such further disclosures as are necessary to carry out the requirements of the Coastal Zone Management Act, as amended.

Name: Great St. Jim, LLC

Business Name: Great St. Jim, LLC

EIN/TIN: 66-0848878

SSN: _____

Please Indicate:
- ☐ *Corporation
- ☐ *Partnership
- ☐ Individual
- ☑ Other Single Member Limited Liability Company

Type of Business: _____

Please check forms that you use:
- ☐ 1120, ☐ 1065, ☐ 1040, ☐ 941VI,
- ☐ 722VI, ☐ 720B, ☐ 720VI,
- ☐ other (list)

Date Business Started: October 26, 2015

Person Representing Applicant: ~~Jeffrey Epstein~~ Position: President of Poplar, Inc, the Sole Member of Great St. Jim, LLC

Signature: _____

Mailing Address: 9053 Estate St. Thomas, Suite 101, St. Thomas, VI 00802

Date: 1/10/17 Telephone Number: 340-779-2564

Reply to: 6115 Estate Smith Bay, suite 225, St. Thomas VI 00802 – 340-715-1040(phone), 340-774-2672(fax) or 4008 Estate Diamond, St. Croix VI 00820 – 340-773-1040(phone), 340-773-1006(fax)

* Partnership and/or Corporations must list partners/ corporate officers, social security numbers and addresses on a separate sheet and attach it to this application.

THIS FORM IS TO BE SUBMITTED TO VIBIR UPON COMPLETION

GOVERNMENT OF THE U.S. VIRGIN ISLANDS
BUREAU OF INTERNAL REVENUE

6115 EST. SMITH BAY-
ST. THOMAS, VI 00802
Tel: (340) 714-9320
Fax: (340) 714-9341

7/13/2016

4008 ESTATE DIAMOND - PLOT 7-B
CHRISTIANSTED, VI 00820
Tel: (340) 773-1040
Fax: (340) 773-1006

GREAT ST. JIM, LLC
9053 ESTATE THOMAS
SUITE 101
ST THOMAS, VI 00802-0000

Business EIN: 660848875
RE: CZM ONLY

Please Submit This Letter To Your CZM Authority

Dear Taxpayer:

This is in response to your application of 6/21/2016 in which you requested a letter of clearance for a Costal Zone Management Permit pursuant to Title 12, V. I. Code, Section 910 (a) (c).

Based on the information in our files, we find that you are current in the filing and payment of your tax obligation. This Certification is for Costal Zone Permit purposes only and does not absolve you of any subsequent revelation of tax obligation past or future.

Sincerely,

H. Dawson

Delinquent Accounts & Returns

GOVERNMENT OF
THE UNITED STATES VIRGIN ISLANDS

OFFICE OF THE LIEUTENANT GOVERNOR

DIVISION OF REAL PROPERTY TAX

1105 King Street • Christiansted, Virgin Islands 00820 • 340.773.6449 • Fax 340.773.0330
18 Kongens Gade • Charlotte Amalie, Virgin Islands 00802 • 340.774.2991 • Fax 340.774.6953

REAL PROPERTY TAX CLEARANCE LETTER

TO: Recorder Of Deeds

FROM: Office of the Tax Collector

In accordance with Title 28, Section 121, as amended, this shall certify that there are no outstanding Real Property Tax obligations for the following:

PARCEL NUMBER	1-09801-0101-00
LEGAL DESCRIPTION	GREAT ST JAMES ISLAND RED HOOK QTR.
OWNER'S NAME	KJAER, CHRISTIAN

Taxes have been researched up to and including 2016.

CERTIFIED TRUE AND CORRECT BY

LUDENCE ROMNEY
TAX COLLECTOR

SIGNATURE

11/04/2016

DATE

GOVERNMENT OF
THE UNITED STATES VIRGIN ISLANDS

OFFICE OF THE LIEUTENANT GOVERNOR

DIVISION OF REAL PROPERTY TAX

1105 King Street • Christiansted, Virgin Islands 00820 • 340.773.6449 • Fax 340.773.0330
18 Kongens Gade • Charlotte Amalie, Virgin Islands 00802 • 340.774.2991 • Fax 340.774.6953

REAL PROPERTY TAX CLEARANCE LETTER

TO: Recorder Of Deeds

FROM: Office of the Tax Collector

In accordance with Title 28, Section 121, as amended, this shall certify that there are no outstanding Real Property Tax obligations for the following:

PARCEL NUMBER	1-09801-0102-00
LEGAL DESCRIPTION	B-1&B-2 GREAT ST JAMES ISLAND RED HOOK QTR.
OWNER'S NAME	GSJ PROPERTIES CORP

Taxes have been researched up to and including 2016.

CERTIFIED TRUE AND CORRECT BY

LUDENCE ROMNEY
TAX COLLECTOR

SIGNATURE

11/03/2016

DATE

GOVERNMENT OF
THE UNITED STATES VIRGIN ISLANDS

OFFICE OF THE LIEUTENANT GOVERNOR

DIVISION OF REAL PROPERTY TAX

1105 King Street • Christiansted, Virgin Islands 00820 • 340.773.6449 • Fax 340.773.0330
18 Kongens Gade • Charlotte Amalie, Virgin Islands 00802 • 340.774.2991 • Fax 340.774.6953

REAL PROPERTY TAX CLEARANCE LETTER

TO: Recorder Of Deeds

FROM: Office of the Tax Collector

In accordance with Title 28, Section 121, as amended, this shall certify that there are no outstanding Real Property Tax obligations for the following:

PARCEL NUMBER	1-09801-0103-00
LEGAL DESCRIPTION	C-1&C-2 GREAT ST JAMES ISLAND No.6A RED HOOK QTR.
OWNER'S NAME	FURST, JOHN K. , KIM & NINA

Taxes have been researched up to and including 2016.

CERTIFIED TRUE AND CORRECT BY

LUDENCE ROMNEY
TAX COLLECTOR

SIGNATURE

11/04/2016

DATE

ENVIRONMENTAL ASSESSMENT
FOR THE CONSTRUCTION OF TWO DOCKS AND A BARGE LANDING
ON GREAT ST. JAMES ISLAND
U.S. VIRGIN ISLANDS

PREPARED FOR

GREAT ST. JIM, LLC.

PREPARED BY

BIOIMPACT, INC.
[redacted]. BOX 132
KINGSHILL, ST. CROIX
U.S. VIRGIN ISLANDS 00851
bioimpact@islands.vi

JANUARY 2017

TABLE OF CONTENTS

1.0 NAME AND ADDRESS OF APPLICANT

Great St. Jim, LLC
9053 Estate St. Thomas, Suite 101
St. Thomas, VI 00802

2.0 LOCATION OF PROJECT

Great St. James Island is located to the southeast of the island of St. Thomas. The geographic coordinates of the island are 18° 18.583' N and 64° 49.752' W. The Temporary Barge Landing is located at 18° 18.902' N and 64° 49.802'W, the western Christmas Cove Dock is located at 18° 18.804' N and 64° 49.876' W, and the southern barge landing/dock is located at 18° 18.355' North L and 64° 49.659' W. The Location and Agency Review Map and Vicinity Map follow.

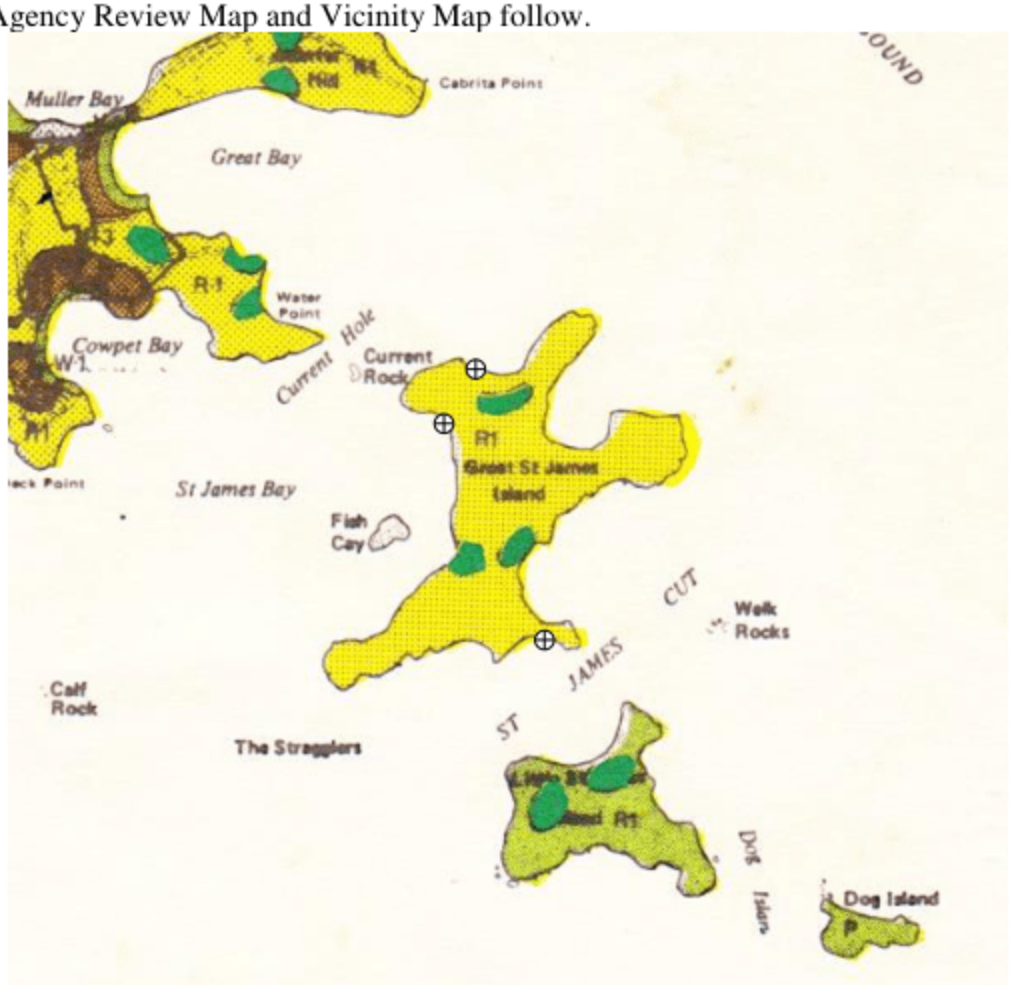


Figure 2.01 Agency Review Map, the entire island of Great St. James is within CZM first tier jurisdiction. The dock locations on the island are indicated.

Figure 2.02 Vicinity Map showing Great St. James Island in relationship to the surrounding area.

3.00 ABSTRACT

Great St. Jim, LLC is seeking to construct two docks, one of which is a combination dock/ barge landing, and a temporary barge landing to provide access to Great St. James Island.

There is currently a small pile-supported dock located within Shallow Bay on the north side of the island. The bay is very shallow and vessels accessing the dock have damaged the shallow seagrass beds within the bay. At one time, there had been a concrete bulkhead at the shoreline with a small floating dock. The previous owner submitted an application for the existing dock which was approved by DPNR's Division of Coastal

Zone Management, but was not approved by the U.S. Army Corps of Engineers due to objections by National Marine Fisheries because of the shallowness of the bay. The dock was constructed by the previous owner despite not receiving the federal permit and notices were issued by the USACE requesting the removal of the unpermitted structure. The dock however was never removed. The applicant, understands the issues with the existing dock and is proposing to remove the dock as soon as another dock is constructed and usable.

A detailed study was done around the entire island to determine suitable locations for dock location. All ESA listed corals were located and docks and barge landings were designed to avoid these corals.

A temporary barge landing is being proposed on the northwestern facing beach. This site is to the west of the salt pond and the associated wetlands. This a shoreline ramp which is 25 feet (ft) wide and 40ft in length extends to the Mean Water Line. The landing is free of both coral and seagrass colonization. The landing is excellent for short term transfer of material or equipment. The site is well protected from normal wave action but is periodically impacted by wave action from ferries which travel through current cut between Great St. James and St. Thomas. The wakes from these vessels make it an unattractive site for mooring a barge for any length of time at the site. This landing can be quickly constructed and utilized while the combination dock and barge landing on the southeastern side of the island is constructed.

The western dock is proposed on the northern end of Christmas Cove. Historically there was a dock in this location and there are still old concrete piles lying in the shallows of this site. The proposed dock will be 10ft in width and 195ft in length extending 187ft from mean low water (MLW) and 193ft from mean high water (MHW). The dock extends beyond the nearshore hardbottom to a depth of 15ft out in the uncolonized sand to allow for safe dockage for deeper vessels.

The southern dock is located off the point closest to Little St. James. The dock is "L" shaped and is 20ft wide (to allow for barge landing) and 150ft in length extending 141ft from MLW and 148ft from MHW, the "L" then turns east and extends 100ft by 20ft. A wave attenuating/reef creating system is proposed beneath the dock which will allow for more protected docking inside the dock when seas from the south are rough. The dock has 9ft of water depth of the southern end and 7ft to 8ft on the inside of the "L". The dock has been designed so that barges can approach and land on the end of the dock while vessels can dock along the "L".

4.00 STATEMENT OF OBJECTIVES SOUGHT BY THE PROPOSED PROJECT

Great St. Jim, LLC is proposing to construct a temporary barge landing and an access dock on the western side of the island to be used for worker and guest access to the island

and a combination barge landing/dock on the southeast side of the island on the point closest to Little St. James. The existing dock in Shallow Bay will be removed as soon as one of the docks is functional.

5.0 SUMMARY OF PROPOSED ACTIVITY

Great St. Jim, LLC is seeking to construct two docks, one of which is a combination dock/barge landing, and a temporary barge landing to provide access to Great St. James Island. A detailed study was done around the entire island to determine suitable locations for the dock locations and the sites with the least environmental impact were chosen.

A temporary barge landing is being proposed on the northwestern facing beach. This site is to the west of the salt pond and the associated wetlands. This a shoreline ramp which is 25 feet (ft) wide and 40ft in length extends to the Mean Water Line. Two bollards will be placed to either side of the ramp and two moorings will be installed 75ft offshore on either side of the ramp in just over 7ft of water depth. The mooring will be installed using helix anchors and will use floating lines will be used to avoid seafloor disturbance when the moorings are not in use. The landing is free of both coral and seagrass colonization. The landing is excellent for short term pick up and drop off of material or equipment. The site is well protected from normal wave action but is periodically impacted by wave action from ferries which travel through current cut between Great St. James and St. Thomas. The wakes from these vessels make it an unattractive site for mooring a barge for any length of time at the site. This landing can be quickly constructed and utilized while the combination dock and barge landing on the southeastern side of the island is constructed.

The western dock is proposed on the northern end of Christmas Cove. Historically there was a dock in this location and there are still old concrete piles lying in the shallows of this site. The proposed dock will be 10ft in width and 195ft in length extending 187ft from mean low water (MLW) and 193ft from mean high water (MHW). The dock will connect to an access slab 12ft long and 2' thick. All the ESA listed coral species within the area were located and the dock footprint avoids all ESA listed species. The dock extends beyond the nearshore hardbottom to a depth of 15ft out in the uncolonized sand to allow for safe dockage for deeper vessels.

The southern dock is located off the point closest to Little St. James. Again, all of the ESA corals were located and the dock was designed to avoid these corals. The dock is "L" shaped and is 20ft wide (to allow for barge landing) and 150ft in length extending 141ft from MLW and 148ft from MHW, the "L" then turns east and extends 100ft by 20ft. A wave attenuating/reef creating system is proposed beneath the dock which will allow for more protected docking inside the dock when seas from the south are rough. The dock has 9ft of water depth of the southern end and 7ft to 8ft on the inside of the

"L". The dock has been designed so that barges can approach and land on the end of the dock while vessels can dock along the "L".

5.01a Purpose of Project

The purpose of this application is to provide access to the island of Great St. James. Great St. Jim, LLC is proposing to construct a temporary barge landing to be used during the construction of the other docks, an access dock on the western side of the island to be used for worker and guest access to the island, and a combination barge landing/dock on the southeast side of the island on the point closest to Little St. James. The existing dock in Shallow Bay will be removed as soon as one of the docks is functional.

5.01b Presence and Location of any Critical Areas and Possible Trouble Spots

The island of Great St. James is within the Vessup Bay/ East End Red Hook Area of Particular Concern (APC) (Figure 5.01.1). The Vessup Bay/Red Hook APC is located on the eastern end of St. Thomas and includes Nazareth, Muller, Vessup, Red Hook, Great Bay, Cowpet Bay, Cabrita, Beck and Water Point, Great St. James, Little St, J, and Dog Island.

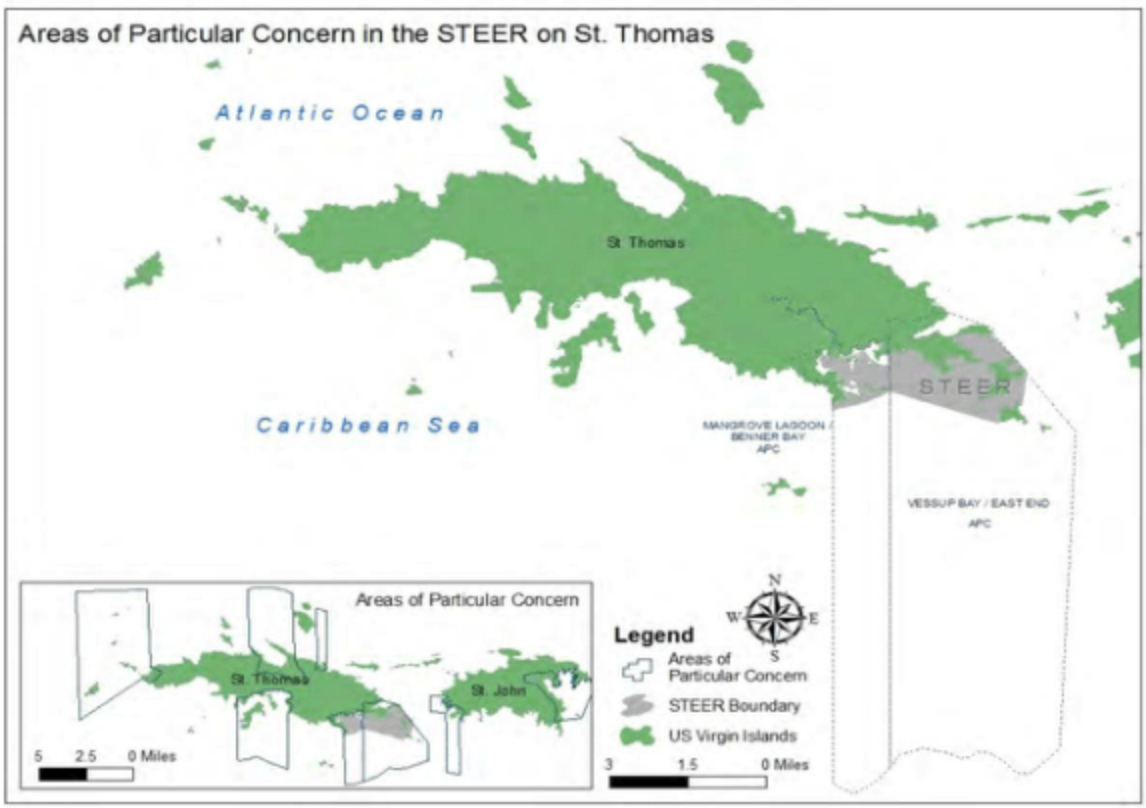


Figure 5.01.1 Areas of Particular Conern (STEER (2011) St. Thomas East End Reserve Management Plan. St. Thomas, USVI.

The island also lies within the St. Thomas East End Reverse (STEER). STEER was developed to help protect coastal resources including seagrass beds and coral reef communities. The island of Great St. James is in area C of the reserve and is referred to as St. James (Figure 5.01.2).

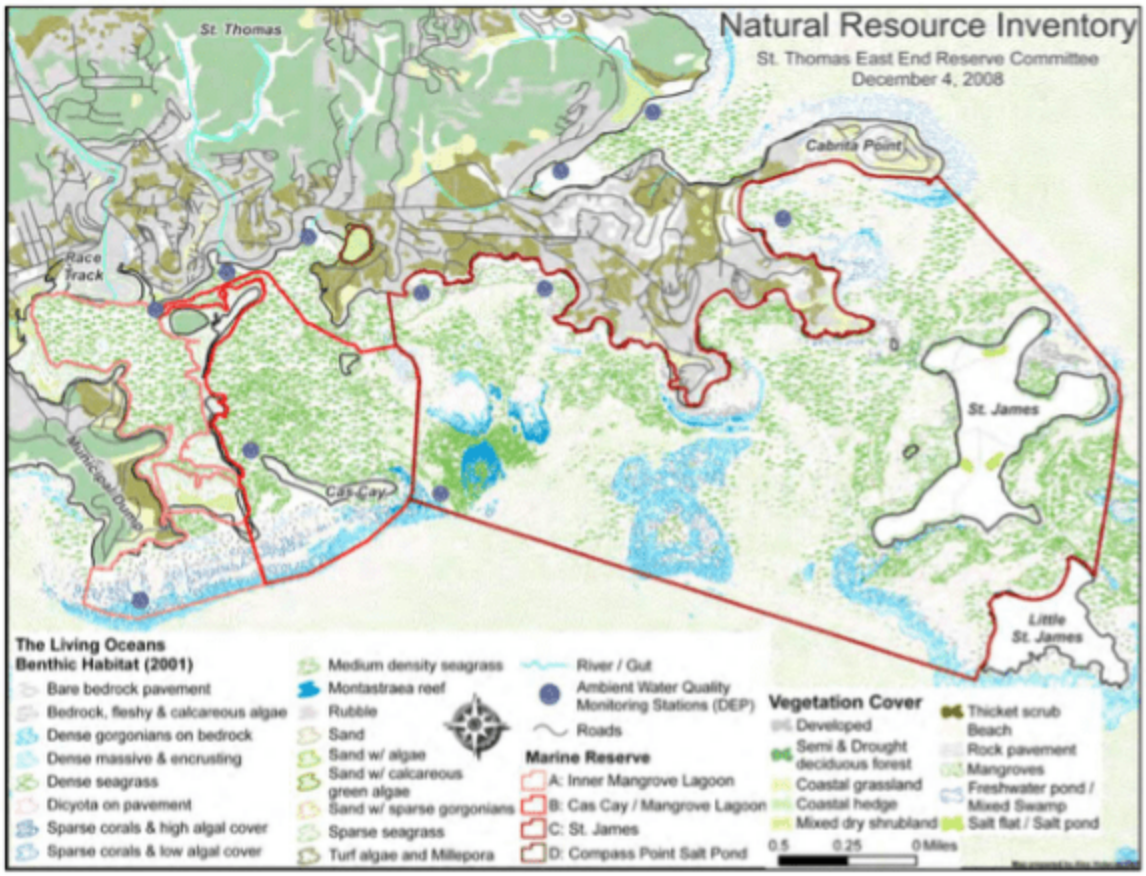


Figure 5.01.2 STEER boundaries. (STEER (2011) St. Thomas East End Reserve Management Plan. St. Thomas, USVI.

The regulations for the St. James are as follows:

St. James Marine Reserve and Wildlife Sanctuary	**Subchapter 96, Section 96-3**	*Prohibited Activities within the St. James MRWS:* • It is unlawful to remove any marine or other wildlife without a permit or specific authorization from the Commissioner
	Subchapter 96, Section 96-4	*Permitted Activities within the St. James MRWS:* Acts permitted, provided a permit is first obtained from the Commissioner: • Scientific collecting in support of and for use in a research project with an approved protocol • The use of castnet with a minimum square mesh size of ¼ inch to capture baitfish (fry) within 50 feet of the shoreline, except for Cow and Calf rocks • Fishing with hook and line

The marine habitats around Great St. James have abundant coral and seagrass resources. There are numerous ESA listed corals species near the proposed dock locations. *Acropora palmata, Acropora. cervicornis*, *Orbicella annularis, Orbicella franksi* and *Orbicella faveolata* as well as *Dendrogyra cylindrus* are found off all the beach from which the proposed docks and barge landings are planned. At the northern temporary barge landing site, these corals are located primarily to the west in an area of coral boulders and coral rubble. However, there are several small *A. palmata* and several *O. annularis* located on the shoreline cobble which extends out to a depth of 6.5ft. The presence of these species as well as several non-ESA listed *Porites astreoides* has dictated the location of the ramp. The proposed temporary barge landing position avoids all coral and seagrass resources.

Location of the western dock has a cobble beach between two areas of emergent bedrock and boulders. *A. palmata* occur on the emergent bedrock to the north. Offshore the seafloor quickly gives way to exposed pavement. There is a long linear depression right offshore and an old piling lies within this area. The fractured pavement then extends to approximately 11.5ft of depth over the next 100ft heading offshore. The area has some widely-scattered boulders and patchy coral colonization. There are scattered ESA corals including *Orbicella* and *Dendrogyra*. During the first survey, there was a very large *A. palmata* colony immediately seaward of where the old piling lay near shore. However, upon the next visit by the island it was noted that an old boat was tied nearshore apparently attached to the old piling. During a dive, several weeks later it was noted that the boat was gone and the large *A. cervicornis* had been badly broken. The location of all the ESA species has dictated the location of the dock. Approximately 75 corals will require relocation to minimize impact but no listed corals will need relocation.

The southern dock also extends from a cobble beach which gives way to rock pavement and has emergent bedrock and boulders on either side of the beach. There are *Acropora* colonies to the east and farther to the south on the bedrock and boulders. There are *Orbicella* and *Dendrogyra* within the embayment and their locations have dictated the location of the dock. The dock avoids all ESA listed corals but will require the relocation of approximately 75 corals.

This southern dock will include a combination wave attenuator and reef building system. A mitigation plan has been prepared and is found in Appendix B.

Because of the rock occurring in the area, some of the pilings may require socketing and if this is required special water quality measures will be taken. If at all possible a vibra-hammer will be used to drive the piles. A water quality monitoring program has been proposed and the plan is found in Appendix C.

The area is known habitat to protect sea turtles and marine mammals and as such NOAA's Sea Turtle and Smalltooth Sawfish Construction Conditions will be followed as well as NOAA's Vessel Strike Avoidance Measures and Reporting for Mariners.

The property contains 6 salt ponds. The wetland around the salt ponds have been delineated and the delineations were approved by the U.S. ACOE during a previous application for development of the island. This delineation is more than 5 years old, but no wetland disturbance will occur as a result of this project.

The island is known to be habitat to the St. Thomas Tree Boa that is a listed rare and endangered species. The boa as well as another species of snake have been seen during the field studies. There will be special corridors and preservation areas set aside on the island for these species. The access ways to the western and southern docks already exist, but the branch that will need to be developed to the temporary barge landing will be cleared by hand to limit impacts to the tree boas. A tree boa mitigation plan is found in Appendix D.

5.01c Method of Construction

The temporary barge ramp will be the first feature constructed. The landing slab will be framed and poured from shore and the bollards will be installed near the shoreline. The cobble will be excavated with a small machine and silt fencing will be placed seaward off all excavation prior to any work. Divers utilizing a small boat will install the offshore moorings.

The western and southern docks will both be constructed from a barge. A vibratory hammer will be used to drive all the piles if the hardness of the rock allows. If the rock proves to be too hard, the piles will be socketed, placed, and grouted in. All corals will be transplanted out of the footprint and area of impact prior to the start of construction and all turbidity control will be installed prior to any in-water work that day. If socketing is

required, seafloor length curtains will be used and monitored and not removed until water quality within the curtains has fallen to acceptable limits. All corals within the curtain limits will be removed to prevent damage by settling sediments. Once the pilings have been placed, re-enforcing steel will be placed and concrete poured. Turbidity controls will be installed and water quality monitoring will occur during all concrete pouring. Once the piles are completed the pile caps and decking will be placed.

Access slabs will be constructed from shore and silt fencing will be placed seaward of all excavations.

5.01d Provisions to Limit Site Disturbance

The dock locations have been located to minimize impact on the marine environment by avoiding all ESA listed corals and seagrass beds. Corals which cannot be avoided will be relocated out of the footprint and potential area of impact and turbidity control and water quality monitoring will be implemented. The branch of the road to the temporary barge landing will be first cleared by hand to minimize impact to the VI Tree Boa. A Tree Boa protection plan is found in Appendix D.

5.00e Sedimentation Control Methods to be Implemented.

Silt fencing will be placed seaward of all upland excavation and construction. Turbidity barriers will be installed around all areas of in-work, including pile driving and concrete pouring overwater. If pile socketing is required two rows of turbidity barriers will be installed and these curtains will be seafloor length. These curtains will be maintained until the interior water quality has fallen to acceptable levels.

5.00f Schedule for Construction Activities and Implementation of Sediment Control Measures

Silt fencing will be installed prior to any upland excavation and maintained throughout construction. All construction will be occurring in cobble areas without vegetation, so fencing will be maintained until such time no exposed soil is within the area.

Silt fencing will be installed during the new access road clearing and maintained until such time the roadway is stabilized.

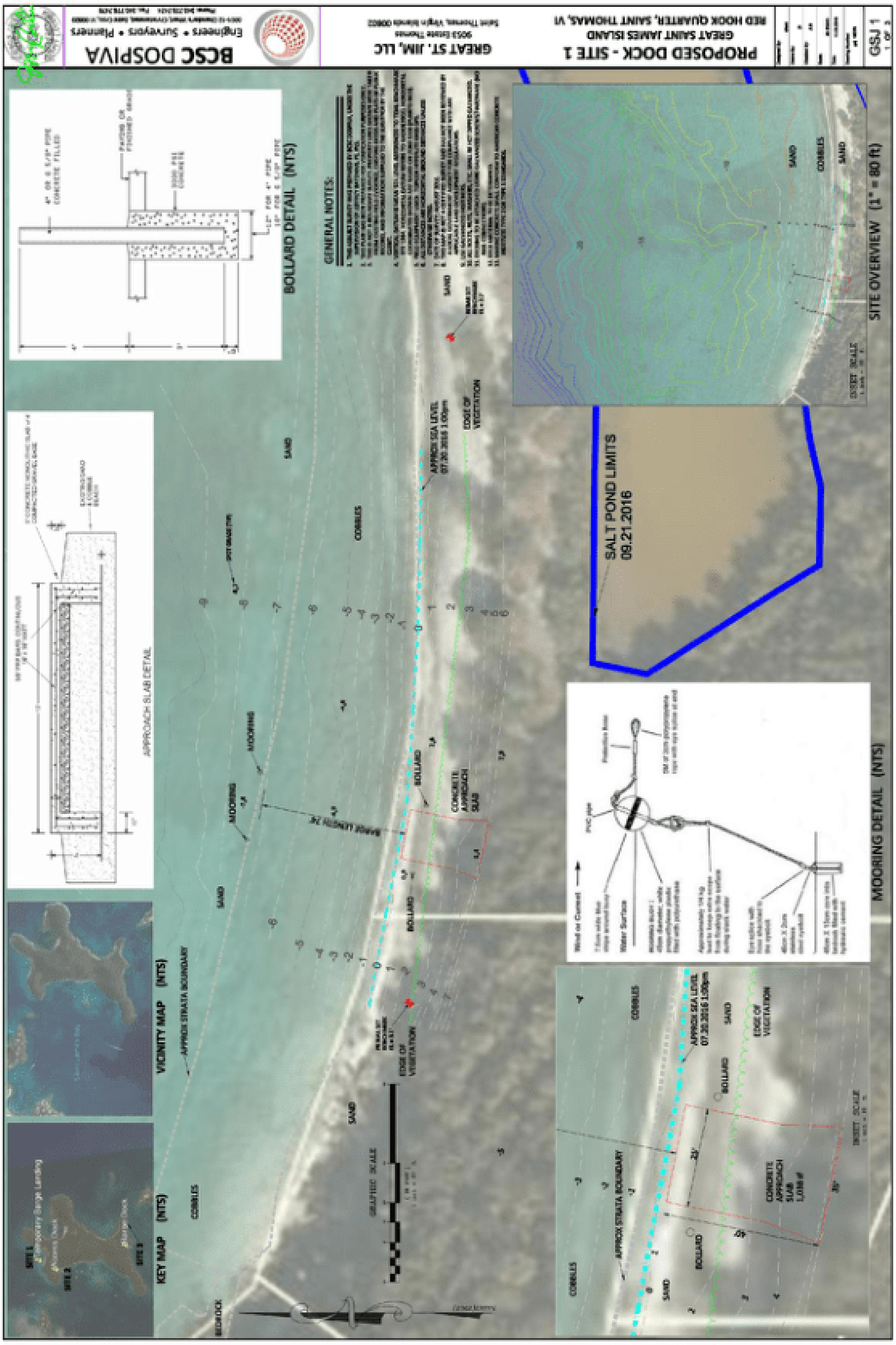
Turbidity barriers will be installed before any in-water work and maintained until interior water quality is within acceptable levels. Double turbidity barriers will be required if pile socketing is required.

5.00g Maintenance of Sediment and Siltation Control Measures

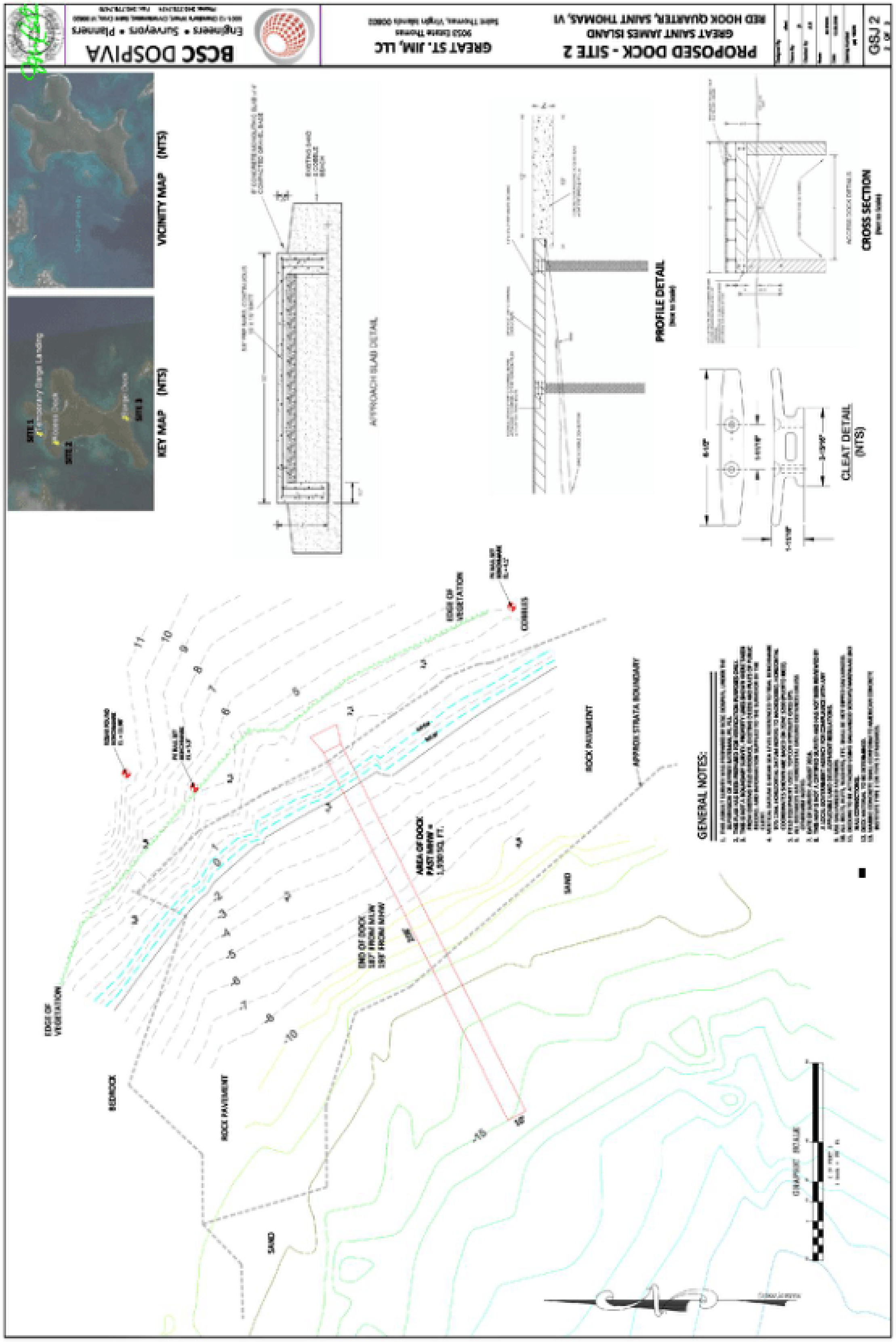
All silt fencing and turbidity barriers will be inspected and maintained through the construction period. Silt fencing will be inspected daily even when no construction is in

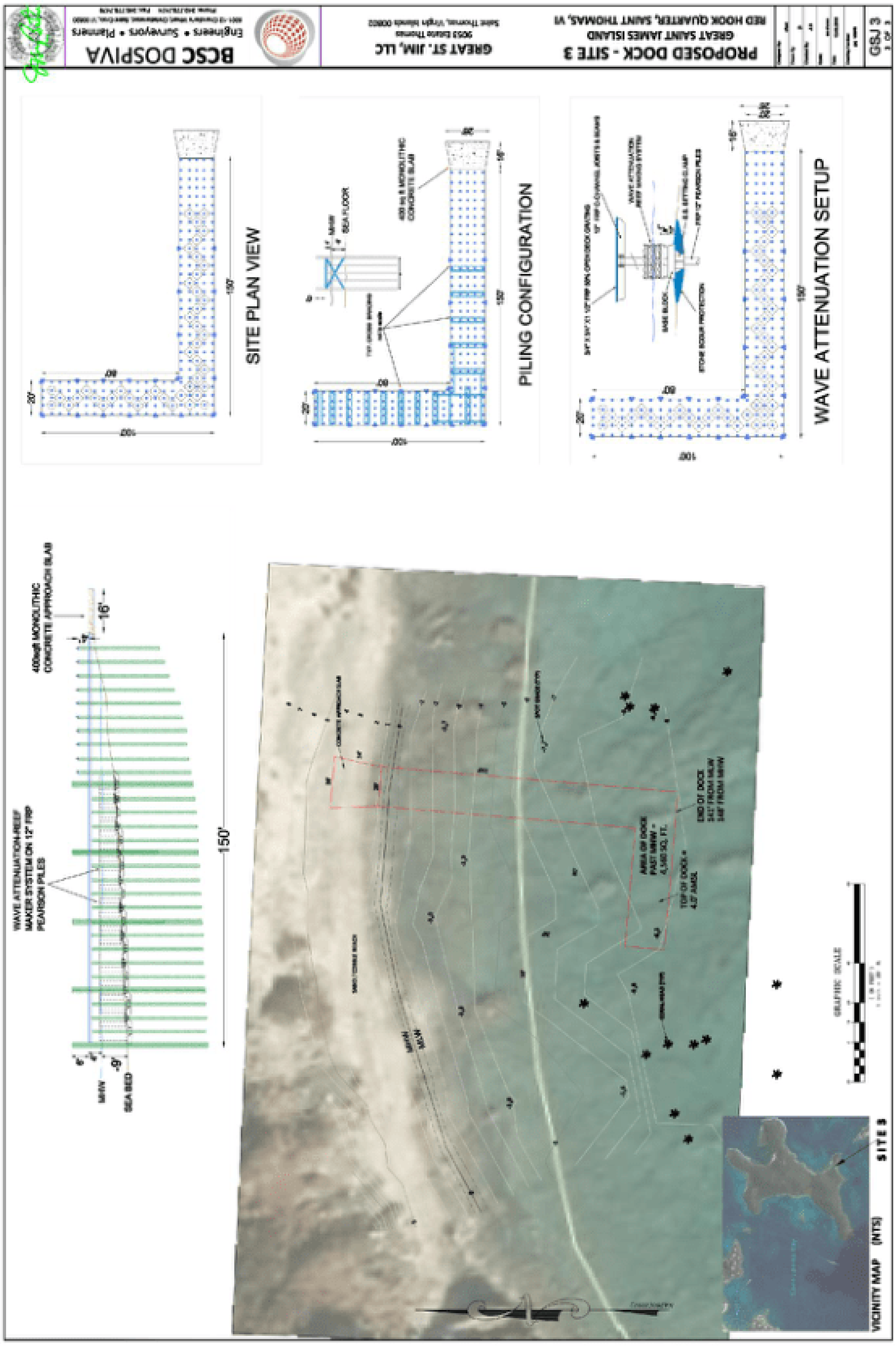
progress (over weekends/holidays). Turbidity barriers will be monitored throughout the day and will be repaired and adjusted as necessary as part of the water quality monitoring plan. Curtains will be maintained throughout the day and removed or secured as necessary when no in-water work is ongoing.

5.02 EXHIBITS AND DRAWINGS



BCSC DOSPIVA
Engineers • Surveyors • Planners
GREAT ST. JIM, LLC
9053 Estate Thomas
Saint Thomas, Virgin Islands 00802
PROPOSED DOCK - SITE 1
GREAT SAINT JAMES ISLAND
RED HOOK QUARTER, SAINT THOMAS, VI
GSJ 1
BOLLARD DETAIL (NTS)
GENERAL NOTES:
SITE OVERVIEW (1" = 80 ft)
SALT POND LIMITS
09.21.2016
APPROACH SLAB DETAIL
MOORING DETAIL (NTS)
VICINITY MAP (NTS)
KEY MAP (NTS)
APPROX STRATA BOUNDARY
APPROX SEA LEVEL
07.20.2016 1:00pm
EDGE OF VEGETATION
CONCRETE APPROACH SLAB
BOLLARD
MOORING
SAND
COBBLES
BEDROCK


BCSC DOSPIVA
Engineers • Surveyors • Planners
GREAT ST. JIM, LLC
PROPOSED DOCK - SITE 2
GREAT SAINT JAMES ISLAND
RED HOOK QUARTER, SAINT THOMAS, VI
GSJ 2
VICINITY MAP (NTS)
KEY MAP (NTS)
SITE 1
SITE 2
SITE 3
APPROACH SLAB DETAIL
PROFILE DETAIL
CROSS SECTION
CLEAT DETAIL (NTS)
GENERAL NOTES:
EDGE OF VEGETATION
BEDROCK
ROCK PAVEMENT
SAND
COBBLES
APPROX STRATA BOUNDARY
GRAPHIC SCALE


BCSC DOSPIVA
Engineers • Surveyors • Planners
GREAT ST. JIM, LLC
PROPOSED DOCK - SITE 3
GREAT SAINT JAMES ISLAND
RED HOOK QUARTER, SAINT THOMAS, VI
GSJ 3
SITE PLAN VIEW
PILING CONFIGURATION
WAVE ATTENUATION SETUP
150'
100'
VICINITY MAP (NTS)
SITE 3

5.03 Project Work Plan/Schedule

- Temporary Barge Landing
  1. Placement of silt fencing
  2. Excavation of footings
  3. Framing of slab
  4. Placement of bollards
  5. Pouring of concrete
  6. Removal of silt fencing once all areas are stabilized
  7. Placement of moorings
- Southern Dock
  1. Placement of turbidity barriers
  2. Placement of piles - vibra-hammer or socketing
  3. Placement of re-enforcing steel and pouring of concrete
  4. Placement of pile cabs and deck slabs
  5. Turbidity barriers moved/removed as necessary once interior water quality is acceptable
  6. Placement of silt fencing
  7. Excavation of footing
  8. Framing of slab
  9. Pouring of concrete
  10. Removal silt fencing once all areas are stabilized
- Western Dock
  11. Placement of turbidity barriers
  12. Placement of piles/vibra-hammer or socketing
  13. Placement of re-enforcing steel and pouring of concrete
  14. Placement of pile cabs and deck slabs
  15. Turbidity barriers moved/removed as necessary once interior water quality is acceptable
  16. Placement of silt fencing
  17. Excavation of footing
  18. Framing of slab
  19. Pouring of concrete
  20. Remove silt fencing once all areas are stabilized

6.00 ENVIRONMENTAL SETTING AND PROBABLE PROJECT IMPACTS
6.01 Climate and Weather

Prevailing Winds

The Virgin Islands lie in the "Easterlies" or "Trade Winds" which traverse the southern part of the "Bermuda High" pressure area, thus the predominant winds are usually from the east-northeast and east (IRF, 1977). These trade winds vary seasonally (Figure 6.01.1) and are broadly divided into 4 seasonal modes: 1) December to February; 2) March to May; 3) June to August; and 4) September to November. Below are the characteristics of these modes as taken from Marine Environments of the Virgin Islands Technical Supplement No. 1 (IRF, 1977).

December - February

During the winter the trade winds reach a maximum and blow with great regularity from the east-northeast. Wind speeds range from eleven to twenty-one knots about sixty percent of the time in January. This is a period when the Bermuda High is intensified with only nominal compensation pressure changes in the Equatorial Trough. The trade winds during this period are interrupted by "Northerners" or "Christmas Winds" which blow more than twenty knots from a northerly direction in gusts from one to three days. Such outbreaks average about thirty each year. They are created by strengthening of high-pressure cells over the North American continent, which, in turn, allow weak cold fronts to move southeastward over the entire Caribbean region. Intermittent rains, clouds and low visibility accompany these storms.

March - May

During the spring, the trade winds are reduced in speed and blow mainly from the east. Winds exceed twenty knots only thirteen percent of the time in April. The change in speed and direction is the result of a decrease of the Equatorial Trough.

June - August

Trade winds reach a secondary maximum during this period and blow predominantly from the east to east-southeast. Speeds exceed twenty knots twenty-three percent of the time during July. The trend for increasing winds results from the strengthening of the Bermuda High and a concurrent lowering of the pressure in the Equatorial Trough. Trade winds during this period are interrupted by occasional hurricanes.

September - November

During the fall, winds blow mainly from the east or southeast and speeds reach an annual minimum. Only seven percent of the winds exceed twenty knots in October. The low wind speeds result from a decrease in the Equatorial Trough. During this period,

especially during late August through mid-October, the normal trade wind regime is often broken down by easterly waves, tropical storms, and hurricanes.

Storm and Hurricanes

There are numerous disturbances during the year, especially squalls and thunderstorms. These occur most frequently during the summer, lasting only a few hours, and causing no pronounced change in the trade winds.

A tropical cyclone whose winds exceed 74 miles per hour is termed a hurricane in the northern hemisphere, and significantly affects the area. These hurricanes occur most frequently between August and mid-October (Figure 5) with their peak activity occurring in September. The annual probability of a cyclone is one in sixteen years (Bowden, 1974).

Climate

No rainfall data is available for Great St. James. However, based on the vegetation on the island the island which is dry adapted, it is probable that the island gets between 36-45 inches of rainfall a year. Rainfall usually occurs in brief, intense showers of less than a few tenths of an inch and major rainfall events are associated with weather systems (USGS 1998). The Virgin Islands have no sharply defined wet season. The wettest period generally is from September to November, and the driest period is from January to June (USGS 1998). The Cruz Bay which is the closest monitored station receives between 39 inches of rainfall annually. The average rainfall received between 1972 and 2012 is found in the table below.

CRUZ BAY, VIRGIN ISLANDS (671980)
Period of Record Monthly Climate Summary
Period of Record : 1/ 1/1972 to 3/31/2012

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (F)	83.8	84.0	84.1	84.9	86.4	88.0	88.9	89.2	89.0	88.2	86.7	84.6	86.5
Average Min. Temperature (F)	69.6	69.5	69.7	71.7	74.0	75.8	75.9	75.9	75.1	74.2	72.7	70.6	72.9
Average Total Precipitation (in.)	2.65	1.89	1.89	3.49	4.18	2.50	3.41	4.65	6.02	4.81	6.28	3.25	45.02
Average Total SnowFall (in.)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Average Snow Depth (in.)	0	0	0	0	0	0	0	0	0	0	0	0	0

Percent of possible observations for period of record.
Max. Temp.: 71.2% Min. Temp.: 71.8% Precipitation: 88.2% Snowfall: 93.3% Snow Depth: 93.2%
Check Station Metadata or Metadata graphics for more detail about data completeness.

Table 6.01.1 Climate data from the Southeast Regional Climate Center, University of North Carolina at Chapel Hill.

The difference between the mean temperatures of the coolest and warmest month is only 5 to 7 degrees F. The highest temperatures August or September and the lowest are in January or February. The highest average daytime temperature in the warmest months is about 88 degrees F, and in the coolest months is in the low 80's. Nighttime lows are usually in the mid 70's during the warmer months and in the high 60's during the cooler months (USGS 1998). In general, air temperature in the Virgin Islands ranges between 77 degrees and 85 degrees.

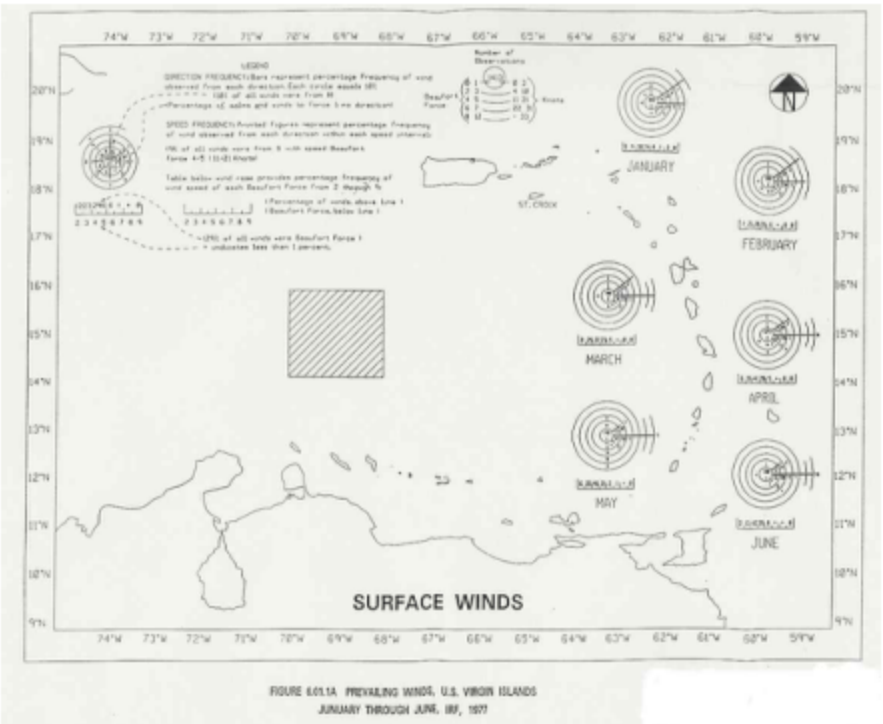


Figure 6.01.1. Prevailing Winds in the U.S. Virgin Islands, January through June

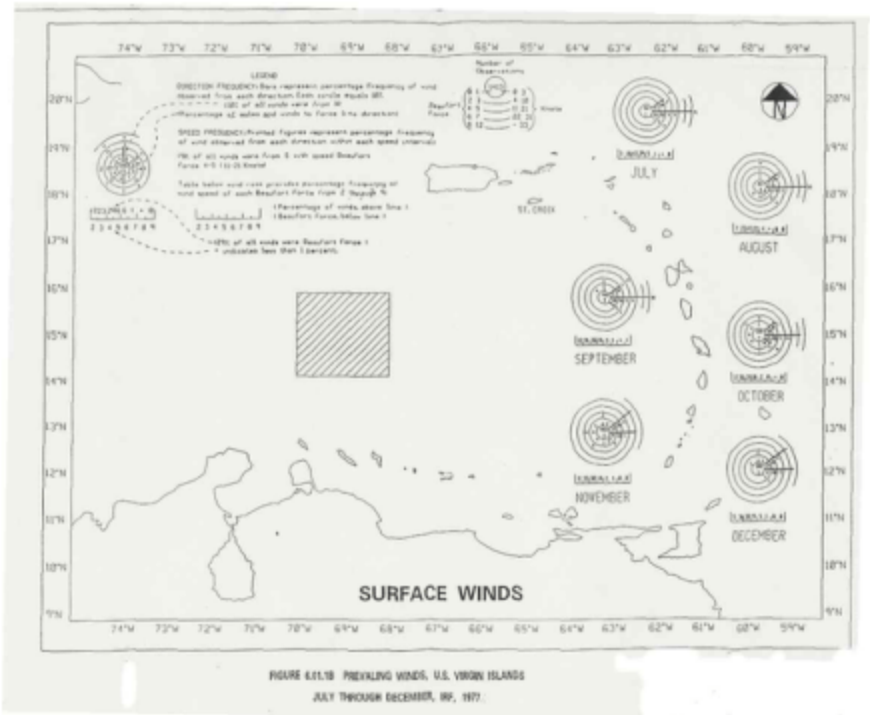


Figure 6.01.2. Prevailing Winds, U.S. Virgin Islands July through December.

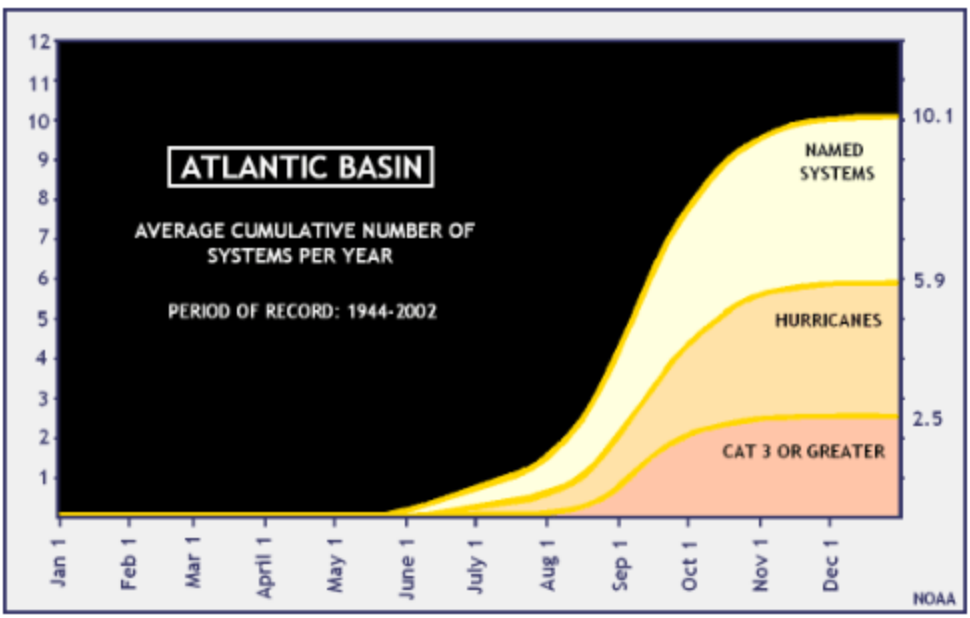


Figure 6.01.3. Tropical Hurricane Frequencies in the Virgin Islands (National Weather Service).

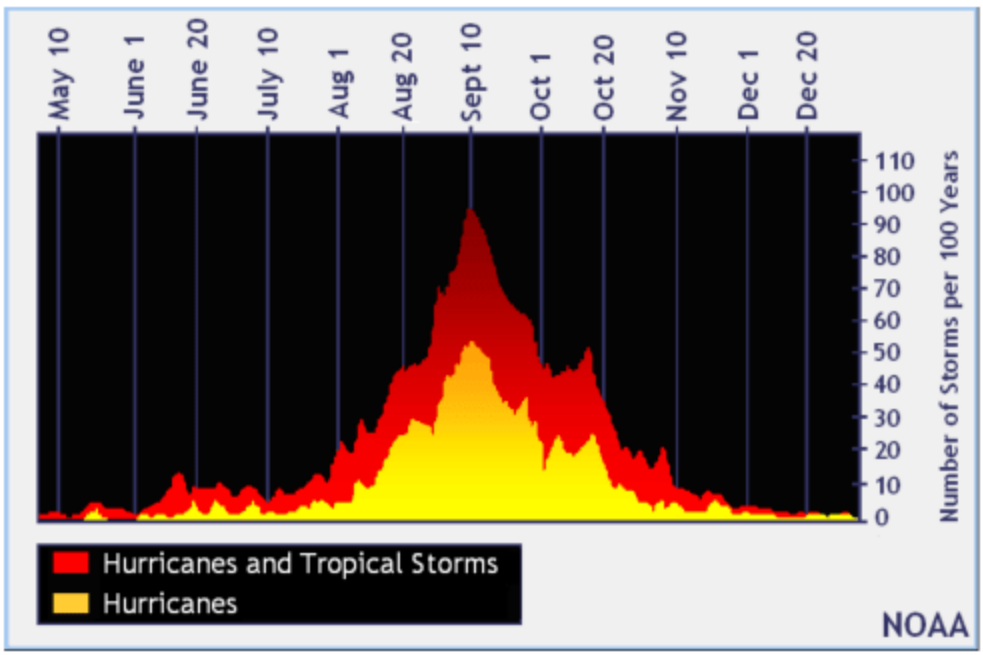


Figure 6.01.4. Tropical Storm and Hurricane Occurrences in the Atlantic (National Weather Service)

6.02 **Landforms, Geology, Soils, and Historic Use**

GEOLOGY OF ST. THOMAS, ST JOHN AND SURROUNDING CAYS

The Virgin Islands are near the northeastern corner of the present Caribbean Plate, a relatively small trapezoidal-shaped plate that is moving eastward relative to the North and South American continents carried on the American plate. The arc of the Lesser Antilles is an active volcanic arc above a subduction zone in which the Atlantic oceanic crust of the American Plate is carried downward under the Caribbean Plate. The closest volcano to the Virgin Islands that is still active is Saba, about 160 km. to the east.
St. John is 7 miles long and 3 miles wide for a total of 12,000 acres or 19 square miles. The oldest rocks of St. John are submarine lavas (keratophyre and spilite), beds of volcanic debris and chert. Associated intrusive rocks of the Water Island Formation is overlain by andesitic volcanic and volcanoclastic rocks of the Louisenhoj Formation which underlies the island of St. Thomas to the east and much of the northwestern portion of St. John. Donnelly (1966) suggested that the Louisenhoj Formation was deposited unconformably on the Water Island Formation after a period of emergence, tilting and erosion, on the slopes and environs of a subaerial volcanic island located roughly between St. Thomas and St. John, an area now occupied by Pillsbury Sound. The youngest layered deposits on St. Thomas are volcaniclastic rocks of the Tutu Formation. Fossils contained in the Tutu Formation suggest that those deposits are of the Early Cretaceous (Albain) Age (Donnelly et. al. 1971). It appears that all of the volcaniclastic rocks of St. Thomas and St. John were deposited in a relatively short period of time spanning 10 to 15 million years approximately 100 million years ago (D. Rankin 1988).

GEOLOGY OF GREAT ST. JAMES

The island which lies off the eastern tip of St. Thomas is irregularly shaped, and has two fault lines running across the island. The island is comprised of 162 acres and rises to an elevation of 186 feet above sea level. The island is a part of the Water Island Formation that was lain down in the Lower Cretaceous. The northern tip is tonalite, gabbro and granite from the tertiary period, the north-western tip as well as the southeastern tip of the island is basalt, and the southwestern tip is undivided, mostly keratophyra. The central portion of the island and the northeastern point is part of the Louisenhoj Formation. The shorelines are a combination of sandy beach, cobble beach and shear rocky cliffs. There are 6 salt ponds on the island.

SOILS OF THE PROJECT SITE

The Custom Soil Survey of the Unites State Virgin Islands has classified 6 soil types on the islands of Great St. James. **Cinnamon Bay gravelly loam (CgC)**, 5 to 12 percent slopes, occasionally flooded is usually found on alluvial fans and terraces adjacent to volcanic uplands. It has a surface layer which is 0 to 5 inches deep that is a very dark grayish brown gravelly loam, the subsurface is 5 to 10 inches deep and is a dark brown gravelly loam. **Redhook extremely stony sand (RdB)**, 0 to 5 percent slopes, rubbly, rarely flooded is usually found on coast beaches that are composed of calcareous sand. It has a surface layer 0 to 7 inches deep of dark brown extremely stony sand, underlain with 7 to 10 inches of brown very stony and 10 to 16 inches of very pale brown very gravelly sand below which is 16 to 60 inches of white very gravelly sand. **Salt flats ponded (SaA)** consist of area of unvegetated saline flats, saline marshes and salt ponds. The soils are very deep and poorly drained, strongly saline and frequently ponded for very long periods. **Southgate-Rock outcrop complex (SrE)**, 20 to 40 percent slopes is found on the summits and side slopes of volcanic hills and mountains. It has a surface layer of 0 to 5 inches of brown gravelly loam and a subsoil of 5 to 10 inches of brown very gravelly loam underlain by 10 to 17 inches of weathered igneous bedrock and 17 to 60 inches of unweathered igneous bedrock. **Southgate-Rock outcrop complex (SrF)**, 40 to 60 percent slopes is found on the summits and side slopes of volcanic hills and mountains. It has a surface layer of 0 to 5 inches of brown gravelly loam and a subsoil of 5 to 10 inches of brown very gravelly loam underlain by 10 to 17 inches of weathered igneous bedrock and 17 to 60 inches of unweathered igneous bedrock. **Solitude gravelly fine sandy loan (SoA)**, is found in areas that are adjacent to saline marshes, flats and salt ponds and are a mixture of terrestrial and marine sediments.

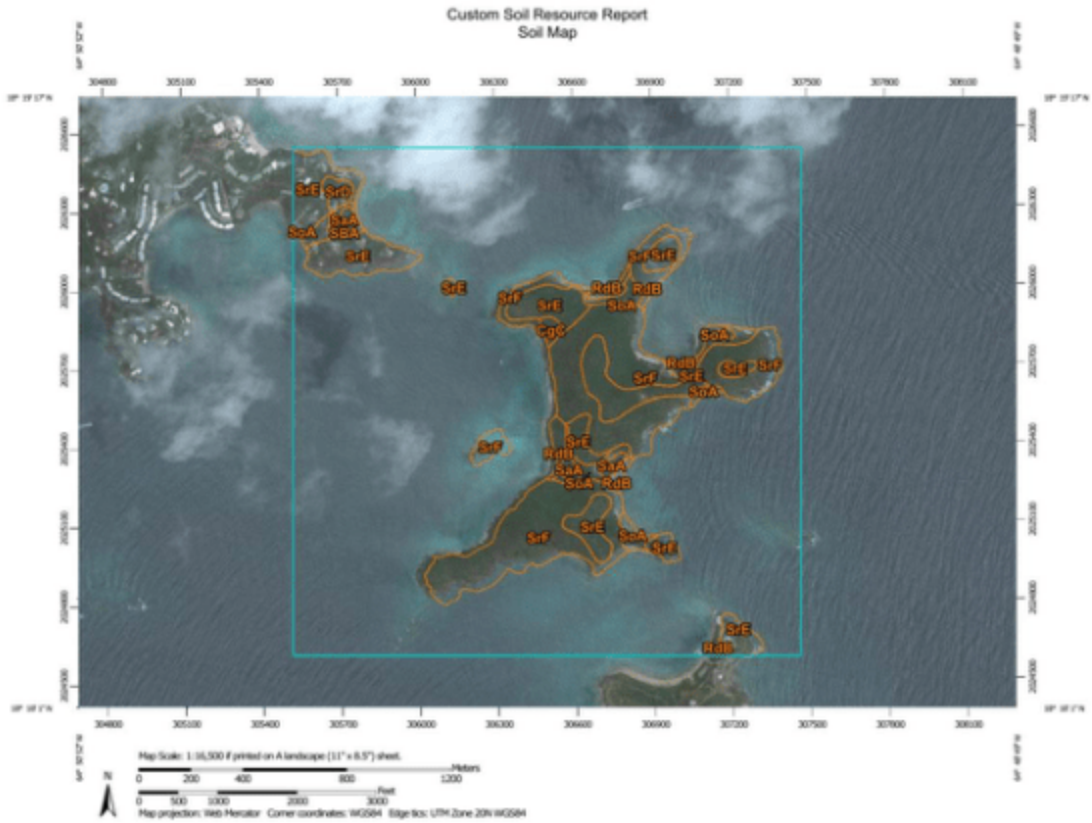


Figure 6.02.1 Custom Soils map of the project area (USGS Custom Soil Survey (https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx)

HISTORIC USE

The archeological survey found no evidence of prehistoric habitation. There are no structures shown on the island before 1760 on any of the historic maps. The island is reported to have been under cultivation since the 1760. Around 1770, a cotton plantation was established and cotton was cultivated until approximately 1815. Great St. James was continuous occupied between 1760 and 1911. Today there is a house and complex located off the northern bay which is often referred to as Shallow Bay

ADVERSE SITE CONDITIONS

The island is protected by its location between St. Thomas and St. John and the surrounding cays. The northern temporary barge landing is protected by the other cays to the north, and St. Thomas and St. John to the west and east. Waves do attenuate in Pillsbury Sound and the area can be effected by large seas and swells. However, there are no offshore structures other than the buoys and barges using the site should be moored no more than a couple of hours.

Under normal sea conditions the Christmas Cove Dock and the Southeastern Dock/Barge Landing are well protected by their locations in relation to the prevailing seas which are

usually from the east, southeast or northeast. During storms and during some periods of the winter, seas can approach from the southwest. The Christmas Cove dock could be effected by waves approaching between 220˚ to 250˚ and the Southwest dock would be effected by waves coming from 210˚ to 240˚. Waves occur from this direction primarily during storm events. When seas become extremely rough or storms approach vessels would be taken to more protected anchorages.

All three sites lie with area VE elevation 8ft where FEMA has determined that the 100-year flood elevation with velocity will be 8ft as shown on FIRM maps 45 and 30 below.

Figure 6.02.2. FEMA FIRM Map Panel 45 of 94.

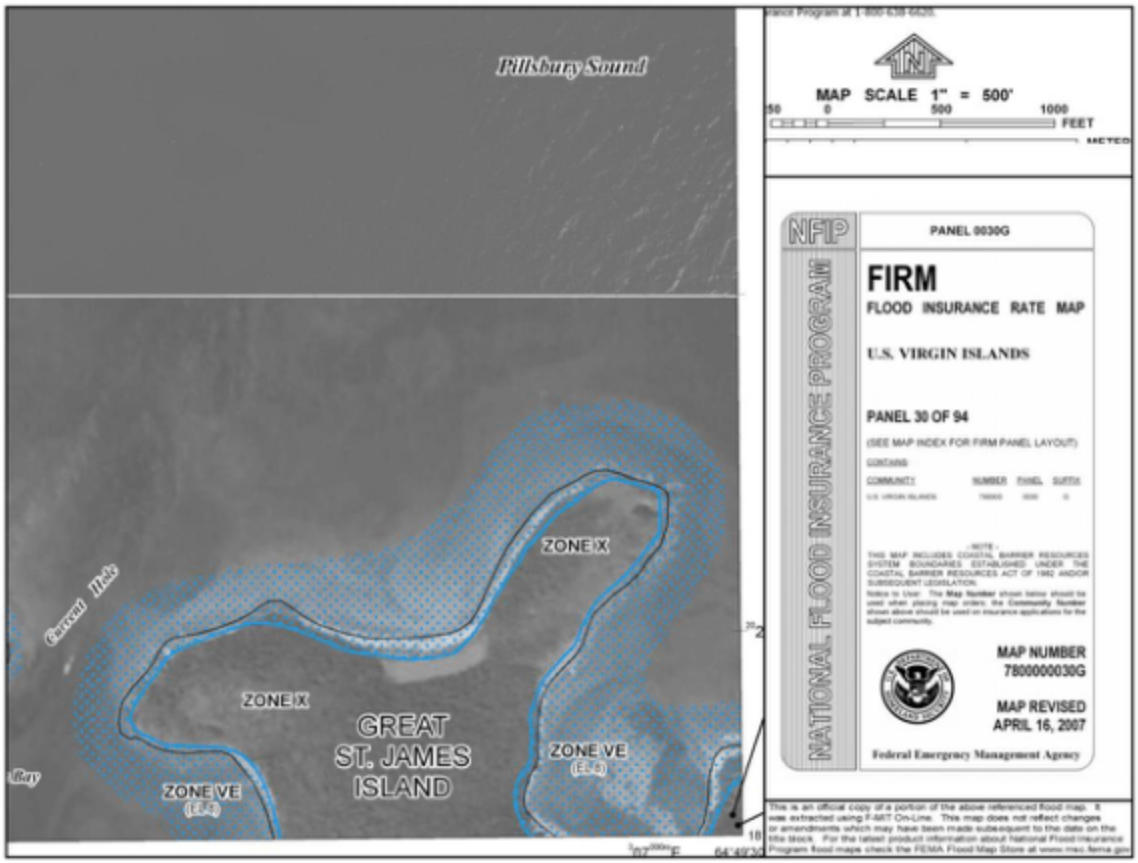


Figure 6.02.3 FEMA FIRM Map Panel 30 of 94.

The U.S. Virgin Islands lie in one of the most earthquake prone areas of the world, and are susceptible to ground shaking, earthquake-induced ground failures, surface fault ruptures and tsunamis (tidal waves) (Hays, 1984). The activity is mostly associated with large-scale tectonic activity or faulting, originating in the Anegada Trough to the northeast of the islands. The trough and its related scarp apparently were thrown up by block faulting during the late Pliocene or early Pleistocene. It is oriented generally northeast to southwest, separating St. Croix from Puerto Rico and the other Virgin Islands. Based on shallow focus earthquakes, the Anegada Fault Trough is estimated to be more than 400 miles in length. There are indications that strike slip movement is occurring, with St. Croix shifting northeast relative to Puerto Rico (Puerto Rico Water Authority 1970). The year 2017 marks the 150th anniversary of the last major earthquake in the islands. This quake, which occurred on November 18, 1867 had an identified intensity of VIII on the Modified Mercalli Scale. Earthquakes of this magnitude have generally been associated with epicentral ground accelerations of between 0.05 and 0.35 gravities. Since the 1868 quake, there has been continuous low intensity activity, all below 6.0 Richter. Thousands of tiny earthquakes are encountered every year on the island.

IMPACT OF SITE GEOLOGY ON THE DOCK

The site geology will have little impact on the construction and placement of the temporary barge landing. Both other docks will be impacted by the site geology which will dictate how the pilings can be installed. It is probable that the pile in the pavement areas will have to be socketed. Once beyond the pavement a vibratory hammer can be utilized.

IMPACT OF THE EXISTING DOCKS ON GEOLOGICAL RESOURCES

No dredging or filling is proposed, therefore there will be negligible impact on the geology of the area.

6.03 Drainage, Flooding, and Erosion Control

6.03a Impacts of Terrestrial and Shoreline Erosion

The project includes the construction of 3 landing or access pads on cobble beaches between rocky headlands. These pads are all limited in size the largest being just over 1000sqft. Due to the small size of these introduced impervious surfaces none should result in any notable change in terrestrial runoff. Both docks are pile supported and in areas of rocky or cobble beaches. Neither dock site has sand deposition on the beach and the cobbles found on both beach are moved by wave action rather than littoral transport. The construction of the docks should not result in any shoreline erosion.

6.03b Relationship of the Project to the Coastal Flood Plain

All three sites lie with area VE elevation 8ft. where FEMA has determined that the 100-year flood elevation with velocity will be 8ft as shown on FIRM maps 45 and 30 provided in Section 6.02.

6.03c Presence and Location of any Critical Areas and Possible Trouble Spots

The island of Great St. James is within the Vessup Bay/ East End Red Hook Area of Particular Concern (APC) (Figure 5.01.1). The Vessup Bay/Red Hook APC is located on the eastern end of St. Thomas and includes Nazareth, Muller, Vessup, Red Hook, Great Bay, Cowpet Bay, Cabrita, Beck and Water Point, Great St. James, Little St, J, and Dog Island.

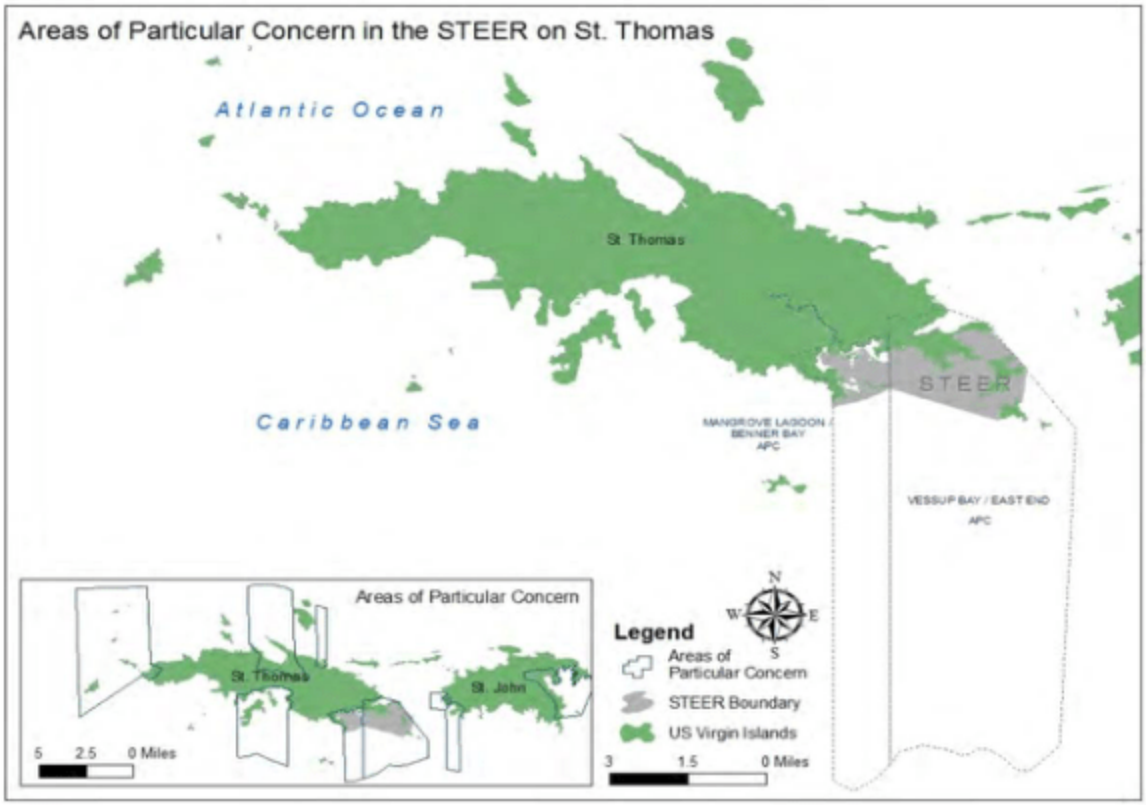


Figure 5.01.1 Areas of Particular Conern (STEER (2011) St. Thomas East End Reserve Management Plan. St. Thomas, USVI.

The island also lies within the St. Thomas East End Reverse (STEER). STEER was developed to help protect coastal resources including seagrass beds and coral reef communities. The island of Great St. James is in area C of the reserve and is referred to as St. James (Figure 5.01.2).

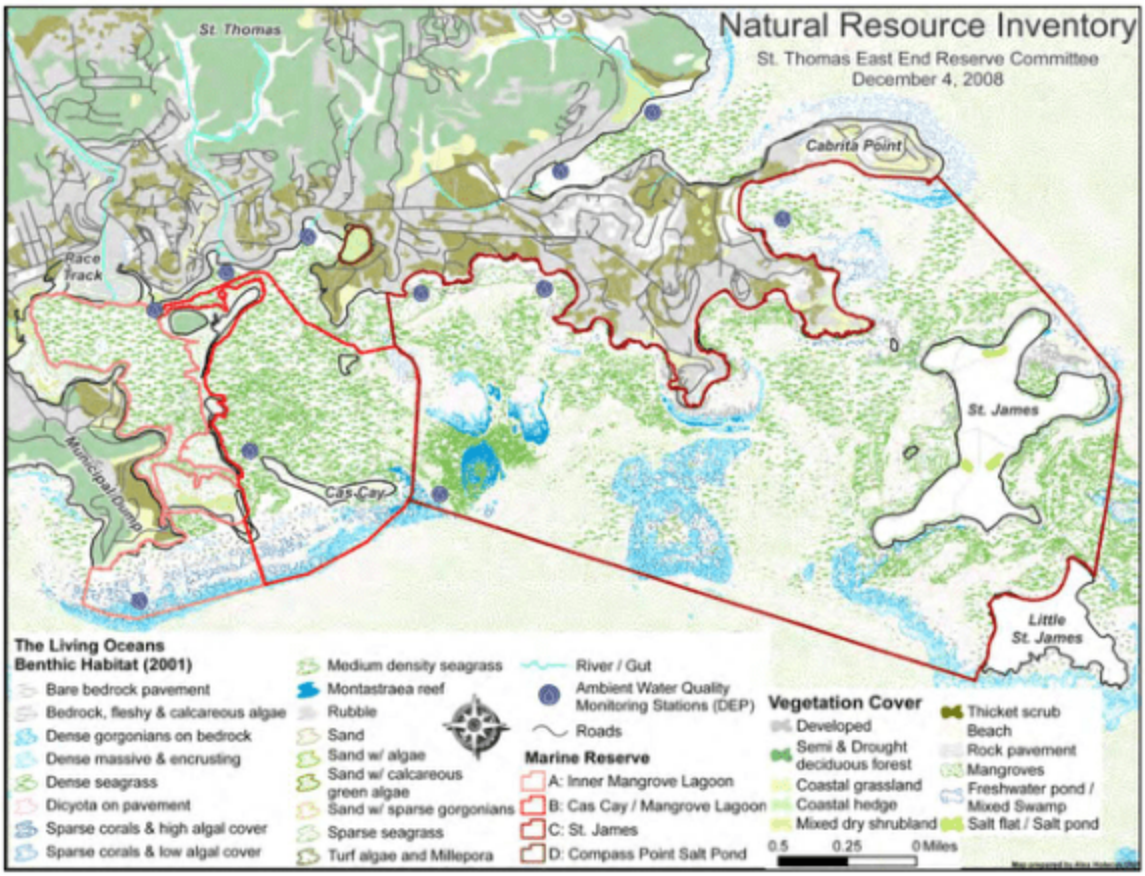


Figure 5.01.2 STEER boundaries. (STEER (2011) St. Thomas East End Reserve Management Plan. St. Thomas, USVI.

The regulations for the St. James are as follows:

St. James Marine Reserve and Wildlife Sanctuary	**Subchapter 96, Section 96-3**	*Prohibited Activities within the St. James MRWS:* • It is unlawful to remove any marine or other wildlife without a permit or specific authorization from the Commissioner
	Subchapter 96, Section 96-4	*Permitted Activities within the St. James MRWS:* Acts permitted, provided a permit is first obtained from the Commissioner: • Scientific collecting in support of and for use in a research project with an approved protocol • The use of castnet with a minimum square mesh size of ¼ inch to capture baitfish (fry) within 50 feet of the shoreline, except for Cow and Calf rocks • Fishing with hook and line

The marine habitats around Great St. James have abundant coral and seagrass resources. There are numerous ESA listed corals species near the proposed dock locations. *Acropora palmata, Acropora. cervicornis*, *Orbicella annularis, Orbicella franksi* and *Orbicella faveolata* as well as *Dendrogyra cylindrus* are found off all the beach from which the proposed docks and barge landings are planned. At the northern temporary barge landing site, these corals are located primarily to the west in an area of coral boulders and coral rubble. However, there are several small *A. palmata* and several *O. annularis* located on the shoreline cobble which extends out to a depth of 6.5ft. The presence of these species as well as several non-ESA listed *Porites astreoides* has dictated the location of the ramp. The proposed temporary barge landing position avoids all coral and seagrass resources.

Location of the western dock has a cobble beach between two areas of emergent bedrock and boulders. *A. palmata* occur on the emergent bedrock to the north. Offshore the seafloor quickly gives way to exposed pavement. There is a long linear depression right offshore and an old piling lies within this area. The fractured pavement then extends to approximately 11.5ft of depth over the next 100ft heading offshore. The area has some widely-scattered boulders and patchy coral colonization. There are scattered ESA corals including *Orbicella* and *Dendrogyra*. During the first survey, there was a very large *A. palmata* colony immediately seaward of where the old piling lay near shore. However, upon the next visit by the island it was noted that an old boat was tied nearshore apparently attached to the old piling. During a dive, several weeks later it was noted that the boat was gone and the large *A. cervicornis* had been badly broken. The location of all the ESA species has dictated the location of the dock. Approximately 75 corals will require relocation to minimize impact but no listed corals will need relocation.

The southern dock also extends from a cobble beach which gives way to rock pavement and has emergent bedrock and boulders on either side of the beach. There are *Acropora* colonies to the east and farther to the south on the bedrock and boulders. There are *Orbicella* and *Dendrogyra* within the embayment and their locations have dictated the location of the dock. The dock avoids all ESA listed corals but will require the relocation of approximately 75 corals.

This southern dock will include a combination wave attenuator and reef building system. A mitigation plan has been prepared and is found in Appendix B.

Because of the rock occurring in the area, some of the pilings may require socketing and if this is required special water quality measures will be taken. If at all possible a vibra-hammer will be used to drive the piles. A water quality monitoring program has been proposed and the plan is found in Appendix C.

The area is known habitat to protect sea turtles and marine mammals and as such NOAA's Sea Turtle and Smalltooth Sawfish Construction Conditions will be followed as well as NOAA's Vessel Strike Avoidance Measures and Reporting for Mariners.

The property contains 6 salt ponds. The wetland around the salt ponds have been delineated and the delineations were approved by the U.S. ACOE during a previous application for development of the island. This delineation is more than 5 years old, but no wetland disturbance will occur as a result of this project.

The island is known to be habitat to the St. Thomas Tree Boa that is a listed rare and endangered species. The boa as well as another species of snake have been seen during the field studies. There will be special corridors and preservation areas set aside on the island for these species. The access ways to the western and southern docks already exist, but the branch that will need to be developed to the temporary barge landing will be cleared by hand to limit impacts to the tree boas. A tree boa mitigation plan is found in Appendix D.

6.04 Fresh Water Resources

There are no freshwater resources on the island of Great St. James. There is no potable water use planned for either dock or the temporary barge landing.

6.05 Oceanography

6.05a Sea Bed Alteration

Great St. Jim, LLC is seeking to construct two docks, one of which is a combination dock/barge landing and a temporary barge landing to provide access to Great St. James Island. A detailed study was conducted around the entire island to determine suitable locations for the dock locations and sites with the least environmental impact were chosen.

A temporary barge landing is being proposed on the northwestern facing embayment. The barge landing can be quickly constructed and utilized while the combination dock/barge landing on the southeastern side of the island is constructed. This site is to the west of the sand pond and its associated wetlands. The landing includes a shoreline ramp which is 25ft wide and 40ft in length extends to the Mean Water Line (MWL). Two bollards will be placed to either side of the ramp and two moorings will be installed 75ft offshore on either side of the ramp in just over 7ft of water depth. This will allow barges to moor rather than to use their props to stay in place and will minimize bottom disturbance. The moorings will be installed using helix anchors and will use floating lines as to not disturb the seafloor when not in use. The landing area is free of coral colonization and just offshore there is very sparse seagrass colonization.

The western dock is proposed on the northern end of Christmas Cove. Historically there was a dock in this location and there are still old concrete piles lying in the shallows of this site. The proposed dock will be 10ft in width and 195ft in length extending 187ft from MLW and 193ft from mean high water (MHW). The dock will connect to an access slab which is 12ft x12ft and the slab will be 2ft thick. All the ESA listed coral species within the area were located with GPS and the dock footprint avoids the ESA listed species. The dock extends beyond the nearshore hardbottom out to a depth of 15ft into an area of uncolonized sand to allow for safe dockage for deeper vessels and minimum impact by vessels to the seafloor. The dock will require thirty-six 12in diameter piles.

The southern dock is located off the point closest to Little St. James. The ESA corals were located by GPS and survey and the dock was designed to avoid these coral species. The dock is "L" shaped and is 20ft wide (to allow for barge landing) and 150ft in length extending 141' from MLW and 148' from MHW, the "L" turns east and is 20ft wide and 100ft in length. A combination wave attenuating/reef creating system is proposed beneath the dock which will allow for more protected docking inside the "L" when seas from the south are rough. The dock has 9ft of water depth off the southern end and 7ft to 8ft on the inside of the "L". The dock has been designed so that barges can approach and land on the south end of the dock while vessels can dock along the "L". There will be twenty 12in diameter dock piles and forty 12in diameter wave attenuator piles. The attenuator/reef building piles provide substrate designed additional surface to allow colonization by coral and sponge species.

6.05B TIDES AND CURRENTS

The Virgin Islands coastal areas are not subject to significant tidal ranges or tidal currents. Due to the small size of the island, the sea flows around the island causing an average tidal height of only a few inches and maximum change of only a little over a foot. Only very narrow intertidal zones are found because of this lack of tidal amplitude and the steepness of the island rising out of the sea. The tides around Great St. James are primarily semi-diurnal in nature, with two cycles of high and two of low water every 24 hours. The second cycle is often indistinguishable. The mean tides range from 0.8f. to 1.0

ft and the spring tidal ranges reach up to 1.3ft (IRF 1977). There are no notable locally driven tidal currents due to the lack of confinement within the area. NOAA has a tide gauge in Charlotte Amalie which is a southern exposure which has been recording water levels since 1975. The high tide recorded on September 18, 1989 (Hurricane Hugo) was +3.35ft, and in 1995 during Hurricane Marilyn the Charlotte Amalie tide station recorded the highest tide height 3.98ft above Mean Lower Low Water (MLLW). The lowest tide recorded was on February 6, 1985 and was -1.44ft. The tidal ranges of the Charlotte Amalie station are as follows:

Mean Higher High Water	1.09ft
Mean High Water	0.94ft
Mean Tide Level	0.54ft
Mean Sea Level	0.52ft
Mean Low Water	0.13ft
Mean Lower Low Water	0.0ft

There is also a Tide Station in Lameshure Bay, St. John (Station ID: 9751381), the station is located at latitude 18° 19.0' N and longitude 64° 43.4' W and has a mean tidal range of 0.72 ft and a diurnal range of 0.82 ft.

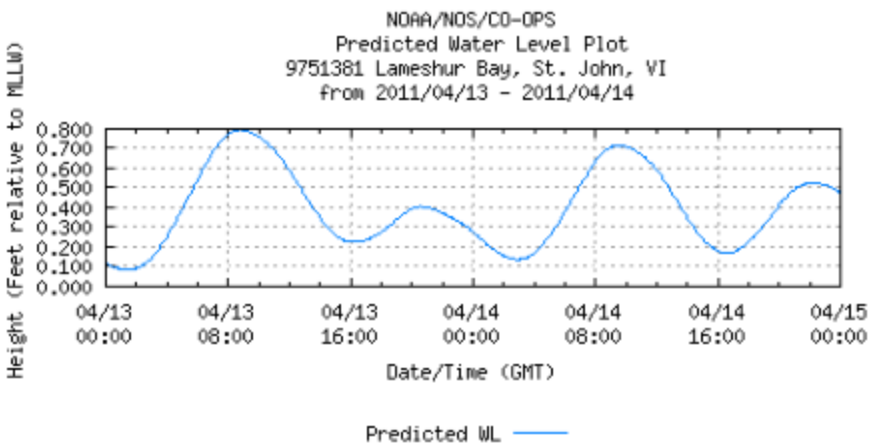


Figure 6.05.1. Tidal data from the Lameshure Tidal Station (NOAA Buoys)

The surface currents throughout the Caribbean are driven by the North Equatorial Current that runs through the islands west-northwest and then joins the Gulf. These currents change very little from season to season with the currents coming more from the south during the summer months. Because of the shallowness of the Caribbean basin of less than 1000m, mainly surface water from the Atlantic flows through the islands. The westerly drift of the Caribbean Current sweeps into Pillsbury Sound from the Southeast, seeking a way North through the barrier set up by the Cays to discharge along the North Shore of St. Thomas and out into the Atlantic. The current flows past Great St. James in a northwesterly direction. Due to the formation of the island and the normal water movement into Pillsbury Sound from the south, there is frequently a strong southerly

current running between Great St. James and Little St. James and through Current Cut.

6.05C WAVES

The deep-water waves off Great St. James are primarily driven by the northeast trade winds that blow most of the year (Figure 6.05.1). Waves average from 1 to 3ft from the east, 42% of the time throughout the year (IRF, 1977). For 0.6% of the time easterly waves reach 12ft in height. The southeasterly swell with waves one to twelve feet high become significant in late summer and fall when the trade winds blow from the east or when tropical storms and hurricanes pass the islands at a distance to the south. During the winter months, long length, long period northern swells develop to a height of 1 to 5 feet. The USACE Hindcast Studies for buoys 61022 and 61025, the two buoys whose waves patterns directly affect the island, show that a majority of the waves which occurred approach from easterly directions.

6.05D MARINE WATER QUALITY

The dock locations all have excellent water quality. During baseline studies for the dock construction on Little St. James, baseline samples taken between Little St. James and Great St. James found turbidities to range from 0.27 NTU to 1.17 NTU under normal sea conditions. Samples taken those previous studies are shown below.

DATE	TURBIDITY NORTH	TURBIDITY EAST	TURBIDITY SOUTH	TURBIDITY WEST
10/06/03	0.67	0.56	0.73	0.54
10/17/03	0.44	0.74	0.67	0.37
10/24/03	0.65	0.71	0.87	0.47
2/6/04	0.54	0.36	0.74	0.85
2/14/04	0.64	0.86	0.78	0.34
2/17/04	0.85	0.76	0.56	0.65
12/28/04	0.45	0.78	0.67	0.54
1/12/05	0.76	0.87	0.34	0.56
2/15/05	0.56	0.67	0.58	0.75
4/30/05	0.32	0.45	0.71	0.60
10/12/05	0.56	0.72	0.39	0.61
10/15/05	0.63	0.58	0.79	0.83

Turbidty measurements (NTU) during studies for this project as as follows

Date/Location	Temporary Barge Landing	West Dock	Southeast Dock
3/20/2016	0.91	0.88	0.75
4/15/2016	0.57	0.71	0.71
6/1/2016	0.49	0.91	0.87
6/27/2016	0.80	0.54	0.66
7/11/2016	0.76	0.76	0.61
8/2/2016	0.93	0.79	0.87
8/23/2016	0.62	0.82	0.68
9/3/2016	0.63	0.75	0.74

The offshore waters are classified as Class B and the best usage of the water is listed as the propagation of desirable species of marine life and for primary contact recreation (swimming, water skiing, etc.). The quality criteria include, dissolved oxygen not less than 5.5mg/l from other than natural conditions. The pH must not vary by more than 0.1 pH unit from ambient; at no time, shall the pH be less than 7.0 or greater than 8.3. Bacteria (fecal coliform) cannot exceed 70 per ml, and turbidity should not exceed a maximum nephelometric turbidity unit of three (3) NTU.

IMPACT OF PROPOSED PROJECT

The temporary barge landing and docks will replace the use of the landing and dock in Shallow Bay. Both frequently result in the suspension of sediment from the seafloor. The upland construction associated with the docks and landing are minor and with proper siltation control should not result in any impact to marine water quality. The placement of pilings will probably require socketing and could impact water quality. A double set of seafloor length turbidity barriers will be required and all corals will be relocated out the barrier footprints. Barriers must be maintained until such time the interior water quality is acceptable. If properly implemented and monitored the socketing should have only a very short-term limited impact on water quality. A Water Quality Monitoring Plan is proposed and is found in Appendix C. Once constructed, the docks and landing will have negligible impact on water quality. The docking areas are all deep enough that there should not be an issue with propwash.

The use the docks by vessels will increase the potential for releases of hydrocarbons into the marine environment through spills and exhaust. No fueling or maintenance will be allowed on the docks. To mitigate potential spills, fuel spill supplies will be kept near the base of the docks so that they can be deployed in the event a release occurs. No pumping of bilges or live-a-boards will be allowed on the dock.

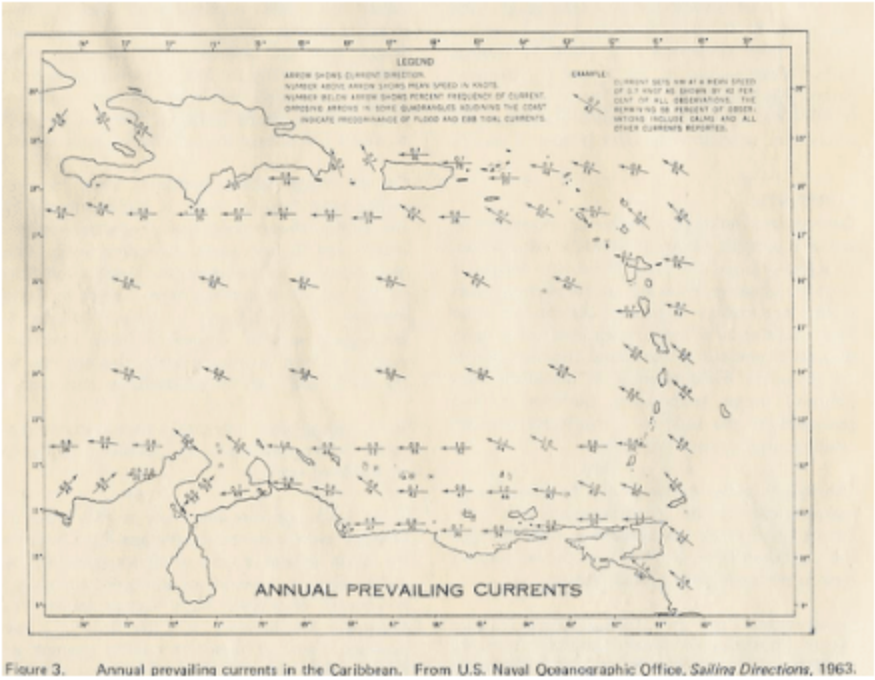
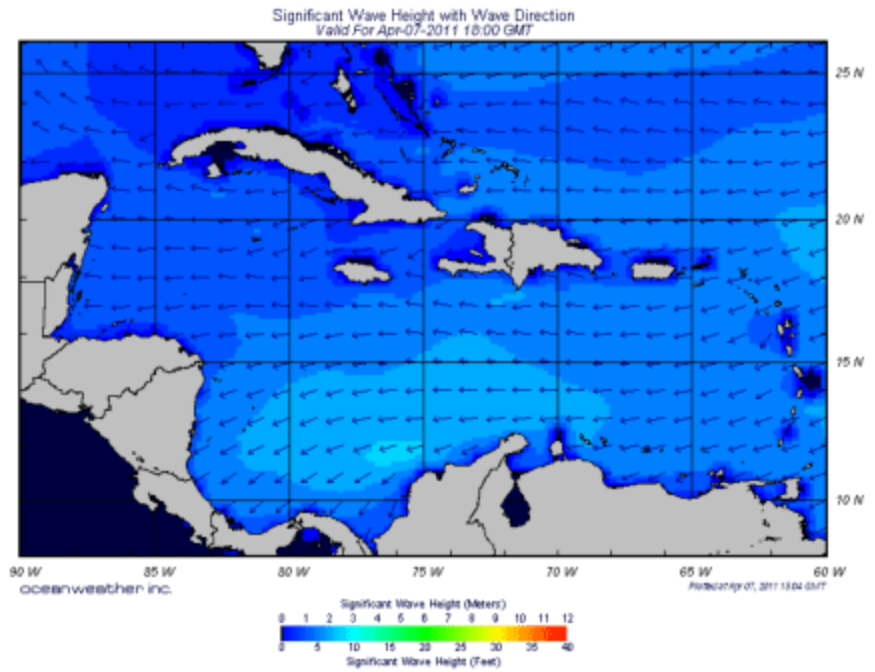


Figure 3. Annual prevailing currents in the Caribbean. From U.S. Naval Oceanographic Office, *Sailing Directions*, 1963.

Figure 6.05.1. Prevailing currents in the Caribbean, IRF 1975.



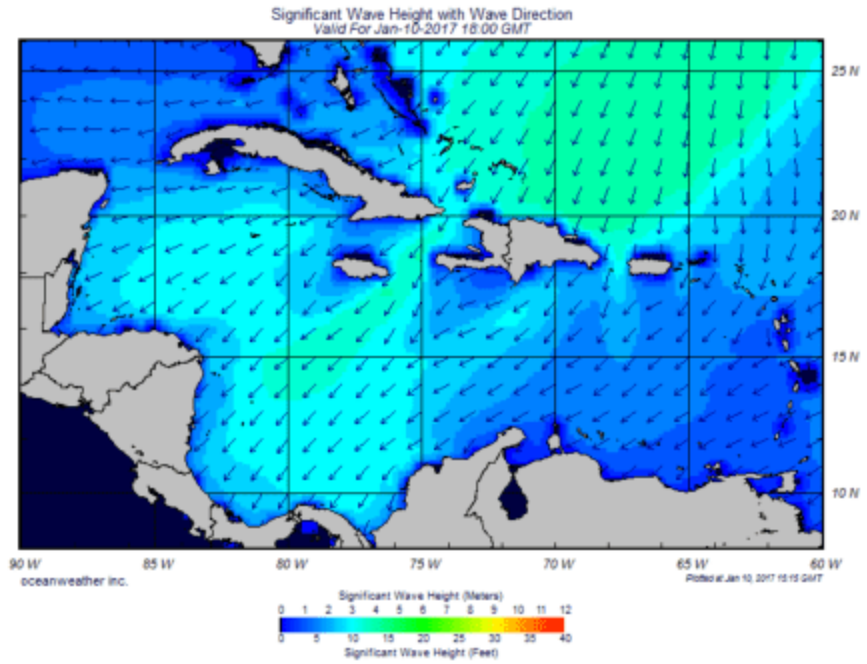


Figure 6.05.2. Currents in the Caribbean April 2011 and January 2017. ([redacted])

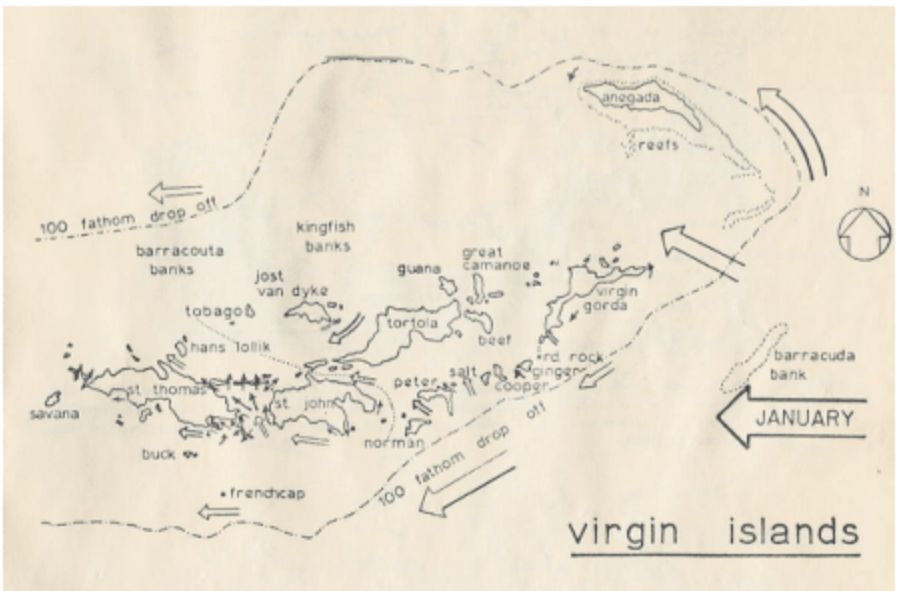


Figure 6.05.3 Prevailing currents off St. John, IRF 1975.

Figure 6.05.4. Wave Roses from the USACE Wave Information Studies for buoy 61022.

6.06 MARINE RESOURSES

Benthic Habitat Description
General

Sandy beaches, cobble beaches and steep rocky shorelines surround great St. James Island. All three of the proposed dock and barge landing sites will extend from cobble beaches. The northern shore where the temporary barge landing is proposed has cobble which extends down to a depth of approximately 7ft and has sparse seagrass colonization within the barge approach. There are scattered corals in the bay to the east and dense seagrasses offshore beyond the landing site. The cobble within the landing site is only colonized by fire coral. The emergent bed rock to both the east and west sides of the bay are colonized by corals species including ESA corals.

The northern portion of Christmas Cove where the Access Dock is located has emergent bedrock to either side of the small embayment which are colonized by coral and sponge species. Rock pavement and scattered boulders extends offshore to a depth of 11.5ft where it gives way to a sandy bottom. Corals and sponges colonize the rock pavement and scattered boulders. There is seagrass off shore but it begins beyond the terminus of the proposed dock.

The southern facing dock is off a cobble beach between to rocky shorelines. There is rock pavement extending off shore and then broken rock pavement further out. Corals and sponges colonized the rock pavement.

ESA listed coral species are found at all three locations and the Nassau Grouper (Epinephelus striatus) was seen off both the Christmas Cove and southern dock site.

Methods

The NOS St. John and St. Thomas Habitat map Tile 16 (Figure 6.06.1) of the Great St. James area shows the colonized rock pavement and bedrock as well as the offshore seagrass beds. The seagrass beds are not as continuous near the shoreline as shown, and the offshore area at both Christmas Cove and the southern dock site are colonized pavement rather than bedrock right off the cobble beaches and on the northern facing beach the pavement doesn't extend completely across the bay as shown. Surveys were done on Scuba and *Acropora palmata* and *Acropora cervicornis, Dendrogyra cylindrus, Orbicella annularis, Orbicella faveolata, Orbicella franksi,* and *Mycetophyllia ferox* were mapped so that they could be avoided. Habitat boundaries were marked with GPS and/or by the surveyor for accuracy. Percent abundance was determined along transect lines and utilizing a meter square.

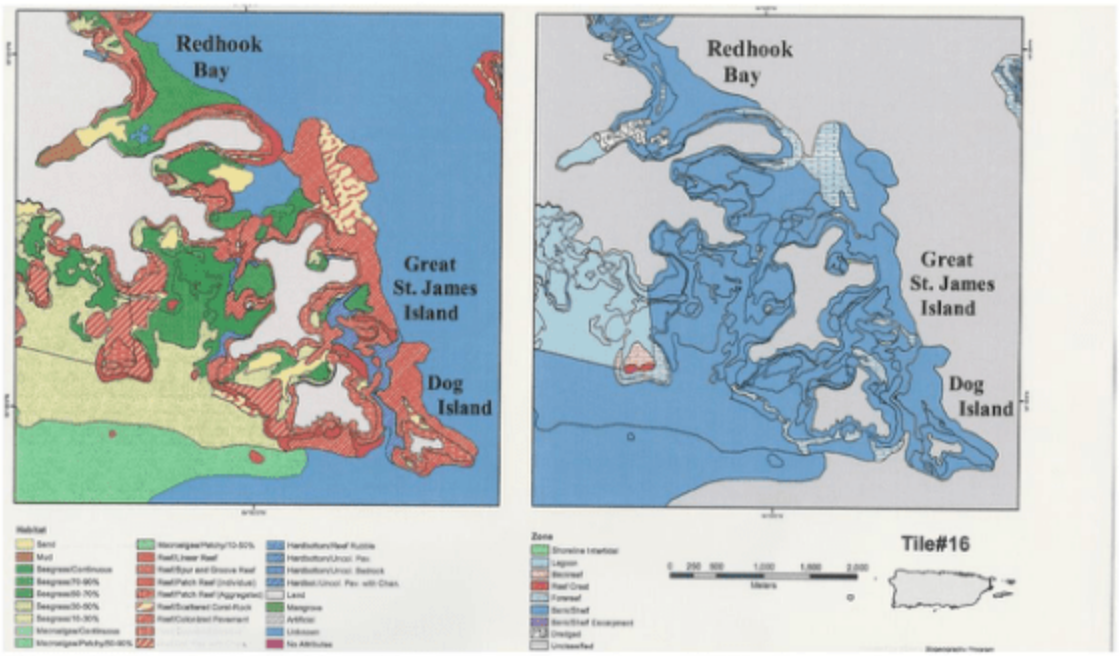


Figure 6.06.1 NOAA Benthic Habitat Map

Benthic Resources

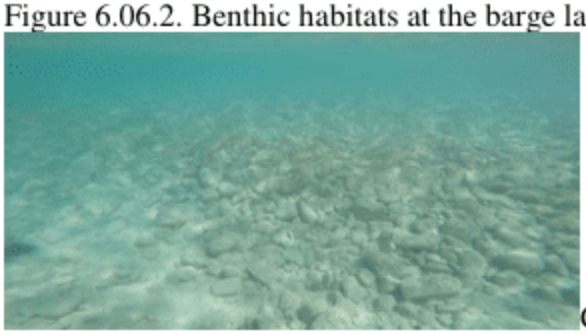
Great St. James is located off Water Point on the eastern end of St. Thomas. This oddly shaped island has a variety of shoreline types and six salt pond/wetland habitats. There is a well-protected shallow northern bay where an existing dock is located. Shallow Bay is colonized by seagrass which includes *Thalassia testudinum, Syringodium filiforme* and *Halodule wrightii*. Recently the sea vine *Halophila stipulacea* has colonized areas which have been disturbed. The densest seagrass beds once lay near shore and to the east of the dock. Over the last several years these beds have been highly disturbed. The peninsula to the east of this point is surrounded by rocky headlands and is a very exposed environment. The rocky cliffs extend below the sea surface and due to the intense wave action, the shallowest areas are not colonized. By a depth of 8ft-10ft the rocky substrate becomes colonized by a wide variety of corals and sponges. The slope is steep offshore and the water reaches a depth of 40ft to 50ft relatively close to shore. The rocky slope gives way to a cobble then sand bottom and there are sparse to moderately dense seagrass beds that extend seaward. The rocky shoreline continues around to the south, with coral colonized nearshore hardbottom and seagrass colonized sand and cobble further offshore. There are two cobble beaches further to the south divided by a small rocky headland, there is some colonized beach rock nearshore and shallow seagrass beds off shore. The shoreline facing St. James Cut and the southern end of the island is rocky. This area has limited coral colonization in the inner tidal zone giving way to an abundant diverse coral community on the submerged rocky slopes. The rock is relatively steep with numerous grottos, and caves, and gives way to a cobble/sand bottom at around 20ft to 25ft. There are moderate to dense seagrass beds off shore. The Stragglers lay off the southern most point of the cay, and like the southern shoreline of the island there is minimal colonization in the inner tidal areas of the emergent rocks with coral colonization and

diversity increasing with depth. The western shoreline is well protected and is a combination of rock and sandy beach. The water deepens much more gradually on this side of the island. In the areas with rock along the shoreline are colonized by corals and sponges. The less colonized inner tidal area is much less defined here due to the more protected nature of the site. Within Christmas Cove there is a rock groin like structure that extends into the bay near the center of the embayment. Offshore to the north of the groin there is a small beach rock shelf and then a strip of uncolonized sand before sparse to moderately dense seagrass beds begin. The site is currently used by boats anchoring adjacent to the beach.

To the south of the groin there is a beach rock shelf with moderate coral colonization which falls off to depth of over 6ft only 40ft from shore and there is a board area of uncolonized sand out to a depth of 10ft before reaching the moderately dense seagrass beds and open sandy plains. The shoreline becomes rocky again to the north along Current Cut and the area is more subject to wave and current action. There is coral colonization along the rocky shoreline and on the rock pavement that extends off shore. The north-facing bay to the east of Current Cut is a mixture of cobble and rocky shoreline with a small sandy beach in front of the salt pond. Where rock is present there is coral colonization and in the open sandy areas there is moderate to dense seagrass colonization.

The temporary barge landing is located at the western end of the north-west bay. The landing. The beach is cobble and the cobbles extend out to a depth of 7ft at the landing site. The landing site contains some scattered *Millepora complanata*, but no hard-coral species. There are scattered corals to the east in the cobble including a few *Orbicella annularis* and *Acropora palmata*. *Porites astreoides* is the most abundant coral in the cobble to the east. The location for the barge ramp was chosen due to the presence of corals and coral colonized boulders throughout the bay to the east. To the east in the bay there are numerous *Orbicella annularis*, *O. faveolata* and *Dendrogyra cylindrus* as well as other coral species. Offshore there are dense seagrass beds consisting of *Thalassia testudinum* and *Syringodium filiforme*, however these are greater than the 75ft off shore which the barge will extend while moored. There very sparse *Syringodium* colonization within the barge approach, representing less than 5% bottom coverage.

Figure 6.06.2. Benthic habitats at the barge landing.

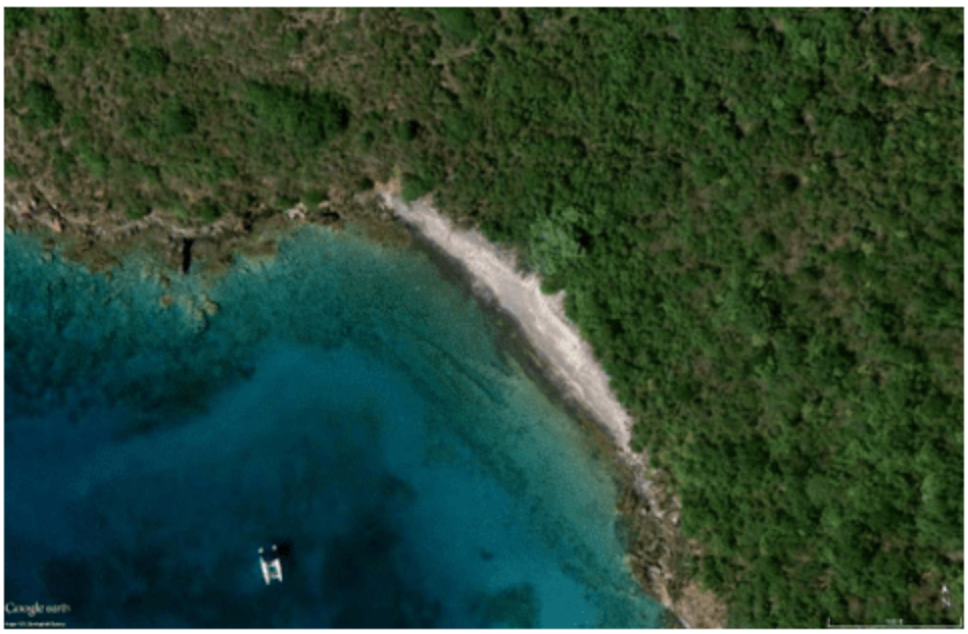

Cobble in footprint of barge mooring site


Seagrass offshore well beyond the cobble

 Sparse seagrass in the immediate barge approach

The access dock in Christmas Cove is near the location of an old historic dock. The beach is a mixture of sand and cobble. There is rock pavement extending offshore and there is an area of cobbles in the center of this area which is uncolonized out to a depth of 5ft. The rock pavement has various depressions and breaks and within one of these depression is a pile from the old concrete dock. Beyond the depression, the water deepens quickly out to a depth of 12ft. The rock pavement is colonized by *Diploria strigosa, D. labyrinthiformis, Orbicella annularis, O. franksi, Porites astreoides, P. porites, Dendrogyra cylindrus, Gorgonia sp.* and *Millepora sp.* and the sponges *Aplysina fulva, Amphimedon compressa* and *Ircinia* sp. Coral colonization increases on either end of the small embayment and with depth. Beyond the nearshore hard bottom, approximately 120ft off shore the bottom becomes sandy. There is a minimally colonized area before the bottom begins to become colonized by *Syringodium filiforme* which slowly grades into a mixed bed of *Thalassia testitudium* and *Syringodium*. The exotic seavine *Halophila stipulacea* is also present. This seavine was not present in 2006.

There was a very large intact *Acropora cervicornis* in the center of the bay just off the old dock piling in the depression early in 2016. However, a boat moored on the old piling and on a subsequent dive the *Acropora* was found completely broken. Pieces of this *Acropora* remain. There are *Acropora palmata* in the shallows to the north of the proposed dock location both on the cobble and bedrock.



The bottom formation is clearly visible this photograph.

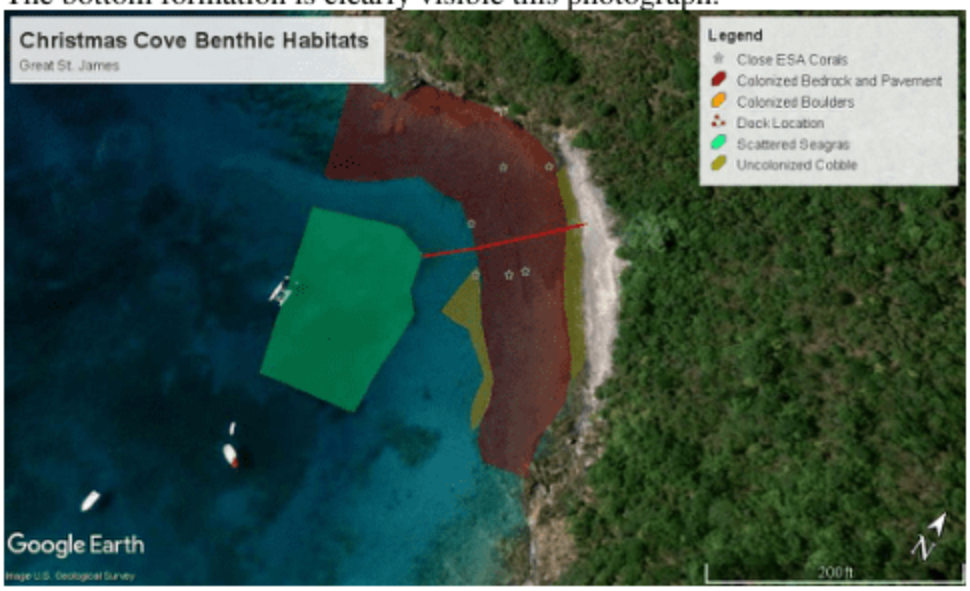
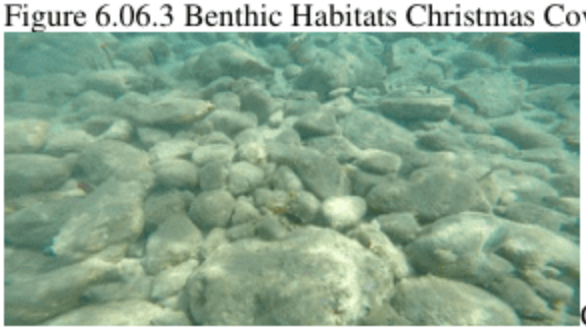


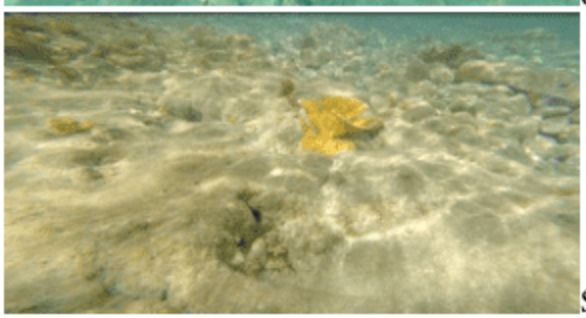
Figure 6.06.3 Benthic Habitats Christmas Cove



Cobble with minimal colonization

Sand beyond colonized pavement

Old piling



Shallow *Acropora*

Broken *A. cervicornis*

The Access Dock/Barge dock is located in the bay closest to Little St. James. Like the other two bays there is cobble on the shoreline which extends into the sea to 2ft to 4ft of water depth. Offshore there is pavement with boulders and odd rock formation. The area is colonized by scattered corals which are most abundant on the boulders. *Orbicella annularis, O. franksi, O. faveolata, Dendrogyra cylindrus, Porites astreoides, P. porites, Diploria strigosa, D. clivosa. D labyrinthiformis Gorgonia sp.* and *Millepora sp.* and sponges *Aplysina fulva, Amphimedon compressa and Ircinia* sp. are present. *Acropora palmata* is present on the headlands to the east and south.

There are scattered boulders and broken pieces of bedrock offshore, most of which are colonized by corals and sponge species.

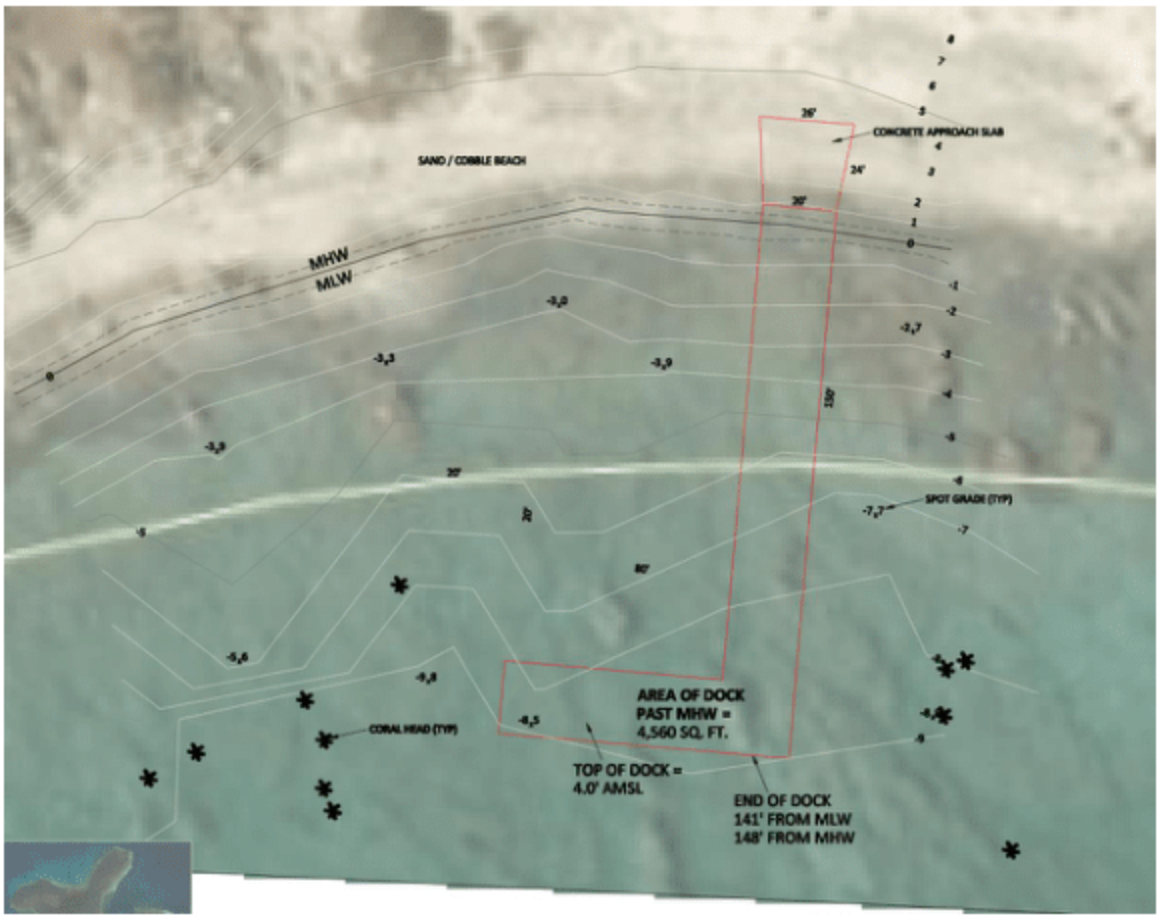
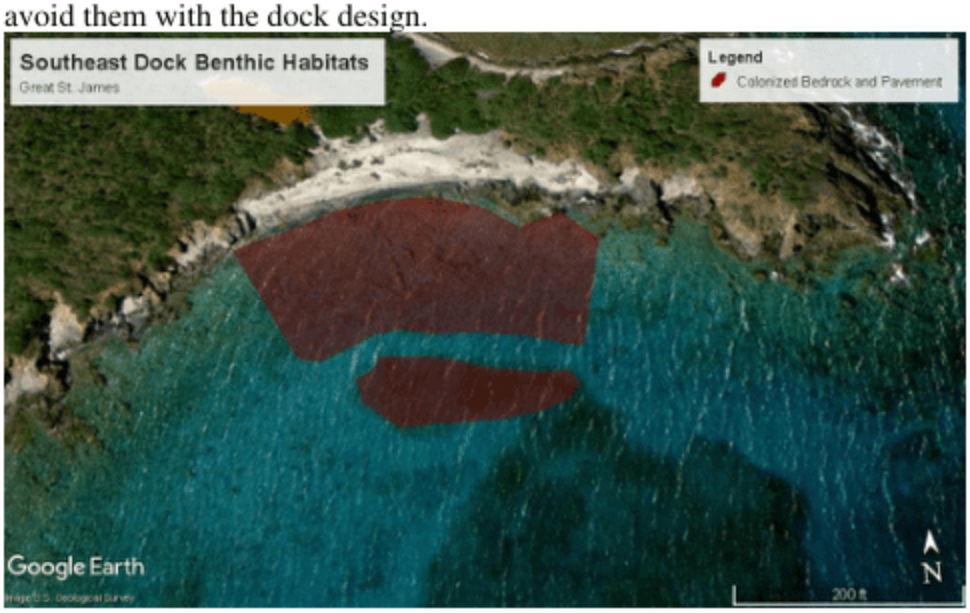


Figure 6.06.4. All of the ESA corals in the bay were mapped by the surveyor in order to avoid them with the dock design.



6.06.5 Benthic Habitats in the southeastern embayment

Impact of Construction

The temporary barge landing has minimal in-water disturbance. The landing pad is landward of MHW and only two moorings will be placed offshore. Moorings will be placed with helix anchors and will utilize floating lines to minimize impact to the seafloor. There is very sparse *Syringodium* coverage in the immediate approach and the installation of the anchors should have a negligible impact. The barge will come into the landing tie up to the bollards and pick up the moorings and cut off its engines to minimize impact. The end of the barge will be in 7ft of water at the edge of the cobble where the sand is uncolonized. By not using is engines to maintain position on shore the impact to the seafloor and water quality should be minimal. The barge will not be in place long enough to have a shading impact on the seafloor.

There are approximately 75 corals in the footprint of the Christmas Cove Dock and its immediate impact area. The corals will be relocated to the hardbottom areas to the north prior to any construction. A Coral Relocation and Transplant Plan is found in Appendix B. The Christmas Cove dock will require thirty-six 12in pilings. It is probable that a least ½ of those will require socketing. Double turbidity barriers will be deployed and water quality monitored will be conducted during all in water work. Turbidity barriers will not be opened or removed until interior water quality has settled to acceptable levels. All corals will be relocated out of the area enclosed by the curtains so that they will not be impacted by settling sediment. Turbidity barriers will be removed or secured when not in use to limit impact to the surrounding benthos. If turbidity control is properly maintained and monitored the impacts should be minimal. The dock has been designed to extend out into the uncolonized sand and terminate before reaching the dense *Thalassia* and *Syringodium* beds offshore. The seavine *Halophila stipulacea* may now be in the footprint of the dock. During the initial surveys, it was well beyond the dock footprint but has slowly been spreading into the uncolonized sand. The use of the dock will introduce the potential for hydrocarbon releases from motorized vessels and from their exhaust. This bay is already highly used by sail and motor vessels and the increased potential for releases should not be significantly over what is currently present.

The southeastern dock/barge ramp will also impact approximately 75 corals in its footprint and impact area. These corals will be transplanted onto the hard bottom areas to the south. The dock will require twenty 12in piles and forty 12in piles for the wave attenuators and reef building system. Many of the piles may require socketing and the same procedures will be followed as described for the Christmas Cove installation. If properly implemented impacts to water quality should be minimal. The depths are such that the dock's use should not disturb the seafloor. The use of the dock will introduce the potential for hydrocarbon spills from vessels and from the exhaust.

The locations of the docks have been made so that they avoid impact to ESA listed coral species and provide the greatest depth possible while minimizing the size of the structures.

6.07 Terrestrial Resources

The application is for the development of a temporary barge landing and two docks. All three structures have access pads or landing pads which will be constructed on cobble beaches which are unvegetated. The access ways to both the Christmas Cove beach and southeastern dock already exist and will not require additional clearing. Approximately 175' of access way must be cleared in order to access the temporary barge landing.

Flora

The island is a harsh dry windswept environment that supports a large variety of thorny species. There are 6 wetlands, two of the wetlands are salt ponds surrounded by monocultures of black mangroves (*Avicenna germinans*) and two of the wetlands are salt ponds surrounded by buttonwood mangroves (*Conocarpus erectus*). One of the wetlands is more depressional and is surrounded by manchineel (*Hippomane manchineel*). A plant species list follows which provides the general location for each of the species encountered during detailed terrestrial surveys in 2005 and 2006. Additional terrestrial surveys were made in 2016, and while a notable amount of additional clearing had been done the species on the island remain the same. Many of the plants were found in more than one habitat. The plant communities can be divided into those on the most exposed areas of the coastline, the beach community, the wetland communities, the windward vegetation and the less exposed portions of the site. There is also a small landscaped area from around the existing buildings on the site.

The locally listed rare and endangered *Mammalaria nivosa* was noted on the exposed rocky cliffs within the exposed coastal vegetation. It was not as prevalent as Turks head cactus. *Malpighia woodburyanna,* another locally listed rare and endangered plant may be present but was not seen during the surveys.

SPECIES	BEACH	WETLAND	EXPOSED COASTAL	WINDWARD	LESS EXPOSED	LANDSCAPE
Acacia tortuosa	x	x	x	x	x	
Agave missionum	x					
Argusia gnaphalodes	x					
Avicennia germenans	x					
Borrichia arboresceus	x	x				
Bourreria succulenta	x	x				
Bucida bucera	x	x				
Bursera simaruba	x	x	x	x		
Caesalepinia bonduc	x					
Cakile lanceolata	x	x				
Canavalia rosea	x					
Canella winterana	s					
Capparis cynophallophora	x	x	x	x		
Capparis flexuosa	x	x	x	x		
Capparis indica	x	x	x			
Cassine xylocarpa	x	x	x	x	x	
Cenchrus incertus	x					
Chamaescye artiuclata	x	x				
Chrysobalanus icaco	x					
Citharexylum fruticosum	x	x				
Clerodendrum	x	x				

aculeatum						
Coccoloba uvifera	x	x	x			
Cocoloba krugii	x	x				
Cocoloba microstachya	x	x				
Cocos nucifera	x					
Comocladia dodonaea	x	x	x			
Conocarpus erectus	x	x				
Crinum zeylanicum	x					
Crossopetalum rhacoma	x	x				
Croton betulinus						
Croton discolor	x	x	x	x		
Cuscuta americana	x	x				
Dalbergia ecastaphyllum	x	x				
Distichlis spicata	x					
Erithalis fruticosa	x	x				
Erthrina corallodendrum	x					
Erythroxylum brevipes	x	x	x			
Eugenia cordata	x	x				
Eugenia ligustrina	x	x				
Eugenia sessiliflora	x					
Euphorbia artculata	x	x	x			
Euphorbia mesembrianthemifolia	x	x	x	x		
Guapira fragrans	x	x	x			
Heliotropium curassaruium	x					
Heteropteris purpurea						
Hippomane manchineel	x	x	x			
Ipomoea eggersii						
Ipomoea pes caprae	x					
Jacquinia arborea	x					
Jacquinia berterii	x	x				
Jatropha gossypifolia	x	x	x			
Krugiodendron ferreum	x					
Lantana camara	x	x	x	x		
Lantana invoucrata	x	x	x	x		
Leucaena leucocephala	x	x	x	x	x	
Malpighia linearis	x	x	x			
Malpighia woodburyana						
Mammilaria nivosa	x					
Melocactus intortus	x					
Morinda citrifoli	x	x				
Oplonia spinosa	x	x				
Opuntia dillenii	x	x	x			
Pictetia aculeata	x	x				
Pilosocereus royenii	x	x	x	x		
Pisonia subcordata	x	x	x	x		
Pithecellobium unguis cati						
Plumeria alba	x	x	x	x		
Prestonia aggulatinata	x	x				
Pyschotria nervosa	x	x				
Randia aculeata	x	x	x	x		
Rochefortia acanthophora	x					
Samyda dodecandra	x					
Scolosanthus versicolor	x	x				
Sesuvium portulacastrum	x	x				
Sida rhombifolia	x	x	x	x		

Solanum racemosum	x	x			
Sporobols virginicus	x				
Stigmaphyllon emarginatum	x	x			
Stigmaphyllon perilocifolium	x	x	x		
Stigmaphyllon periplocifolium	x	x	x		
Surinam maritima	x				
Tabebuia heterphylla	x	x	x	x	
Thespesia populnea	x	x	x		
Tillandsia utriculata	x	x	x		
Tragia volubilis	x	x	x	x	
Urechites lutea	x				

Fauna

The island has significant wildlife use. Deer, and goats were noted during the survey in the dense bush in 2004 but only deer were noted in 2005 and 2006. Numerous mice and rats were noted on every visit and did not seem afraid of humans. No rats were noted in 2016.

Reptiles were abundant and tree anoles (*Anolis cristatellus*), grass anoles (*Anolis pulchellus*), barred anoles (*Anolis stratulus*), dwarf geckos (*Thecadactylus* sp), and common ground lizards (*Sphaerodactylus macrolepis*) were seen. Worm lizards (*Amphisbaena fenestrata*) have been reported but were not encountered. Puerto Rican racers (*Alsophis portoricensis*) were seen on every site visit including in 2016 and appear in the highest density around the salt ponds. The St. Thomas tree boa (*Epicrates monensis granti*) is also present and two were seen during the surveys in May of 2006. One in the vegetation near the modern housing complex and one in the trees near Christmas Cove.

6.08 Wetlands

The U.S. Army Corps of Engineers defines wetlands as "those areas that are periodically inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, bogs, marshes and similar areas." (U.S. Army Corps of Engineers, 1986). In March 2004 Amy Claire Dempsey of Bioimpact, Inc., delineated the wetlands on the island of Great St. James in accordance to the 1987 Wetland Delineation Manual.

Figure 6.08.1 The six salt ponds on Great St. James

POND 1

Pond 1 is located on the northeastern point of the island. The pond is surrounded by cobbled beaches to the north and west and steep hillsides to the east. The southern side has the gentlest rise from the pond and has the greatest area of wetland outside the area that typically has standing water. Cobbles extend down into the pond on the two beach sides and the cobbles have green stains. The pond has a monoculture of black mangroves, *Aviennia germinans*.

POND 1

POND 1

POND 2

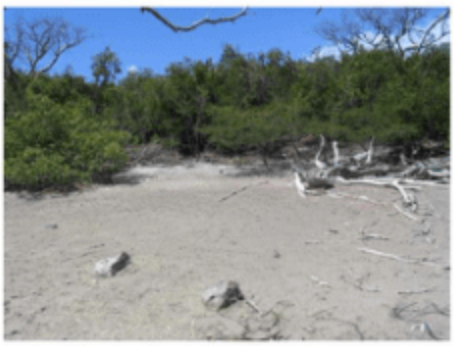
Pond 2 is located on the northwestern point of the island. The pond is surrounded by a cobble beach to the north and steep hill sides to the south, east and west. There is a rock wall build across the eastern corner of the pond. The pond is almost a monoculture of black mangrove, *Aviennia germinans*. Only a few white mangroves, *Laguncularia racemosa* were encountered along the shore side. This wetland is closest to the temporary barge landing. The access roadway is 100' from the edge of this wetland.

POND 2

POND 2

POND 3

Pond 3 is a depressional area off Christmas Cove on the western side of the island. It is located to the north of a larger salt pond. This wetland is primarily surrounded by manchineel (*Hippomane manchineel*). It appears that this pond only occasionally holds water. There is a lot of dead wood within this depression.



POND 3

POND 4

Pond 4 is located behind the cobble beach berm off Christmas Cove. The western side of the pond is bordered by a cobble beach and cobbles spill down into the pond. The northern, southern and eastern sides of the pond are bordered by steep hillsides. The wetland forms a narrow strip around the pond. The pond is a monoculture of buttonwood mangroves, *Conocarpus erectus*.

POND 4

POND 4

POND 5

Pond 5 is located on the eastern side of the island behind a cobble beach. Its eastern border is a mixture of sand and cobble spilling over from the beach, and the northern, southern and western border are steep hillsides. The northern end of the pond has been filled with coral rubble which was thrown over into the pond during stormd. The pond is surrounded by buttonwood mangroves, *Conocarpus erectus* and the ground cover *Sesuvium portulacastrum* is present along the eastern side.

POND 5


POND 5

POND 6

Pond 6 is located to the south of pond 5 on the other side of a knoll. It is fringed by the shoreline community on its eastern and northern sides. Steep hillsides surround the pond to the south and west. White mangroves (*Laguncularia racemosa*) are the dominant species surrounding the pond.


POND 6

The southeastern landing is closest to this pond. The access road already exist and its use will not impact the wetland.

6.09 RARE AND ENDANGERED SPECIES

All three rare or endangered sea turtle species; hawksbill turtles (*Eretmochelys imbricata*) green turtles (*Chelonia mydas*) and leatherback turtles (*Ermochelys coriacea*) occur in the area but neither of the docks or landing sites are turtle nesting beaches. NOAA's Sea Turtle and Smalltooth Sawfish Construction Conditions will be followed as well as NOAA's Vessel Strike Avoidance Measures and Reporting for Mariners in order to protect these species. Acoustic impacts are also a potential impact to sea turtle species therefore a vibratory hammer will be used during construction to minimize this impact and if necessary pile will be socketed rather than impact driven. The use of an impact hammer is not proposed.

The marine habitats around Great St. James have abundant coral and seagrass resources. There are numerous ESA listed corals species near the proposed dock locations.

Acropora palmata, A. cervicornis, Orbicella annularis, O. franksi and *O. faveolata* as well as *Dendrogyra cylindrus* are found off all the cobble beaches from which the proposed docks and barge landings are proposed. At the northern temporary barge landing site, these corals are located primarily to the east where there are coral boulders and coral rubble. There are few located on the shoreline cobble which extends out to a depth of 6.5ft to 7ft. There are several small *Acropora palmata* and several *Orbicella annularis* on the nearshore cobble and the presence of these species as well as several *Porites astreoides* dictated the location of the barge landing. The proposed temporary barge landing position avoids all coral and the landing approach is over sparse seagrass.

The western dock location is off a cobble beach between to areas of emergent bedrock and boulders. *Acropora palmata* occur on the emergent bedrock to the north as well as on the cobble. Offshore the seafloor quickly gives way to exposed pavement and there is a long linear depression right offshore. An old piling lies within this area. The fractured pavement then extends to a depth of approximately 11.5ft offshore over the next 130ft. The area has some widely-scattered boulders and patchy coral colonization. There are scattered ESA corals including *Orbicella* and *Dendrogyra*. During the first survey, there was a very large *Acropora cervicornis* immediately seaward of where the old piling lay near shore. However, upon the next visit by the island it was noted that an old boat was tied nearshore apparently attached to the old piling. During a dive several weeks later it was noted that the boat was gone and the large *A. cervicornis* had been badly broken. The location of the ESA species has dictated the location of the dock. Approximately 75 corals will require relocation to minimize impact but no listed corals will need relocation.

The southern dock also extends from a cobble beach which gives was to rock pavement and also has emergent bedrock and boulders on either side of the beach. There are *Acropora* to the east and farther to the south on the bedrock and boulders. There are *Orbicella* and *Dendrogyra* within the embayment and their locations have dictated the location of the dock. The dock avoids all ESA listed corals but will require the relocation of approximately 75 corals.

The island is known to be habitat to the St. Thomas Tree Boa (*Epicrates monensis granti*) that is a federally listed rare and endangered species. The boa as well as another species of snake were seen during the field studies. There will be special corridors and preservation areas set aside on the island for these species. The access ways to the western and southern docks already exist, but access will need to be developed to the temporary barge landing. Vegetation along this access will be cleared by hand to limit impacts to the tree boas. A tree boa mitigation plan is found in Appendix D.

6.10 Air Quality

All of St. John and St. Thomas is designated Class II by the Environmental Protection Agency in compliance with National Ambient Air Quality Standards. In Class II air quality regions the following air pollutants are regulated; open burning, visible air

contaminants, particulate matter emissions, volatile petroleum products, sulfur compounds, and internal combustion engine exhaust (Virgin Islands Code Rules and Regulations).

There will be a slight increase in air emissions during the use of heavy equipment for pile socketing/vibra-hammering. Once the docks are complete air quality will be impacted by the periodic vessel visitations. The dock will have a negligible impact on air quality.

7.00 IMPACTS ON THE HUMAN ENVIRONMENT

7.01 Land and Water Use Plans

The property is zoned R-1, Residential Low density. The proposed structures are intended to provide access to the residence on the offshore cay.

7.02 Visual Impact

The structures are proposed for the privately held offshore cay. The docks are all low profile and will have turtle friendly solar lighting for visibility at night. Due to the locate of the cay the dock structures will only be visible from boats and from Little St. James.

7.03 Impact on Public Services

7.03a Water

There will be no water service to the docks or landing.

7.03b Sewage Treatment and Disposal

There will no sewage associated with the docks or landing.

7.03c Solid Waste Disposal

The docks and barge landing will not create solid waste.

7.03d Roads, Traffic and Parking

The docks and landing are associated with an offshore cay and therefore have no impact on roads, traffic or parking.

7.03e Electricity

The docks and landing will use turtle friendly solar lighting.

7.03f Schools

The construction of the 2 docks and landing will have no impact on schools.

7.03g Fire and Police Protection

The development of the access docks and landing will improve fire department and police access to the cay in the case of an emergency.

7.03h Health

The construction of these features will not increase the use of the public health facilities. The construction of these docks and the landing will make it easier for emergency health transportation to and from the cay.

7.04 Social Impacts

The construction of the docks and barge landing are proposed for a private offshore cay with the intention to provide access to the owner and his staff. These activities on the privately held island will not affect the islands of St. Thomas or St. John.

7.05 Economic Impact

The private docks and landing are not revenue producing. The permitting of the structures will result in the payment of submerge land fees by the applicant.

7.06 Impacts on Historical and Archeological Resources

The proposed structures are in the shallow waters around Great St. James. Detailed surveys were done as part of the benthic assessment. An old dislodged pile was noted near the shoreline and one further offshore. These are being avoided due to coral colonization. A request for a clearance letter has been sent to SHPO. A MOU is in place for the upland portions of the island.

7.07 Recreational Use

People typically do not visit either the northern beach area or the southeastern dock site. The Christmas Cove is however periodically visited by boaters and visitors who picnic on the beach or walk on the shoreline. The docks will not interfere with public access to the shoreline and the public will continue to enjoy free egress within the 50' set back.

7.08 Waste Disposal

The dock will not create solid waste, any trash from vessels will be disposed of in receptacles on the island, and hauled off with the other trash. The temporary barge landing and access dock/barge land will facilitate the removal of trash form the island.

7.09 Accidental Spills

No fueling or repair will be allowed at the docks. The docks and landing will keep emergency spill kits nearby so that in the event of an inadvertent release from a vessel it can be quickly contained.

7.10 Potential Adverse Effects Which Cannot Be Avoided

The project will result in the alteration of an offshore cay and development on shorelines which have previously been undeveloped. There will be water quality impacts due to pile installation, but if the turbidity control and monitoring is implemented as proposed impacts should be minimized and short term. There are corals within the footprints and impact area of the construction and these will be transplanted prior to construction (Mitigation Plan Appendix B). The docks have been designed so that the vessels are in deeper areas and bottom disturbance should be minimized.

Christmas Cove is already heavily utilized by boat traffic so the additional vessel use should be negligible. Neither the northern barge landing or southern site are typically used by boaters and this will result in increased boat traffic to both.

8.00 Mitigation Plans

To abate and minimize environmental impacts the following mitigation and monitoring plans are proposed.

Coral Relocation and Mitigation Plan Appendix B
Water Quality Monitoring Plan Appendix C
Tree Boa Protection Plan Appendix D

9.00 Alternatives to Proposed Action

A siting study was done around the entire island. All potentially usable docking sites were investigated. Site accessibility was one of the most restrictive issues.

The existing dock which is in Shallow Bay is far too shallow and its use has result in damage to the once dense *Thalassia testudinum* beds within the bay. Although barges have been landed in the bay it has resulted in damage to the shallow seagrass beds. The bay is only 4ft deep 600ft off shore.

The dock in its current configuration is not approved by the USACE and the USACE has requested its removal. It was not permitted due to the shallowness of the bay and the potential impacts to the shallow seagrass beds. Shallow Bay is also not suitable for barge landing.

In order to provide boat access and barge access to the island a new structure or structures are necessary.

Many of the shorelines are inaccessible due to steepness. The most southern embayment could support a dock with similar impacts as the selected sites, access to this embayment was extremely difficult and would require significant cutting and filling which would result in increased environmental impact.

On Christmas Cove there are several areas where a dock could be extended from the shoreline with similar potential impacts as the proposed dock, however, the areas further to the south would have greater seagrass impact, could impact the salt pond and would have a significant impact on the public use of Christmas Cove since the dock would extend into the highly used mooring area. The area selected in Christmas Cove is at the far end of the cove and therefore will not result in boat traffic through the mooring field.

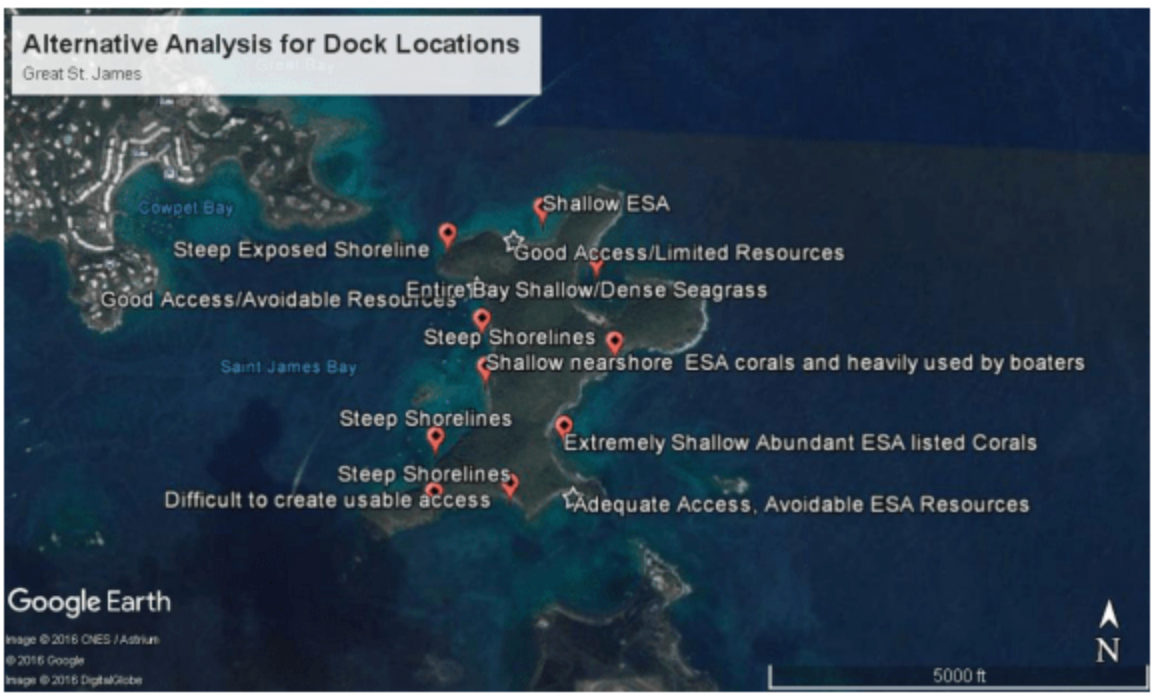


Figure 9.01 Options considered

10.00 Relationship Between Short Term and Long Term Uses of Man's Environment

The existing access to the island of Great St. James is not suitable for the owners intended residential use. The existing dock is in too shallow of a bay and is not federally permitted in its current configuration. The development of a more suitable dock and barge landing is in the best interest of the environment to abate impacts which are occurring due to the shallowness of the bay which is now being used. The development of adequate facilities for island access and the continuing requirements for the removal of trash and delivery of supplies is in the best long-term interest for man's environment.

11.00 REFERENCES
Literature Cited

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Bucher, K. E., [redacted]. Littler, M. M. Littler, J. N. Norris. 1989. Marine Plants of the Caribbean A Field Guide From Florida to Brazil. Smithsonian Institution Press, Washington, [redacted].

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Humann, Paul. 1992. Reef Creature Identification. New World Publications, Inc., Jacksonville, FL.

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Island Resources Foundation. 1977. Marine environments of the Virgin Islands. Technical Supplement No.1 1976. Prepared for the Virgin Islands Planning Office.

STEER (2011) St. Thomas East End Reserve Management Plan. St. Thomas, USVI.

USACE Wave Information Studies

On line Resources Referenced:

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http://coralpedia.bio.warwick.ac.uk/

https://msc.fema.gov/portal/advanceSearch

[redacted]

http://oceancurrents.rsmas.miami.edu/data.html

http://www.spongeguide.org/

http://tidesandcurrents.noaa.gov/tide_predictions

http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx

http://www.ndbc.noaa.gov/

http://wis.usace.army.mil/hindcasts.html?dmn=atlantic

APPENDIX A

BIOIMPACT, INC.

[redacted]. BOX 132
KINGSHILL, ST. CROIX
U.S. VIRGIN ISLANDS 00851

PHONE NUMBER 340 773-5881, 340 718-3246 FAX NUMBER 340 718-3800

EMAIL bioimpact@islands.vi

BIOIMPACT, INC. QUALIFICATION STATEMENT

Bioimpact, Inc. is a Virgin Islands Corporation licensed to do business in the Virgin Islands Since 1986.

Bioimpact, Inc. is qualified to conduct and prepare both terrestrial and marine Environmental Assessment Report required by the Department of Planning and Natural Resources, Division of Coastal Zone Management, and the U.S. Army Corps of Engineers.

Amy Claire Dempsey, principal of **Bioimpact, Inc.** is certified in wetland delineation by the National Wetland Science Training Cooperative to establish wetland jurisdictional limits for the U.S. Army Corps of Engineers.

Bioimpact, Inc. is experienced in the creation and implementation of wetland mitigation programs.

Bioimpact, **Inc.** is experienced in developing and implementing marine water quality monitoring programs and long term photographic monitoring of the benthic environment. Amy Claire Dempsey, principal of **Bioimpact, Inc.** is an EPA certified water sampler and analyst.

Bioimpact, Inc. has successfully designed and implemented large scale coral and seagrass transplant programs.

Bioimpact, Inc. is experienced in cable landfall studies and the establishment of routes for undersea cables and monitoring of cable installations to minimize impact.

Bioimpact, Inc. is experienced in endangered species surveys included the endangered coral, as well as terrestrial flora and fauna species and is experienced in preparing Biological Assessments for National Marine Fisheries and Fish and Wildlife Service.

Bioimpact, Inc. is experienced in preparing Environmental Assessments for federal permitting and the issuance of Findings of No Significant Impact.

Bioimpact, Inc. is experienced in the preparations of Phase I Environmental Site Assessments as set forth in the ASTM Standard Practice Designation E 1527-13 and All Appropriate Inquires and Phase II Environmental Site Assessments as set for in ASTM E1903 – 11.

Bioimpact, Inc. is experience in the development and implementation of sampling plans to detect and delineation hazardous materials and petroleum products.

Bioimpact, Inc. has conducted environmental studies in the U.S. Virgin Islands, Puerto Rico, British Virgin Islands, throughout the Caribbean and in the Florida Keys.

PARTIAL JOB LIST
UP-DATED November 22, 2016
MONITORING PROGRAMS

2014-2016 Development and Implementation of the Environmental Monitoring Plans for the Conversion of VIWAPA to LPG for Vitol.

2014-2016 Development and Implementation of the Environmental Monitoring Plans for the Development of a Dolphin Exhibit for Coral World (VI), Inc.

2013-2016 Development and Implementation of the Water Quality and Environmental Monitoring related to the dredging of the Crown Bay Marine Terminal and Turning Basin.

2016- Development and Implementation of the Water Quality Monitoring Plan for the WICO Emergency Bulkhead replacement.

2013 –2015 Environmental Monitoring of the wetland created as mitigation for the development of VIWMA's St.Croix Transfer Station

2013-2016 Development of the Monitoring Plans for VIDPW's Improvements to Veterans Drive St. Thomas

2013-2014 Development and Implementation of the Monitoring Plans for VIPA's Maintenance Dredging of Crown Bay Marina, St. Thomas

2013-2016 Development and Implementation of the Monitoring Plans for Westin Resorts Permitting of the dock and Improvements of Drainage, St. John

2012 –2016 Development and Implementation of the Monitoring Plans for viNGN's Cable System in the USVI.

2012-2016 Water Quality and Environmental Monitoring Program for the increase in discharge from the Frenchman's Reef Hotel, St. Thomas

2011 Water Quality and Environmental Monitoring Program for the installation of a Chiller System and reconstruction of a dock at Frenchman's Reef Hotel, St. Thomas.

2010-2012 Development of the Water Quality and Environmental Monitoring Program for the development of Thatch Cay, with special emphasize on the endangered coral species

2009 Establishment of the baseline for the dredging of Charlotte Amalie Harbor and entrance channel and the filling of the dredged hole in Lindbergh Bay, St. Thomas for

West Indies Company

2009 – 2010 Water Quality Monitoring Plan for the Construction of the dock at Frenchman's Cove, St. Thomas for Marriott Vacation Club, Inc.

2009-2015 Environmental Monitoring for the development of Oil Nut Bay, and YCCS Yacht Club, Virgin Gorda, BVI, for Victor International

2008-2009 Environmental Monitoring of the development of Scrub Island, BVI, for MainSail Development, LLC

2007 – 2010 Water Quality Monitoring for the development of the Calabash Boom Affordable Housing Complex in Calabash Boom, St. John for Reliance Housing

2007 - 2009 Water Quality and Environmental Monitoring for the Subdivision of 77 acres in Hansen Bay, St. John, for Flamboyant

2006- 2008 Water Quality Monitoring for the dredging of the Sand Channel for the V.I. Water and Power Authority

2006-2007 Water Quality Monitoring for the renovations to the Ritz Carlton Hotel, St. Thomas for Ritz Carlton

2006 - 2010 Environmental monitoring for the placement of undersea cables at the Global Crossing Cable Station in St. Croix for Global Crossing Network, ALCATEL and TYCO

2005-2007 Water Quality Monitoring for the dredging of Crown Bay, St. Thomas for the V.I. Port Authority

2005- 2006 Water Quality and Environmental Monitoring for Improvements to the Redhook Marine Terminal for the V.I. Port Authority

2004 - 2011 Water Quality and Environmental Monitoring for the construction of the Pond Bay Resort, St. John for First American Development Group

2003 - 2006 Water Quality Monitoring for the construction of the Enighed Pond Marine Terminal, St. John, for the V.I. Port Authority

2002 - 2008 Water Quality and Environmental Monitoring for the development of Marine Amenities on the island of Lovango, St. John, for the Joseph Markus Trust

2003 - 2004 Water Quality Monitoring for the development of the Crown Bay Marine Terminal,

St. Thomas for the V.I. Port Authority

2002-2005 Water Quality Monitoring for the improvements to the Gallows Bay Marine Terminal, St. Croix, for the V.I. Port Authority

1999-2006 Water Quality Monitoring for repairs to the Frederiksted Pier, St. Croix, for the V.I. Port Authority

2001-2008 Coral Transplant Monitoring for the Enighed Pond Marine Terminal, St. John, for the V.I. Port Authority

2001- 2007 Coral Transplant Monitoring for the Mangrove Lagoon Sewage Treatment Plant Outfall, St. Thomas for the V.I. Department of Public Works

2000 - 2003 Water Quality Monitoring for the dredging of Charlotte Amalie Harbor, St. Thomas, for the V.I. Port Authority

2001 - 2002 Water Quality Monitoring for Improvements to the Tropical Shipping Dock in Crown Bay, St. Thomas for Misener Marine

2000 - 2006 Seagrass Transplant Monitoring for the Seagrass Transplant for the Dredging of Charlotte Amalie Harbor for the V.I. Port Authority

1999- 2002 Water quality monitoring for Construction of Cable Stations at Estate Northside for Global Crossings

1997-2002 Wetland monitoring of the Airport Mitigation Site at the Henry E. Rohlsen Airport for the V.I. Port Authority

1997 - 2002 Wetland monitoring for the Fairplains Mitigation Site at the Henry E. Rohlsen Airport for the V.I. Port Authority

1997- 2005 Water quality monitoring program for Construction of the Christiansted Boardwalk in St. Croix prepared for the Government of the Virgin Islands

1997-2005 Wetland monitoring of Tren Urbano, PR 5 and PR 22 Mitigation *Sites in Puerto Rico under subcontract to Nutter and Associates for the Puerto Rico Highway Authority

1996 Water quality monitoring program for Expansion and Improvements to the Redhook Marine Terminal in St. Thomas prepared for the V.I. Port Authority

1996 Water quality monitoring program for the creation of The Enighed Pond Marine

Terminal
in St. John prepared for Maguire Group, Inc. for the V.I. Port Authority

1996-1998 Water quality monitoring for the Expansion of the Molasses Pier at the Third Port St. Croix conducted for the V.I. Port Authority

1995 Water quality for the Construction of the AT&T Cable Landing Facility, Estate Northside St. Croix, conducted for AT&T Submarine Systems

1992-1994 Water quality monitoring program for the Reconstruction of the Frederiksted Pier, conducted for the V.I. Port Authority, St. Croix

1992-1993 Establishment of a baseline and long term monitoring of the benthic community potentially impacted by the Water and Power Authority Outfall from the Richmond Power Plant, conducted for the V.I. Water and Power Authority, St. Croix

1992-1993 Preparation of a biological monitoring study for the Cooling Pond Discharge, and monitoring of the algal bloom within the cooling ponds; development of management strategies to alleviate algal and runoff problems, the V.I. Alumina Corporation, St. Croix

1990-1992 Water quality monitoring for The Dredging Project and Related Activities in Christiansted Harbor, conducted for the V.I. Port Authority, St. Croix

1989 Turtle Monitoring Program for Manchineel Beach, St. Croix

LARGE SCALE MITIGATION PROGRAMS
UPDATED November 22, 2016

Development and Implementation of the relocation of 10,000 corals off the WICO bulkhead in Havensight for West Indies Company.

Development and Implementation of a coral transplant for the Stabilization of the Seawater Intake line for Marriott Frenchman's Reef.

Development and Implementation of a coral transplant to minimize construction impacts for LPG Improvements at the VIWAPA facilities on St. Croix and St. Thomas.

Development and Implementation of a coral transplant for Coral World (VI), Inc. in Association with the development of the dolphin exhibit.

Development of the Mitigation Plans for VIDPW's Improvements to Veterans Drive St. Thomas

Development and Implementation of the Mitigation Plans for VIPA's Dredging of Crown Bay Marine Terminal and Turning Basin, St. Thomas

Development and Implementation of the Mitigation Plans for VIPA's Maintenance Dredging of Crown Bay Marina, St. Thomas

Development and Implementation of the Mitigation Plans for Westin Resorts Permitting of the dock and Improvements of Drainage, St. John

Virgin Islands Waste Management Authority creation of an Herbaceous Wetland as mitigation for the construction of the Transfer Station at the Anguilla Landfill, St. Croix

Mainsail Coral Transplant/Seagrass Transplant for impacts associated with the development of the Scrub Island Resort BVI, Bioimpact, Inc. came in and completed the transplant and monitoring began by others (Approximately 3000 Corals)

Victor International Coral Transplant for impacts associated by the development of an access ramp and dock at Oil Nut Bay, BVI (Approximately 300 corals)

V.I. Port Authority Mangrove Mitigation for the construction of the Enighed Pond Terminal in St. John (2.8 Acres of Mangrove Wetland)

Joseph Markus Trust Creation of Acropora Thickets and Artificial Reefs as mitigation for the construction of a barge landing facility on the island of Lovango

V.I. Port Authority Transplanting of coral out of the area of impact for the development of the Crown Bay Marine Terminal, St. Thomas (Approximately 3000 Corals)

Department of Public Works Mangrove Mitigation Project for the construction of the Mangrove Lagoon Sewage Treatment Plant, St. Thomas (Approximately 1 Acre of Mangrove Wetland)

V.I. Port Authority Transplanting of Coral out of the area of impact for the Enighed Pond Marine Terminal Project, St. John (Approximately 50,000 Corals)

Department of Public Works Transplanting of Coral out of the area of impact for the placement of the Mangrove Lagoon Sewage Treatment Plant Outfall, St. Thomas (Approximately 7,000 Corals)

V.I. Port Authority Transplanting of Coral out of the area of impact for the mooring improvements to the Frederiksted Pier, St. Croix (Approximately 300 corals)

V.I. Port Authority Transplanting of Seagrass from the Dredging footprint for the dredging of Charlotte Amalie Harbor, St. Thomas (Approximately 2 acres)

V.I. Port Authority/Department of Public Works, Mangrove Mitigation Project for the construction of the Molasses Dock Road, St. Croix (Approximately ½ acre)

V.I. Port Authority creation of Herbaceous Wetlands for mitigation at the Henry E. Rohlsen Airport, St. Croix (Approximately 1 acres)

V.I. Port Authority mitigation plan for impact incurred in Fairplains Gut by the VIPA plan for creation of 16,000 Square Feet of Wetland at the Manning Bay Site, St. Croix

V.I. Water and Power Authority plan for creation of 4.1 Acres of Wetland as mitigation of the construction of the South Shore Power Plant, Third Port, St. Croix

Green Cay Plan for mitigation for the impacting of 12 Acres of Wetland for the construction of the Green Cay Resort, St. Croix

ENVIRONMENTAL ASSESSMENT REPORTS 2014-2016

Veterans Drive Expansion with Parsons Brinckerhoff, for the Department of Public Works St. Thomas

Maintenance Dredging Krause Lagoon Channel for VIPA

Westin Resort for a new reverse osmosis discharge line

VI WAPA's submarine cable system to provide power to WICO Cruise Ship terminal and BVI

Shoreline Stabilization Project for Buccaneer Hotel, St. Croix

VIWAPA's conversion to LPG in both St. Croix and St. Thomas.

viNGN Submarine Cable Network with Acatel-Lucent for Virgin Islands Next Generation Network, Virgin Islands

VIPA improvements to the Frederiksted Pier, St. Croix

VIPA improvements to the Red Hook Marine Terminal, St. Thomas

Offshore Windmills for Ocean Energy, Inc.

St. John Marina for Summers End Group, St. John

VIPA maintenance dredging of the Schooner Channel

VIPA remediation of hydrocarbon contamination at the VIPA Seaplane Ramp

St. John Marina at Summer's End

WICO with CH_2M Hill maintenance of the existing bulkhead and maintenance dredging of Charlotte Amalie Harbor

ENVIRONMENTAL ASSESSMENT REPORS 2009-2013

VIPA's dredging of Crown Bay Marine Terminal and Turning Basin.

VIPA's maintenance dredging of Crown Bay Marina.

VIDPW's Improvements to Bordeaux Road, St. Thomas.

VIDPW's Improvement to Spring Gut Road, St. Croix.

Coral World's Dolphin Exhibit for Coral World (VI), Inc., St. Thomas.

Expansion of the Spratt Bay Homeowners Dock on Water Island.

Veterans Drive Expansion with Parsons Brinckerhoff, for the Department of Public Works St. Thomas

Chiller Cooling System, BaHaMar, HDR, Grande Bahama

Reverse Osmosis Facility at VIWAPA's St. Thomas Power Plant

Submarine Cable for VIWAPA between the Islands of St. Thomas and St. John

Chiller System and Dock repairs at Frenchman's Reef, St. Thomas

Expansion of Heavy Materials Krum Bay Facility, St. Thomas

33 Mega-Watt Waste to Energy Plant Alpine Energy Group, Inc. St. Thomas

18 Mega-Watt Waste to Energy Plant Alpine Energy Group, Inc. St. Croix

Reverse Osmosis Facility V.I. Water and Power Authority, St. John

Seven Hills Development, Robin Bay Partners, St. Croix

Improvements to the Molasses Dock, V.I. Port Authority, St. Croix

Dredging of the Charlotte Amalie Harbor and the Channel and the Filling of Lindbergh Bay, West Indies Corporation, St. Thomas

Fueling Station, V.I. Water and Power Authority, St. Croix

ENVIRONMENTAL ASSESSMENT REPORTS 2005 -2008

Port of Mandahl, MSJ Realty, St. Thomas

North Sound Yacht Club, Victor International, Virgin Gorda, BVI

Reconstruction of the Frenchman's Cove Dock, Marriott Ownership Vacation Club, Inc. St. Thomas

Thatch Cay Development, Thatch Cay, LLC, St. Thomas

Smith Bay Development Smith Bay Developers, Inc. Smith Bay, St. Thomas

Subdivision of Great St. James Christian Kejer, Great St. James Island, St. Thomas

Subdivision of Inner Brass Green Island Developers, Inner Brass Island, St. Thomas

Subdivision of Inner Brass Byran family, Inner Brass Island, St. Thomas

Cabrita Point Major Land Permit Cabrita Point Partners, Lionstone LLC, Cabrita Point, St. Thomas

Cabrita Point Major Water Permit Cabrita Point Partners, Lionstone, LLC, Cabrita Point, St. Thomas

Subdivision of 77 Acres in Hansen Bay on the East End of St. John Flamboyant Realty, St. John

Subdivision of 14 Acres in Hansen Bay on the East End of St. John Hansen Bay Development Group, St. John

Expansions and Improvements to the Ritz Carlton Hotel William Karr and Associates, St. Thomas

Modification to Carden Beach Condominiums TK Properties, Inc. St. Croix

Development of Betty's Hope V.I. Port Authority, St. Croix

Expansion of the Compass Point Marine Margate Management, Benner Bay, St. Thomas

Construction of Maintenance Buildings HOVENSA, St. Croix

Replacement of Existing Stacks HOVENSA, St. Croix

Installation of a Permanent Barge Landing Facility on Lovango Cay Joseph Markus Trust, Lovango Cay

Relocation of the Existing Barge Landing and Construction of a Swim Dock and Beach Enhancing Devices on Little St. James LSJ, LLC, Little St. James

Development of Affordable Housing in Calabash Boom, Reliance Housing, St. John

Demineralized Water System and Storage Tank Upgrades, V.I. Water and Power Authority, St. Croix

Development of a Pizza Bar and Miniature Golf Course, Divi Carina Bay Resort, St. Croix

Placement of Fuel Pipelines on the Ann E. Abramson Pier, Royal Caribbean Cruise Lines, St. Croix

Development of a Marine and Related Infrastructure, Coral Bay Marina LLC, St. John

Development of a Marine Mammal Encountered Facility, Coral World VI, St. Thomas

Improvements to The "Doc" James Race Track, TRAXCO, St. Croix

Maintenance Dredging and the Permitting of Permanent Moorings, Westin Resort, St. John

Construction of the LSF Facility, HOVENSA, St. Croix

Construction of the LSF Project on Uplands, HOVENSA, St. Croix

Construction of the LSF Project on Submerged Lands, HOVENSA, St. Croix

Construction of Modular Buildings, HOVENSA, St. Croix

Construction of Housing in Estate Blessing, HOVENSA, St. Croix

Permitting of an Existing Borrow Pit, HOVENSA, St. Croix

ENVIRONMENTAL ASSESSMENT REPORTS 2000-2004

Compass Point Marina Expansion of the existing marina with Springline Architects, St. Thomas

Emergency Electrical Cable to St. John V.I. Water and Power Authority, St. Thomas/St. John

Richmond Sand Channel Dredging V.I. Water and Power Authority, St. Croix

Hassel Island Electrical Cable Replacement V.I. Water and Power Authority, St. Thomas

Golden Resort Hotel Casino Resort Environmental Assessment Report, St. Croix

Crown Bay Marine Terminal Improvements Environmental Assessment Report with Adams, Inc., St. Thomas

Global Crossings Environmental Assessment Report for the Placement of a Point of Presence in Frederiksted, St. Croix

Innovative Telephone Environmental Assessment Report for the Burial of Fiber Optic Cable on the North Shore of St. Croix

Innovative Telephone Environmental Assessment Report for the Burial of Fiber Optic Cable on the West End of St. Croix

Callaloo Club Blowing Point Environmental Assessment for the Crasion of a marina on Anguilla, BWI

V.I. Water and Power Authority Waterline Environmental Assessment for a waterline between St. Thomas and St. John

V.I. Water and Power Authority Powerline Environmental Assessment for a utility line between St. Thomas and Little St. James

Global Crossings Environmental Assessment Report for the South American Crossing Cable Station at Estate Northside

Water Island Ferry Dock Environmental Assessment Report for the construction of a ferry dock on Water Island

Cuisanart Environmental Impact Assessment for Beach Renourishment, Anguilla, BWI

Cinnamon Bay Environmental Impact Assessment for Development of a Marine Facility, Anguilla, BWI

Crown Bay Benthic Habitat Survey of Crown Bay and Gregerie Channel as a supplement to the USACOE Feasibility Report

Frederiksted Pier Environmental Assessment Report for the Improvements to the Existing Frederiksted Pier, St. Croix

Little St. James Environmental Assessment Report for a Private Dock on Little St. James Island

Government of the Virgin Islands Environmental Assessment Report for Phase II of the Christiansted Boardwalk, St. Croix

Beal Aerospace Environmental Assessment Report for Construction of the World Headquarters Estate Great Pond, St. Croix

ENVIRONMENTAL ASSESSMENT REPORTS 1988-2000

Divi Hotel Environmental Assessment Report for the reconstruction of a dock, St. Croix

Global Crossing Environmental Assessment Report for the construction of a Cable Terminal Building and a corridor for 8 submarine fiber optic cables

HOVENSA Environmental Assessment Report for the Construction of a Coker and Coker Dock at the Existing HOVIC Refinery

V.I. Port Authority Environmental Assessment Report for the construction of a Mooring Dolphin at the Frederiksted Pier

Seaborne Environmental Assessment Report for the Development of a Seaplane Terminal at the old Seaplane Ramp, St. Croix

Forest Bay Environmental Assessment Report for the Development of a Marina and related facilities in Forest Bay Anguilla, BWI

META Resorts Environmental Assessment Report for the development of a Dolphin Lagoon at Meads Bay Anguilla, BWI

Government of the Virgin Islands Environmental Assessment Report for the Construction of a boardwalk in Christiansted, St. Croix

V.I. Port Authority Environmental Assessment Report for the runway extension at the Henry E. Rohlsen Airport under subcontract to LPA Group

V.I. Port Authority Environmental Assessment Report for the expansion of the Redhook Marine Terminal, St. Thomas

V.I. Port Authority Environmental Assessment Report for the creation of the Enighed Pond Marine Facility, St. John

Coral World (VI), Inc. Environmental Assessment Report for the renewal of the submerged land lease for the Coral World Facility, St. Thomas

Cowpet Bay Environmental Assessment Report for the modification of the existing permit for construction of a seawall, St. Thomas

Watergate East Villas Environmental Assessment Report for the Construction of a Rip-Rap Revetment, St. Thomas

Christiansted Boardwalk Environmental Assessment Report for the construction of a boardwalk on the Christiansted Waterfront, St. Croix

V.I. Water and Power Authority Environmental Assessment Report for Improvements to the fuel dock at the Power Generating Facility, St. Thomas

La Domaine Environmental Assessment Report for the subdivision of 40 Acres of Land in Estate Misngunt, St. Thomas

V.I. Port Authority Environmental Assessment Report for the expansion of the Alexander Hamilton Airport Terminal and Highway 64 Relocation, St. Croix

AT&T Environmental Assessment Report for the Cable Landing Facility at Estate Northside, St. Croix

DEVCON Environmental Assessment Report for the Dredging of the Christiansted Sand Channel, St. Croix

VIALCO Environmental Assessment Report for the Expansion of the Red Mud Storage Ponds, VIALCO Alumina Facility, St. Croix

VIALCO Environmental Assessment Report for the creation of a stormwater drainage system, VIALCO Alumina Facility, St. Croix

VIALCO Environmental Assessment Report for the Mining of Caliche, VIALCO Alumina Facility, St. Croix

Molasses Dock/VI Port Authority Consulting on the Environmental Assessment Report for the Molasses Dock Terminal at the Third Port Facility, subcontracted by Frank Torrez, and the V.I. Port Authority, St. Croix

SELECTED ENVIRONMENTAL ASSESSMENT REPORTS 1988 -1993

St. Croix by the Sea Environmental Assessment Report for beach renourishment and the construction of jetties, St. Croix

Vieques Environmental Assessment Report for the creation of a shrimp farm in Puerto Ferro, Vieques, Puerto Rico

MSRC Dock Environmental Assessment Report for the construction of a pier in the HOVIC West Turning Basin, St. Croix

Eden Beach Proposed hotel and condominium project Environmental Assessment Report, St. Croix

Tamarind Reef proposed reconstruction and expansion of the Tamarind Reef Hotel, Hotel, St. Croix

V.I. Water and Power Authority Environmental Assessment Report and U.S. Corps of Engineers Application for the construction of two gas turbines at the Third Port Site, St. Croix

Lovango Cay Environmental Assessment Report for the creation of a subdivision on Lovango Cay Placement of a private dock, St. Thomas

VIALCO Environmental Assessment Report for the construction of a well water gathering

system for wells at the Virgin Islands Alumina Corporation's Plant, St. Croix

Crawl Cay Environmental Assessment Report, Wetlands Delineation and Hammock Studies of Crawl Cay, Florida, for Monroe County

Jack's Bay Environmental Assessment Report for the subdivision of Approximately 300 Acres into 64 lots at Estate Jack's and Isaac's Bays, St. Croix

VIALCO Environmental Assessment Report for the Expansion of the Bauxite Building at the Virgin Islands Alumina Corporation's Alumina Facility, St. Croix

Carambola Beach Club Environmental Assessment Report for the repair and improvement of the Carambola Beach Club facility prepared for Danested, St. Croix

Salt River Environmental Impact Statement for the proposed National Park at Salt River, St. Croix, prepared for the National Park Service

V.I. Water and Power Authority Environmental Assessment Report for the Construction of a desalination unit on St. John, prepared for the V.I. Water and Power Authority, St. John

Carmel by the Sea Environmental Assessment Report for the Construction of a 95 unit condominium at Estate Turner's Hole, St. Croix

VLBA Environmental Assessment Report and Landscaping Plan for the Very Long Baseline Array, St. Croix

Buccaneer Environmental Assessment Report for 20 room addition to the Buccaneer Hotel, St. Croix

Ritz Carlton Zoning Application and Environmental Assessment Report for a 350 report for a 350 room hotel, Estate Davis Bay, St. Croix

Frederiksted Pier Environmental Assessment Report for the construction of a second pier in Frederiksted, St. Croix

Kingston Environmental Assessment Report for Hotel and Condominium Construction, Kingston, Tortola

Airport Warehouse Environmental Assessment Report for construction of a Warehouse Facility at the Alexander Hamilton Airport, St. Croix

Great Pond Environmental Assessment Report, Zoning Application and COE Permit Application for a Hotel and Condominium Project at Estate Great Pond, St. Croix

ENVIRONMENTAL ASSESSMENT REPORTS 1986-1988

Southeast Peninsula, St. Kitts
Columbus Landing, St. Croix
Grapetree Beach, St. Croix
Blue Beards Beach, St. Thomas
St. Croix by the Sea, St. Croix
Divi Dive Canal, Nassau, Bahamas
Ensenada, St. Croix
Virgin Grand, St. Croix
Sugar Bay, St. Croix
Turtle Run, St. Croix
Palm Shores, St. Croix
Baobab, St. Croix
Reflection Bay, St. Croix
Coakley Bay, St. Croix
Green Cay, St. Croix
Turquoise Bay St. Croix
Eagle Bay, St. Croix
Granard, St. Croix
Concordia, St. John

ENVIRONMENTAL ASSESSMENTS

Sampling of the LUST's at the VIPA's Seaplane Ramp, St. Croix 1994, 2011, 2012-2016
Sampling for REC Estate Anna's Hope, St. Croix 2012-2-16
Sampling for petroleum products at gasoline stations and industrial sites in St. Croix 2006-2016
Sampling for chemical contamination in cisterns in St. Croix 2000- 2011
Sampling for mold Renaissance Hotel, St. Thomas
Sampling for REC residential and commercial properties St. Croix, St. Thomas, St. John and Puerto 1990 - 2016

APPENDIX B
CORAL TRANSPLANT AND MITIGATION PROGRAM FOR THE CONSTRUCTION OF THE ACCESS DOCK AND ACCESS DOCK/BARGE LANDING ON GREAT ST. JAMES U.S. VIRGIN ISLANDS

GREAT ST. JIM, LLC.

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This plan follows the compensatory mitigation guidelines as set forth in 40 CFR Part 230, Compensatory Mitigation for Loses of Aquatic Resources: Final Rule. The fundamental objective of compensatory mitigation is to offset environmental losses resulting from unavoidable impacts to the waters of the United States authorized by DA permits.

I. INTRODUCTION

Great St. Jim, LLC is seeking to construct two docks, one of which is a combination dock/ barge landing, and a temporary barge landing to provide access to Great St. James Island.

There is currently a small pile-supported dock located within Shallow Bay on the north side of the island. The bay is very shallow and vessels accessing the dock have damaged the shallow seagrass beds within the bay. At one time, there had been a concrete bulkhead at the shoreline with a small floating dock. The previous owner submitted an application for the existing dock which was approved by DPNR's Division of Coastal Zone Management, but was not approved by the U.S. Army Corps of Engineers due to objections by National Marine Fisheries because of the shallowness of the bay. The dock was constructed by the previous owner despite not receiving the federal permit and notices were issued by the USACE requesting the removal of the unpermitted structure. The dock however was never removed. The applicant, understands the issues with the existing dock and is proposing to remove the dock as soon as another dock is constructed and usable.

A detailed study was done around the entire island to determine suitable locations for dock location. All ESA listed corals were located and docks and barge landings were designed to avoid these corals.

A temporary barge landing is being proposed on the northwestern facing beach. This site is to the west of the salt pond and the associated wetlands. This a shoreline ramp which is 25 feet (ft) wide and 40ft in length extends to the Mean Water Line. The landing is free of both coral and seagrass colonization. The landing is excellent for short term transfer of material or equipment. The site is well protected from normal wave action but is periodically impacted by wave action from ferries which travel through current cut between Great St. James and St. Thomas. The wakes from these vessels make it an unattractive site for mooring a barge for any length of time at the site. This landing can be quickly constructed and utilized while the combination dock and barge landing on the southeastern side of the island is constructed.

The western dock is proposed on the northern end of Christmas Cove. Historically there was a dock in this location and there are still old concrete piles lying in the shallows of this site. The proposed dock will be 10ft in width and 195ft in length extending 187ft from mean low water (MLW) and 193ft from mean high water (MHW). The dock extends beyond the nearshore hardbottom to a depth of 15ft out in the uncolonized sand to allow for safe dockage for deeper vessels.

The southern dock is located off the point closest to Little St. James. The dock is "L" shaped and is 20ft wide (to allow for barge landing) and 150ft in length extending 141ft from MLW and 148ft from MHW, the "L" then turns east and extends 100ft by 20ft. A wave attenuating/reef creating system is proposed beneath the dock which will allow for more protected docking inside the dock when seas from the south are rough. The dock has 9ft of water depth of the southern end and 7ft to 8ft on the inside of the "L". The dock has been designed so that barges can approach and land on the end of the dock while vessels can dock along the "L".

REASON FOR MITIGATION

The marine habitats around Great St. James have abundant coral and seagrass resources. There are numerous ESA listed corals species near the proposed dock locations. *Acropora palmata, Acropora. cervicornis*, *Orbicella annularis, Orbicella franksi* and *Orbicella faveolata* as well as *Dendrogyra cylindrus* are found off all the beach from which the proposed docks and barge landings are planned. At the northern temporary barge landing site, these corals are located primarily to the west in an area of coral boulders and coral rubble. However, there are several small *A. palmata* and several *O. annularis* located on the shoreline cobble which extends out to a depth of 6.5ft. The presence of these species as well as several non-ESA listed *Porites astreoides* has dictated the location of the ramp. The proposed temporary barge landing position avoids all coral and seagrass resources.

Location of the western dock has a cobble beach between two areas of emergent bedrock and boulders. *A. palmata* occur on the emergent bedrock to the north. Offshore the seafloor quickly gives way to exposed pavement. There is a long linear depression right offshore and an old piling lies within this area. The fractured pavement then extends to approximately 11.5ft of depth over the next 100ft heading offshore. The area has some widely-scattered boulders and patchy coral colonization. There are scattered ESA corals including *Orbicella* and *Dendrogyra*. During the first survey, there was a very large *A. palmata* colony immediately seaward of where the old piling lay near shore. However, upon the next visit by the island it was noted that an old boat was tied nearshore apparently attached to the old piling. During a dive, several weeks later it was noted that the boat was gone and the large *A. cervicornis* had been badly broken. The location of all the ESA species has dictated the location of the dock. Approximately 75 corals will require relocation to minimize impact but no listed corals will need relocation.

The southern dock also extends from a cobble beach which gives way to rock pavement and has emergent bedrock and boulders on either side of the beach. There are *Acropora* colonies to the east and farther to the south on the bedrock and boulders. There are *Orbicella* and *Dendrogyra* within the embayment and their locations have dictated the location of the dock. The dock avoids all ESA listed corals but will require the relocation of approximately 75 corals.

II. MITIGATION OBJECTIVES

It is the objective of this mitigation project to limit the amount of coral and coral habitat that is lost as a result of the dock and barge access construction. All of the coral, sponge, and sessile life forms within the footprint of the facility or which might be potentially impacted during construction or operation will be transplanted. Approximately one hundred and fifty (150) corals will be relocated.

III. SITE SELECTION

The recipient sites were selected due to their being similar environments and being close to the mitigation site.

The corals from the Christmas Cove site will be located to the north onto the adjacent hardbottom areas which are at equivalent depths. The corals from the southeastern dock site will be transplanted to the hardbottom to the south which are at equivalent depths.

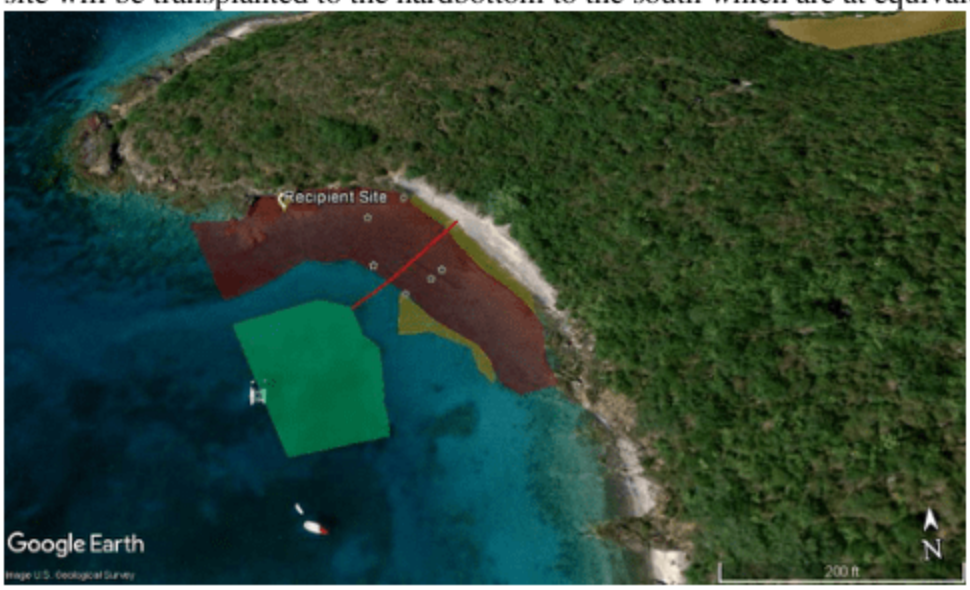


Figure 1. Recipient site Christmas Cove

Figure 2. Recipient site southeastern dock

IV. SITE PROTECTION INSTRUMENT

The applicant will prepare an easement setting these areas aside as protected areas.

V. BASELINE INFORMATION

Benthic Habitat Description
General

Sandy beaches, cobble beaches and steep rocky shorelines surround great St. James Island. All three of the proposed dock and barge landing sites will extend from cobble beaches. The northern shore where the temporary barge landing is proposed has cobble which extends down to a depth of approximately 7ft and has sparse seagrass colonization within the barge approach. There are scattered corals in the bay to the east and dense seagrasses offshore beyond the landing site. The cobble within the landing site is only colonized by fire coral. The emergent bed rock to both the east and west sides of the bay are colonized by corals species including ESA corals.

The northern portion of Christmas Cove where the Access Dock is located has emergent bedrock to either side of the small embayment which are colonized by coral and sponge species. Rock pavement and scattered boulders extends offshore to a depth of 11.5ft where it gives way to a sandy bottom. Corals and sponges colonize the rock pavement and scattered boulders. There is seagrass off shore but it begins beyond the terminus of the proposed dock.

The southern facing dock is off a cobble beach between to rocky shorelines. There is rock pavement extending off shore and then broken rock pavement further out. Corals and sponges colonized the rock pavement.

ESA listed coral species are found at all three locations and the Nassau Grouper (Epinephelus striatus) was seen off both the Christmas Cove and southern dock site.

Methods

The NOS St. John and St. Thomas Habitat map Tile 16 (Figure 6.06.1) of the Great St. James area shows the colonized rock pavement and bedrock as well as the offshore seagrass beds. The seagrass beds are not as continuous near the shoreline as shown, and the offshore area at both Christmas Cove and the southern dock site are colonized pavement rather than bedrock right off the cobble beaches and on the northern facing beach the pavement doesn't extend completely across the bay as shown. Surveys were done on Scuba and *Acropora palmata* and *Acropora cervicornis, Dendrogyra cylindrus, Orbicella annularis, Orbicella faveolata, Orbicella franksi,* and *Mycetophyllia ferox* were mapped so that they could be avoided. Habitat boundaries were marked with GPS and/or by the surveyor for accuracy. Percent abundance was determined along transect lines and utilizing a meter square.

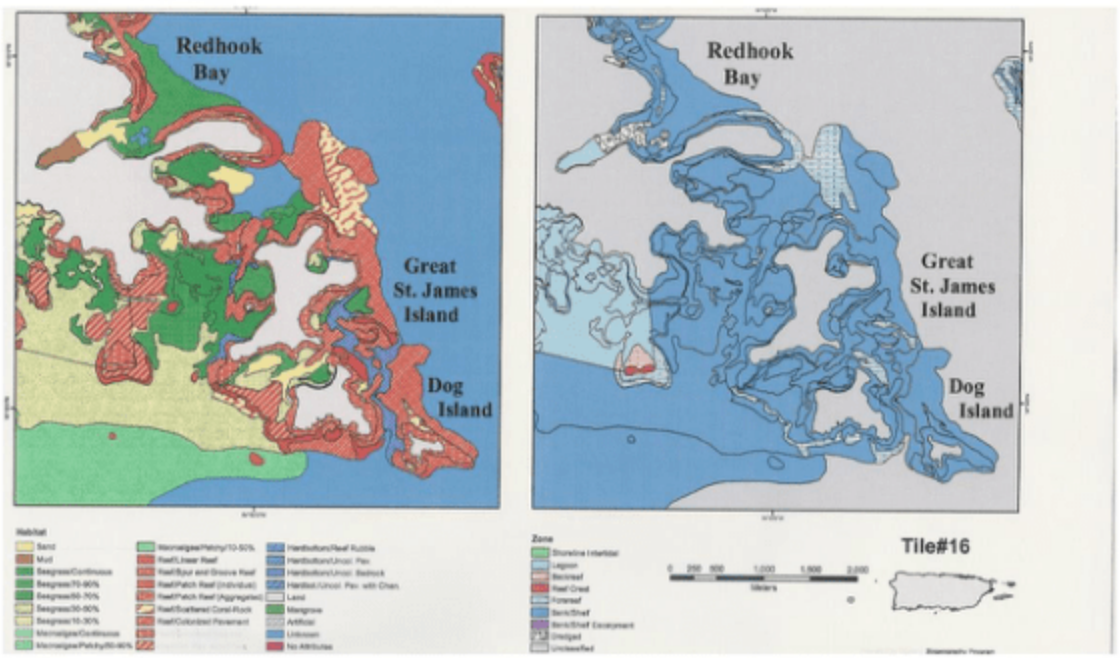


Figure 1. NOAA Benthic Habitat Map

Benthic Resources

Great St. James is located off Water Point on the eastern end of St. Thomas. This oddly shaped island has a variety of shoreline types and six salt pond/wetland habitats. There is a well-protected shallow northern bay where an existing dock is located. Shallow Bay is colonized by seagrass which includes *Thalassia testudinum, Syringodium filiforme* and *Halodule wrightii*. Recently the sea vine *Halophila stipulacea* has colonized areas which have been disturbed. The densest seagrass beds once lay near shore and to the east of the dock. Over the last several years these beds have been highly disturbed. The peninsula to the east of this point is surrounded by rocky headlands and is a very exposed

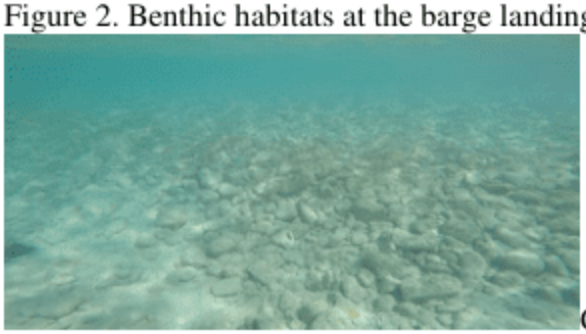
environment. The rocky cliffs extend below the sea surface and due to the intense wave action, the shallowest areas are not colonized. By a depth of 8ft-10ft the rocky substrate becomes colonized by a wide variety of corals and sponges. The slope is steep offshore and the water reaches a depth of 40ft to 50ft relatively close to shore. The rocky slope gives way to a cobble then sand bottom and there are sparse to moderately dense seagrass beds that extend seaward. The rocky shoreline continues around to the south, with coral colonized nearshore hardbottom and seagrass colonized sand and cobble further offshore. There are two cobble beaches further to the south divided by a small rocky headland, there is some colonized beach rock nearshore and shallow seagrass beds off shore. The shoreline facing St. James Cut and the southern end of the island is rocky. This area has limited coral colonization in the inner tidal zone giving way to an abundant diverse coral community on the submerged rocky slopes. The rock is relatively steep with numerous grottos, and caves, and gives way to a cobble/sand bottom at around 20ft to 25ft. There are moderate to dense seagrass beds off shore. The Stragglers lay off the southern most point of the cay, and like the southern shoreline of the island there is minimal colonization in the inner tidal areas of the emergent rocks with coral colonization and diversity increasing with depth. The western shoreline is well protected and is a combination of rock and sandy beach. The water deepens much more gradually on this side of the island. In the areas with rock along the shoreline are colonized by corals and sponges. The less colonized inner tidal area is much less defined here due to the more protected nature of the site. Within Christmas Cove there is a rock groin like structure that extends into the bay near the center of the embayment. Offshore to the north of the groin there is a small beach rock shelf and then a strip of uncolonized sand before sparse to moderately dense seagrass beds begin. The site is currently used by boats anchoring adjacent to the beach.

To the south of the groin there is a beach rock shelf with moderate coral colonization which falls off to depth of over 6ft only 40ft from shore and there is a board area of uncolonized sand out to a depth of 10ft before reaching the moderately dense seagrass beds and open sandy plains. The shoreline becomes rocky again to the north along Current Cut and the area is more subject to wave and current action. There is coral colonization along the rocky shoreline and on the rock pavement that extends off shore. The north-facing bay to the east of Current Cut is a mixture of cobble and rocky shoreline with a small sandy beach in front of the salt pond. Where rock is present there is coral colonization and in the open sandy areas there is moderate to dense seagrass colonization.

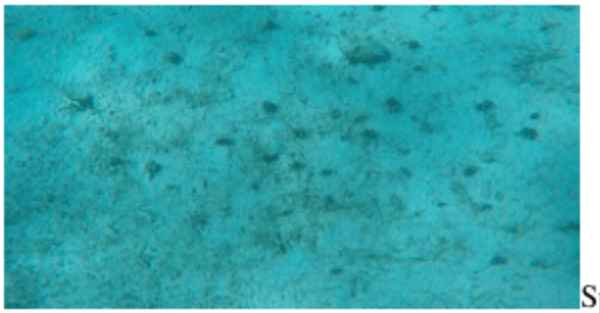
The temporary barge landing is located at the western end of the north-west bay. The landing. The beach is cobble and the cobbles extend out to a depth of 7ft at the landing site. The landing site contains some scattered *Millepora complanata*, but no hard-coral species. There are scattered corals to the east in the cobble including a few *Orbicella annularis* and *Acropora palmata*. *Porites astreoides* is the most abundant coral in the cobble to the east. The location for the barge ramp was chosen due to the presence of corals and coral colonized boulders throughout the bay to the east. To the east in the bay there are numerous *Orbicella annularis*, *O. faveolata* and *Dendrogyra cylindrus* as well as other coral species. Offshore there are dense seagrass beds consisting of *Thalassia testudinum* and *Syringodium filiforme*, however these are greater than the 75ft off shore

which the barge will extend while moored. There very sparse *Syringodium* colonization within the barge approach, representing less than 5% bottom coverage.

Figure 2. Benthic habitats at the barge landing.


Cobble in footprint of barge mooring site


Seagrass offshore well beyond the cobble

 Sparse seagrass in the immediate barge approach

The access dock in Christmas Cove is near the location of an old historic dock. The beach is a mixture of sand and cobble. There is rock pavement extending offshore and there is an area of cobbles in the center of this area which is uncolonized out to a depth of 5ft. The rock pavement has various depressions and breaks and within one of these depression is a pile from the old concrete dock. Beyond the depression, the water deepens quickly out to a depth of 12ft. The rock pavement is colonized by *Diploria strigosa, D. labyrinthiformis, Orbicella annularis, O. franksi, Porites astreoides, P. porites, Dendrogyra cylindrus, Gorgonia sp*. and *Millepora sp*. and the sponges *Aplysina fulva, Amphimedon compressa* and *Ircinia* sp. Coral colonization increases on either end of the small embayment and with depth. Beyond the nearshore hard bottom, approximately 120ft off shore the bottom becomes sandy. There is a minimally colonized area before the bottom begins to become colonized by *Syringodium filiforme* which slowly grades into a mixed bed of *Thalassia testitudium* and *Syringodium*. The exotic seavine *Halophila stipulacea* is also present. This seavine was not present in 2006.

There was a very large intact *Acropora cervicornis* in the center of the bay just off the old dock piling in the depression early in 2016. However, a boat moored on the old piling and on a subsequent dive the *Acropora* was found completely broken. Pieces of this *Acropora* remain. There are *Acropora palmata* in the shallows to the north of the proposed dock location both on the cobble and bedrock.

The bottom formation is clearly visible this photograph.

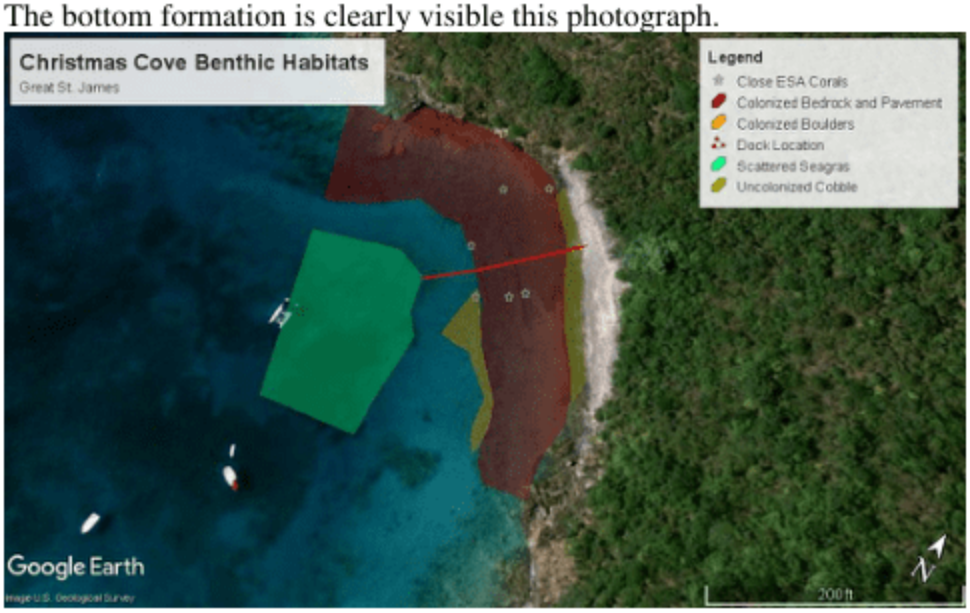
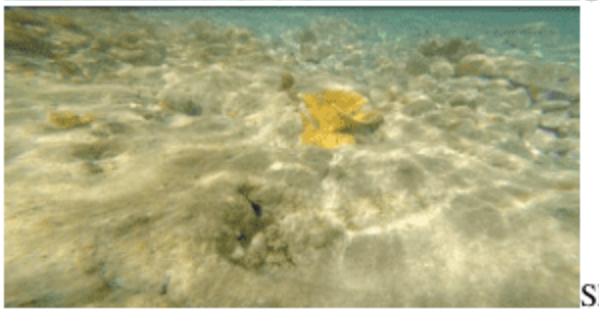


Figure 3. Benthic Habitats Christmas Cove

Cobble with minimal colonization


Sand beyond colonized pavement


Old piling


Shallow *Acropora*


Broken *A. cervicornis*

The Access Dock/Barge dock is located in the bay closest to Little St. James. Like the other two bays there is cobble on the shoreline which extends into the sea to 2ft to 4ft of water depth. Offshore there is pavement with boulders and odd rock formation. The area is colonized by scattered corals which are most abundant on the boulders. *Orbicella annularis, O. franksi, O. faveolata, Dendrogyra cylindrus, Porites astreoides, P. porites, Diploria strigosa, D. clivosa. D labyrinthiformis Gorgonia sp.* and *Millepora sp.* and sponges *Aplysina fulva, Amphimedon compressa and Ircinia* sp. are present. *Acropora palmata* is present on the headlands to the east and south.

There are scattered boulders and broken pieces of bedrock offshore, most of which are colonized by corals and sponge species.

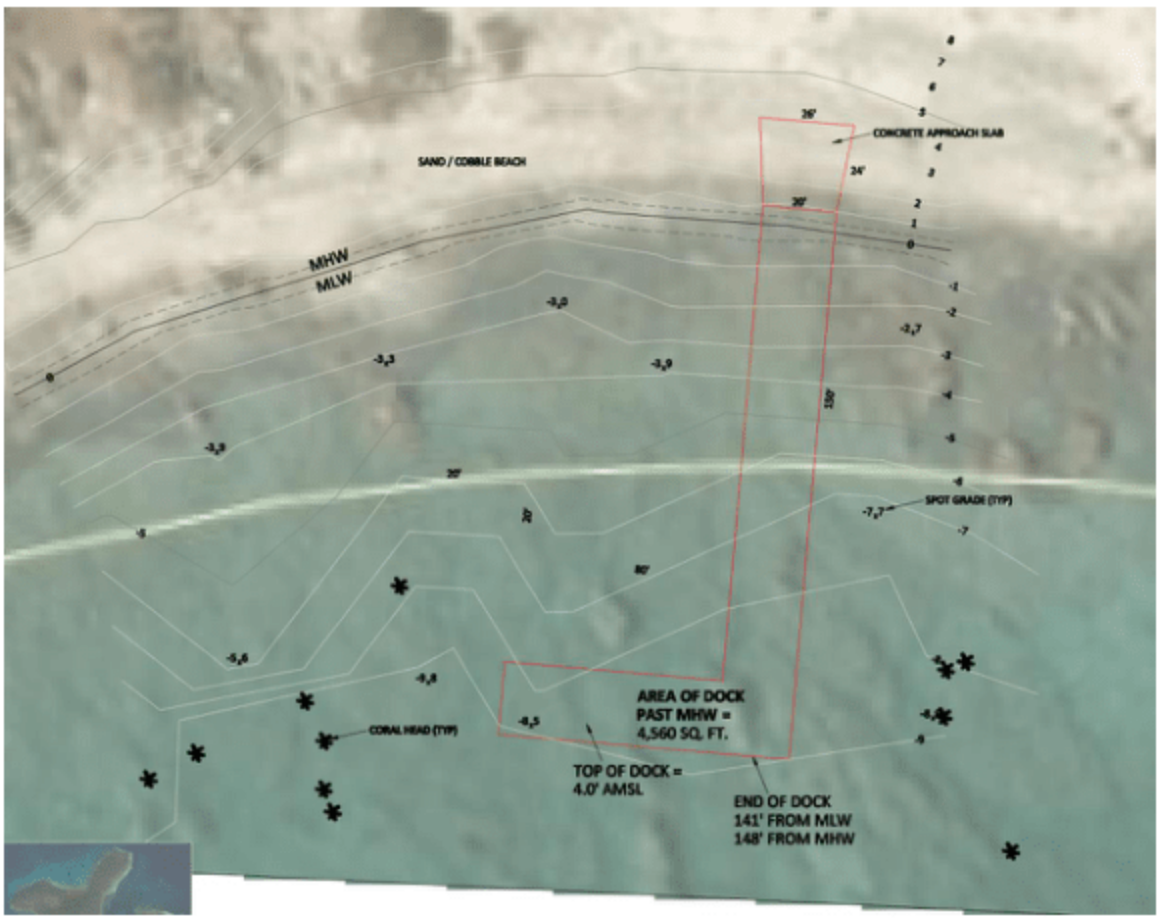


Figure 4. All of the ESA corals in the bay were mapped by the surveyor in order to avoid them with the dock design.

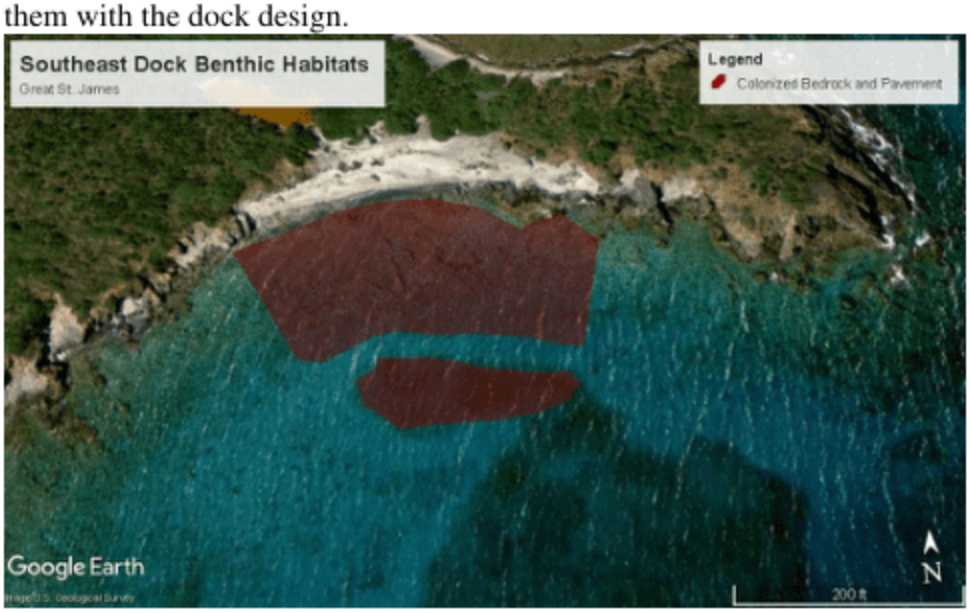


Figure 5. Benthic Habitats in the southeastern embayment

VII. MITIGATION WORK PLAN

CORALS

Prior to the start of the relocation project the footprint of the docks and the predicted impact zone will be marked on the seafloor using small pin flags. Any coral or boulder which partially extends into this zone will be relocated.

Individual corals that are attached to the near shore hardbottom will be removed with chisels. These corals will be collected in bins and carried to recipient site. These corals will be fixed in placed in their new locations with two-part underwater epoxy, which sets in a matter of minutes (Splashzone). The base of the coral will be carefully cleaned with a wire brush and the new substrate will be cleaned to remove algae and any other material which might interfere with the adhesion of the epoxy or cement. The coral will be carefully placed and held until the epoxy starts to set.

Divers will then collect those corals and sessile invertebrates that colonize cobbles and rocks within the dock footprint that are of a small enough size to allow hand carrying. These are cobbles and boulders that are in a range of $1ft^2$ to $2.5ft^2$. These corals are usually growing on pieces of coral rubble. Divers will wear disposable gloves while working with corals minimize touching live tissue and keep any coral that appear unhealthy or diseased away from other corals. Corals which appear to be diseased will be marked, and not transplanted to the recipient area to minimize the potential of the spread of disease to the recipient site. The diseased corals will be photographed and will be addressed in the baseline report for the transplant identifying the size and location of each individual colony. If a coral is handled that appears unhealthy or diseased gloves will be changed prior to working with other corals. The $1ft^2$ to $1.5ft^2$ corals will be placed in underwater bins and carried by divers to the recipient sites. The larger corals will be placed directly on a transport tray. Once the tray is full it will be lifted by lift bags and walked to the relocation site. Once on site the tray will be lowered near the seafloor and divers will remove the corals from the tray. The coral will be placed in the recipient site in such a fashion that the rock is stable and will not be subject to movement. This will be done by digging a depression in the sand to rebury the base to the same depth as it was prior to transplant. Care will be taken to make sure no live tissue is buried or too close to the sand that it may become buried. If possible if hard substrate or other larger rocks or rubble is found the coral base will be attached to it with “Splashzone” two-part underwater epoxy. Care will be taken so that these transplanted materials will not impact existing organisms at the transplant site.

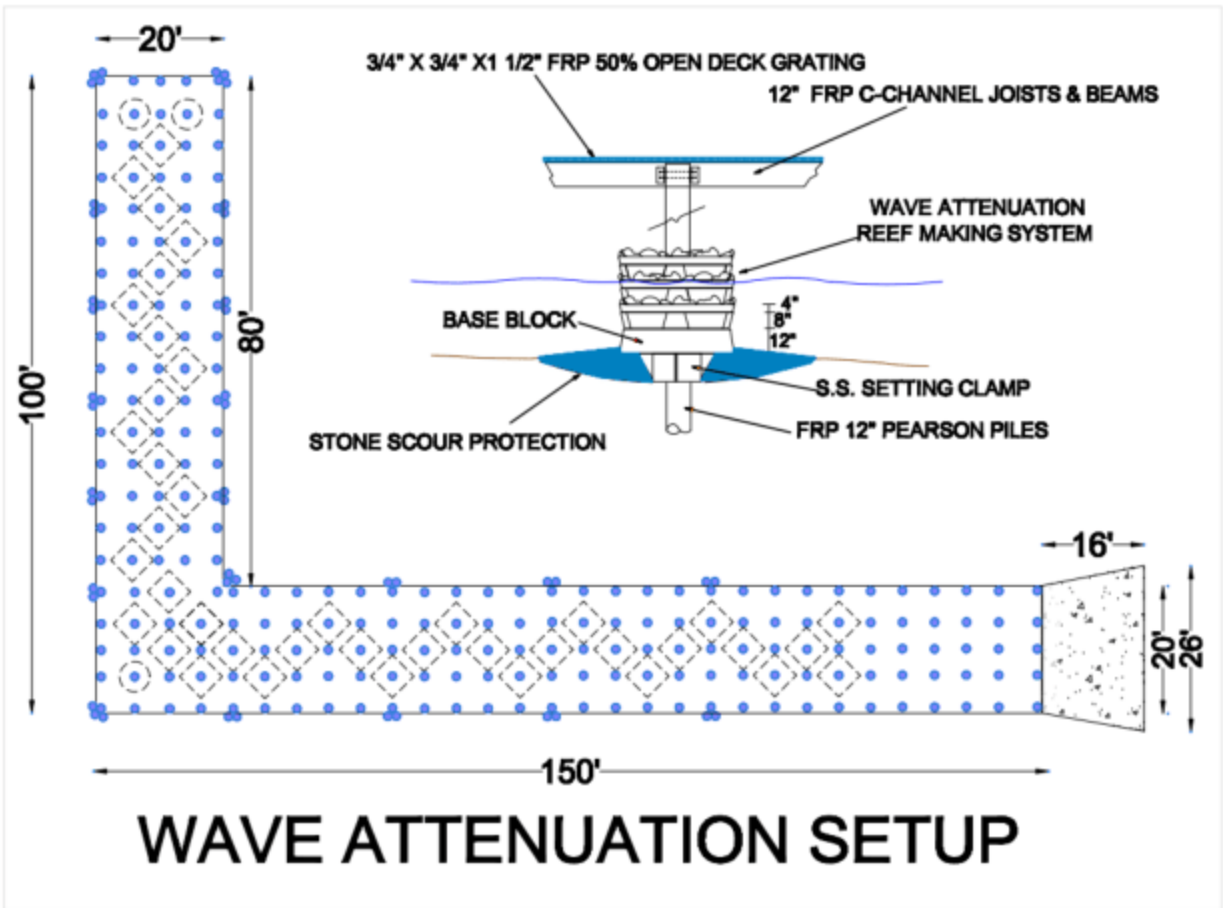
Splashzone epoxy is used because it is approved for drinking water systems by EPA. This epoxy does not leach any harmful chemicals into the water. This epoxy also does not create the temperature change which occurs with hydraulic cement.

For corals and larger coral colonized rocks, those greater than $2.5ft^2$, lift bags, and ropes will be utilized. divers will lift and transport larger corals, and coral colonized rocks then slowly carry the organisms to the transport tray. Again when the tray is full it will be

lifted and walked to the recipient site. When attaching the corals to the lift bags ropes will be placed so that they avoid live coral tissue. If necessary, a plate may be placed underneath corals so that it lifted without the tissue being impacted by the ropes. The coral boulders and larger rocks will be placed in the recipient site in such a fashion that the rock is stable which may require some excavation into the sand to create a depression for the previously buried part of the rock. Care will be taken so that these transplanted materials will not impact existing organisms at the recipient site. Care will be taken to place corals in the same orientation and depth as they were in their original locations.

COMPENSATORY MITIGATION

To mitigate for impacts that cannot be avoided a special reef building system will be placed beneath the southeastern dock. This system serves not only as a wave attenuator by provides additional substrate to allow for colonization beneath the dock. Grated decking will be used on the dock to facilitate light transmission.



VIII. MAINTENACE PLAN

Divers will survey the recipient site on a bi-weekly basis for the first 2 months after the transplant to ensure that the corals have not become unattached or shifted. If for any reason the corals become loose or move they will be re-situated and or reattached. After the first two months the corals will be monitored on a monthly basis for the first year and then on a bi-monthly basis for the following 2 years then every 6 months for year 4 and 5 after the transplant. During each monitoring event divers will make sure that the rocks have remained stable and not shifted, and that corals and sponges have not come loose. If necessary corals will be repositioned and re-attached.

IX. ECOLOGICAL PEFORMANCE STANDARDS

The object of this mitigation is to minimize impact to benthic resources which provide high quality habitat to marine species. In order to objectively evaluate the mitigation project, ecological performance standards must be established. The performance standards will include viability of the transplanted corals and sponges and relocated seagrass.

It is the intent of this transplanting program to obtain a minimum of 80% survival of the transplanted corals and sponges. Great St. Jim, LLC is committed to put forth the greatest effort to see that the relocation is successful and that they obtain the greatest potential survival of transplanted organisms.

X. MONITORING REQUIREMENTS

Monitoring the compensatory mitigation project site is necessary to determine if the project is meeting its performance standards, and to determine if adaptive measures are necessary to ensure that the project does meet its objectives.

As per the guidelines set forth in §230.96 Monitoring the mitigation project will be monitored for a minimum period of 5 years.

In total twenty-five transplanted corals at each site will be marked with numbered tags for monitoring. The tags will be maintained throughout the 5 year monitoring period. The corals will be surveyed for percent live tissue, color, algal growth and indicators of disease and photographed on a monthly basis for the first twelve (12) months. Corals will then be monitored on a bi-monthly basis for the follow 2 years and then every 6 months for years 4 and 5 after the transplant. The percent live tissue, color, stress, surround algal growth, algal growth on dead areas of tissue and any signs of disease for each monitored coral will be noted in the reports.

If at any time during the monitoring degradation of the corals is noted, degradation being defined as tissue loss, indication of disease, color change, excessive algal growth or notable mucus, affected corals will be compared to those within the other monitoring quadrats and corals in areas outside the impact area of the project. This information will be used to determine whether the degradation of the corals is due to the transplant,

activities related to construction or resort or due to natural phenomena (such as wide spread bleaching). If the corals appear to be stress due to the transplant, the reason for the demise will be assessed, poor positioning, sand scour, light attenuation, etc. If necessary, the coral or sponge will be repositioned. Every effort will be made to save the coral or sponge. If the degradation is seen both in the project area non-transplanted corals and the transplanted corals, the reason will be assessed for the demise. If the source of the impact cannot be readily assessed by the monitoring being undertaken, the monitor will work with NMFS and VI Fish and Wildlife and the other resource agencies to expand the monitoring so that the source of the impact can be identified.

In order to monitor the success of the reef creating system under the southeastern dock, it will be monitored concurrently with the corals and a detailed photographic recorded will be kept depicting colonization, survival and growth of coral and sponge species.

The monitoring results will be delivered to the agencies within two weeks of the monitoring period. If negative impacts are noted the agency will be notified by phone and by email within 24 hours. The agencies will be apprised of what steps are being taken to identify the impact and rectify the problem. The agencies will be provided a detailed report on the steps that are taken and the results of those actions.

XI. LONG TERM MANAGEMENT PLAN

Great St. Jim, LLC is committed to the survival of the transplanted coral species and the success of the reef building system and will make every effort to ensure that both are a success.

XII. ADAPTIVE MANAGEMENT PLAN

In the event that there are difficulties with the mitigation or if the mitigation is deemed unsuccessful as planned, Great St. Jim, LLC is prepared to take additional steps to see that compensatory mitigation goal is achieved. If necessary, extended monitoring and maintenance or additional marking of the sites will be undertaken in order to meet the mitigation goal.

If the mitigation goal of 80% survival at the end of five years is not met, the applicant will prepare a detailed report of why the mitigation was not successful. Great St. Jim, LLC will meet with the permitting agencies to determine the additional compensatory mitigation needed to meet the mitigation goal.

XIII. FINANCIAL ASSURANCES

Great St. Jim, LLC will secure a performance bond in the amount of the cost mitigation program and subsequent monitoring throughout the implementation and monitoring period or provide another form of acceptable financial assurance. The bond will follow the guidelines set out by the U.S. Army Corps of Engineers Regulatory Guidance Letter

No. 50-1, 14 February 2005, SUBJECT: Guidance on the Use of Financial Assurances, and Suggested Language for Special Conditions for Department of the Army Permits Requiring Performance Bonds.

APPENCIX C
ENVIRONMENTAL AND WATER QUALITY MONITORING PLAN
FOR THE
CONSTRUCTION OF A TEMPORARY BARGE LANDING
AND TWO DOCKS ON

GREAT ST. JAMES, U.S. VIRGIN ISLANDS

INTRODUCTION

The following is the proposed monitoring program for the construction of a temporary barge ramp and two docks on the island of Little St. James. The purpose of this monitoring plan is to evaluate and minimize the impact of the proposed construction on marine water quality and the benthic community.

Great St. Jim, LLC is seeking to construct two docks, one of which is a combination dock/ barge landing, and a temporary barge landing to provide access to Great St. James Island.

The marine construction will consist of the vibra-hamming or socketingof piles and the placement of docks. The impact pile driving or vibra-hammer driving will have a minimal potential for creating turbidity. However, where rock encountered it is possible that piles may need to be socketed. Pile socketing greatly increases the potential for turbidity, and creates large volumes of rock flour. Based on observations in the field a number of piles may require socketing.

Turbidity barriers (silt curtains) will be installed surrounding all pile driving/socketing activities. The curtains will serve not only to maintain turbidity created by pile driving but will also contain floating debris within the project area. The turbidity barriers will be properly installed and will extend to within 1 ft. of the seafloor where piles are driven. If piles require socketing, curtains will extend to the seafloor and a double set will be deployed.

ESTABLISHMENT OF BASELINE CONDITIONS AND SAMPLING POINTS

Prior to the start of any construction activities a baseline of existing conditions will be assessed. Baseline samples will be conducted over a two-month period. The sampling locations have been established to encompass the area most likely to be potentially impacted during construction. The baseline samples sites are shown in Figures 1 and 2. No monitoring should be necessary for the temporary barge landing. Baseline samples will be tested for secchi depth and turbidity expressed as NTU. As part of the baseline sampling, sampling during normal and storm conditions will be completed prior to project construction to determine the natural range in turbidity and duration of elevated turbidity levels to which corals in the area are naturally exposed. Samples will also be taken after large rainfall events which result in an influx of runoff to determine the existing sediment runoff.

DURING CONSTRUCTION

MARINE WATER QUALITY MONITORING

During the construction of the docks water quality at the stations in the vicinity of the work will be sampled on a daily basis. Three water samples will be taken 10 meters outside the turbidity barriers surrounding the area of work. Two control samples shown in Figures 1 and 2 will also be sampled. Water quality will be secchi depth and turbidity expressed as NTUs.

ACTION TRIGGERS

During construction if the water samples show NTUs, or secchi disk readings outside the allowable regulatory limits, the reviewing agencies and the applicant will be notified, in writing within 24 hours of the parameter exceedance. The baseline samples will be utilized to determine if other parameters are elevated above normal background levels. Controls will also be used to determine if the readings are a result of natural phenomena or if the monitoring sample is elevated above the ambient background as a result of the construction project.

If it is determined that the elevated turbidity is the result of the construction project, the source of the elevated turbidity will be identified and methods worked out to abate the degradation. Someone will be on hand at the construction site at all times who has the authority to implement sediment control devices or other remedial actions, so that problems can be resolved as quickly as possible. Once the source of the impact is identified, steps will be taken immediately to abate that impact. The action that was taken to resolve the issue, as well as confirmatory sampling data that the degradation has been resolved will be included within the written report to the agencies and GSJ. A monitor will be on site throughout the day during construction activities to ensure that turbidity barriers are adequate maintain and that escaping sediments do not go unabated.

REPORTING OF DATA

In the event of any emergency or noted degradation in any of the water quality parameters above the allowable or acceptable limits, or any impact to the benthic community the owner and the reviewing agencies will be immediately notified in writing by e-mail. NMFS will be notified immediately of any impact to ESA listed species. Weekly water quality reports will be delivered to all agencies and GSJ throughout the monitoring period.

Figure 1. Christmas Cove Monitoring Stations and Controls

Figure 2. Southeastern monitoring stations and controls

APPENDIX D

VIRGIN ISLANDS TREE BOA MITIGATION PLAN – GREAT ST. JAMES ISLAND

ACCESS DOCK CONSTRUCTION

Introduction

Little St. James island habitat for the Virgin Islands Tree Boa, *Epicrates monensis granti* and two tree boas were seen in 2006 on the island. The tree boa was listed as Federally Endangered in 1979 and the Virgin Islands Endangered and Indigenous Species Act also protects this species. The tree boa is nocturnal and arboreal, the snake forages at night and seeks shelter during the day. The snakes seek refuge in termite nests, debris piles and under rocks during the day. While the snakes' habitat is listed as dry forests, coastal scrub, moist woodlands, mangroves and rocky cliffs, the snakes can occur in any habitat that allows for off ground movement. The structure of the habitat is more important than the species composition; the dock access had some structure which might be adequate for these species. There is an abundant prey base of lizards on the cay, and there is refugia present; logs and rock piles.

Fish and Wildlife states that the snakes are extremely difficult to locate even for an experienced snake biologist, and therefore it must be assumed that the endangered species is present, especially when suitable habitat and refugia are present. Tree boas are known to be present the applicant will make every effort not to take (harass, harm, pursue, shoot, wound, kill, trap, capture, or to attempt to engage in such conduct) any of these endangered species. The dock access way will be cleared by hand and rock piles will be dismantle by hand. All personnel involved in site clearing and site construction will be informed of the potential presence of the snake, and the importance of protecting the snakes. Photographs of the tree boas will be shown to all workers as well as a description of their behavior and habitat. All workers must acknowledge that they understand the importance of protecting this rare and endangered species. The site will be cleared directionally from the existing access way towards the shoreline. If tree boas are encountered, work will be stopped in the area of the snake, and the Division of Fish and Wildlife will be contacted immediately. Ever means necessary will be implemented to prevent harm to the tree boa.

The DFW will be notified of any snakes observed or capture. Phone numbers for Fish and Wildlife will be posted at the site to aid in immediate notification.