EARTH CHANGE PLAN & ENVIRONMENTAL ASSESSMENT REPORT
FOR THE DEVELOPMENT OF THE
UPLAND AREAS OF THE ST. JOHN MARINA
CORAL BAY, ST. JOHN, USVI

SUBMITTED TO:

THE DEPARTMENT OF PLANNING AND NATURAL RESOURCES
DIVISION OF COASTAL ZONE MANAGEMENT

SUBMITTED BY:

THE SUMMER'S END GROUP, LLC

PREPARED BY:

APPLIED TECHNOLOGY & MANAGEMENT, INC.
BIOIMPACT, INC.
CAIRONE AND KAUPP, INC.

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TABLE OF CONTENTS

TABLE OF CONTENTS

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF FIGURES

1.0 NAME AND ADDRESS OF APPLICANT

Applicant

The Summer's End Group, LLC
Chaliese Summers, Managing Member
5000 Estate Enighed, Suite 63
St. John, USVI 00830

Directory of Professional Affiliates

Applied Technology & Management, Inc.
Stephen C. Swann, P.E.
411 Pablo Avenue
Jacksonville Beach, FL 32250
904-249-8009
sswann@appliedtm.com

Bioimpact, Inc.
Amy Dempsey
P.O. Box 132 Kingshill
St. Croix, USVI 00851
340-773-5881
bioimpact@islands.vi

Cairone & Kaupp, Inc.
Joseph A. Mina, P.E.
1118 E. Columbia Avenue
Philadelphia, PA 19125-4206
215-291-2800
jmina@caironkaupp.com

Panamerican Consultants, Inc
Steve James
91 Tillman
Memphis, TN 38111
Phone (901) 545-4733
jamesposse@aol.com

Marvin Berning and Associates
Land Surveyors and Consultants
Harry Gauriloff, RLS
6501 Red Hook Plaza, Suite 201
St. Thomas, USVI 00804
340-775-6557
hgvisurvey@gmail.com

2.0 LOCATION OF PROJECT

The proposed upland improvements are associated with The St. John Marina and will provide support services to the marina. The project is located on seven Estate Carolina parcels in Coral Bay on the eastern end of St. John, U.S. Virgin Islands.

The seven Estate Carolina parcels that are provided in the following table.

Table 2.0-1. Project Parcels & Coordinates

Parcel Number	Coordinates
Parcel 10-17	18°20'37"N, 64°42'54"W
Parcel 10-18	18°20'36"N, 64°42'53"W
Parcel 10-19	18°20'38"N, 64°42'53"W
Parcel 10-41 Remainder	18°20'37"N, 64°42'54"W
Parcel 13A	18°20'46"N, 64°42'47"W
Parcel 13B	18°20'33"N, 64°42'54"W
Parcel 13 Remainder	18°20'33"N, 64°42'53"W

A Major Water CZM permit application will be submitted in parallel with this Major Land CZM permit application to address construction and operation of the adjacent 145 slip marina. The Major Water CZM permit application contains a separate Environmental Assessment Report addressing the marina project.

The location of the project is depicted in the following figures.

2.01 St. John Location Map

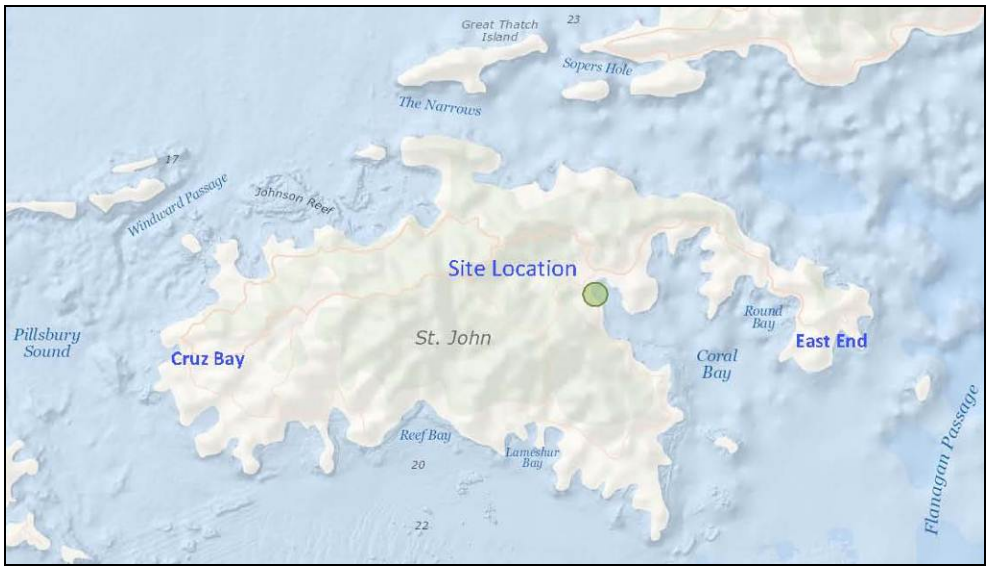


Figure 2.01-1. St. John Location Map

2.02 St. John Marina Vicinity Map

Figure 2.02-1. The St. John Marina Vicinity Map

2.03 St. John Marina Upland Site Map

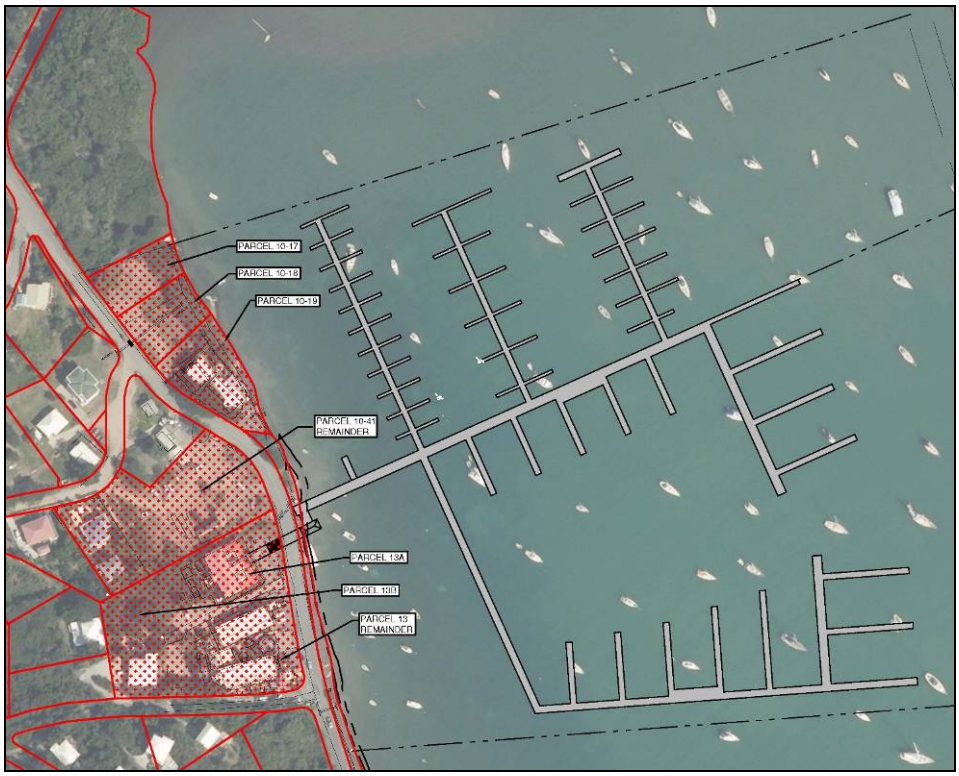


Figure 2.03-1. The St. John Marina Upland Site Map

2.04 Agency Review Map

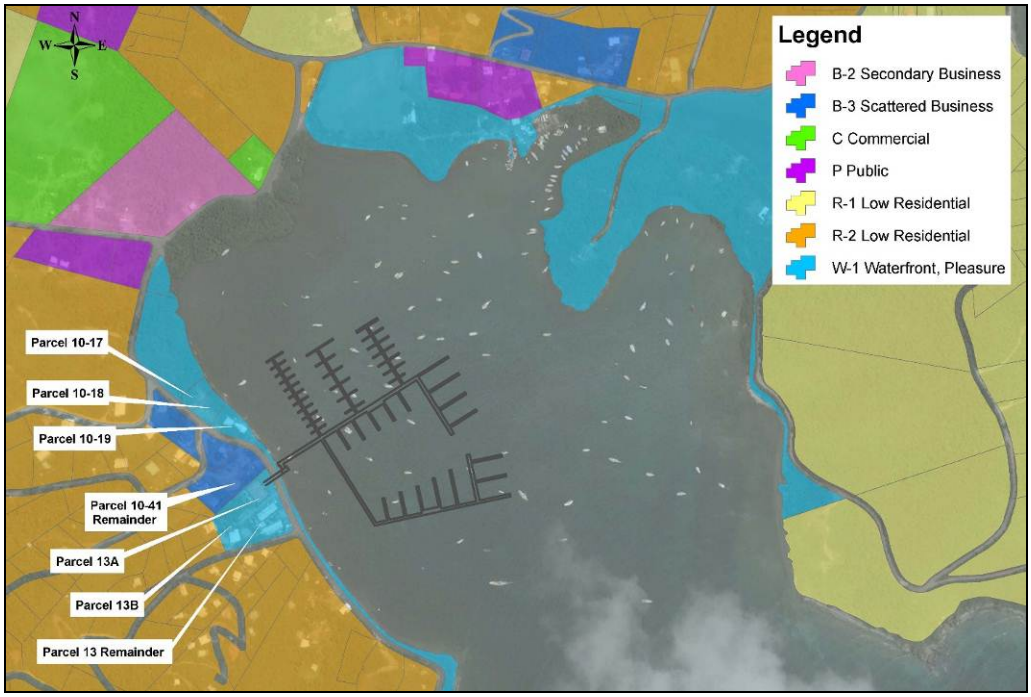


Figure 2.04-1. Agency Review Map

2.05 Parcel Map

Figure 2.05-1. Adjacent Upland Parcel Map

3.0 ABSTRACT

This Environmental Assessment Report (EAR) is being submitted by the Summers End Group, LLC to support the application for the redevelopment of seven generally contiguous properties in Estate Carolina in Coral Bay, St. John, U.S. Virgin Islands. The developer hopes through the redevelopment of these parcels to revitalize the economy of the Coral Bay are.

The redevelopment of these properties, occurring in conjunction with the adjacent St. John Marina project, will occur in two phases. A Major Water Permit application will be submitted concurrently for the construction of The St. John Marina.

Of the seven parcels that are the subject of this permit application, four are leased and three are under contract for purchase by The Summer's End Group as shown in Figure 2.05. PWD parcel maps are attached as Appendix A.

Redevelopment of the properties comprising the proposed marina complex will occur in two phases. Along with the construction of the docks, Phase I will enhance existing commercial business sites at Coco Loba, Shoreline Inn and Island Blues and renovate the abandoned "Voyages" restaurant building. These Phase I improvements for the proposed marina complex include 120 off street parking spaces, a new 56 seat restaurant, Customs and Border Protection office, a Marina Office, Marina Engineering, Marina Security, fish and farmers market, crew shower and locker facilities, apartments to support marina management, proper solid, hazardous and liquid waste management, proper stormwater management and proper fueling. The proposed Phase I improvements are depicted in Figures 3.0-1 and 3.0-2.

Phase II of the development, which has been preplanned for the purposes of this EAR, will be implemented strictly on market demand. Proposed for this phase are four buildings of new construction offering additional retail, restaurant, office space, commercial space and six short-term rental units. The proposed Phase II improvements are depicted in the following renderings.

Figure 3.0-1. Phase I Rendering of The St. John Marina – Landside View

Figure 3.0-2. Phase I Rendering of The St. John Marina – Waterside View

Figure 3.0-3. Phase II Rendering of The St. John Marina – Landside View

Figure 3.0-4. Phase II Rendering of The St. John Marina – Waterside View

The St. John Marina, which is being proposed under a Major Water CZM permit application will have 145 slips and a mooring field with 12 mooring balls. An additional 75 moorings are proposed under this application as a public-private partnership with the Department of Planning and Natural Resources (DPNR) to better manage resources within Coral Bay. Access to the upland businesses by boaters will occur via a dinghy dock located at the terminus of the marina. The marina will also include a diesel and gasoline fuel dock and a wastewater pumpout system available to the boating public.

All improvements will comply with current zoning and no rezoning will be required. The buildings will vary in size and height, ranging from one to three stories. The proposed building improvements will be designed to recall the relaxed elegance of traditional Caribbean architecture, with elements of tropical Danish style utilizing traditional forms, colors and materials. The proposed building improvements will be designed to recall the relaxed elegance of traditional Caribbean architecture, with elements of tropical Danish style utilizing traditional forms, colors and materials. The buildings will be sited to present a feel of old world waterfront developments.

Fire suppression and potable water demands will be met with roof catchment and cistern storage. In periods of limited rainfall or heavy demand, supplemental water will be purchased from WAPA and Caneel Bay. All water will be stored in existing cisterns with a new transfer piping system installed to maximize the amount of stored water. Domestic wastewater generated from the project will be treated by onsite tertiary WWTPs with the treated effluent reclaimed for use as irrigation and toilet flushing. Irrigation will be supplemented with water from cisterns as necessary.

The marina will be providing pumpout service for vessels. As most vessels use chemicals within their holding tanks that could upset the onsite WWTPs, this waste will be collected separately and stored in an underground storage tank that will be periodically pumped out by a private hauler and disposed of in the municipal system.

Electrical power will be provided by WAPA via existing distribution lines. Communication links will be supplied through local telephone and communication companies. An emergency generator will provide back up for emergency pumps and emergency lighting at the marina. Individual site-specific generators will supply emergency power for land-based businesses. All electrical distribution lines within the property limits or road right of way will be placed in underground conduit.

The topography of the site is limited with the lowest occupied level set at elevation 10 ft as per the FIRM maps Zone AE. The development is located at the base of the Bordeaux Mountain watershed and the developer has developed a stormwater management system that partially treats and passes through this offsite stormwater runoff. The stormwater management system provides for onsite treatment of the first 1” of stormwater runoff and

manage onsite flows for storms up to the 24-hour/100-year storm event. The stormwater management system is a combination of best management practices, including retention, bio-filtration, rain gardens, etc. as described in detail in Sections 5.02 & 6.03 and depicted on drawings C200 – C206 and C-400. Additionally, due to the placement of the stormwater management facilities, there will be additional treatment of the stormwater runoff from the entire upstream watershed to treat the first 1" of runoff while removing suspended solids, phosphorus and nitrogen. Based on the efficiency of the facility, this equates to removal of 30% suspended solids, 26% phosphorus and 11% total nitrogen from the entire 68-acre Bordeaux Mountain watershed.

During construction, a sediment and erosion control plan will be implemented and will include stabilized rock construction entrance, silt fencing, erosion control blankets and other best management practices. Overall the proposed stormwater management plan both during and after construction will manage onsite stormwater runoff to control volume and water quality for all activities on the developed site and will be an improvement over the existing stormwater management activities on this site which are minimal.

Red mangroves will be planted along the waterfront where a mangrove fringe does not currently exist in an effort to stabilize the shoreline and provide habitat. The implementation of the stormwater management plan will provide some reduction in sediment load to Coral Bay. The parcels in the project area have been previously cleared, graded and developed and impacts to terrestrial fauna and flora are expected to be negligible.

The project has been designed to minimize impacts to the environment to the greatest degree possible while maintaining a viable marina project. It is The Summer's End Group's intention to participate in the Clean Marina and Blue Flag programs. As mitigation for unavoidable impacts The Summer's End Group will be providing educational signage and literature on boating practices to protect the marine environment and its residents. The applicant will also support workshops and seminars to support the protection of the environment.

Historically, Coral Bay has always had a strong maritime culture having served in the past as St. John's main port and center of commerce. The St. John Marina intends to be part of a Caribbean village that is as unique as any in the basin. This project will result in the

establishment of a fish and farmer's market to serve as not only a place of commerce for local farmers and fishermen, but as an old-fashioned community center where friends gather to buy St. John's freshest and finest produce and fish, and a gathering place for friends to share good times and the news of the day. In addition, The St. John Marina contribution to community kids is extended to the support of a myriad of youth organizations including KATS and Using Sport for Social Change.

Even at moderate occupancy projections, the overall economic impact of this upland redevelopment project in conjunction with the marina is the estimated $8,790,000 contribution to the economy of St. John and the USVI. For the most part, these are new dollars that were not a part of the local economy prior to the development of this project. A combined minimum of 90 jobs will be created with the vast majority of them made available to qualified St. Johnians. To insure this, a job fair is planned for Coral Bay in order to give local residents every opportunity for employment. These jobs, in totality, equate to an estimated labor income of $3,050,000. This is perhaps the greatest value add by this upland redevelopment project and The St. John Marina as it improves the quality of life for the families of Coral Bay and the East End who need it most.

There will be temporary impacts from noise and fugitive dust emissions during construction as well as increased traffic impacts after construction. These potential impacts are discussed in more detail in Section 7 of this report.

The proposed project is consistent with the Zoning Master Plan and all applicable Virgin Islands Coastal Zone Management rules and regulations. All proposed buildings shall meet or exceed current building codes and construction activities shall be executed to minimize impact on the environment as detailed in the sediment and erosion control plan.

This Permit application includes all associated infrastructure improvements to support the land-based businesses described herein and to support the operation of The St. John Marina.

4.0 STATEMENT OF OBJECTIVES SOUGHT BY THE PROPOSED PROJECT

The objective of this application is to obtain a Major Coastal Zone Management (CZM) Land permit for the construction of supporting facilities for the marina project that will accommodate both local and transient boats of all sizes in Coral Bay, St. John. The primary objective of this project in its entirety is to create a premier marina development to serve local needs and to attract private and charter yachts from around the world and create a social and commercial hub in Coral Bay.

The St. John Marina will be responsible for creating much needed jobs and wages for Virgin Islanders, while bringing in millions of new dollars to the territory from recreational boaters and cruisers who previously avoided St. John because of the lack of friendly access. New spending dollars equate to new tax revenues that will contribute to solving the territories' budget crisis without burdening residents or at additional costs to government employees or services.

This development will provide the ancillary services boaters at the marina require, including customs clearance, provisioning, restaurants, etc., and will provide a significant new product for the island of St. John to market to local, United States and international markets. This permit application will complement a separate application for a Major CZM Water permit for the waterside portion of the marina development.

The proposed project is anticipated to have a positive socio-economic impact by providing increased tax revenues beyond its demand for services provided by the Government, thus contributing positively to the Island of St. John, the local Coral Bay business community and the overall economy of the U.S. Virgin Islands.

The goals of this project also include providing employment opportunities to both skilled and unskilled labor during and after construction, providing job training opportunities and supporting and enhancing local retail business opportunities.

5.0 DESCRIPTION OF PROJECT

5.01 Summary of Proposed Activity

This redevelopment project consists of primarily utilizing existing buildings for land based businesses ancillary to and supporting the adjacent marina in Phase I and the addition of several new buildings in Phase II as described below. Ample off street parking will be provided along with restaurants, Customs and Border Protection office, marina office, marina security office, crew shower and locker facilities and apartments to support marina management. The redevelopment project will also include properly designed solid, hazardous and liquid waste management and fueling facilities along with the implementation of best management practices for stormwater management.

The site is located in Coral Bay, St. John, and consists of Parcels 13 Remainder (Western and Eastern Portions), 13A, 13B, 10-17 & 10-18 combined, 10-19 and 10-41 Remainder. The parcels are located along Route 107 and are proposed to be developed in support of the installation of a 145-slip marina that is the subject of a separate Major Water CZM permit application. The overall development will improve Route 107, add parking along the roadway and add improved pedestrian circulation and walkways, including raised pedestrian crossings and concrete sidewalks.

The following is a summary of the proposed redevelopment activities:

Phase I

Parcel Remainder 13 (Western Portion) - Remove selected structures/buildings, reconfigure pedestrian access, refurbish/improve interior floor space, expand outdoor seating. Add new parking area, building for golf cart service, paved walkway system, wastewater treatment system, contained fuel tank storage area, solid waste disposal system, taxi loading & queuing area, raised pedestrian crosswalk, stormwater management system and driveway opening. Upgrade selected landscaped areas.

Parcel 13 Remainder (Eastern Portion) - Provide chase for fuel lines, water lines, electrical & low voltage conduit and wastewater line; new covered entrance and connection to docks.

Parcel 13-A - Remove pool & selected structures/buildings, reconfigure pedestrian access, expand & improve outdoor seating. Add new parking, paved walkway system, wastewater treatment system, generator, pedestrian crosswalk, timber decking & pergola, stormwater management system, driveway opening and plaza area. Upgrade landscaping.

Parcel 13-B - Remove selected structures and bush/trees, add new parking area and stormwater management system. Upgrade selected landscaping.

Parcel 41-Remainder - Remove selected structures and bush/trees. Add new parking area, taxi loading & queuing area, paved walkway system, fish and farmers market, domestic well (potentially), raised pedestrian crosswalk, stormwater management system and driveway openings. Upgrade selected landscaping areas, provide open space area for future buildings.

Parcels 10-17 &10-18 Combined - New parking area, raised crosswalk and paved walkway system. Provide open space for future building.

Parcel 10-19 - New parking area, paved walkway system and refurbishment of existing buildings.

Phase II

Future development preplanned for the purposes of this application and will be implemented strictly on market demand. Phase II will include four new buildings offering additional retail, restaurant, office space, commercial space and six short term rental units as shown on the site plans for Parcels 10-17, 10-18 and 10-41 Remainder.

The proposed project is covered by two zoning districts; B-3 which according to code allows for retail, sales & service, rentals, banks, restaurants, dwelling-multiple, offices, grocers, professional and various other services and products. The other zoning is W-1 which allows for, among other things, retail, charter and rentals, marine terminals (docking facilities & associated areas), sewage treatment plants, water sports equipment (sales & rental) and restaurants, see Figure 2.0-4.

Project Summary Data

The following project summary data is provided. Refer to the attached site plans and Forms L&WD-3 & 4 for additional information.

Table 5.01-1 Project Summary Data

Parcel 13 Remainder – West

Zoning Schedule Parcel No. Remainder 13 (Western Portion) - 0.759 Ac
W-1 Waterfront Pleasure District

DESCRIPTION	PERMITTED	EXISTING	PROPOSED
LOT AREA (MIN)	10,000 SF	33,062 SF	33,062 SF
LOT OCCUPANCY (MAX)	40%	6,664 SF; 20%	8,675 SF; 26%
LOT OPEN SPACE (MIN)	30%	21,220 SF; 64%	17,781 SF; 54%
LOT DENSITY (MAX); (1)	N/A	N/A	N/A
LOT WIDTH (MIN)	100 FT	187.9 FT	187.9 FT
FRONT YARD SETBACK (MIN)	25 FT	19.9 FT	25.0 FT
SIDE YARD SETBACK (MIN)	10 FT	11.2 FT	10.0 FT
REAR YARD SETBACK (MIN)	20 FT	51.6 FT	20.2 FT

(1) HOUSING NOT PROPOSED

Zoning Building Height Schedule

ID	EXISTING HEIGHT	PROPOSED HEIGHT	PERMITTED HEIGHT
B1	N/A	1 STORY	3 STORIES
B2	1 STORY	N/A	3 STORIES
B3	1 STORY	N/A	3 STORIES
B4	1 STORY	N/A	3 STORIES
B5	1 STORY	N/A	3 STORIES
CY1G	1 STORY	N/A	3 STORIES

Parcel 13 Remainder – East

Zoning Schedule Parcel No. Remainder 13 (Eastern Portion) - 0.133 Ac

W-1 Waterfront Pleasure District

DESCRIPTION	PERMITTED	EXISTING	PROPOSED
LOT AREA (MIN)	10,000 SF	5,800 SF	5,800 SF
LOT OCCUPANCY (MAX)	40%	0 SF; 0%	455 SF; 8%
LOT OPEN SPACE (MIN)	30%	5,800 SF; 100%	5,345 SF; 92%
LOT DENSITY (MAX); (1)	N/A	N/A	N/A
LOT WIDTH (MIN)	100 FT	411.02 FT	411.02 FT
FRONT YARD SETBACK (MIN)	25 FT	N/A (2)	N/A (2)
SIDE YARD SETBACK (MIN)	10 FT	N/A (2)	N/A (2)
REAR YARD SETBACK (MIN)	20 FT	N/A (2)	N/A (2)

(1) HOUSING NOT PROPOSED
(2) MARINA DEVELOPMENT

Building Height Schedule

ID	EXISTING HEIGHT	PROPOSED HEIGHT	PERMITTED HEIGHT
B6	N/A	1 STORY	3 STORIES

Building Footprint Schedule

ID	EXISTING SF	PROPOSED SF
B7	0	180

Parcel 13A & 13B Combined

Zoning Schedule Parcel 13A - 0.370 Ac

W-1 Waterfront Pleasure District

DESCRIPTION	PERMITTED	EXISTING	PROPOSED
LOT AREA (MIN)	10,000 SF	16,117 SF	16,117 SF
LOT OCCUPANCY (MAX)	40%	3,450 SF; 21%	3,345 SF; 21%
LOT OPEN SPACE (MIN)	30%	11,118 SF; 69%	9,513 SF; 59%
LOT DENSITY (MAX)	2 UNITS	2 UNITS	2 UNITS
LOT WIDTH (MIN)	100 FT	90.5 FT	90.5 FT
FRONT YARD SETBACK (MIN)	25 FT	46.5 FT	46.5 FT
SIDE YARD SETBACK (MIN)	10 FT	7.9 FT	7.9 FT
REAR YARD SETBACK (MIN)	20 FT	38.3 FT	38.3 FT
GUTT SETBACK (MIN)	25 FT (C/L)	8.4 FT	8.4 FT

Zoning Building Height Schedule (13A)

ID	EXISTING HEIGHT	PROPOSED HEIGHT	PERMITTED HEIGHT
B7	2 STORIES	2 STORIES	3 STORIES

Zoning Schedule Parcel 13B - 0.231 Ac

W-1 Waterfront Pleasure District

DESCRIPTION	PERMITTED	EXISTING	PROPOSED
LOT AREA (MIN)	10,000 SF	10,062 SF	10,062 SF
LOT OCCUPANCY (MAX)	40%	0 SF; 0%	0 SF; 0%
LOT OPEN SPACE (MIN)	30%	9,910 SF; 98%	2,741 SF; 27%
LOT DENSITY (MAX); (1)	N/A	N/A	N/A
LOT WIDTH (MIN)	100 FT	99.4 FT	99.4 FT
FRONT YARD SETBACK (MIN)	25 FT	N/A FT	N/A FT
SIDE YARD SETBACK (MIN)	10 FT	N/A FT	N/A FT
REAR YARD SETBACK (MIN)	20 FT	N/A FT	N/A FT

(1) HOUSING NOT PROPOSED

Zoning Schedule Parcel 13A&B Combined - 0.601 Ac

W-1 Waterfront Pleasure District

DESCRIPTION	PERMITTED	PROPOSED
LOT AREA (MIN)	10,000 SF	26,179 SF
LOT OCCUPANCY (MAX)	40%	3,345 SF; 13%
LOT OPEN SPACE (MIN)	30%	12,254 SF; 47%
LOT DENSITY (MAX)	2 UNITS	2 UNITS
LOT WIDTH (MIN)	100.0 FT	90.5 FT
FRONT YARD SETBACK (MIN)	25 FT	46.5 FT
SIDE YARD SETBACK (MIN)	10 FT	7.9 FT
REAR YARD SETBACK (MIN)	20 FT	127.7 FT
GHUT SETBACK (MIN)	25 FT (C/L)	8.4 FT

Parcel 41 Remainder

Zoning Schedule Parcel No. 41-Remainder - 0.98 Ac

B-3 Business-Scattered District

DESCRIPTION	PERMITTED	EXISTING	PROPOSED
LOT AREA (MIN); BUSINESS	3,000 SF	42,689 SF	42,689 SF
LOT AREA (MIN); RESIDENTIAL	N/A	42,689 SF	42,689 SF
LOT OCCUPANCY (MAX)	60%	545 SF; 1%	6,145 SF; 14%
LOT OPEN SPACE (MIN)	30%	41,353 SF; 97%	17,925 SF; 42%
LOT DENSITY (MAX)	N/A	N/A	N/A
LOT WIDTH (MIN)	N/A	243.1 FT	243.1 FT
FRONT YARD SETBACK (MIN)	N/A	39.4 FT	28.5 FT
SIDE YARD SETBACK (MIN); BUS. (1)	5 FT	5 FT	17.5 FT
REAR YARD SETBACK (MIN); BUS.	10 FT	132.8 FT	68 FT
REAR YARD SETBACK (MIN); RESIDENTIAL	5 FT	132.8 FT	68 FT
GHUT SETBACK (MIN)	25 FT (C/L)	170.4 FT	25.7 FT

(1) FOR BUSINESS STRUCTURE ADJACENT TO RESIDENTIAL STRUCTURE OR ZONING DISTRICT

Building Height Schedule

ID	EXISTING HEIGHT	PROPOSED HEIGHT	PERMITTED HEIGHT
B8	N/A	1 STORY	2 OR 3 STORIES (1)
B9	N/A	1 STORY	2 OR 3 STORIES (1)

(1) RESIDENTIAL AND OR COMBINED RESIDENTIAL AND COMMERCIAL STRUCTURES MAY BE 3 STORIES IN HEIGHT

Parcel 10-17 & 10-18 Combined

Zoning Schedule Parcel 17 - 0.286 Ac

W-1 Waterfront Pleasure District

DESCRIPTION	PERMITTED	EXISTING
LOT AREA (MIN)	10,000 SF	12,458 SF
LOT OCCUPANCY (MAX)	40%	0 SF; 0%
LOT OPEN SPACE (MIN)	30%	12,458 SF; 100%
LOT DENSITY (MAX)	2 UNITS	N/A
LOT WIDTH (MIN)	100 FT	109.9 FT
FRONT YARD SETBACK (MIN)	25 FT	N/A
SIDE YARD SETBACK (MIN)	10 FT	N/A
REAR YARD SETBACK (MIN)	20 FT	N/A

Zoning Schedule Parcel 18 - 0.257 Ac

W-1 Waterfront Pleasure District

DESCRIPTION	PERMITTED	EXISTING
LOT AREA (MIN)	10,000 SF	11,195 SF
LOT OCCUPANCY (MAX)	40%	0 SF; 0%
LOT OPEN SPACE (MIN)	30%	11,195 SF; 100%
LOT DENSITY (MAX)	2 UNITS	N/A
LOT WIDTH (MIN)	100 FT	118.6 FT
FRONT YARD SETBACK (MIN)	25 FT	N/A
SIDE YARD SETBACK (MIN)	10 FT	N/A
REAR YARD SETBACK (MIN)	20 FT	N/A

Zoning Schedule Parcel 17 and 18 (Comb.) - 0.543 Ac

W-1 Waterfront Pleasure District

DESCRIPTION	PERMITTED	PROPOSED
LOT AREA (MIN)	10,000 SF	23,653 SF
LOT OCCUPANCY (MAX)	40%	7,240 SF; 31%
LOT OPEN SPACE (MIN)	30%	16,413 SF; 69%
LOT DENSITY (MAX)	2 UNITS	6 UNITS
LOT WIDTH (MIN)	100 FT	228.5 FT
FRONT YARD SETBACK (MIN)	25 FT	26.9 FT
SIDE YARD SETBACK (MIN)	10 FT	10 FT
REAR YARD SETBACK (MIN)	20 FT	29.5 FT

Building Height Schedule

ID	EXISTING HEIGHT	PROPOSED HEIGHT	PERMITTED HEIGHT
B10	N/A	3 STORY	3 STORIES
B11	N/A	3 STORY	3 STORIES

Parcel 10-19

Zoning Schedule Parcel 19 - 0.239 Ac

W-1 Waterfront Pleasure District

DESCRIPTION	PERMITTED	EXISTING	PROPOSED
LOT AREA (MIN)	10,000 SF	10,410 SF	10,410 SF
LOT OCCUPANCY (MAX)	40%	2,240 SF; 22%	2,240 SF; 22%
LOT OPEN SPACE (MIN)	30%	7,460 SF; 72%	7,460 SF; 72%
LOT DENSITY (MAX)	2 UNITS	N/A	2 UNITS
LOT WIDTH (MIN)	100 FT	291 FT	291 FT
FRONT YARD SETBACK (MIN)	25 FT	17.9 FT	17.9 FT
SIDE YARD SETBACK (MIN)	10 FT	9.2 FT	9.2 FT
REAR YARD SETBACK (MIN)	20 FT	19.9 FT	19.9 FT

Building Height Schedule

ID	EXISTING HEIGHT	PROPOSED HEIGHT	PERMITTED HEIGHT
B12	2 STORIES	2 STORIES	3 STORIES
B13	1 STORY	1 STORY	3 STORIES

Parking Summary

OFF STREET PARKING SCHEDULE

USE	UNIT	QTY.	RATIO	REQUIRED PS
RESTAURANT	SEATS	232	1PS:10 SEATS	24
RETAIL BUILDINGS/ MARINA OFFICE	GSF	19,346	1PS:500 GSF	39
MARINA	SLIPS	145	1PS:5 SLIPS	29
EMPLOYEES (1)	EMPLOYEE	90	1PS:5 EMPLOYEES	18
APARTMENTS	UNIT	2	1PS:UNIT	2
SHORT TERM RENTAL	UNIT	6	1PS:UNIT	6
MANAGER UNITS	UNIT	2	1PS:UNIT	2
TOTAL NUMBER REQUIRED				120
TOTAL NUMBER PROVIDED ON PLAN				120
LOADING SPACES PROVIDED ON PLAN				5

GSF; GROSS SQUARE FEET
PS; PARKING SPACE
(1) MAXIMUM PER SHIFT

ADA PARKING SPACE BREAKDOWN		
TYPE	REQUIRED	PROVIDED
ADA VAN ACCESSIBLE SPACES	3	5
ADA ACCESSIBLE SPACES	5	5

PROPOSED OFF STREET PARKING SCHEDULE

PARCEL	SPACES		
	OFF STREET	ADA	LOADING
REMAINDER 13 (WESTERN)	13	2	2
REMAINDER 13 (EASTERN)	0	0	0
13-A	8	1	0
13-B	17	0	0
41-REMAINDER	66	2	3
10-17 AND 10-18 (COMBINED)	7	0	0
10-19	5	0	0
TOTAL	116	5	5

5.01a Purpose of Project

As set forth in Section 4.0 of this report, the objective of the project is to construct a commercial area and several residential units in two phases honoring all 3 components of sustainable development principles: environmental, social and economic that support The St. John Marina development. The following is a narrative description of the existing and proposed uses on each parcel of the project:

Parcel 13 Remainder consists of an existing set of buildings and improvements that currently function as a grocery store, assorted retail stores and an outdoor restaurant & bar facility. The proposed conditions will renovate this area, improve the restaurant use and add upgraded utilities and wastewater treatment. The eastern portion of this parcel consists of the interface with the waterfront/marina and includes a covered shade structure at the marina entrance and improvements to the pedestrian crossing of Route 107.

Parcels 13A & 13B consist of an existing abandoned restaurant with apartments on the second floor. The proposed conditions will improve and renovate this building, restore the apartments to usable condition, expand and improve the restaurant facilities and include an area dedicated to the offices for the marina operations.

Parcel 10-41 Remainder consists of a primarily open lot with one small retail store that was converted from a former residence. All structures on this parcel will be removed. The proposed conditions consist of installation of parking and walkway improvements to support the overall marina development, as well as being programmed for two buildings consisting of retail operations.

Parcels 10-17&10-18 consist of an undeveloped lot that currently is unstabilized. The proposed conditions consist of two buildings that will contain a mixed use of retail, restaurants, and apartments in Phase II of the development.

Parcel 10-19 consists of two existing buildings. One is currently a restaurant and the other is a combination of apartments and offices. The proposed condition will maintain the restaurant use and will renovate the apartment/office building into a combined use of

apartment, marina offices and short-term crew quarters for addressing crew needs while their boats are docked at the marina and marina security headquarters.

5.01b Presence and Location of Critical Areas

According to the Virgin Islands State Historic Preservation Officer (VISHPO), no cultural resources have been recorded within the land parcels or the estate road. The proposed redevelopment area has been extensively altered from its natural state over the years. Areas of concern during upland construction include land adjacent to the natural drainage ways, and protection of forested areas that will not be disturbed as delineated on the site plans, and the waterfront area. Erosion and sediment control are the key areas of concern when developing the site and all requirements of the SWPPP (Appendix B) will be implemented prior to commencing work as discussed in the following sections to reduce erosion and sediment loads to the maximum extent practicable.

5.01c Method of Land Clearing

The parcels are already highly altered and minimal land clearing will be required. Within these areas that require clearing, clearing shall be done by cutting vegetation prior to removing rootmasses and no clearing will be done by ripping vegetation out of the ground with rootmass intact. All removed materials shall be chipped and mulched onsite and utilized either in erosion control features and devices or mixed into the topsoil in landscaped areas to provide additional organic material for plantings.

Clearing shall be accomplished in phases to correspond with the progression of the redevelopment project as discussed in Section 5.01e. Prior to any land clearing activities, silt fencing will be installed on the perimeter of the site being cleared to delineate the construction area and prevent sediment runoff from the site as described in the SWPPP (Appendix B)

5.01d Provisions to Preserve Topsoil and Limit Site Disturbance

Prior to construction, all topsoil found on the site will be removed, stockpiled, protected with temporary plantings and silt fence or other erosion protection techniques (per the plans provided) and upon completion of the project will be re-distributed within the landscaped areas of the site. Should there be excess topsoil, the remaining material will be moved to other appropriate upland locations within the Coral Bay community to supplement

landscaped areas on other sites within Coral Bay. Site disturbances will be limited as much as possible to the areas required for the proposed improvements.

5.01e Erosion Sediment Control Devices to be Implemented

No more than 4 acres total will be disturbed during site development. The following erosion and sediment control measures and devices shall be implemented to minimize erosion and sedimentation during site construction:

Limited Area of Disturbance - No site clearing or grading will occur which is not essential to the immediate phase of construction of the project. In general, work will proceed in a parcel-by-parcel progression in accordance with the detailed sequence of construction provided on the attached site plans. Protective fencing will protect areas of vegetation to remain undisturbed.

Stabilized Construction Entrance - Temporary construction entrances will be provided for each stage of work at appropriate locations to allow access for construction vehicles to enter the site. The entrances, stabilized with crushed stone or similar materials, will aid in removing mud and dirt from vehicle tires prior to exiting the site.

Silt Fence & Compost Silt Sock - Silt fencing and compost silt socks will be used to filter sediment from small overland (sheet) flow areas and along the toe of slope of soil stockpiles. Rock filter outlets will be used in those areas where the silt fence may become ineffective.

Temporary Topsoil Stockpiles - Temporary topsoil stockpiles will be provided for to protect available topsoil and redistribute it onsite where possible. Stockpiles shall be protected with temporary seeding/mulching and will be provided with silt fence or compost silt sock across the downstream perimeter. Stockpiles shall be no greater than 35’ high with maximum side slopes of 2:1.

Sedimentation Basin - Sediment basins area temporary structures are to be in place during the period of earth disturbance. Following the stabilization of the site, the sediment basins will be altered to function as permanent stormwater detention basin structures. A temporary outlet will be installed to provide sediment storage and dewatering time.

Pipe Outlet Protection - Rip-rap apron protection will be provided at the outfall of all temporary and permanent outlet pipes.

Temporary Seeding and Mulching - Disturbed areas shall receive a temporary seed mixture and mulch as shown on the attached plans. In addition, soil stockpile areas and sediment basins/traps are to be seeded and mulched with a temporary seed mixture to promote rapid vegetated stabilization.

Permanent Seeding and Mulching - Immediately after final grading is completed, all disturbed areas will be permanently stabilized with a seed mixture and mulch.

5.0If Schedule for Earth Change and Implementation of Erosion and Sediment Control Measures

The following schedule for the redevelopment project is proposed. The actual starting date of construction will be dependent upon the developer receiving all necessary permits for construction:

ID	Task Name	Duration	Start	Finish
1	**YACHT CLUB AT SUMMERS END**	**290 days**	**Fri 4/4/14**	**Thu 5/14/15**
2	**PERMITTING**	**130 days**	**Fri 4/4/14**	**Thu 10/2/14**
3	Submit CZM Permit Package	0 days	Fri 4/4/14	Fri 4/4/14
4	Territorial Permitting (CZM/TPDES/etc.)	26 wks	Fri 4/4/14	Thu 10/2/14
5				
6	**CONSTRUCTION DOCUMENTS**	**60 days**	**Fri 6/27/14**	**Thu 9/18/14**
7	Building Permit Design/Arch/MEP	13 wks	Fri 7/4/14	Thu 10/2/14
8	Civil/Site/MEP/Structural	13 wks	Fri 7/4/14	Thu 10/2/14
9				
10	**Construction**	**170 days**	**Fri 9/19/14**	**Thu 5/14/15**
11	Mobilization and Site Prep	2 wks	Fri 9/19/14	Thu 10/2/14
12	Stage 1 - Roadway Area	6 wks	Fri 10/3/14	Thu 11/13/14
13	Building Renovations	13 wks	Fri 11/14/14	Thu 2/12/15
14	Stage 2 - Parcels 13 Remainder & 13A&B	9 wks	Fri 11/14/14	Thu 1/15/15
15	Stage 3 - Parcel Remainder 41 & Estate Road	9 wks	Fri 1/16/15	Thu 3/19/15
16	Stage 4 - Parcels 10-17.18. & 19	6 wks	Fri 3/20/15	Thu 4/30/15
17	Demobilization/Site cleanup/Closeout	2 wks	Fri 5/1/15	Thu 5/14/15

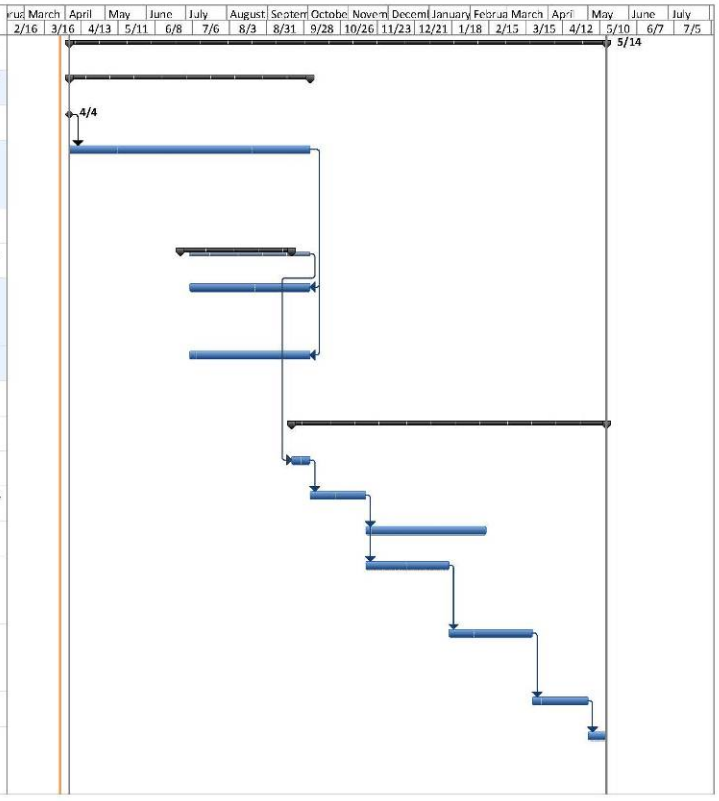


Figure 5.01f-1. Construction Schedule

5.01g Maintenance of Erosion and Sediment Control Measures

All erosion and sediment control devices and measures shall be properly maintained and inspected on a regular basis to ensure functionality. The plans provide details for maintenance procedures and schedule. In general, all devices must be inspected weekly and if needed, repaired. Inspections and repairs (if needed) should also be performed after every storm event to ensure continued protection. Prior to larger predicted storm events, inspect all devices and measures and repair as needed.

5.01h Method of Stormwater Management

Stormwater shall be managed through the installation of a large retention/detention basin facility in the area between Parcel 13-A&B and Parcel 41 Remainder along the ghut. A small forebay area is provided to settle out the larger solids and an area is provided below the outlet elevation to store stormwater runoff and provide a settling area for suspended solids. Additional storage is provided in an integrated underground storage area under the parking on Parcel 41 Remainder. See attached plans for details.

5.0li Maintenance Schedule for Stormwater Facilities

Stormwater facilities (including all pipes and trench drains) should be inspected monthly and before and after every significant storm event to ensure there is no debris clogging the system and that there is no structural damage. The plans detail maintenance requirements for each device.

Accumulated sediment should be removed yearly from the stormwater management basin or when it reaches the elevation of the outlet orifice (0.5'), whichever comes first. Grading should be restored to the design grades and areas re-planted with appropriate vegetation as needed.

5.01j Method of Sewage Disposal/Pump-Out Facilities

Domestic wastewater treatment is to be provided by individual on-lot tertiary wastewater treatment facilities. Each parcel will have an individual treatment system (Cromaglass or equivalent) placed underground as shown on the plans. A decentralized system as proposed allows for staged construction, smaller WWTP footprints, less infrastructure and

simpler operation and maintenance. The projected wastewater flows into the individual treatment units are estimated as follows:

a. Parcel 13 Remainder (Western)
   Total Flow =1,980 GPD Total BOD = 10.68 #BOD/day
b. Parcel 13-A&B
   Total Flow =1,450 GPD Total BOD = 6.16 #BOD/day
c. Parcel 41 Remainder
   Total Flow =1,600 GPD Total BOD = 8.0 #BOD/day
d. Parcels 10-17 & 10-18 (Combined)
   Total Flow =4,500 GPD Total BOD = 17.78 #BOD/day
e. Parcel 10-19
   Total Flow =1,300 GPD Total BOD = 5.26 #BOD/day

Effluent from the plants will be utilized as irrigation water, and as non-potable source for toilet flushing in the buildings. Additional cisterns will be constructed to store the treated reuse water. The cisterns will be sized to hold four days of effluent volume. In the event that there is excess effluent, or reuse is not sufficient to take up the outflow from the treatment plants, on-lot drainfields will be utilized as a secondary disposal method. As a last resort, treated effluent will be pumped and hauled by a licensed hauler to the treatment plant in Cruz Bay.

5.02 Site Plans

Site plans are attached as Appendix C of this report and full-size plans submitted with the permit application.

5.02. 01-.09 Required Information on Site Plans

Required information pertaining to the positions of structures, wastewater system, stormwater drainage and facilities, sediment and erosion control plan, landscape plan and other required information is provided in the site plans (Appendix C) and stormwater calculations (Appendix D).

5.02.10 Required Maps

PWD Maps are attached as Appendix A. An NRCS soils map is provided in Section 6 with the corresponding NRCS Soil Survey attached as Appendix E. Similarly, a FEMA Flood Insurance Rate map and water resources map are provided in Section 6. A sediment

reduction map can be found in the attached site plans, Appendix C. Figure 5.02.10-1 depicts the W-1 and B-3 zoning on the project site. No changes in zoning or special uses are being requested as part of this application.

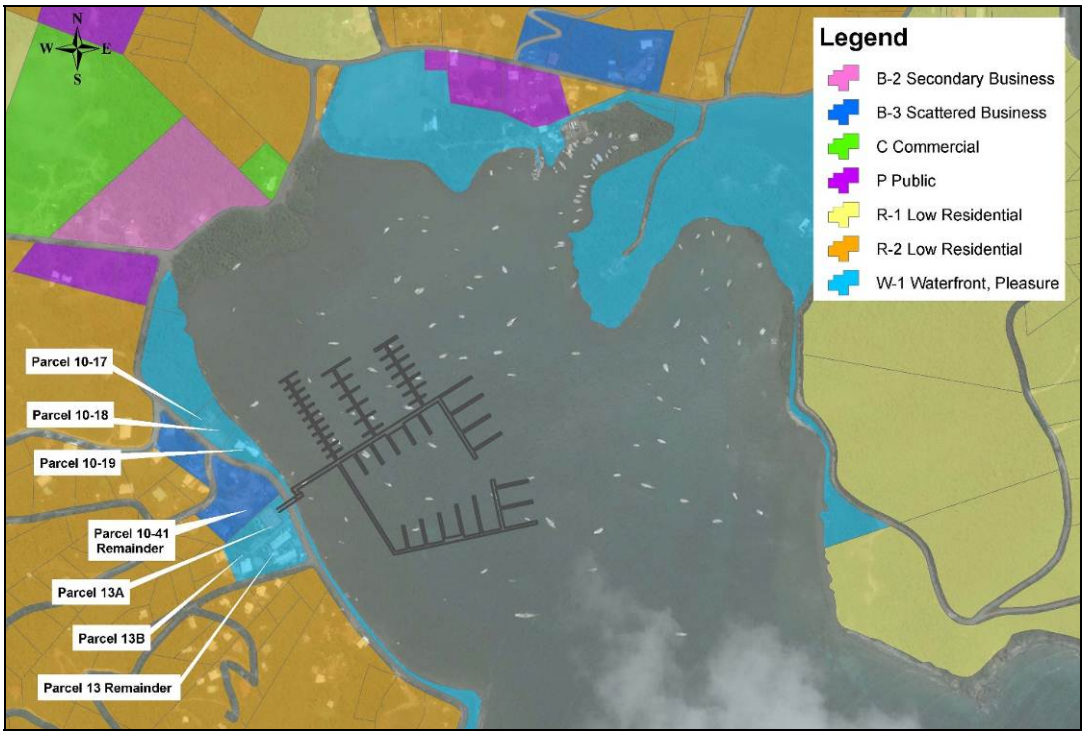


Figure 5.02.10-1. Zoning Map

5.03 Project Work Plan

The following work plan and phasing shall be implemented during construction. Each of the stage described below is addressed in the site plans, Appendix C.

1. All earth disturbance activities shall proceed in accordance with the following sequence. Each stage shall be completed before any following stage is initiated. Clearing and grubbing shall be limited to those areas described in each stage.

2. All erosion and sediment controls must be constructed, stabilized, and functional before site disturbance within the tributary areas of those controls. Only limited disturbance is permitted to provide access to the erosion and sediment control areas for grading and acquiring borrow to construct those controls.

3. Outline each stage's Limit of Disturbance orange barrier fence to protect from encroachment and to define work areas. No disturbance outside of these areas is permitted until area within the active stage is stabilized.

4. ***Stage 1*** – Roadway work along Route 107 and adjacent parking and walkway improvements:
    a. Install Construction Access and Materials Storage area on lots 10-17 & 18 as shown on plans. Install Rock Construction Entrance. Install perimeter construction fencing around temporary contractor parking and laydown area. Install temporary gravel parking bed. Install temporary trailers for construction offices.
    b. Install tree protection fence around trees and vegetated areas to remain, filter fabric fence as indicated on plans.
    c. Begin Marina/Dock Construction. Refer to plans by others for specific work within submerged lands areas.
    d. Construct above ground areas of Stormwater Management Area.
        i. Work in the ghut shall be constructed at a time of no flow.
        ii. Rough grade to the proposed sub-grade elevation and gradient.
        iii. Install outlet structure and piping to connect to existing culvert under Route 107. Cover the outlet structure orifice openings with plywood to provide a watertight seal. Install filter bag inlet protection on the grate of the outlet structure.
        iv. Fine grade to final grades. Spread topsoil on basin slopes.
        v. Install temporary baffle structure in basin bottom.
        vi. Install permanent Erosion Control Blanket on basin slopes and immediately seed and stabilize. Do not install blanket on bottom of basin until all work is completed and baffles are removed.
        vii. The basin must be constructed, stabilized, and capable of handling stormwater runoff prior to any additional earthmoving activities.
    e. Clear and grub areas within stage. Remove existing structures, concrete, gravel areas with the exception of the actual road cartway.
    f. Strip topsoil from proposed areas. Remove or stockpile topsoil where indicated on plan for use with final grading. Install perimeter filter fabric fence and

immediately apply temporary seeding and mulching to the stockpiles. Stockpile heights must not exceed 35 feet. Stockpile slopes must be 2:1 or flatter.

g. Construct Roadway Improvements.
    i. Roadway shall be constructed in such a manner to maintain access at all times. Only ½ of the roadway will be under construction at a time to allow traffic to pass. Additional signals, flag persons, or other traffic control devices, as required by public works, will be incorporated by the contractor to ensure passage of traffic, emergency vehicles, pedestrians, and all usual road access during construction. Install roadway across stream and culvert.
    ii. Remove paving and subbase material down to native soil.
    iii. Rough grade roadway to the proposed sub-grade elevation and gradient. Prepare soil for installation of new roadway per USVI Public Works standards and specifications.
    iv. Install underground utilities. (Electric, sanitary, water, and other connections to the dock structure)
    v. Install gravel base course.
    vi. Install Concrete Surface Course.
    vii. Allow appropriate curing time prior to directing traffic onto new roadway surfaces.
    viii. When areas of installed roadway are suitable for use, begin work on opposite side of roadway in same manner as described above.
h. Fine grade and complete landscaping in areas that will not be disturbed in the future.
i. After Stage 1 area stabilization has been achieved, stage specific temporary erosion and sediment controls must be removed. The standard for a stabilized, erosion resistant, perennial vegetative cover will be a uniform coverage or density of 70% across the disturbed area. Areas disturbed during removal of the controls must be stabilized immediately.
    i. Remove silt fence along perimeter of roadway along bay frontage. Silt fence behind Parcels 10-17, 18, & 19 to remain until completion of all work on-site.
    ii. Remove perimeter barrier fence specific to stage 1 roadway work.

iii. No controls within the Stormwater Management Area shall be removed at this stage.

iv. Construction laydown area and contractor parking area shall remain in place for the duration of work.

j. Dock construction and other work within the submerged lands area does not need to be completed prior to moving on to the next stage.

5. ***Stage 2*** – Parcels Remainder 13, 13-A and 13-B improvements:

a. Install Rock Construction Entrance.

b. Install tree protection fence around trees and vegetated areas to remain, and filter fabric fence as indicated on plans.

c. Clear and grub areas within stage. Remove existing structures, concrete, gravel areas.

d. Strip topsoil from proposed areas. Remove or stockpile topsoil where indicated on plan for use with final grading. Install perimeter filter fabric fence and immediately apply temporary seeding and mulching to the stockpiles. Stockpile heights must not exceed 35 feet. Stockpile slopes must be 2:1 or flatter.

e. Rough grade driveway, building, and lot areas to the proposed sub-grade elevation and gradient.

f. Install culverts on ghut.

g. Install trench drains, storm sewer, headwalls, permanent rock energy dissipaters, inlet protection and water feature/basin in front of Building 7.

h. Install sanitary sewer treatment and piping, permanent rock energy dissipaters, and remaining underground utilities.

i. Fine grade building, driveway and parking areas. Spread topsoil. Construct subbase for parking areas and driveways.

j. Install Concrete Surface Course and sidewalks. Allow appropriate curing time prior to directing traffic onto new roadway surfaces.

k. After Stage 2 area stabilization has been achieved, stage specific temporary erosion and sediment controls must be removed. The standard for a stabilized, erosion resistant, perennial vegetative cover will be a uniform coverage or density of 70% across the disturbed area. Areas disturbed during removal of the controls must be stabilized immediately.

i. Remove silt fence along ghut and along Route 107 frontage.

ii. Remove perimeter barrier fence specific to stage 2 work.
iii. No controls within the Stormwater Management Area shall be removed at this stage.

6. ***Stage 3*** – Parcel 41 Remainder and Estate Road improvements:
   a. Install Rock Construction Entrance.
   b. Install tree protection fence around trees and vegetated areas to remain, and filter fabric fence as indicated on plans.
   c. Clear and grub areas within stage. Remove existing structures, concrete, gravel areas.
   d. Strip topsoil from proposed areas. Remove or stockpile topsoil where indicated on plan for use with final grading. Install perimeter filter fabric fence and immediately apply temporary seeding and mulching to the stockpiles. Stockpile heights must not exceed 35 feet. Stockpile slopes must be 2:1 or flatter.
   e. Rough grade driveway, building, and lot areas to the proposed sub-grade elevation and gradient.
   f. Construct Stormwater Management Underground Basin Area.
      i. Work shall be constructed at a time of no flow.
      ii. Rough grade to the proposed sub-grade elevation and gradient.
      iii. Install block wall outlet structure and piping to connect to above ground basin area. Install rip-rap filter.
      iv. Install R-Tank underground basin per details and manufacturer's instructions.
      v. Install connections to attached storm sewer systems prior to wrapping in liner.
      vi. Rough grade parking area above basin to proposed sub-grade elevation and gradient.
   g. Install trench drains, inlets, storm sewers, headwalls, permanent rock energy dissipaters, and inlet protection.
   h. Install sanitary sewer treatment and piping, and remaining underground utilities.
   i. Fine grade building, driveway and parking areas. Construct subbase for parking areas and driveways.
   j. Install Concrete Surface Course and sidewalks. Allow appropriate curing time prior to directing traffic onto new roadway surfaces.

k. After Stage 3 area stabilization has been achieved, stage specific temporary erosion and sediment controls must be removed. The standard for a stabilized, erosion resistant, perennial vegetative cover will be a uniform coverage or density of 70% across the disturbed area. Areas disturbed during removal of the controls must be stabilized immediately.
    i. Remove silt fence along ghut and along Route 107 frontage.
    ii. Remove perimeter barrier fence specific to stage 3 work.
    iii. Convert Basin to permanent conditions:
        1. Remove temporary baffle structure.
        2. Remove any accumulated sediment in the bottom and dispose of appropriately.
        3. Fine grade to proposed elevation and gradient.
        4. Spread topsoil and install Erosion Control blanket in the bottom of the above ground basin.
        5. Remove temporary plywood over basin orifice openings and remove filter bag inlet protection from outlet structure.

7. ***Stage 4*** – Parcels 10-17, 18 & 19.
    a. Use Rock construction entrance and other controls already in place on Parcel 10-17, 18 & 19.
    b. Clear and grub areas within stage. Remove existing structures, concrete, gravel areas.
    c. Strip topsoil from proposed areas. Remove or stockpile topsoil where indicated on plan for use with final grading. Install perimeter filter fabric fence or compost silt sock and immediately apply temporary seeding and mulching to the stockpiles. Stockpile heights must not exceed 35 feet. Stockpile slopes must be 2:1 or flatter.
    d. Rough grade driveway, building, and lot areas to the proposed sub-grade elevation and gradient.
    e. Construct improvements to existing buildings on Parcel 10-19.
        i. Install new water and sanitary sewer treatment facilities.
        ii. Install parking areas and other associated improvements and utilities.
        iii. Finish grade remaining lot areas, spread topsoil, construct landscaping, and permanently seed and stabilize.

f. After Stage 4 area stabilization has been achieved, all remaining temporary erosion and sediment controls must be removed. The standard for a stabilized, erosion resistant, perennial vegetative cover will be a uniform coverage or density of 70% across the disturbed area. Areas disturbed during removal of the controls must be stabilized immediately.
    i. Remove silt fence/compost silt sock.
    ii. Remove perimeter barrier.
    iii. Remove inlet filters.
    iv. Remove all temporary laydown area materials and fencing.
    v. Remove Rock Construction Entrance.
    vi. Remove any remaining temporary erosion and sediment controls and seed and stabilize any remaining disturbed areas.

8. ***Stage 5*** – Phase II Building Areas:
    a. Future building construction shall proceed on a building-to-building basis, as required.
        i. Install perimeter erosion and sediment control devices including silt fence, compost silt sock, and other facilities as directed on the building permit plans.
        ii. Contractor/Owner is responsible for ensuring that no erosion or contaminated materials are discharged during this stage of construction.
        iii. Construct Buildings and associated improvements and utilities.
        iv. Finish grade remaining lot areas, construct landscaping, and permanently seed and stabilize on a building-by-building basis as the buildings are constructed.
        v. The standard for a stabilized, erosion resistant, perennial vegetative cover will be a uniform coverage or density of 70% across the disturbed area. Areas disturbed during removal of the controls must be stabilized immediately. Grade and permanently seed remaining disturbed areas.

6.0 ECOLOGICAL SETTING AND PROBABLE PROJECT MODIFICATIONS

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 and are broadly divided into four seasonal modes: December-February, March-May, June-August and September-November. Below are the characteristics of these modes as taken from Marine Environments of the Virgin Islands Technical Supplement No. 1 (IRF, 1977). Figure 6.01-1 presents summary wind data from Cruz Bay at St. John.

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. These storms are accompanied by intermittent rains, clouds and low visibility. The project site is protected from waves created by these systems due to its location in inner Coral Harbor. There is limited fetch to allow these winds to develop waves.

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. These winds will have minor impact by waves attenuated into the harbor.

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 that can generate wave conditions that can impact the project area.

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 that can generate wave conditions that can impact the project area.

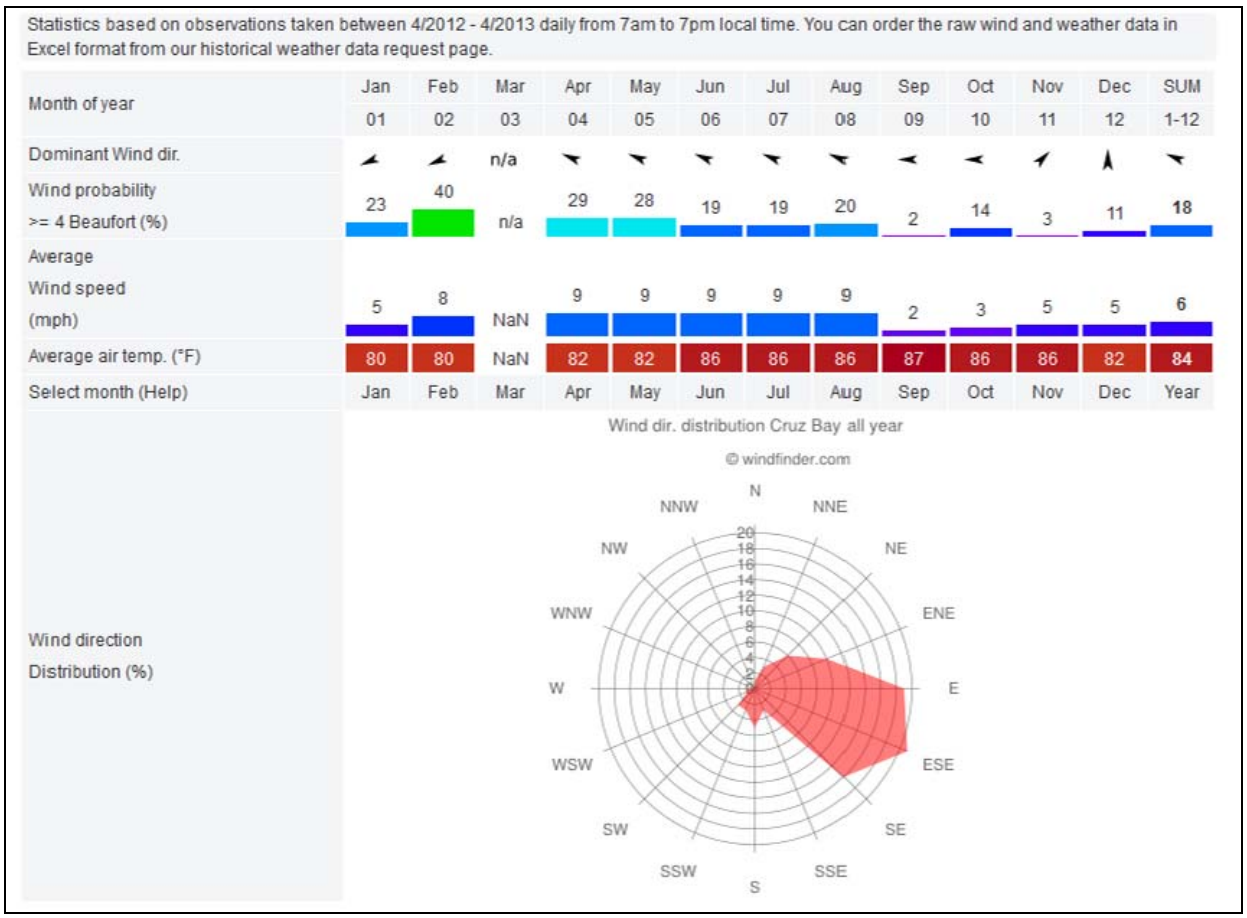


Figure 6.01-1. St. John Prevailing Winds "Wind & Weather Statistics Cruz Bay." Windfinder, 04-13

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 can significant affect the area. These hurricanes occur most frequently between August and mid-October (Figure 6.01-2) with their peak activity occurring in September.

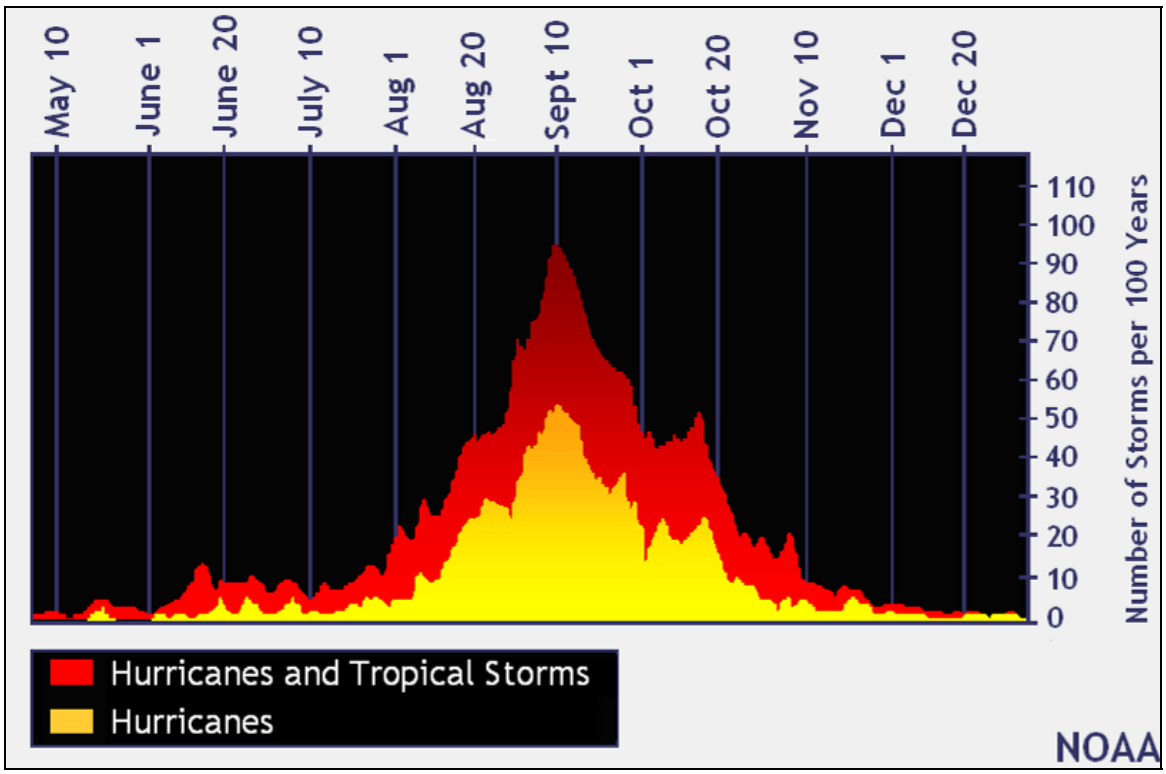


Figure 6.01-2. Tropical Storm and Hurricane Occurrences in the Atlantic, NHC, 31 May 2013

The annual probability of a cyclone is one in sixteen years (Bowden, 1974). Hurricanes have resulted in the erosion of the shoreline in the project area and many of the sunken and derelict vessels within Coral Harbor are the results of the passage of hurricanes. The average cumulative number of tropical systems impacting the USVI is presented in Figure 6.01-3.

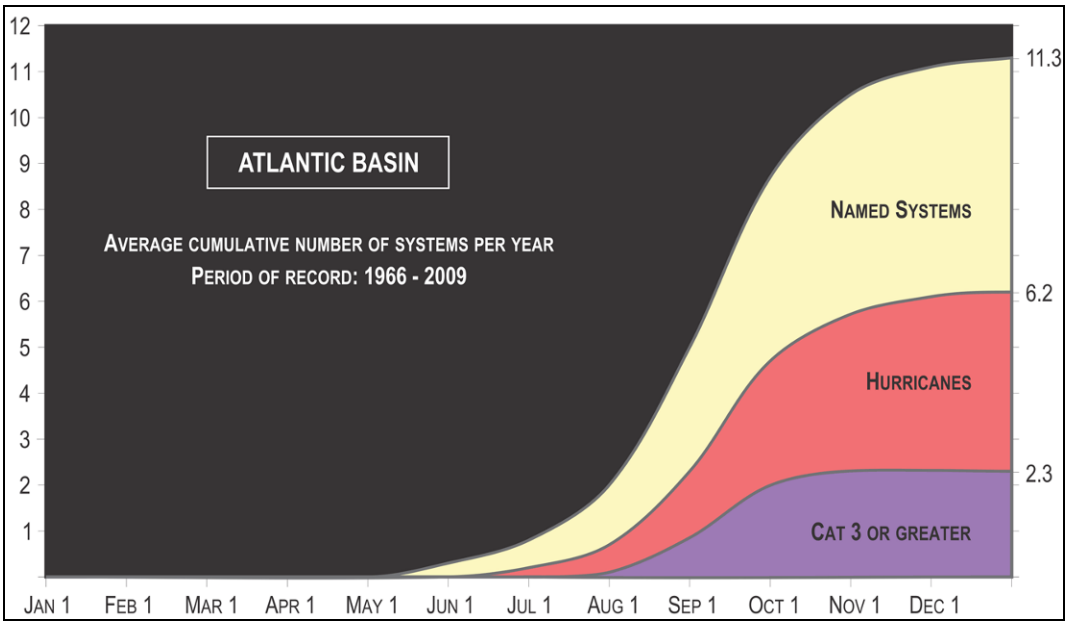


Figure 6.01-3. Tropical Cyclone Frequency in the USVI, NHC, 31 May 2013

Climate

The average annual rainfall on St. John is approximately 45 inches, ranging from 35 inches toward the eastern end of the island to more than 55 inches at the higher elevation to the west. 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 Coral Bay area receives between 39 and 40 inches of rainfall annually. The closest weather station operated by the Southeast Regional Climate Center is the East End Station (672551), Data from January 1, 1972 and April 30, 2012 are found in the following tables.

Table 6.01-1. Summary of Precipitation Data – East End, USVI (672551)
Period of Record: 1/ 1/1972 to 4/30/2012

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov		Dec	Annual
Average Total Precipitation (in.)	2.34	1.66	1.44	2.94	3.52	2.26	2.91	3.72	5.00	4.86	5.89		3.23	39.78

Percent of possible observations for period of record - Precipitation: 96.8%

Source: http://www.sercc.com/cgi-bin/sercc/cliMAIN.pl?vi2551

Table 6.01-2. Monthly Precipitation Data – East End, USVI (672551)

From Year=1972 To Year=2012														
Station:(672551) EAST END														
Averages Daily Extremes														
	Precipitation											Total Snowfall		
	Mean	High	Year	Low	Year	1 Day Max.		>= 0.01 in.	>= 0.10 in.	>= 0.50 in.	>= 1.00 in.	Mean	High	Year
	in.	in.	-	in.	-	in.	dd/yyyy or yyyymmdd	# Days	# Days	# Days	# Days	in.	in.	-
January	2.34	4.68	105	0.69	85	2.92	06/1992	16	6	1	0	0.0	0.0	72
February	1.66	4.74	72	0.52	110	1.91	27/1972	13	5	1	0	0.0	0.0	72
March	1.44	3.21	72	0.01	105	1.48	22/1972	12	4	0	0	0.0	0.0	72
April	2.94	13.71	83	0.07	95	9.50	19/1983	11	5	1	1	0.0	0.0	72
May	3.52	15.33	79	0.30	94	3.95	04/2009	14	7	2	1	0.0	0.0	72
June	2.26	6.94	110	0.13	85	2.76	20/1993	13	5	1	0	0.0	0.0	72
July	2.91	10.99	110	1.09	94	4.55	20/2010	16	7	1	1	0.0	0.0	72
August	3.72	7.98	111	1.18	81	4.95	21/2011	16	8	2	1	0.0	0.0	72
September	5.00	16.39	79	1.55	107	8.92	05/1979	17	9	2	1	0.0	0.0	72
October	4.86	12.77	110	0.90	103	6.10	05/2010	17	10	3	1	0.0	0.0	72
November	5.89	17.05	77	1.50	95	6.30	24/1979	18	10	3	2	0.0	0.0	72
December	3.23	8.85	81	0.34	110	2.78	10/1972	16	7	1	1	0.0	0.0	72
Annual	39.78	64.17	79	22.10	94	9.50	19830419	177	83	20	7	0.0	0.0	72
Winter	7.23	14.47	82	2.53	111	2.92	19920106	45	19	3	1	0.0	0.0	73
Spring	7.90	21.26	83	1.59	95	9.50	19830419	36	16	4	1	0.0	0.0	72
Summer	8.89	22.29	110	3.79	94	4.95	20110821	44	20	4	2	0.0	0.0	72
Fall	15.75	32.13	77	9.07	102	8.92	19790905	52	28	8	4	0.0	0.0	72

Table updated on May 22,

For monthly and annual means, thresholds, and sums:

Months with 5 or more missing days are not considered

Years with 1 or more missing months are not considered

Seasons are climatological not calendar seasons

Winter = Dec., Jan., and Feb. Spring = Mar., Apr., and May

Summer = Jun., Jul., and Aug. Fall = Sep., Oct., and Nov.

Source: http://www.sercc.com/cgi-bin/sercc/cliMAIN.pl?vi2551

The difference between the mean temperatures of the coolest and warmest month is only 5°F to 7°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°F,

and in the coolest months is in the low 80s. Nighttime lows are usually in the mid 70s during the warmer months and in the high 60s during the cooler months (USGS 1998). In general, air temperature in the Virgin Islands ranges between 77°F and 85°F. Average air temperature data is included in Figure 6.01-1.

6.02 Landform, Geology, Soils and Historic Land Use

Geology of St. John

The rocks of St. John, located near the eastern end of the Greater Antilles and near the northeastern corner of the Caribbean plate, consist of Cretaceous basalt, andesite, keratophyre, their volcaniclastic and hypabyssal intrusive equivalents and minor calcareous rocks and chert. These rocks were intruded by Tertiary mafic dikes and tonalitic plutons. The oldest rocks formed in an extensional oceanic environment characterized by abundant keratophyre and sheeted dikes. Subduction-related volcanism of the east-west-trending marine Greater Antilles volcanic arc began on St. John near the transition between the Early and Late Cretaceous. South-directed compression, probably caused by the initial collision between the Greater Antilles arc of the Caribbean plate and the Bahama platform of the North American plate, deformed the Cretaceous strata into east-west-trending folds with axial-plane cleavage. Late Eocene tonalitic intrusions, part of the Greater Antilles arc magmatism, produced a contact aureole that is as much as two kilometers wide and that partly annealed the axial-plane cleavage. East-west compression, possibly related to the relative eastward transport of the Caribbean plate in response to the beginning of spreading at the Cayman Trough, produced long-wavelength, low-amplitude folds whose axes plunge gently north and warp the earlier folds. A broad north-plunging syncline-anticline pair occupies most of St. John. The last tectonic event affecting St. John is recorded by a series of post-late Eocene sinistral strike-slip faults related to the early stages of spreading at the Cayman Trough spreading center and sinistral strike-slip accommodation near the northern border of the Caribbean plate. Central St. John is occupied by a rhomb horst bounded by two of these sinistral faults. Unlike other parts of the Greater Antilles, evidence for recent tectonic movement has not been observed on St. John. The terrain is steep and highly dissected with >80% of the island having slopes exceeding 35% (Anderson, 1994).

St. John can be characterized by a highly irregular coastline, numerous bays, steep, slopes and small drainage areas. For the most part the topography is very mountainous and

coastal plains are almost completely absent. Bordeaux Mountain is the highest peak on St. John at an elevation of 1,297 feet above sea level.

Geology of Coral Harbor

Coral Harbor is a well-protected embayment occupying the northwest end of Coral Bay which is a large embayment occupying the northeast end of St. John. The embayment has one of the largest watersheds in the U.S. Virgin Islands Territory encompassing ~12 km^2, with steep slopes averaging 18% (many >35%) (Brooks et. al, 2007). Coral Harbor occupies an area of approximately 2 km^2 draining a watershed of approximately 6 km^2. Studies have shown that the bay has been highly impacted by anthropogenic influences with a significant increase in sedimentation since development of the watershed began in the 1950s. The sediments within the inner harbor have been found to very fine, terrestrial in origin and with a high organic component. The source of organic matter is difficult to assess, but could be the vegetation surrounding the harbor, or potentially waste from the large numbers of boats typically anchored in the harbor (Brooks et. al, 2007).

The upland areas of the project area have all been highly altered. The area has been graded, filled and portions are developed. There is a channelized drainage through the property, only the southernmost portion of this drainage supports natural vegetation.

To protect the roadway, the southern half of the project area's shoreline has been previously armored with boulder riprap. Further to the south, gabion baskets have been placed along the shoreline indicating that the southern portions of the property are subject to shoreline erosion. Dense mangroves protect the shoreline to the north, but the area between the riprap and the mangroves consists of an erosion shorefront. There is a very narrow sandy beach behind which are eroded soils. Many of the seaside maho trees along the shoreline exhibit erosion along their roots.

Historical Use

The project area was undeveloped in 1947 as shown in the following aerial photograph. The area and project parcels remained unchanged through 1971. By the late 1990s, the restaurant on the water and a few small shops had been built, but the Cocoloba complex and Voyages have been constructed only within the past 10 years. There has been a question as to whether historic filling on the site was the result of there having been a salt

pond or salt flat at this location. Neither is shown on the 1947 or 1971 aerial photographs, see Section 6.02. The USGS Quad maps from 1922 and 1934 do not indicate the presence of a salt pond or salt flat at this site either.

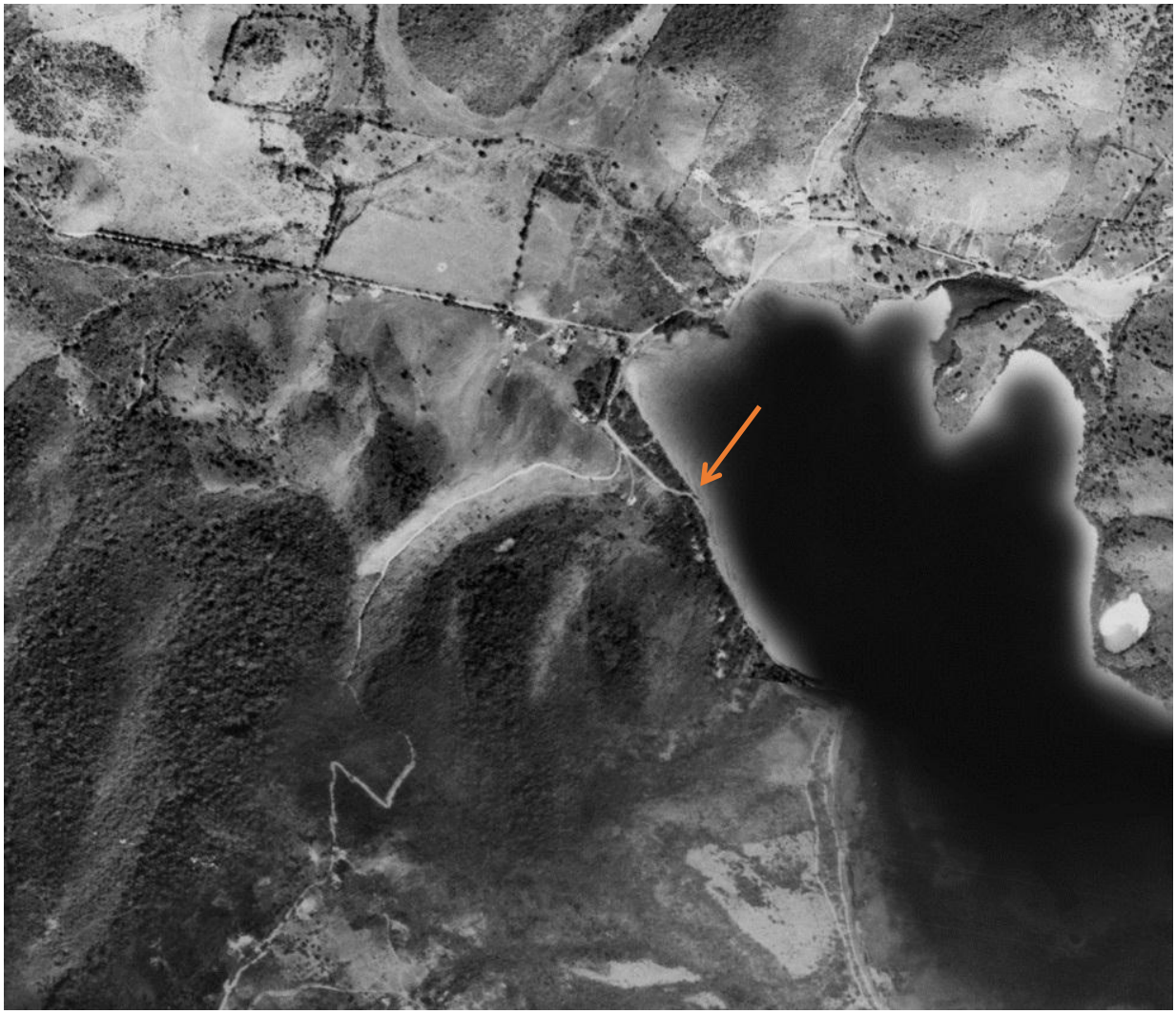


Figure 6.02-1. 1947 Aerial Photograph of Project Area

Figure 6.02-2. 1971 Aerial Photograph of Project Area

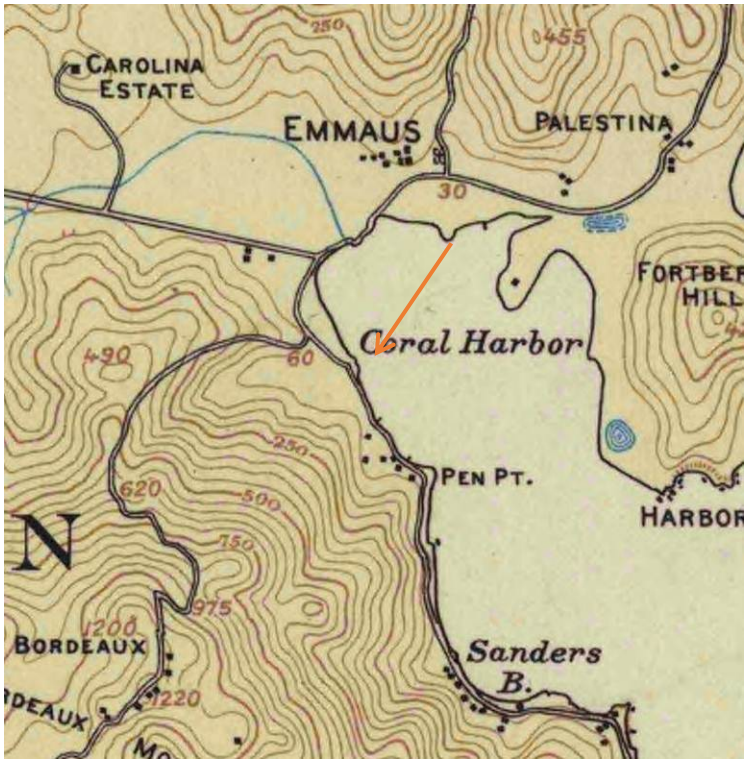


Figure 6.02-3. 1927 USGS Quad Map of Coral Harbor

Soils of the Project Site

Four soil types are identified in the vicinity of the project areas according to the Custom Soil Resource Report Survey of the St. John Marina Coral Harbor, St. John, United States Virgin Islands.

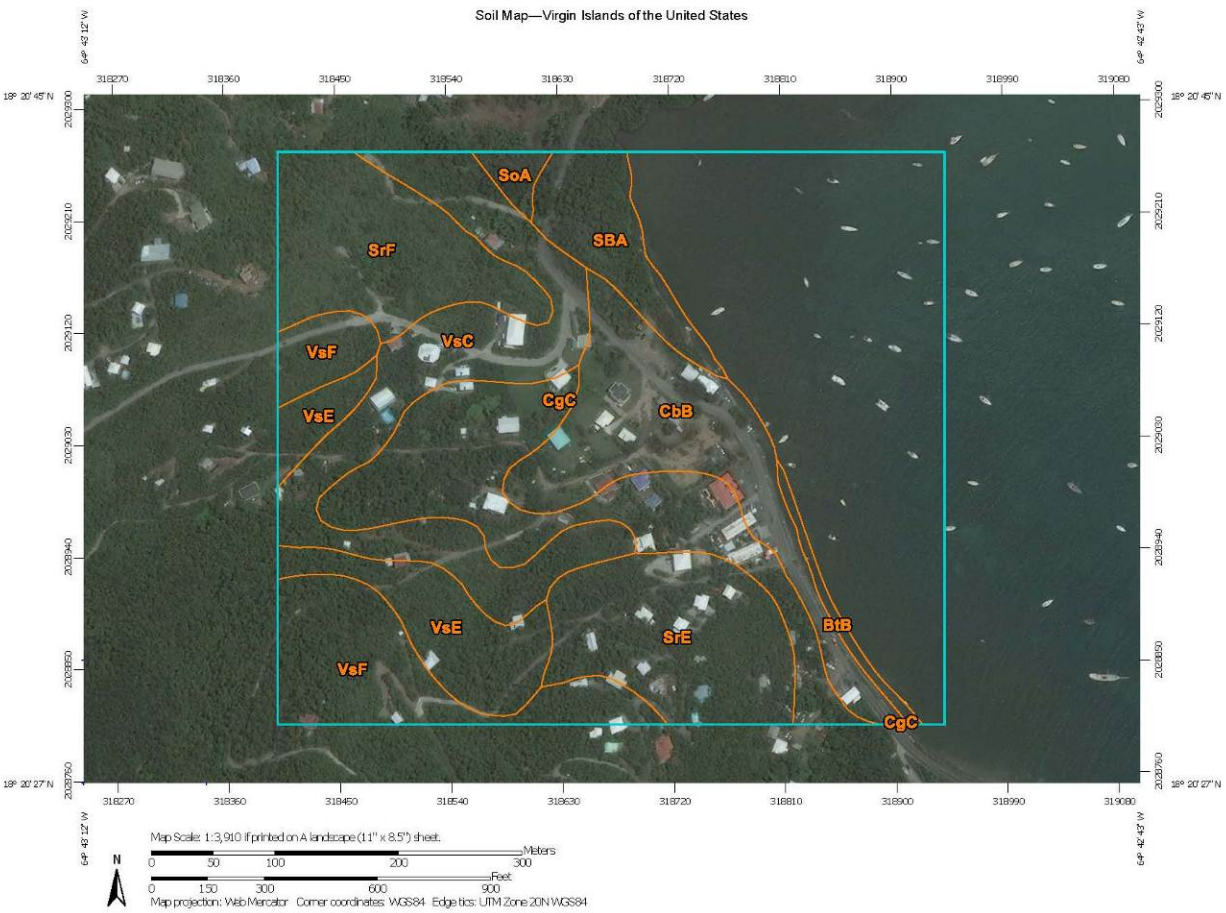
Beaches, stony (BtB) was found along the shoreline of the southern half of the property and represents not only the riprap but the stones and cobble found along the shoreline.

Cinnamon Bay loam, 0 to 5 percent slopes, occasionally flooded (CbB) is found throughout the majority of the property. This soil type is usually found on alluvial fans and terraces adjacent to volcanic uplands. The surface layer is usually a very dark grayish brown loam that is 3 inches thick.

Cinnamon Bay gravelly loam, 5 to 12 percent slopes, occasionally flooded (CgC) is found further inland on the property and as the property elevations begin to rise. This soil type is similar to that listed above but with a steeper slope.

Sandy Point and Sugar Beach soils, 0 to 2 percent slopes, frequently flooded (SBA) is found to the north along the shoreline and adjacent to the mangroves. This soil type is usually located on nearly level saline marshes, saline flats and salt ponds that are adjacent to the sea.

The surface layer is olive gray sandy clay loam from 0 to 3 inches of depth changing to dark gray sandy clay loam between 3 and 6 inches of depth in the Sandy Point type soils and in the Sugar Beach type soils the surface later is black muck to a depth of 4 inches. The shoreline portion of the property is more like the Sandy Point material, although Sugar Beach type soils are present in the mangrove area.



Map Unit Legend	
Map Unit	*Map Unit Name*
BtB	Beaches, stony
CbB	Cinnamon Bay loam, 0 to 5 percent slopes, occasionally flooded
CgC	Cinnamon Bay gravelly loam, 5 to 12 percent slopes, occasionally flooded
SBA	Sandy Point and Sugar Beach soils, 0 to 2 percent slopes, frequently flooded
SoA	Solitude gravelly fine sandy loam, 0 to 2 percent slopes, frequently flooded
SrE	Southgate-Rock outcrop complex, 20 to 40 percent slopes
SrF	Southgate-Rock outcrop complex, 40 to 60 percent slopes
VsC	Victory-Southgate complex, 2 to 12 percent slopes, very stony
VsE	Victory-Southgate complex, 20 to 40 percent slopes, very stony
VsF	Victory-Southgate complex, 40 to 70 percent slopes, very stony

Figure 6.02-4. NRCS Soils Map

Adverse Site Conditions

The typical wave and wave patterns usually have minimal affect Coral Harbor due to its constricted nature. The Harbor and site are well projected by Harbor Point and to a lesser degree by Pen Point. The shoreline area and the offshore area have been determined to be

in VE elevation 14 ft areas of the coastal flood zone with velocity hazards (wave action). The upland portions of the site are in Zone AE10 where flood elevations for the 100 year storm have been determined to be 10 ft(Flood Insurance Rate Map, Panel 35 of 94, revised April 16, 2007), Figure 6.02-5.

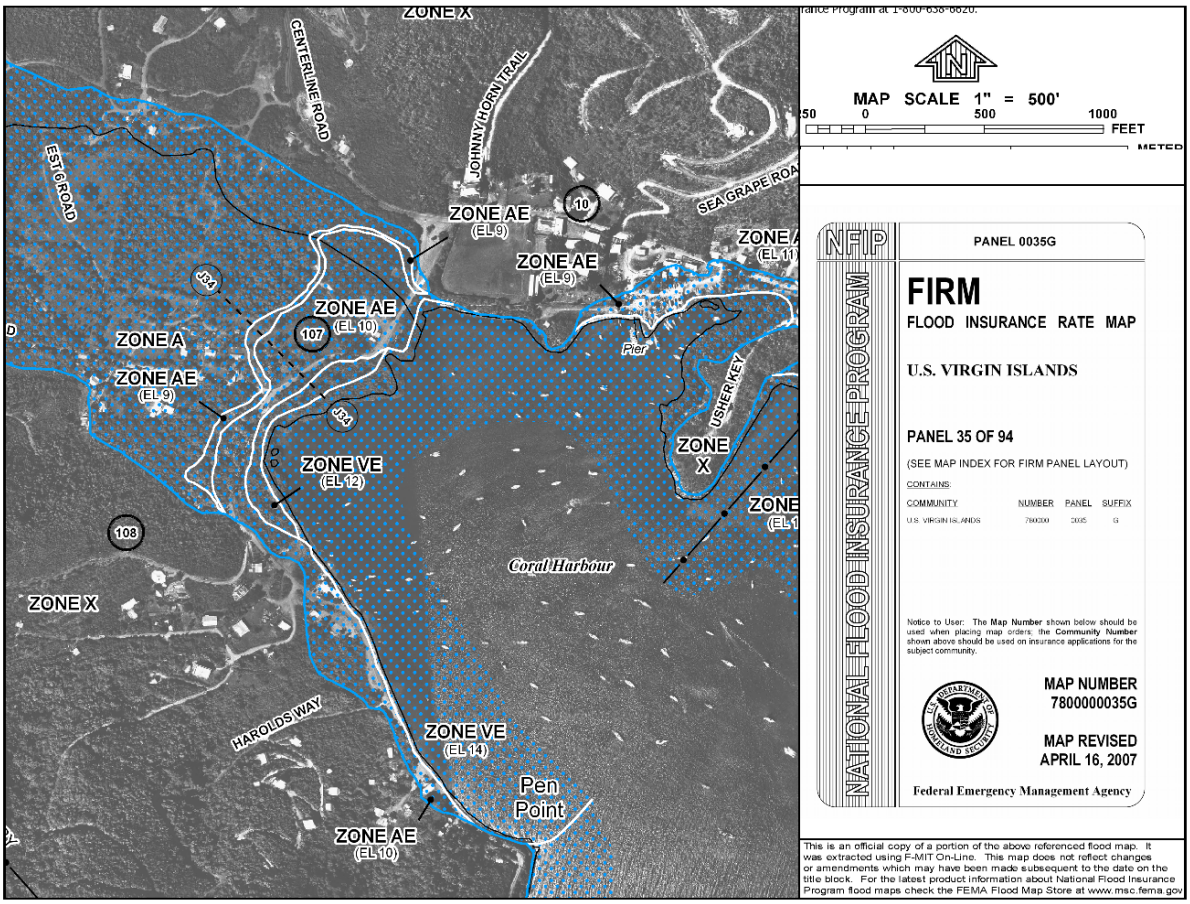


Figure 6.02-5. FEMA Flood Insurance Rate Map, Rev 19-APR-07

Earthquake Probability

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 2012 marks the 145th 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 1867 quake, there has been continuous low intensity activity, all below 6.0 Richter. Thousands of tiny earthquakes are encountered every year on the island. This activity is associated with the volcanic eruptions that have been occurring to the southeast on the island of Montserrat. The low-lying property is within the area of highest vulnerability.

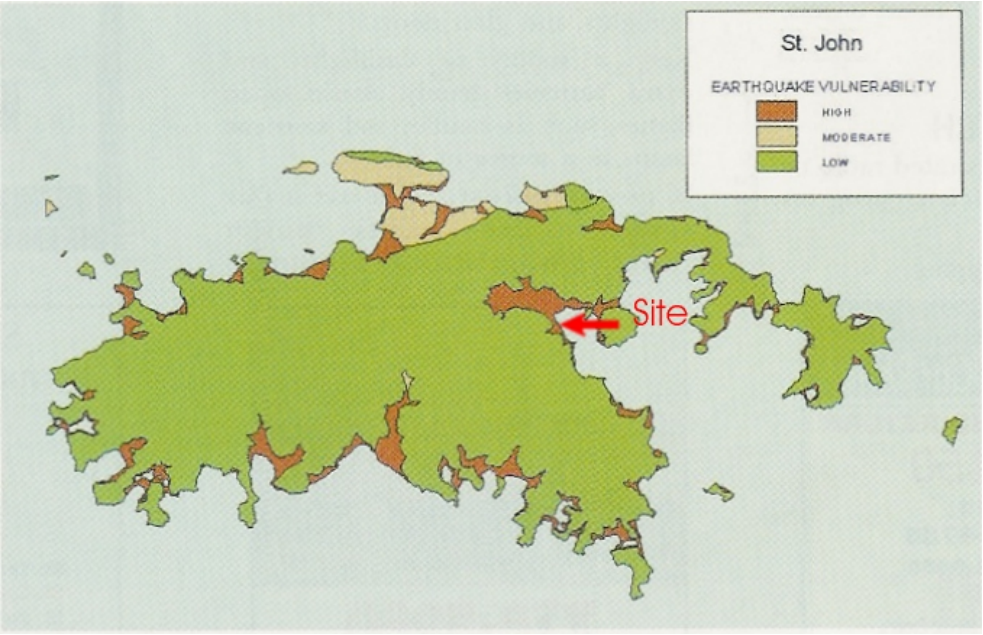


Figure 6.02-6. Earthquake Vulnerability Map for St. John

Impact of Geology on the Proposed Project

There will be little if any impact of the local geology on the upland portion of the project area. There may be a potable water well installed on the project site and if so, an amendment to this EAR will be completed. The impact of the local geology on this will be determined after a test boring is completed. On the marina area, conditions permitting, piles are anticipated to be driven with a vibratory hammer and local geological conditions are not expected to adversely impact this plan.

Impact of the Proposed Project

The project will not result in any change in the geology of the site. The project proposed no filling or dredging.

6.03 Drainage, Flooding and Erosion Control

The overall drainage basins in Coral Bay are depicted on the following figure. Site-specific drainage patterns are discussed in Section 6.03a.

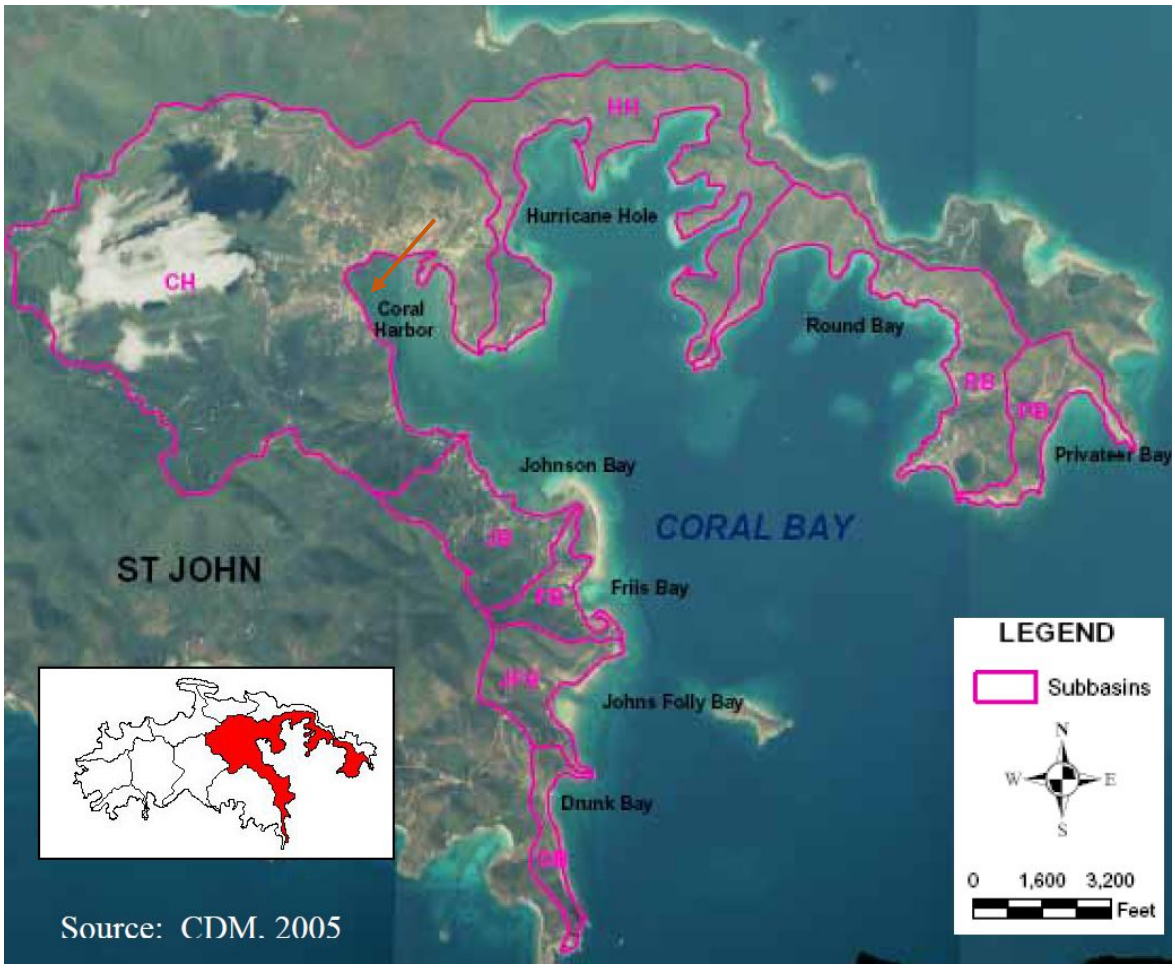


Figure 6.03-1. Water Resources Map (CDM 2005)

6.03a Existing Drainage Patterns

The site consists of Parcels 13 Remainder (Western and Eastern Portions), 13A, 13B, 10-17 & 10-18 combined, 10-19 and 10-41 Remainder located along Route 107. The site primarily drains directly to Coral Harbor with a portion of the site draining to a ghut between parcels 13A & 13B and Remainder 41. This ghut drains to a culvert that flows under route 107 and

into Coral Harbor. The site has been analyzed for pre-development flows and includes the upstream areas that drain through the site from Bordeaux Mountain.

The site pre-development drainage areas are as follows: (Refer to Pre-Development Drainage Area Plan in Appendix C)

- DA-eGUT - Consists of the pre-developed condition area tributary to the ghut upstream of the parcels.

- DA-eSITE - Consists of pre-development condition areas of the site and minor offsite areas which flow over the site and ultimately flow over route 107 (in some cases) and into Coral Harbor.

The combined flows from the two drainage areas above were combined to generate the pre-development flow and volume conditions that were utilized for the stormwater analysis contained in Appendix D.

The site currently contains buildings, paved roads and parking areas, gravel and dirt parking areas and associated accessory uses to the retail, commercial and residential uses. A large portion of the site is unstabilized dirt/gravel areas with limited vegetative coverage.

6.03b Proposed Alterations to Drainage Patterns

In the post-development Phase I condition, the site will be fully stabilized, and consist of land-based businesses including off-street parking, restaurants, Customs and Border Protection office, a Marina Office, marina engineering facilities, Marina Security office, crew shower and locker facilities, fish and farmers market, apartments to support marina management, proper solid, hazardous and liquid waste management, proper stormwater management and proper fueling.

Potential future development, Phase II, preplanned for the purposes of this application, will be implemented strictly on market demand. Proposed for Phase II are 4 buildings of new construction offering additional retail, restaurant, office space, commercial space and six short-term rental units.

These new facilities will ultimately drain in part to the proposed Stormwater Management Best Management Practice 1 (SWM-BMP1) located along the ghut. Portions of the site will continue to drain directly to Coral Harbor, although the site will be significantly more stable and protected than it is currently under the pre-development conditions.

The site pre-development drainage areas are as follows: (Refer to Pre-Development Drainage Area Plan in Appendix C)

- DA-OFF - Consists of the post-developed condition area tributary to the ghut upstream of the parcels. This is not changed from pre to post-development conditions.

- DA-BMP1A - Consists of post-development condition areas of the site and minor offsite areas that flow from the rear of Parcels 13 Remainder, and 13B, into the proposed BMP1 facility.

- DA-BMP1B - Consists of post-development condition areas of the site and minor offsite areas that flow from the rear of Parcel 41 Remainder, into the proposed BMP1 facility.

- DA-BMP1C - Consists of post-development condition areas of the site and minor offsite areas that flow from the front of Parcels 13 Remainder and 13A, into the proposed BMP1 facility.

- DA-BYP – Consists of the remaining areas of the site that bypass BMP1 and flow overland into Coral Harbor.

SWM-BMP1 is controlled by an outlet structure that is connected to the existing 36” culvert under Route 107. Flows off the site are controlled at a minimum to maintain post-development flows equal to pre-development flows for the 50- and 100-year storm events and provide a reduction in total flows for the more frequent 1-, 2-, 10- and 25-year storm events.

Additionally, storage is provided to compensate for the entire volume of the 50-year storm generated on the site. This storage volume is approximately the equivalent to the first 2 inches of rainfall. SWM BMP1 is provided with approximately 20,000 cubic feet (150,000 gallons) of storage below the outflow orifice to retain this volume. The water in the basin will be stored for irrigation and other non-potable purposes.

The site design detains a portion of the water from the upstream areas in lieu of site areas that bypass the SWM-BMP1 facility. This trade-off is suitable since the upstream areas have little to no treatment and traditionally contain large amounts of sediment as well as other pollutants. The stormwater management facilities provided will improve not only the stormwater runoff volume and quality from the proposed activities, but will also create additional benefits via some treatment provided to upstream areas.

6.03c Relationship of the Project to the Coastal Floodplain

The typical wave and wave patterns usually have minimal affect Coral Harbor due to its constricted nature. The site is subject to wind generated waves attenuated into the harbor from the east and southeast. The Harbor and site are well protected by Harbor Point and to a lesser degree by Pen Point. The shoreline area and the offshore area have been determined to be in VE elevation 14 ft areas of the coastal flood zone with velocity hazards (wave action). The upland portions of the site are in Zone AE10 where flood elevations for the 100-year storm event have been determined to be 10 ft, see Figure 6.02.2-1.

6.03d Peak Stormwater Flow Calculations

Methods of Analysis

The Standard Rational Method was used to calculate peak discharge values for the stormwater management analysis. A Receding Limb Factor of 2.7 was applied to better approximate SCS Volumes (Refer to the Dekalb Rational Method). The 1-, 2-, 10-, 50- and 100-year return period storms were used to compare the existing and proposed (pre- and post-development) conditions. The watersheds were analyzed using existing cover conditions as vegetated (C=0.40), woodland (C=0.25), gravel/dirt (C=0.60) and impervious (C=0.98). These values were weighted to properly reflect the drainage areas characteristics per the Rational Method. Detention basin hydrographs were generated using HydroCAD v.6.01 and hydrographs were added together to obtain peak flow values.

The SCS Method (Technical Release 55, June 1986) was used to calculate peak discharge values for the water quality analysis. The SCS segmental method (Technical Release 55, June 1986) was used to calculate time of concentration values.

The Rational Method was used in conjunction with Haestad Method's StormCAD v. 1.5 to determine the capacity of the stormwater piping system. The stormwater pipes are designed to convey the 100-year design storm. The road crossing culverts were also designed and analyzed using this software. Total flows were calculated by adding hydrographs together. Refer to the Post-Construction Stormwater Management Narrative (PCSM Narrative) in Appendix D for computer modeling printouts.

Peak Flow Calculations

Table 6.03d-1. Summary of Peak Pre- vs. Post-Development Stormwater Runoff

Storm Return Period	DA-BMP1 Inflow	SWM-MP1 Outflow	DA-BYP Basin Bypass	Total Post-Dev.	Pre-Dev. Drainage Area A	Release Rate
(yr)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(%)
1	33.7	22.6	1.2	25.6	34.4	74.4
2	51.0	46.2	1.8	47.2	52.2	90.4
10	78.4	77.12	2.8	79.7	80.1	99.5
50	105.2	104.0	3.7	107.5	107.5	100
100	116.8	115.6	4.1	119.4	119.4	100

Note: Total Post Development = SWM-BMP1 Outflow + DA-BYP by addition of hydrographs.

Water Quality Calculations

Water quality computations are based upon TPDES and EPA requirements and calculated from the volumes generated by the HydroCAD model provided in the PCSM Narrative. The hydrograph summary generated by the computer modeling software showing the volumes referenced below is included in Appendix D. The difference in 2-year storm capacity volumes are calculated as follows:

Post-Development: 1,607cf(1A)+ 2,256cf(1B)+ 1,585cf(1C)+ 3,694cf(BYP)
= 9,142 cf

Pre-Development: 7,420 cf

Storage volume required = 1,722 cf
Storage volume provided = 20,700cf (Volume below invert of outlet structure)

Total storage provided = 20,700 cf > 1,722 cf. Therefore, required storage volume is exceeded. In addition, the wetland bottoms and forebay areas will afford additional treatment prior to discharge.

6.03e Existing Stormwater Disposal Structures

Existing stormwater structures are minimal on the development parcels. The infrastructure that does exist consists of an existing inlet on Parcels 17 & 18 and the existing 36" culvert under Route 107. Refer to the site plans for details and locations of these structures. The existing structures will remain, and will be integrated into the site design. The ghut currently discharges into the 36" culvert under Route 107. When stormwater runoff surcharges that pipe culvert, stormwater runoff flows uncontrolled over the roadway and into Coral Harbor.

6.03f Proposed Stormwater Control Facilities

Proposed stormwater management facilities consist of a series of trench drains and piping flowing into Stormwater Management Best Management Practice 1 (SWM-BMP1). A new outlet structure will be provided and connected into the existing 36" culvert under Route 107 to control the outflow from SWM-BMP1. The emergency overflow for the basin is incorporated into the roadway as in existing conditions. During large storm events, surcharged flows may continue to flow over the roadway. However, in the post-development condition, these flows will be mitigated and reduced as indicated previously. The frequency of the road being overtopped should be decreased in the post-development condition.

6.03g Maintenance Schedule For Stormwater Facilities

The following is a list of the recommended guidelines that will be utilized for maintaining stormwater management and conveyance facilities in the project area. These guidelines are

to be used as recommendations, and are not intended to be a full and complete set of requirements and circumstances that may affect the functioning of the facilities. Care, diligence and common sense should be used when maintaining these facilities. Any problems or deficiencies found should be addressed immediately. Professional assistance may be required and should be sought when needed to ensure that the facilities remain in an optimal condition and perform as designed.

Inspection and Maintenance Schedule

1. The stormwater detention basin and outlet structures and pipes shall be visually inspected annually prior to hurricane season and after every major storm event.
    a. Areas of thin or bare of vegetation shall be raked, seeded and mulched according to the original specifications.
    b. Repairs to the permanent erosion control blanket shall be performed if needed.
    c. The weir structure and outlet pipes must be kept free of debris, and shall be routinely cleared of debris and litter.
    d. The pond shall be kept clear of floating debris that may clog the outlet structure.
    e. Lawn and vegetated areas shall be kept mowed and properly groomed to prevent overgrowth from compromising the required volumes in the basin. Vegetation shall not be mowed to less than 12” within the basin bottoms and side slopes.
    f. Accumulated sediment shall be removed from the pond every 1-5 years, as needed due to conditions and inspections.

2. All storm inlets and trench drains and their pipes shall be visually inspected annually prior to hurricane season and after every major storm event. Any sediment or debris that has collected in the structures or the pipes shall be removed.
    a. All permanent swales and ghuts shall be visually inspected in June of every year.
    b. Any necessary repairs, regrading, seeding and mulching shall be completed before July 1, of that year.
    c. Areas of thin or bare of vegetation shall be raked, seeded and mulched according to the original specifications.
    d. Any sediment or debris that has collected channel shall be removed.

3. Lawn and vegetated areas shall be kept mowed and properly groomed to prevent overgrowth from compromising the functioning of the ghut channel. Vegetation shall not be mowed to less than 12” within the basin bottoms and side slopes.

4. Mowing/trimming of basin slope areas should be performed as needed, however vegetation on the basin slopes and in the bottom of the basin shall not be mowed to less than 12" in height.

5. The following checklist may be used to aid in the maintenance and inspection program on-site:
   a. Obstructions of the inlet or outlet devises by trash and debris
   b. Excessive erosion or sedimentation
   c. Cracking or settling
   d. Animal burrowing
   e. Sluggishly draining basin or inlets
   f. Algae growth, stagnant pools, or noxious odors
   g. Poor or distressed vegetation
   h. Distressed aquatic vegetation
   i. Deteriorated, cracked, or damaged trench drains, inlets, pipes and conduits
   j. Washouts, bulges, or sumps
   k. Seepage
   l. Unstable side slopes and embankments
   m. Deterioration of channels
   n. Signs of vandalism
   o. Piping along outlet barrel
   p. Deterioration/scouring at energy dissipaters or rock riprap
   q. Outlet protection
   r. Sedimentation clogging rip-rap areas

6. For all sediment removal, the accumulated sediment shall be either removed from the site or disposed of onsite at an approved disposal area. Prior to onsite disposal of sediment, the owner shall acquire the appropriate earth disturbance permits. Disturbed areas for removal and placement of sediment shall be raked, seeded and mulched according to the original specifications.

7. Owner shall be responsible for all maintenance required, including permanent stormwater basins, ghut channel, storm sewer and storm structures.

8. Owner shall ensure standing water in the basins remain free of mosquito or other pest infestation by regular inspection and treatment as necessary.

6.03h Proposed Method of Land Clearing

Land clearing required is minimal, as the parcels are currently primarily cleared. However, limited areas of clearing will be required and, recognizing the proximity to Coral Bay, the following methods of land clearing will be utilized. Within these areas, clearing shall be performed by cutting vegetation prior to removing rootmasses and no clearing shall be performed by ripping vegetation out of the ground with rootmass intact. All removed materials shall be chipped and mulched onsite and utilized either in erosion control facilities and devices or mixed into the topsoil in landscaped areas to provide additional organic material for plantings.

Clearing shall be accomplished in phases to correspond with the progression of the redevelopment project as discussed in Section 5.01e below. Prior to any land clearing activities, silt fencing will be installed on the perimeter of the site being cleared to delineate the construction area and prevent sediment runoff from the site as described in the SWPPP (Appendix B)

Sensitive areas and steep slopes will be identified and flagged in the field, as will areas to be avoided during the clearing process. Trees and vegetation to remain will be flagged in the field with a highly visible barrier to ensure they are protected. The marking convention for these areas shall be discussed in detail at the preconstruction conference prior to commencement of earth disturbing activities.

A water quality monitoring plan will be implemented as part of the project which will address potential impacts associated with the proposed marina as well as sedimentation and erosion from the upland development. Monitoring will commence prior to any land construction activities.

6.03i Provisions to Preserve Topsoil and Limit Site Disturbance

Temporary Topsoil Stockpiles and a staged construction sequence, described previously in this report, will be utilized to preserve topsoil and limit site disturbance. Initial construction shall consist of installation of the required improvements to support the existing facilities and structures, and the new marina slops. Additional buildings and facilities will only be constructed after the first stages are installed, stabilized, and functional.

Prior to construction, any topsoil found on the site will be removed, stockpiled, protected with temporary plantings and silt fence or other erosion protection techniques (per the plans provided) and upon completion of the project will be re-distributed within the landscaped areas of the site. Should there be excess topsoil, the remaining material will be moved to other locations within the Coral Bay community to supplement landscaped areas on other upland sites within Coral Bay. Site disturbances will be limited as much as possible to the areas required for the proposed improvements.

6.03j Location of Any Critical Area(s) and Possible Trouble Spot(s)

Possible trouble spots for the land-based operations include construction and operations along the shoreline, fuel storage areas located in the rear of Parcel 13 Remainder, 3,000 gallon sanitary waste storage from marina operations located under the proposed deck at Building 5, construction within and around the ghut between parcels 13A & 13B and Parcel 14 Remainder and on-site waste treatment facilities. These areas will be routinely inspected during and after construction.

Sensitive areas and steep slopes on the project site will be identified and flagged in the field, as will areas to be avoided during the clearing process. Trees and vegetation to remain will be flagged in the field with a highly visible barrier to ensure they are protected. The marking convention for these areas shall be discussed in detail at the preconstruction conference prior to commencement of earth disturbing activities.

6.03k Erosion and Sediment Control Devices to be Implemented

No more than 4 acres total will be disturbed during site development. The following erosion and sediment control measures and devices shall be implemented to minimize erosion and sedimentation during site construction:

Limited Area of Disturbance - No site clearing or grading will occur which is not essential to the immediate phase of construction of the project. In general, work will proceed in a parcel-by-parcel progression in accordance with the detailed sequence of construction provided on the attached site plans. Protective fencing will protect areas of vegetation to remain undisturbed.

Stabilized Construction Entrance - Temporary construction entrances will be provided for each stage of work at appropriate locations to allow access for construction vehicles to enter the site. The entrances, stabilized with crushed stone or similar materials, will aid in removing mud and dirt from vehicle tires prior to exiting the site.

Silt Fence & Compost Silt Sock - Silt fencing and compost silt socks will be used to filter sediment from small overland (sheet) flow areas and along the toe of slope of soil stockpiles. Rock filter outlets will be used in those areas where the silt fence may become ineffective.

Temporary Topsoil Stockpiles - Temporary topsoil stockpiles will be provided for to protect available topsoil and redistribute it onsite where possible. Stockpiles shall be protected with temporary seeding/mulching and will be provided with silt fence or compost silt sock across the downstream perimeter. Stockpiles shall be no greater than 35' high with maximum side slopes of 2:1.

Sedimentation Basin - Sediment basins area temporary structures to be in place during the period of earth disturbance. Following the stabilization of the site, the sediment basins will be altered to function as permanent stormwater detention basin structures. A temporary outlet will be installed to provide sediment storage and dewatering time.

Pipe Outlet Protection - Rip-rap apron protection will be provided at the outfall of all temporary and permanent outlet pipes.

Temporary Seeding and Mulching - Disturbed areas shall receive a temporary seed mixture and mulch as shown on the attached plans. In addition, soil stockpile areas and sediment basins/traps are to be seeded and mulched with a temporary seed mixture to promote rapid vegetated stabilization.

Permanent Seeding and Mulching - Immediately after final grading is completed, all disturbed areas will be permanently stabilized with a seed mixture and mulch.

6.03l Maintenance of Erosion and Sediment Control Devices

1. All erosion and sediment control measures shall be constructed and maintained according to the standards and specifications of the Department of Planning and Natural Resources. Until the site is stabilized, all erosion and sedimentation controls must be maintained properly. Maintenance must include inspections of all erosion and sedimentation controls after each runoff event and on a weekly basis. All preventative and remedial maintenance work, including clean out, repair, replacement, regrading, reseeding, remulching, and renetting, must be performed immediately.

2. No work shall commence until permits for soil disturbance have been obtained. The TPDES permittee/contractor shall notify the Department of Planning and Natural Resources of the date of the pre-construction meeting.

3. Prior to permanent seeding, soils testing shall be performed to determine the appropriate fertilizer and other amendment applications. Fertilizer and other amendments shall be applied per the recommendations of a licensed landscape professional. Permanent vegetation should be established at the earliest possible date. Watering, mowing and fertilizing programs shall be continued until vegetative cover is adequately established and as required on a permanent basis to maintain the cover.

4. Straw mulch or hay mulch at the rate of 3.0 tons/acres should be applied in conjunction with all temporary and permanent seeding activities. Mulch shall be applied immediately after seeding. Hydroseeding may be used in lieu of mulching. Adequate protection shall be provided (temporary tree protection or construction security fence) to keep livestock from disturbing newly planted and mulched areas.

5. If Sod is applied, the following requirements shall apply:
   a. The subsoil shall be lightly irrigated immediately prior to laying the sod.
   b. Plant sod or plugs on 12" centers. Use sod strips on erodible slopes and other critical areas.
   c. Lay sod along the contour, starting at the bottom of the slope and working up.
   d. Place sod strips with snug, even joints and stagger the joints from strip to strip to promote more uniform growth and strength. The first row of sod shall be laid in a straight line with subsequent rows placed parallel to and tightly wedged against each other.

e. Roll or tamp sod immediately following placement to ensure that the roots are in solid contact with the soil surface. Do not overlap sod. All joints should be butted tight to prevent voids that would cause air drying of the roots.
f. On steep slopes, secure sod to surface soil with wooden pegs or wire staples.
g. Immediately following planting, water sod until moisture penetrates the soil layer beneath the sod. Maintain optimum moisture for at least 2 weeks. Watering to a 6" depth is more effective than frequent light watering. After the first 2 weeks, sod watering is required as necessary to maintain adequate moisture content.

6. Any disturbed area on which activity has ceased and which will remain exposed must be stabilized immediately. During non-germinating periods, mulch must be applied at the recommended rates. Disturbed areas which are not at finished grade and which will be redisturbed within 6 year may be stabilized in accordance with temporary seeding specifications. Disturbed areas that are either at finished grade, or will not be redisturbed within 1 year must be stabilized in accordance with permanent seeding specifications.

7. Diversions, channels, sediment basins, sediment traps, and stockpiles must be stabilized immediately.

8. All erosion and sedimentation pollution control measures must be structurally sound, and protected from unauthorized acts of third parties.

9. Temporary erosion and sedimentation pollution control measures, in addition to those shown on this plan, shall be provided by the permittee/contractor if there is evidence of silt, sediment and/or mud leaving the site during construction.

10. The permittee/contractor must develop, and have approved by the DPNR, a separate erosion and sedimentation pollution control plan for each spoil, borrow, or other work area not detailed in the permitted plan, whether located within or outside of the construction limits.

11. The permittee/contractor will be responsible for the proper construction, stabilization, and maintenance of all temporary and permanent erosion and sedimentation controls.

12. Utility line trench excavation requirements:
    a. Limit advance clearing and grubbing operations to a distance equal to two times the length of pipe installation that can be completed in one day.

b. Limit daily trench excavation to the length of pipe placement, plug installation and backfilling that can be completed the same day. Daily backfilling of the trench may be delayed for a maximum of six days for certain cases requiring testing of the installed pipe.
c. Water that accumulates in the open trench will be completely removed by pumping to a facility for removal of sediment before pipe placement and / or backfilling begins.
d. On the day following pipe placement and trench backfilling, the disturbed area will be graded to final contours and appropriate temporary erosion and sediment pollution control measures / facilities will be installed. Seeding and mulching of all disturbed areas will be done at the end of each week or within the next two calendar days if daily backfilling has been delayed.

13. Stormwater inlets which do not discharge to a sediment basin must be protected until their drainage area is stabilized.

14. Limit of Disturbance approximately equal to a minimum of 3' inside of Property Line.

15. Unless otherwise shown on the plans, the erosion control blanket used for stabilization shall at a minimum be Eastcoast Erosion Blanket ECC-2 Double Net Coconut Rolled Erosion Control Product (or approved equal). The blanket shall be installed per the manufacturer's specifications. See details for additional erosion control blanket specifications.

16. The erosion and sediment pollution control measures shown on this plan have been prepared in accordance with requirements of the DPNR. The owner and/or contractor shall take responsibility in observing and certifying the construction of these facilities.

Seeding Specifications

1. Temporary shall be performed on all disturbed soil areas in which activities have ceased and which will remain exposed. Minimum specifications are as follows, refer to the Landscape Plan and consult with a local landscape professional for appropriate substitutions or for additional seeding specifications:

    a. On relatively level, un-graded areas where the soil is unsuitable for growing vegetation, spread a 2"-6" layer of good topsoil before planting. Refer to Table 3,

Sediment & Erosion Control on Construction Sites Field Guide, by DPNR & The University of the Virgin Islands.

b. Use annual grasses (such as rye or fescue) to provide temporary cover. Common Bermudagrass or bahiagrass can also be added to the seed mix to provide longer-term stabilization on bare soils that will be redisturbed before construction is complete, but not for a considerable amount of time.
c. Plant grasses during the rainy season, if possible, and according to manufacturer's specifications. Supplemental water will be needed if grass is planted during dry season. It may also be necessary to increase the seed rate to account for loss to birds and pests.
d. Repair small bare spots as needed by reseeding and/or mulching.
e. Mow grassed swales and embankments frequently to control weeds and unwanted woody vegetation. Mowing height should be at least 3" above ground.

1. Permanent seeding shall be performed on all disturbed soil areas that are at finished grade, and all disturbed soil areas that will not be disturbed within one year. Minimum specifications are as follows, refer to the Landscape Plan and consult with a local landscape professional for appropriate substitutions or for additional seeding specifications:

   a. Installation specifications for permanent seeding and planting are similar to those for temporary seeding. Establish permanent grass or other vegetation by seeding, sodding or planting immediately after seedbed preparation is completed. See Table 8 of the Sediment & Erosion Control on Construction Sites Field Guide, by DPNR & The University of the Virgin Islands for information on lawn grasses appropriate for use in the Virgin Islands. Contact the UVI Cooperative Extension Service for information on native plants and other suitable vegetation.
   b. Apply grass seed uniformly by hand, seeder, or hydroseeder. If seeding on steep (>15%) slopes or during the rainy season, protect the grass seed, plants and soil with mulch or erosion control blanket.
   c. Repair small bare spots by re-seeding and/or mulching.
   d. Mow grass frequently to control weeds. Mowing height should be at least 2" above ground (height should be higher during the dry season and drought and within the ghut and SWM basin areas areas).

e. New vegetation may need to be fertilized for the first 2 or 3 years after planting to maintain density and improve vigor. Fertilize only in accordance with soil test results.

f. Use herbicides as directed by manufacturer and according to territorial and federal rules and regulations, contact DPNR-DEP or UVI Cooperative Extension Service for details.

3. Prior to permanent seeding, soils testing shall be performed to determine the appropriate fertilizer and soil amendment applications. Fertilizer and amendments shall be applied per the recommendations of a licensed landscape professional. Permanent vegetation should be established at the earliest possible date. Watering, mowing and fertilizing programs shall be continued until vegetative cover is adequately established.

6.03m Impacts of Terrestrial and Shoreline Erosion

The upland area of the property has already been highly altered. There is a drainage way, ghut, across the property that has been channelized in the past. The development of the parcels will create impervious surfaces. However, construction of the proposed stormwater management system will not result in an increase in post-development stormwater runoff volumes and will result in a net decrease in stormwater runoff volume for the 1-, 2-, 10- and 25-year storm events.

To protect the roadway from erosion a boulder riprap revetment has been constructed across the southern half of the property's shoreline. Further to the south, gabion baskets have been placed along the shoreline indicating that the southern portions of the property were previously subject to shoreline erosion. Dense mangroves protect the shoreline to the north, but the area between the riprap and the mangroves, Parcels 10-17 and 10-18, consists of an eroded shorefront where there is a very narrow sandy beach behind deriving from eroded soils. Many of the seaside maho trees along this shoreline show erosion along their roots. As part of the marina project addressed in a separate Major Water CZM Permit application, red mangroves will be installed along the shoreline in and adjacent to the existing riprap and will be extended along the eroding shoreline. As these mangroves develop and spread, they will provide additional erosion protection to eroding area discussed above. The planting of the mangroves in conjunction with implementing the

stormwater management program described previously should significantly reduce any additional erosion in this area.

6.04 Fresh Water Resources

No freshwater ponds are located on the property and no reliable potable water source exists at the proposed project site. The existing businesses rely on roof catchment and cistern storage and water purchased from private haulers. Peak water demands projected for this project are estimated not to exceed 12,000 gpd. Potable water supply to meet this demand will be through rainwater collection from rooftops and cisterns. During periods of low rainfall and high demand, potable water will be supplemented by purchase from WAPA in Cruz Bay and Caneel Bay Resort. Caneel Bay Resort has committed to provide up to 90% of the projected water demands of this project, if needed. Cisterns for the buildings are sized to allow for large quantities of water to be stored onsite to reduce the frequency of truck deliveries and allow scheduling of the deliveries to minimize impact on the community.

The project site is located adjacent to the bay therefore the potential for fresh potable groundwater resources are limited.

6.05 Oceanography

6.05a Sea Bed Alteration

No dredging or fill is proposed. Red mangroves will be utilized to stabilize the shoreline along the existing riprap to help prevent erosion and provide habitat.

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 islands, 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 within Coral Bay are primarily semi-diurnal in nature as is the case with the southern shore of St. Thomas, with two cycles of high and low water every 24 hours. The mean tides range from 0.8 ft to 1.0 ft and the spring tidal ranges reach up to 1.3 ft (IRF 1977). There are locally driven tidal currents in the bay and current shifts can be noted with the rising and falling tides due to the constriction of the basin. The NOAA tide gauge in Charlotte Amalie has recorded water levels since 1975 with the highest

water level, +3.35 ft, recorded on September 18, 1989 (Hurricane Hugo) and the lowest, -1.44 ft on February 6, 1985.

There is also a tidal station located in Lameshur Bay (ID 9751381) on the south shore of the islands that has been recording since 1983, 18°19.0'N/64°43.4'W. The station records the mean tide as 0.72 ft and the diurnal range as 0.82 ft.

According to NOAA, there was a tidal station in Coral Harbor (ID 9751373) which was removed in June of 1984 (http://tidesandcurrents.noaa.gov/stationhome.html?id=9751373). Typical daily data from this tidal station is provided below. For reference, the bathymetric survey conducted at the site recorded the MLLW as 0.000 and the MHHW as 0.896 ft.

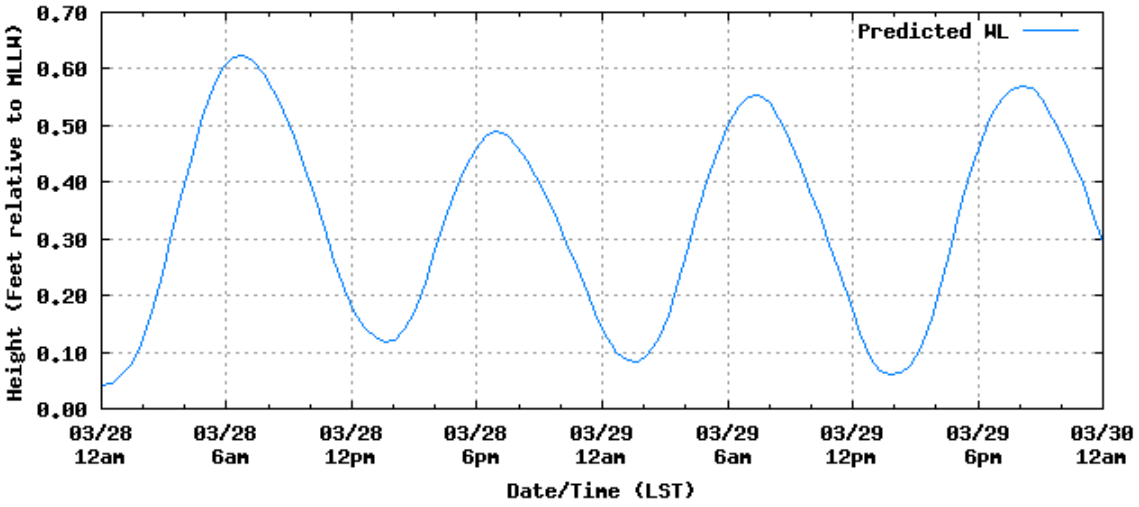


Figure 6.05.b-1. Coral Harbor, St. John Island, VI Station Id: 9751373, Datum = MLLW

Table 6.05b-1. Coral Harbor Historic Tidal Date

Historic Benchmark Elevations		
Month	**Rainfall, Inches**	**Elevation (ft MLLW)**
Mean Higher High Water	MHHW	0.896
Mean High Water	MHW	0.801
Mean Tide Level	MTL	0.443
Mean Sea Level	MSL	0.427
Mean Low Water	MLW	0.082
Mean Lower Water	MLLW	0.000
Source: NOAA Station #9751373 St. John Island, Coral Harbor		

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 Stream. These currents change very little from season to season with the currents coming more from the south during the summer months.

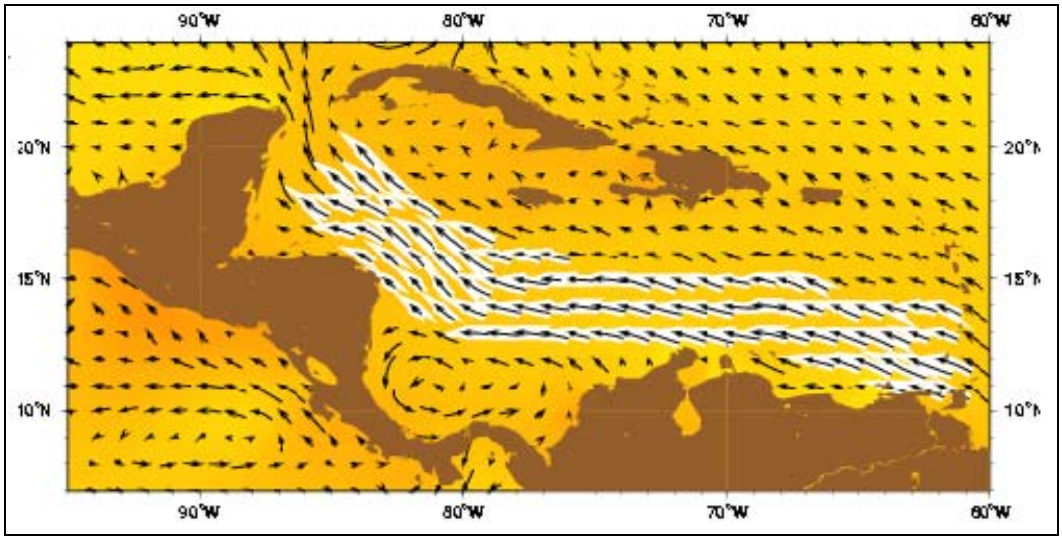
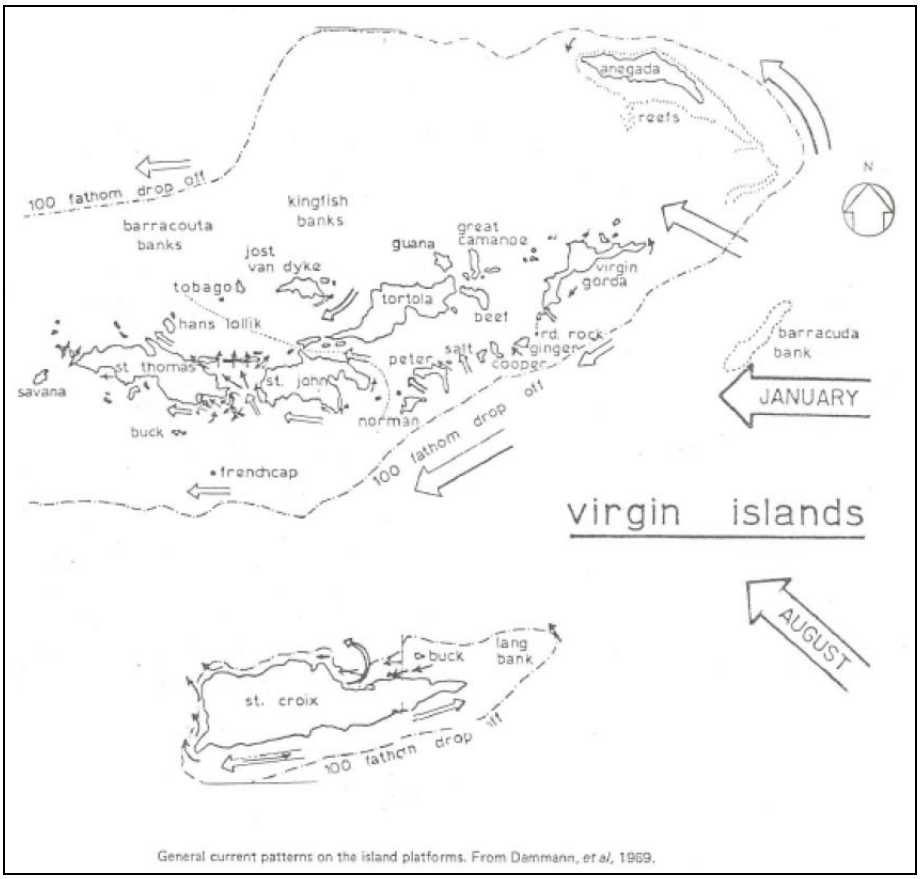


Figure 6.05.b-2. Prevailing Ocean Currents

Because of the shallowness of the Caribbean basin, less than 1000 m, mainly surface water from the Atlantic flows through the islands. The westerly drift of the Caribbean current sweeps past the southern cays and rocks, Figure 6.05b-3.

Currents were measured just outside the entrance to Coral Harbor at 18°20.417'N, 64°42.463'W every two weeks between April and August of 2009 using a Flowtech current meter (Table 6.05b-2). Measurements were taken 1 meter below the surface and 1 meter off the seafloor. Current velocities were generally low at both the surface and at depth. Surface currents were primarily driven by wind and wave approach and moved in a counterclockwise direction around the basin. Currents at depth were found to travel in both a westerly and easterly direction likely reflecting the tidal influence near the sea floor.

Currents have been measured inside Coral Harbor within the project footprint since May 16, 2012. As of the completion of this report 20 days measurements have been taken. The data is presented below. Currents were measured with a Flowtech current meter at a depth of approximately 0.5 meters. Currents varied with tidal phase. The lowest are currents associated with slack tides.



General current patterns on the island platforms. From Dammann, *et al*, 1969.

Figure 6.05b-3. Prevailing Currents in the U.S. Virgin Islands, IRF 1975

Table 6.05b-2. Current Velocity Measurements at the Mouth of Coral Harbor

Date	Surface Current Velocity (-1 Meter)	Current Velocity at Depth (-5 Meter)
04/08/2009	0.3 m/s W	0.3 m/s W
04/15/2009	0.2 m/s W	0.2 m/s E
04/28/2009	0.2 m/s W	0.3 m/s E
05/05/2009	0.1 m/s W	0.2 m/s W
05/20/2009	0.3 m/s W	0.3 m/s E
06/01/2009	0.2 m/s W	0.2 m/s W
06/25/2009	0.1 m/s E	0.1 m/s E
07/21/2009	0.3 m/s W	0.3 m/s W
08/19/2009	0.2 m/s W	0.3 m/s W
08/26/2009	0.2 m/s W	0.2 m/s E

Table 6.05b-3. Current Velocity Measurements at the Project Site

Date	Velocity m/s	Direction	Wave height	Turbidity (NTU)
5/12/2012	0.09	330°	4-6”	1.11
5/22/2012	0.1	330°	2-3”	2.12
6/17/2012	0.08	150°	2-3”	3.25
6/18/2012	0.09	330°	4-6”	0.98
6/23/2012	0.11	330°	4-6”	1.76
6/31/2012	0.10	330°	4-6”	0.99
7/31/2012	0.05	150°	none	1.65
8/2/2012	0.07	330°	4-6”	2.65
8/12/2012	0.1	150°	4-6”	0.87
9/14/2012	0.09	160°	4-6”	0.67
9/22/2012	0.1	150°	4-6”	1.73
10/7/2012	0.08	150°	4-6”	1.89
10/8/2012	0.1	330	6”	2.13
11/13/2012	0.09	150°	1”	6.01
12/8/2012	0.09	330°	2-3”	2.10
1/16/2014	0.10	150°	3-4”	1.34
1/20/2014	0.08	330°	None	1.09
1/24/2014	0.1	330°	3-4”	0.96
2/03/2014	0.09	330°	4-6”	0.67
2/25/2014	0.1	150°	2-3”	2.11

6.05c Waves and Wind Impacts

Deep water waves around St. John are primarily driven by the northeast trade winds that blow for the majority of the year. Waves generally range from 1 to 3 ft in height and are predominantly from the east. Larger waves from the southeast, approximately 1 to 12 feet in height, may occur in late summer and fall when trade winds blow from the east or with the passage of tropical storms and hurricanes to the south of the island. Figure 6.05-3, depicts average sea state conditions in the offshore areas of the USVI over an 8-year period of record. Based on the orientation of Coral Harbor the site is well protected and has a limited fetch.

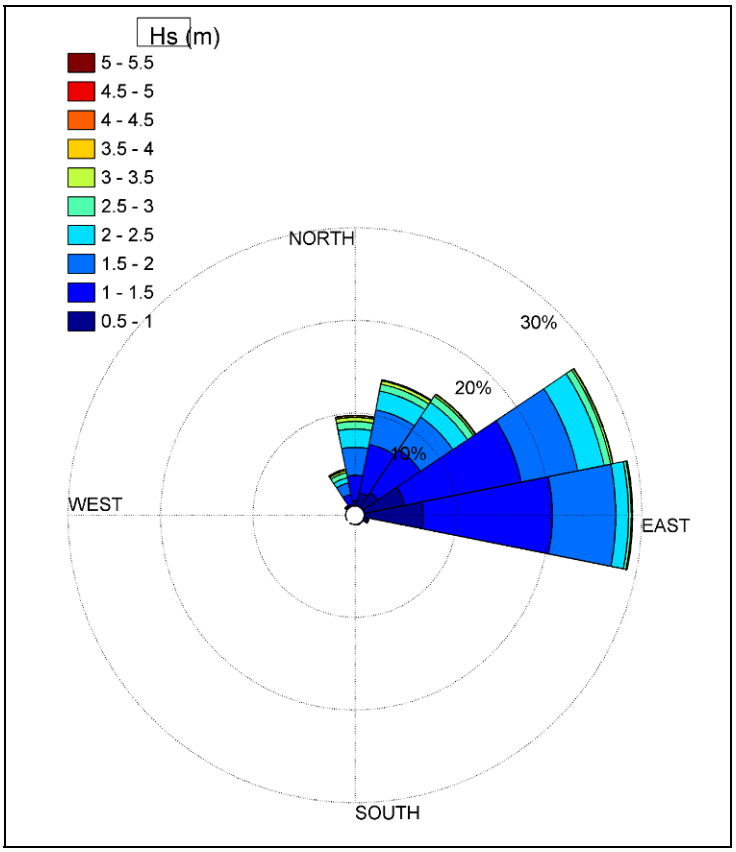


Figure 6.05-3. Average USVI Sea and Swell Conditions, NOAA WaveWatch Model, ATM 2010

Wave Information Studies, USACE, Station L1-12 is located to the east southeast of Coral Harbor. Information hindcast at WIS station L1-12 revealed that between January 1990 and December 1999 waves approached from between north and east 98.4 percent of the time. Significant wave heights were less than 6.6 feet for 63.7 percent of wave cases recorded and less than 10 feet for 96 percent of the cases recorded. Peak wave periods were between 5 and 10 seconds for 62 percent of all recorded cases. The most extreme wave conditions recorded was in September 1995 when a 44-foot wave with a 15-second period approached from the northwest. This event was likely associated with Hurricane Marilyn. The majority of extreme wave cases, significant wave heights greater than 13 feet (4 meters), come from the north, northeast and east. The wave periods for these extreme waves are usually 10 seconds or greater. Between 1990 and 1999, the months from November to March had the highest mean wave heights, greater than 6.9 feet.

Wave heights at the project area have been observed as noted in the above current table. No waves have exceeded 0.1 meters since the beginning of the study. In the marina footprint, however, waves have been noted impacting the shore to the south that are as

much as 1ft in height. The site is subject to shoreline erosion as evidence by the placement of the riprap and gabion baskets along the shoreline to the south. Waves enter Coral Harbor from the southeast and are attenuated in to the western portion of the bay. The northeast side of the bay is more protected.

6.05d Marine Water Quality

The water in the project area is classified as Class B and the best usage of the waters 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 5.5 mg/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 of 3 nephelometric turbidity units (NTU).

The project site is within the Coral Bay Watershed, which encompasses 3,003 acres. The Department of Planning and Natural Resources Division of Environmental Protection takes quarterly water quality samples at station 53 near Coral Harbor. The results of these samples from 2009 through 2012 are provided below.

These samples indicate an area of fluctuating water quality with varying turbidity and occasional contamination by fecal coliform and enterococci bacteria. The total suspended solids (TSS) and turbidity are high compared with other more open embayments. During times of runoff, the turbidity become extremely elevated from upland erosion. Though no samples were taken during rainfall events as part of this project, runoff samples and samples in the bay have been taken as part of the Coral Bay Watershed Study.

Water quality data outside Coral Harbor was collected from July through August 2009. The results are shown in Table 6.05d-2. Note that turbidity is generally lower than those from within the harbor.

Water quality measurements have been made in the project area on a regular basis since mid-May 2012. A total of 20 measurements have been taken thus far. The results are shown in the Table 6.05b-2 between 2012 and 2014. The data shows a highly variable system with fluctuating water quality.

Table 6.05d-1. Coral Bay Water Quality Data, Station STJ 53

Date	TSS (mg/L)	Turbidity (NTU)	Fecal Coliform (#/100mL)	Enterococci (#/100ml)	Temp (C)	Salinity (ppt)	D.O. (mg/L)
3/27/09	10.1	1.91	2	8	25.08	37.41	
6/29/09	35	1.63	0	0	29.92	36.23	6.40
10/8/09	2.6	1.99	1	0	29.97	35.72	8.67
6/16/10	4.2	4.17	0	2	29.70	36.15	
3/30/11	3.1	3.58	4	1	28.22	37.10	6.35
7/28/11	4.3	2.24	1	3	29,92	36.25	6.11
6/6/12	11.7	4.64	6	3	30.35	36.57	5.89
7/17/12	20.5	1.23	0	0	30.32	35.44	6.03
8/20/12	23.4	4.23	1	0	30.82	35.49	6.37
12/6/12	18.1	4.64	1	2	28.19	35.49	6.20

Table 6.05d-2. Water Quality Outside Coral Bay

Date	Turbidity (NTU)	Secchi Depth
6/30/09	1.12	B
7/12/09	0.96	B
7/20/09	1.03	B
7/21/09	0.96	B
7/22/09	0.81	B
7/24/09	0.78	B
7/30/09	0.99	B
8/18/09	1.12	B
8/19/09	1.00	B
6/30/09	1.12	B

Coral Harbor is highly impacted by the input of terrestrial sediment due to runoff and is further impacted by boat anchoring and mooring which serve to resuspend fine bottom sediments and by discharges from these vessels. Spring Gut discharges into Coral Harbor and the footprint of the discharge is readily visible in the marine environment.

There are dense seagrasses in the shallower areas of the bay, but these seagrass diminish with depth as light becomes limited due to turbidity caused by suspended sediments and algae. Seagrass grows in dense beds at a depth of nearly 30 ft outside the Coral Harbor mouth to the south, the seagrass densities drop significantly at 11 ft and become extremely

sparse by 15 ft within the bay. Ambient water quality is impacting the benthic community in the bay by limiting light transmission through the water column.

Impact of Development - The proposed upland development, along with its stormwater management plan and plans for planting fringing red mangroves should result in a net improvement in water quality in the project vicinity through reduction in uncontrolled runoff from the project area, improved stormwater water quality treatment and improved shoreline habitat.

6.06 Marine Resources and Habitat Assessment

This portion of the project does not propose any alterations to the marine environment. Impacts to marine resources and habitat from the proposed marina project are addressed in detail in the EAR submitted as part of the Major Water CZM permit application.

The project area is located on the eastern side of Coral Harbor within Coral Bay on the east end of the island of St. John. There are dense grass beds offshore with a shoreline, which is a mixture of muddy/cobble to the north and is riprapped to the south. There is a narrow band of muddy sand between the cobbly shore seagrass beds to the north and a mixture of seagrass and cobble to the south. There are a few large coral heads offshore of the culvert discharge in the middle of the property. Dense seagrass, primarily *Thalassia testudinum*, are found in the offshore environment at a depth of between 1 ft and 11 ft, at which point they begin to diminish and algal species become more prevent. *Syringodium filiforme* also becomes more prevalent with depth.

In 2009, Paul Bologna presented the "Assessing Faunal Utilization of Seagrass and Mangrove Habitats in St. John" at the annual meeting of the International Marine Conservation Congress, George Madison University, Fairfax, Virginia. He stated "Results indicate that Coral Bay Harbor, the most anthropogenically impacted site, had the highest *T. testudinum* biomass, but the lowest floral diversity. Its faunal community was dominated by small polychaetes with significantly lower secondary production".

The area is heavily used for boat mooring and there are large scars associated with most moorings, even those with properly installed anchors. Ropes with associated chains swinging from the moorings denude large areas of seagrass.

Benthic Community Survey Methods

Benthic surveys were undertaken in the proposed project area in June and July 2009, May and November 2012 and in January and February 2014. The surveys were conducted with snorkeling equipment and scuba. Six transects were conducted within the area running from the shoreline out to a water depth of 16 ft. Meter squares were used to assess percent covers along the transect lines (Rogers, 1994). The data from these transects is present in Appendix F. Figure 6.06-1 provides the Benthic Habitat Map provided by NOS, NOAA (The project area overlaps two of the habitat tiles on the NOAA maps) and Figure 6.06-2 depicts the larger Coral Harbor area including the location of the nearest ESA listed *Acropora palmata* and Figure 6.06-3 shows the marina area at a larger scale.

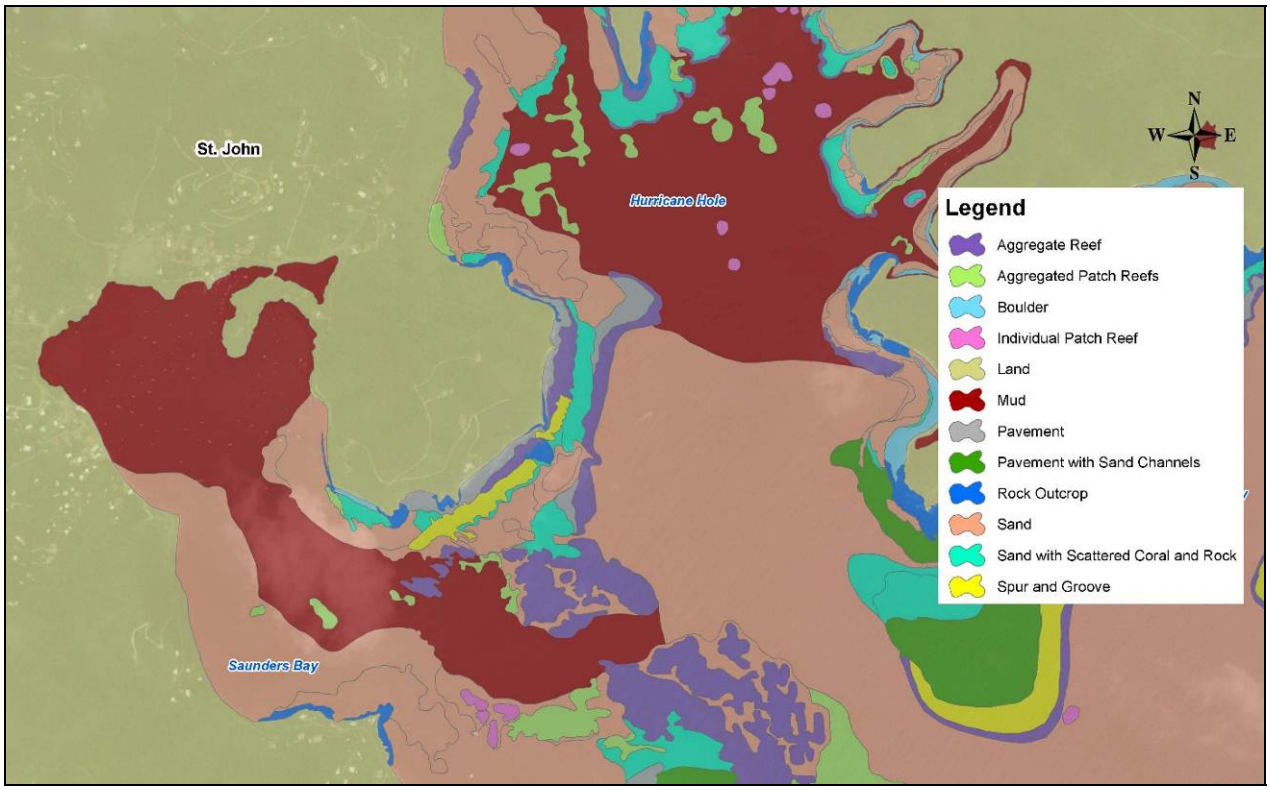


Figure 6.06-1. NOS Benthic Habitat Map – Tile 20 & 22

The NOS Biogeography Program shows the entire area offshore of the site as continuous seagrass beds with patch macro algae in the center of the bay.

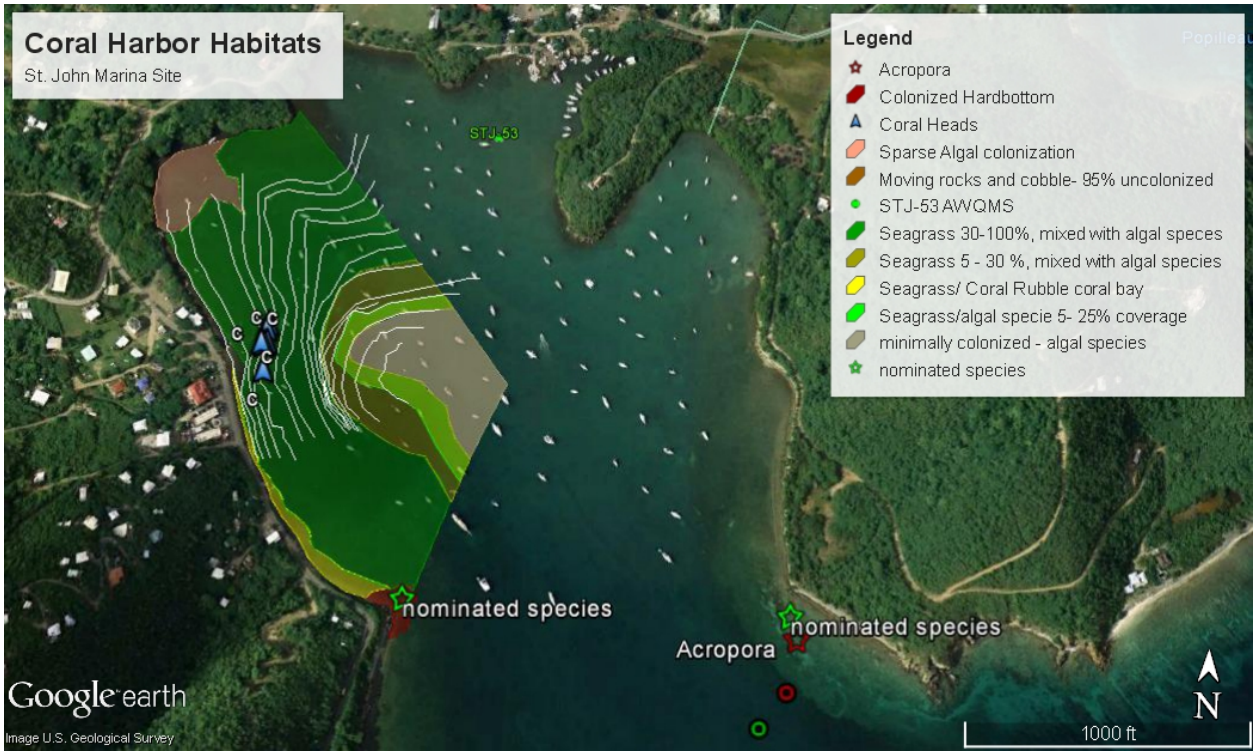


Figure 6.06-2. Habitat Map of Greater Coral Harbor Area and Nearest Acropora & ESA Nominated Species

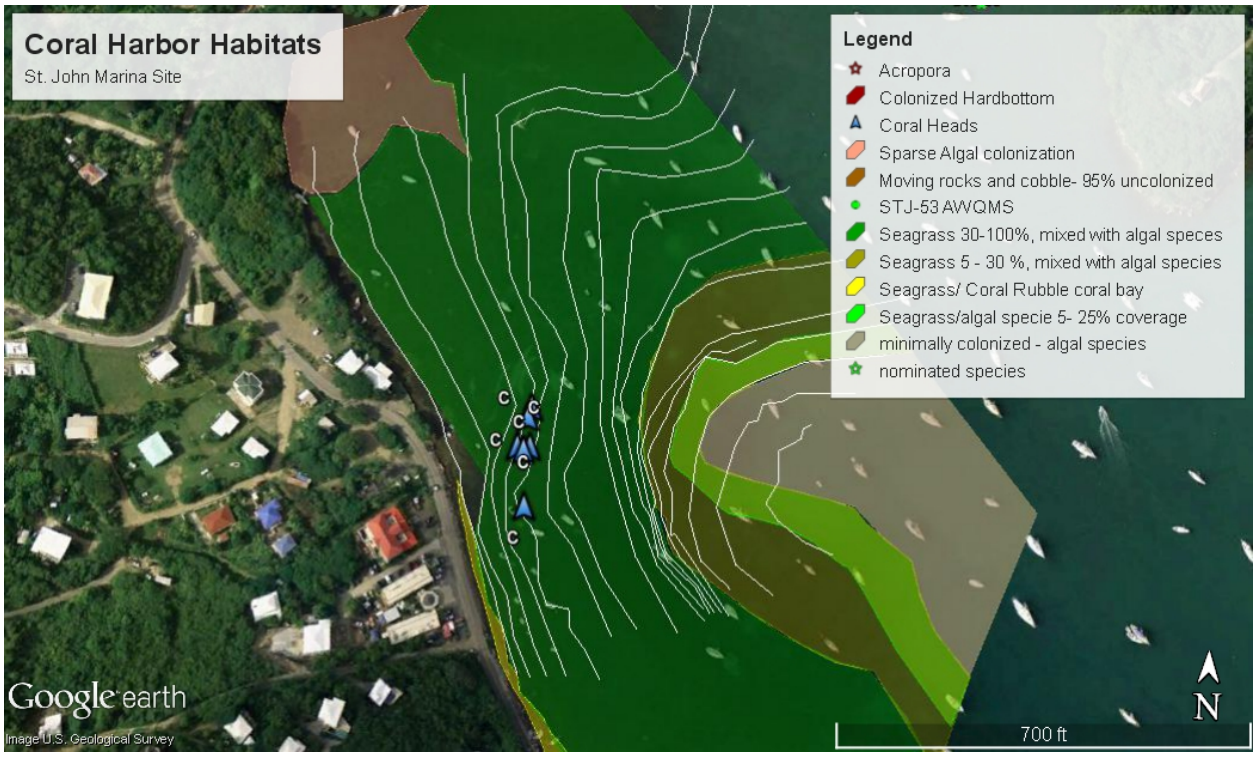


Figure 6.06-3. Benthic Habitats in the Marina Footprint

The Benthic Community

The shoreline to the north of the marina is a mixture of muddy cobbles. The red mangrove (*Rhizophora mangle*) stops to the north of the project area. There is a narrow band of uncolonized muddy sand before seagrass beds begin on the northern side and beyond the nearshore there is a narrow muddy band of uncolonized sand that varies in width between 10 ft and 25 ft. Then *Syringodium filiforme* beds begin and slowly grade into a predominant colonization by *Thalassia testudinum*. The seagrass beds are dense and continuous offshore with occasional blow outs that have been predominantly caused by debris, anchoring or moorings. To the south of the existing stormwater culvert, there is riprap revetment along the shoreline and there are cobble amid the seagrass of a distance of 10 ft – 25 ft from shore. *Thalassia* dominates the grass beds all the way into shore on the southern side of the property. These beds are extremely dense only broken by debris and anchor scars.

Immediately seaward of the stormwater culvert there is a large area of sediment deposition which is uncolonized. There are six relatively large coral heads, *Solenastrea bournoni,* found offshore of the discharge point. These corals thrive in low visibility areas and can be found on sandy bottoms. There are several small Siderastrea radians colonies found on scattered debris in this area as well. These corals all colonized rocks which were carried downstream from the drainage way.

The seagrass densities between depths of 1 ft and 11 ft range from 30-100%. Thalassia represents 80% of the grass and Syringodium approximately 20%. Small patches of *Halodule beaudettei* are present especially in areas of regrowth. As depth increases, animal burrows increase and the seagrass densities fall and *Syringodium* becomes more prevent. Between depths of approximately 11 ft and 13 ft the seagrass densities fall to between 5 and 30% and by the time the water reaches 13 ft to 14 ft the seagrass densities fall to 5% and the amount of macroalgae increases. By 15 ft of depth, there is only an occasional Thalassia shoot, and macroalgae is the dominant colonizer and has colonized between 10% and 70% of the seafloor. Halimedia is the most common algae present. Also found in relatively high abundance are *Caulerpa, Udotea, Avrainvillea, Penicillus capitatus, Laurencia, Hypnea* and *Dictyota.* But by a depth of greater than 15 ft, even the macroalgae density decreases. The system is light limited at this depth.

Sea cucumbers (*Holothuria mexicana*) were common as were sea stars (*Oreaster reticulatus*). Several juvenile conch were noted during all surveys. Due to limited visibility, the number of fish that were seen was limited. Tarpon (*Megalops atlanticus*) and yellowtail jacks (*Lutjanus chyrsurus*) were both seen, as well as juvenile black tipped shark (*Carcharhinus limbatus*).

The bay is a known shark nursery. The Coral Bay Community Council funded a study of the harbor and found the harbor is heavily used by lemon, black tip and nurse sharks. Figure 6.06-4 from their study shows the long line catch locations of sharks within the harbor.

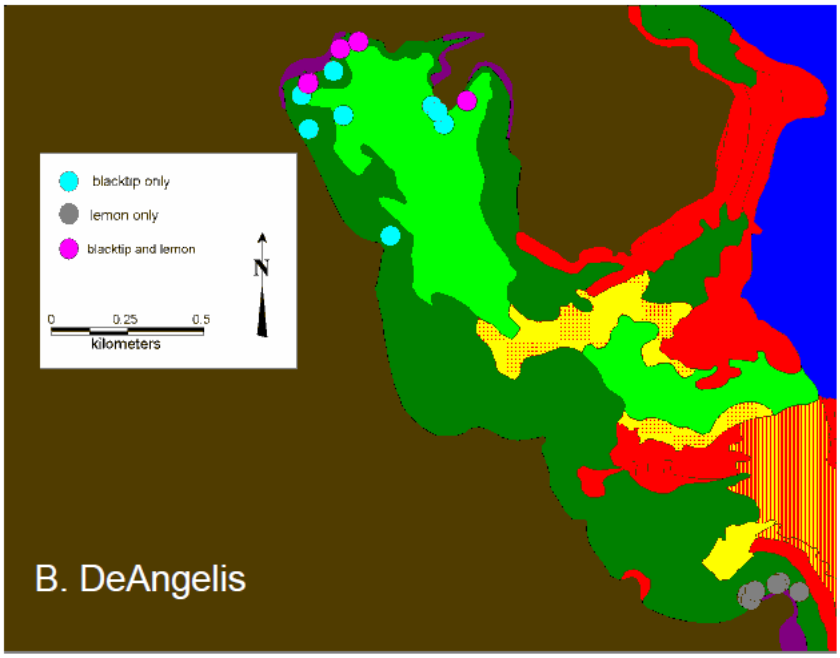


Figure 6.06-4. Coral Bay Community Council Shark Capture Study – Capture Locations of Blacktip and Lemon Sharks in Coral Harbor and Lagoon Point

Two small hawksbill sea turtles (*Eretmochelys imbricata*) were seen while diving and two hawksbills were seen in the project area from the boat within the proposed marina footprint.

Surveys were done within the area in over a 5-year period and over that time the density of the seagrass in the nearshore has increased somewhat. While there are new vessel scars, old vessel scars have healed and seagrass has recolonized. The habitat, while highly impacted, is capable of recovery if impacts and stresses are reduced.

Figure 6.06-5. Benthic Habitat Photographs

At 13 ft, algae is become the dominant species.

Seagrass still covers up to 25% at 12 ft.

At 11 ft, the transition happens and seagrass densities start to decline.

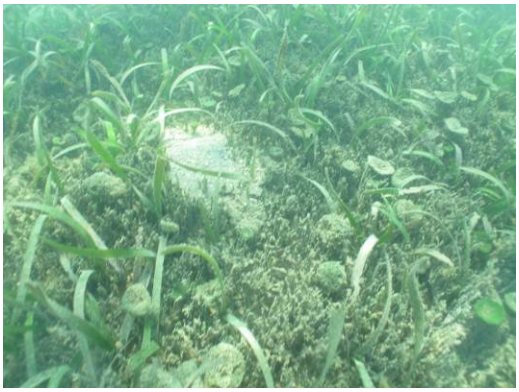
At 15 ft, algal species dominate.

But an occasional seagrass shoot can still be found at 14 to 15 ft.

Seagrass and algae at 13 ft.

Dense beds between 1 and 11 ft.

The seagrasses are thriving.



Some area are highly mixed seagrass and algae.

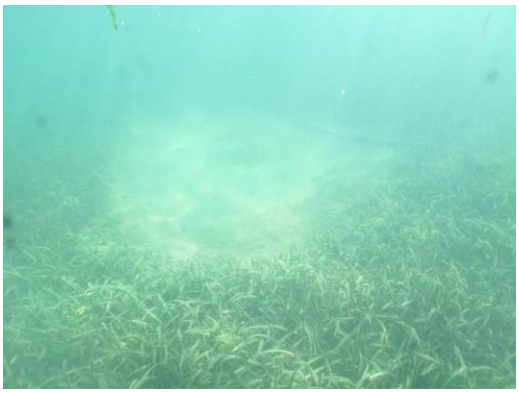
One of the large coral heads (24 inches in diameter).

Coral growing on debris.

Sea star.

Sea cucumber.

A small mooring scar.



More common foot print.

Debris is common.

The project has the potential to impact the marine environment through sedimentation and erosion and though the introduction nutrients and other contaminants in runoff. A stringent

sedimentation and erosion control plan has been developed, and mangroves will be planted to help stabilize the shoreline.

As stated in the previous section, this project should result in a net improvement in water quality in the project vicinity through reduction in uncontrolled runoff and through implementation of the stormwater management program.

Stormwater runoff from all parking area will be collected and treated in the stormwater management system. Treated WWTP effluent will be used for irrigation and toilet flushing, and in the event the water cannot be used for irrigation, a 4-day holding capacity has been developed. If irrigation is not possible for more than 4 days, the treated effluent will be taken by private hauler to the municipal system for treatment and disposal.

6.07 Terrestrial Resources

Most of the proposed project site was cleared during the course of development and graded over the years. The area around the existing businesses has been landscaped heavily with a wide variety of palms and exotics. Noted on the property were fan palms (*Washingtonia robusta*), Christmas palms (*Veitchia merrillii*), bottle palms (*Hyophorbe lagenicaulis*), royal palms (*Roystonea elata*), thatch palms (*Coccothrinax sp*.), coconut palms (*Cocos nucifera*), yucca (*Yucca elephantipes*), Ixora (*Ixora coccinea*), frangipani (*Plumeria rubra* and *P. alba*), crotons (*Croton sp.*), Spanish bayonet (*Yucca aloifolia*), oleander (*Nerium oleander*), pencil bush (*Euphorbia tirucalli*), monkey puzzle (*Euphorbia lactea*), hibiscus (*Hibiscus sp*.), bougainvillea (*Bougainvillea spectabilis*), traveler palms (*Ravenala madagascariensis*), flamboyant (*Delonix regix*) and seagrapes (*Cocoloba uvifera*).

Along the shoreline are seaside maho (*Thespesia populnea*), buttonwood mangroves (*Conocarpus erectus*), widely scattered seagrapes and occasional white mangrove (*Laguncularia racemosa*).

Scattered about the site and on the perimeter and behind the Voyages building are water mampoo (*Pisonia subcordata*), turpentine (*Bursera simaruba*), black mampoo (*Guapira fragrans*), pegion berry (*Cocoloba diversaflora*), *Erythroxylum brevipes*, *Capparis cynophallophora*, wild pineapples (Bromelia penguin), fiddlewood (*Citharexylum fruticosum*), *Capparis indica*, mampos, fish poison (*Icthyomethia piscipula*), Capparis flexuousa, *Ocetea*

sp, wild tamarind (*Lueceana luecenaphala*), marble trees (*Cassine xytocarpa*), spineless acacia (*Acaicia muricata*), milk trees (*Plumeria alba*) and casha (*Acacia tortuosa*).

Birds noted during the visits to the site included the brown pelican (*Pelecanus occidentalis)*, American egret (*Casmerodius albus*), Zenaida ground doves (*Zenaida aurita),* ground doves, (*Columbigallina passerine*), gray kingbirds (*Tyrannus dominicensis*) and green throated Caribs (*Sericotes holosericeu*).

Mongoose (*Herpestes auropunctatus*) and donkeys (*Equus asinus*) were observed during the survey. Repitles observed during site surveys included the tree lizards; *Anolis cristatellus, A. puchellus, A. stratulus*, the ground lizards; *Sphaerodactylus marcrolepis* and *Ameiva exsul* and the iguana, *Iguana iguana*.

There is little natural mature vegetation on this project site and most of it will remain in place and not disturbed during construction, especially along the shoreline of Parcels 10-17, 10-18 and 10-19. The development will require the clearing of seven large trees and some natural vegetation, as indicated on the site plans. The landscape plan included in the site plans addresses these issues and long-term impacts are not expected.

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).

There are no terrestrial wetlands at the project site as shown on the St. John NE Wetlands map. The offshore areas are delineated as Estuarine and Marine Wetland.

The project will have no impact on terrestrial wetlands.

There has been a question as to whether historical filling on the site was the result of there having been a salt pond or salt flat at this location. Neither are shown on the 1947 or 1971

aerial photographs, see Section 6.02. The USGS Quad maps from 1922 and 1934 do not indicate the presence of a salt pond or salt flat at this site.

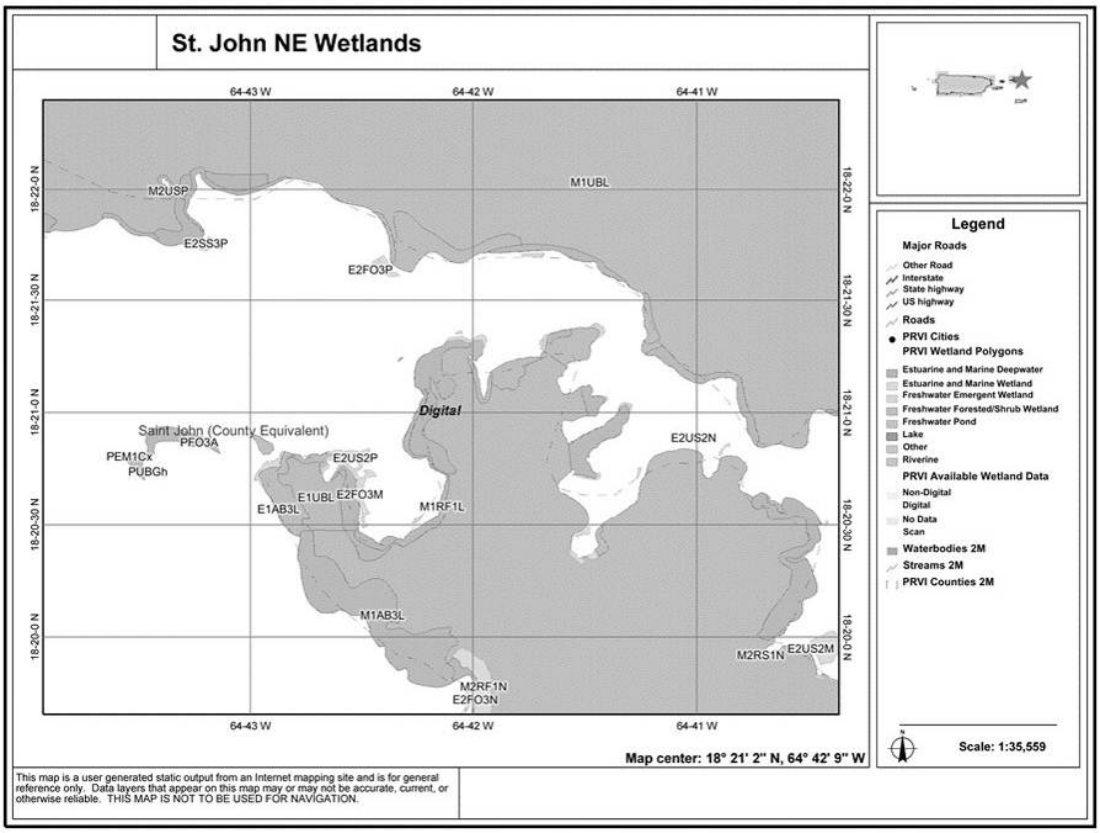


Figure 6.08-1. Wetland Map of Southeast St. John

6.09 Rare and Endangered Species

No listed or nominate species were observed on the project area subject to this permit application.

The project will have no impact on terrestrial rare or endangered species.

6.10 Air Quality

All of St. John 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).

The use of heavy equipment during the construction of this project and related facilities will have a short-term and minimal air quality impact. Once construction is complete, air quality will be impacted by occasional use of backup generators. The project is expected to have two backup generators utilized for emergency potable water pumping and maintenance of business activities. Operating permits for these will be obtained from the Department of Planning and Natural Resources, Division of Environmental Protection.

Impacts to air quality are expected to minimal and be short-term during construction and short-term & sporadic during operations.

7.0 IMPACT OF THE PROPOSE PROJECT ON THE HUMAN ENVIRONMENT

7.01 Land and Water Use Plans

The waterfront area connecting the marina to the uplands is primarily zoned W-1, Waterfront - Pleasure, with one parcel zoned B-3, Business. Adjacent parcels are zoned B-3 or R-1, Residential. The proposed marina development is allowed under the current zoning designation. The Virgin Islands Zoning Code states that W-1, Waterfront - Pleasure, was established to meet the recreational needs of the people of the islands and the visitors, which this project accomplishes with the marina and associated amenities. Current adjacent land uses are primarily residential.

Under the Coastal Zone Management Act (CZMA) of 1972, the U.S. Virgin Islands DPNR designated Coral Bay as one of 18 Areas of Particular Concern (APC) in 1979. An APC is a geographic area designated for purposes of preservation or restoration because of conservation, recreation, ecological, or aesthetic value. The Coral Bay APC was approved in 1991 after the Coastal Zone Management Commission held public hearings on St. Croix, St. John, and St. Thomas.

The Coral Bay APC Management Plan was developed as a planning document to better understand the resources and concerns in the area. The St. John Marina addressed the proposed goals of this plan during the planning process, particularly with respect to reducing the sediment load from stormwater runoff to Coral Bay and establishment of a regulated mooring field to minimize damages to seagrasses from improper moorings in the bay.

7.02 Visual Impacts

Many iconic photographs of coastal New England hamlets, Floridian seaside villages and Caribbean destinations center on marina settings. Marinas and the wide range of sea-faring vessels that are found there inspire visions of fun and romantic nautical outings and adventures, evoking positive emotions and a sense of wonder.

The St. John Marina, with its new state-of-the-art docks and upland buildings in their classic West Indian architecture vernacular, will evoke those feelings of wonder and through experience of the marina’s services, create memories that could last a lifetime. This positive

visual impact is a primary consideration for the developers of The St. John Marina as this aesthetic is essential to success within target markets.

Landscaped with palm trees, fringing mangroves, bougainvillea and other native flora, this impressive marina and associated upland complex will add to and improve the lifestyle of not only visitors, but residents of Coral Bay by providing much needed services. The beautiful design and construction will create a destination that will be a great source of pride. This is a stark contrast to what is currently exhibited in Coral Bay.

All utilities, including electric, water and wastewater, will be located under the docks and out of sight. Marina lighting will be sea turtle friendly and will take into consideration and generally conform to the conditions outlined in Florida's Model Lighting Ordinance for Marine Turtle Protection (Chapter 62B-55 of the Florida Administrative Code).

7.03 Impacts of Public Services and Utilities

The following sections address impacts to public services and utilities utilized and/or developed by the marina project.

7.03a Potable Water

The peak water demands projected for this project are estimated not to exceed 12,000 gpd. Potable water supply to meet this demand will be through rainwater collection from rooftops into cisterns supplemented by water purchased from WAPA in Cruz Bay and Caneel Bay Resort. Caneel Bay Resort has committed to provide up to 90% of the projected water demands of this project, if needed. Cisterns for the buildings are sized to allow for large quantities of water to be stored onsite to reduce the frequency of truck deliveries and allow scheduling of the deliveries to minimize impact on the community.

The project site is located adjacent to the bay therefore the potential for fresh potable groundwater resources are limited. However, the site is at the bottom of a large watershed and the developer may drill an exploratory well to determine if indeed there is a sustainable source of fresh potable groundwater at the project site. If this is the case, this EAR will be amended accordingly to address this source of water.

7.03b Wastewater Collection and Disposal

The expected volume of wastewater generated on a daily basis by this project is estimated to be 10,830 gpd. Each parcel(s) will have an individual treatment system (Cromaglass or equivalent) placed underground as shown on the plans. A decentralized system as proposed allows for staged construction, smaller plant footprints, less infrastructure and simpler operation and maintenance.

Effluent from the plants will be utilized as irrigation water, and as non-potable source for toilet flushing in the buildings. Additional cisterns will be constructed to store the treated reuse water and are sized to hold four days of effluent volume. In the event that there is excess effluent, or reuse is not sufficient to take up the outflow from the treatment plants, on-Lot drainfields will be utilized as a secondary disposal method. As a last resort, treated effluent will be pumped and hauled by a licensed hauler to the treatment plant in Cruz Bay.

7.03c Solid Waste

Solid waste management planning at The St. John Marina has taken into consideration both in the short term and long term the proper disposal of solid, liquid and hazardous wastes as described below.

Construction Phase

The Virgin Islands Waste Management Authority (VIWMA) has specific guidelines and criteria for accepting construction debris. These criteria have been discussed with VIWMA during meeting and phone conferences. The handling of construction solid waste from the building process of The St. John Marina will follow those guidelines and criteria using 20-ft roll-off containers. Waste will be disposed of at the Bovoni Landfill by a local, licensed waste disposal contractor and will include the required Waste Manifest.

Operation Phase

Management of solid waste will follow the model currently used by nearly all St. John businesses and residents. Based on data from similar marina facilities, the expected solid waste generation rate at the marina is 1.5 pounds/slip/day, for a weekly average generation rate of 1,500 pounds of solid waste. Solid waste generation rates from the upland operations, estimated from existing conditions should average less than 1,500 pounds per week. Solid wastes will be collected daily throughout the marina as necessary and

deposited in one of two 20-ft covered roll-off containers or a single compactor and will be serviced as needed by a licensed, local St. John hauler.

The container will be transported to the Bovoni Landfill on St. Thomas where it will be weighed and processed for disposal.

7.03d Roads, Traffic and Parking

This project will add driveway and parking areas. The number of parking spaces required for the marina patrons and staff was calculated per the Virgin Island Code (see 5.00, Description of Project - Project summary data on the associated Major Land Permit application). Planned parking spaces include off street parking for 116 vehicles, 5 ADA compliant parking spaces and 5 loading/unloading spaces as shown on the attached site plans. Construction parking will be contained on the associated uplands immediately adjacent to the marina in the material staging areas, which shall be parcels 10-17, 10-18 and 10-41.

The developer commissioned a traffic impact study in 2013 (Appendix G) to assess potential impacts from this project. This study concluded that there will be a minor increase in traffic in the area due to this project but the increase is not expected to overburden the existing road system. The conclusions and recommendations from this study are as follows:

1. The project is estimated to generate approximately 152 trips in the Friday morning peak hour, 319 trips in the Friday afternoon peak hour, and 336 trips in the Saturday peak hours. Most of the traffic generated by this project will be recreational traffic during off-peak times.
2. Access will be provided via three unsignalized driveways to Route 107 (including relocated Estate Road) and will operate at a highly acceptable level of service (LOS) A during the peak periods.
3. The offsite intersection of Route 10/Route 107 will operate at very good LOS NB for the stop-controlled approach of Route 107. There are no improvements at this intersection necessary to accommodate the increase in traffic attributable to this project.
4. The traffic generated by the proposed project can be integrated into the adjacent roadway network without significant negative traffic impact. It is recommended that a

minimum 20-foot-wide cartway be maintained on Route 107 within the project limits. There are no auxiliary turn lanes required along Route 107 to accommodate the future traffic.

Construction traffic will result in a temporary increase in vehicles from workers and equipment and supply delivery. Construction workers will be encouraged to carpool and will arrive and exit the project during peak traffic times. This may result in a minor slowdown in traffic patterns during construction. Delivery of equipment and supplies will occur sporadically during the day and are not expected to cause a disruption in the normal flow of traffic on Route 107 at this site. Disruptions to vehicular traffic transiting Route 107 during the workday will be minimal and the contractor will be required to develop a maintenance of traffic plan for both safety and transit of vehicles while Route 107 is impacted by the project's construction.

7.03e Electricity

The developers of The St. John Marina have met with WAPA's head of operations for St. John, Winston Smith, and WAPA engineer Lowell Fahie to discuss the load requirements and infrastructure necessary for the project. Both Mr. Smith and Mr. Fahie have stated that the current infrastructure and capacity of 5 megawatts (MW) for WAPA that can adequately meet the peak usage of the 1.5 MW estimated as the proposed project demand.

The St. John Marina submitted the preliminary Load Requirement Sheet that WAPA requested, Appendix H. This Load Requirement Sheet identifies the electrical requirements for the project and allows WAPA to run the necessary calculations needed to make sure that both the community and the proposed project will have sufficient power as required by the marina vessels and the upland businesses. Additional infrastructure required by the proposed project, such as transformers, underground lines, etc., will be funded by the developer.

WAPA currently has three-phase power at the site of The St. John Marina. Distribution is to be facilitated by a series of transformers and switch gear to supply multiple voltages that include 480 three-phase, 220 single-phase, and three-phase 110 ground fault interrupter (GFI). The costs and installation will be borne by the proposed project. All electrical distribution lines will be underground or under docks in conduits. Two of the transformers

will be located on the marina docks to reduce cabling requirements. WAPA has informed the developer that the use of the three-phase power by this project will not detract from the single-phase power that the community of Coral Bay uses.

7.03f Schools

The patrons of this project will be either existing residents or transients. Therefore, there is no impact anticipated to the school system.

7.03g Fire & Police Protection

The nearest fire station is located six-tenths of a mile from the project site. Police emergencies are expected to be handled by nearest unit dispatched through the Cruz Bay station. The marina will also have a detailed security plan as well as on site security guard(s) on duty at all times.

A comprehensive fire suppression system will be specified during the design process, with guidance provided by National Fire Protection Association (NFPA) 303, and NFPA 307, and local codes. All local fire codes will be followed, with coordination with the local fire official during the early stages of the design. The St. John Marina will provide training for personnel that meet or exceed the requirements of all federal and territorial governing agencies.

The marina will be equipped with a boat mounted stationary fire pump capable of producing 350 gallons per minute of seawater and additional fire hose sections totaling 1,000 feet. The boat will be equipped with covers and compartments for all hose and firefighting apparatus and will be routinely used for drills and training to insure it is in good working order at all times. Additionally the boat will have a tow post that will allow the boat to be used to pull yachts that are a fire hazard from the dock thus minimizing the fire risk to other vessels.

Dockside there will be a gasoline powered golf cart with a stationary 350 gallon per minute fire pump as well as a portable pump and various lengths of hoses to pump salt water and or potable water from the main water source on the dock should a fire emergency occur.

The emergency cart will also have emergency medical equipment and first aid supplies on board in addition to “turn out gear” and other protective fire apparatus for the personnel

responsible for its operation. This unit will routinely be used for training and drills and will be dedicate solely to emergency response.

At intersections of not more than 100' feet apart the dock will be equipped with standpipes constructed in accordance with NFPA 14 connected the potable system with the ability to quickly be disconnected and charged via fire truck. Each stand pipe will also have a hose cabinet and fire extinguisher.

Additionally, a valve connection will be provided for a fire truck to hook directly to the upland cistern water supply in the event additional water is needed, thus increasing the availability of water and reducing the travel time for the fire trucks. Total cistern capacity on site will be approximately 150,000 gallons.

7.03i Public Health

Long-term or significant affects to the Public Health system are expected to be negligible from this project. Employees at the marina development will be drawn from local residents and should not increase the demand on existing health services. It is possible that transient boaters may require emergency care and would be treated by the emergency services in St. John or possibility St. Thomas. Existing services should be able to handle the number of potential required visits.

7.04 Social Impacts

The St. John Marina hopes to have a positive social impact on both visitors and the local community. Decades of unsatisfied demand by the St. John community and recreational boaters will be fulfilled in Coral Harbor through the development of The St. John Marina, which will provide much needed dockage, fuel, provisioning and pumpout services.

The St. John Marina will be located on a combination of land leased from a long-time St. John family and purchased property. This highly visible St. John project will be a substantially locally owned marina, in and of itself constitutes a significant and positive social impact. In addition, further business opportunities in the marine sector will occur once there is a marina to provide the needed support services.

The provision of marina facilities in the place of haphazard anchoring and mooring patterns will yield a positive social impact on the St. John and Coral Bay communities.

The following sections discuss several areas that this project will further contribute positive social impacts to the community at large.

Organizational Synergy

As a committed community member and leader by example, The St. John Marina partners have been and will continue to be active supporters and participants with various St. John civic and community organization activities and programs. Based on projected EDC benefits, a minimum of $50,000 in annual contributions is budgeted to help ensure the quality of life and pursuit of happiness for all St. Johnians, with a focus on children and the environment.

The following is a partial list of the organizations and activities The St. John Marina ownership, management, employees and partners support directly.

Guy Benjamin School (GBS)

The St. John Marina partner Rick Barksdale, as a part of Using Sport for Social Change delivered backpacks filled with school supplies to every student in attendance at the GBS on Friday, October 5, 2012. This is the first of many efforts to encourage and support education and opportunity for Coral Bay children.

Island Green Builders Association (IGBA) & Island Green Living Association (IGLA)

With local partners as Professional Members, The St. John Marina enthusiastically supports IGBA's goal of responsible and sustainable development on St. John. This includes projects that are planned and completed that provide St. John with a sustainable economic base while honoring its unique diversity, ecological health, sense of community and quality of life.

Kids and the Sea (KATS)

The KATS website cites the Virgin Islands' greatest human resource is its youth and its greatest natural resource is the sea. The St. John Marina proudly supports KATS members and volunteers in increasing the enjoyment, understanding and safety of youngsters understanding of their relationship with the sea. Through hands-on seamanship training,

members become aware of boater safety, recreational activities and career opportunities in the marine industry.

Coral Bay Community Council

Local marina principals are active in a number of CBCC initiatives. Rick Barksdale was instrumental in the facilitation of the vision process for the future of Coral Bay, generated through the American Institute of Architects Sustainable Development Assessment Team in April and May 2013.

Both Mr. Barksdale and The St. John Marina principal Chaliese Summers are proactive in Phase ll of the Coral Bay Watershed Management project. Both serve on the Marine Uses Planning group, with Rick a part of the Marina subgroup and Chaliese a part of the Mooring subgroup. Rick most recently participated in the planning for the application of a grant to remove derelict boats from Coral Bay.

Additionally, in an effort to maximize protection of the environment and to incorporate the work done in Phase l and planned for Phase ll of the Coral Bay Watershed Management Plan, The St. John Marina developers have hired Joe Mina, PE, who was the civil engineer responsible for each success of the Phase l plan.

Friends of the Park

International Coastal Cleanup, called Coastweeks on St. John and sponsored by Friends is one of several clean water, beach and shoreline projects that The St. John Marina enthusiastically supports.

St. John Community Foundation

The new Go Green Initiative program is an endeavor to make a positive impact on the environment by educating the community on best practices for the conservation and reduction of waste and to foster an understanding of the importance of making environmentally responsible decisions.

The Life Skills and Career Development

This summer program helps St. John students measure 12 interest factors directly related to occupations and systematically compare their aptitudes and interests to more than 2,500

jobs. Participants select 3 to 5 potential job titles to work toward and add them to their Career Portfolio.

Citizens Advisory Committee (CAC)

VIWMA's Citizens Advisory Committee is a group of volunteer citizens interested in waste management issues and the protection of natural resources. Rick Barksdale is one of five St. Johnians committed to solving the waste management issues faced by the entire territory. In partnership with VIWMA and CAC membership, The St. John Marina partners have proposed an adopt-a-site program that includes improved collection methodology, elevating site standards, landscaping, signage and maintenance. The St. John Marina has volunteered to be the first to adopt a site, located in Coral Bay.

Yacht Clubs

The Coral Bay Yacht Club's "Almost" Annual Flotilla benefiting the Guy Benjamin School is an initiative that the local partners of The St. John Marina enthusiastically support. The St. John Marina welcomes area yacht clubs and their membership and supports area yacht clubs efforts through regattas and other fund raising efforts to the benefit of children's boating and sailing programs, safe boating and environmental awareness.

USVI Department of Tourism (USVI-DOT)

In cooperation with the USVI-DOT, The St. John Marina supports initiatives to continue to bring visitors to St. John to experience the island's unique beauty, culture and lifestyle, with emphasis on visitors by sea. As an example, educational programs emphasizing environmental sensitivity and responsibility and safe boating will be offered periodically at the marina to visitors by sea as well as local boaters.

St. John Animal Care Center (ACC)

Wagapalooza is one of the most popular of several fund raising efforts of the ACC and is one of St. John's best attended island events. The ownership and management of The St. John Marina are proud supporters of all of ACC's programs and efforts.

Using Sport for Social Change (USFSC)

Under the SJCF umbrella, every year USFSC sponsors JUST PLAY! One of many activities, JUST PLAY is a day of fun outdoor activities helping St. John youth focus on fun

and fitness as a lifestyle, thus promoting healthier, happier kids. The St. John Marina partner Rick Barksdale has been a key volunteer and promoter of this event since its first JUST PLAY! event in 2009.

Community Involvement

Historically, Coral Bay has always had a strong maritime culture, having served in the past as St. John's main port and center of commerce. As a proactive member supporting Coral Bay through community involvement, The St. John Marina and its partners will continue to contribute to this unique Caribbean village in a variety of ways.

The proposed **fish and farmer's market** will serve as not only a place of commerce for local farmers and fishermen, but as an old-fashioned community center where friends gather to buy St. John's freshest and finest produce and fish, and a gathering place to share good times and the news of the day.

Internship is a successful method to support young people in their growth and development as they look to establish a career path and gain valuable experience in the workplace. In support of the community's youth, The St. John marina will establish several internships positioning Coral Bay's youth for career success.

As a part of the Clean Marina and Blue Flag programs, The St. John Marina will provide **field trip opportunities** for St. John students helping them better understand environmental stewardship, the joy of recreational boating and career opportunities in the maritime industry. Safe operation and respect for the environment are cornerstones to a healthy boating community. **Adult education** on both topics will be available to both visitors and residents through workshops and seminars in the marina's Clean Marina and Blue Flag programs.

The St. John Marina developers have been vitally active with their valuable contributions as volunteers and facilitators for years.

Rick Barksdale

- Volunteer (only developer) for Phase ll Coral Bay Watershed Management Planning (CBWMP) through the Coral Bay Community Council

- Member of Marine Uses Planning team of CBWMP-Phase ll and member of the Marina Sub-group – most recently planned for grant application for Coral Harbor cleanup of derelict vessels
- Volunteer/Steering Committee member for the American Institute of Architects Sustainable Design Assessment Team (AIA-SDAT)
- Member St. John Group (5) VIWMA – Citizens Advisory Committee
- Volunteer Coastal Clean Up through Friends of the Park, USVI Dept. of Tourism
- Member/supporter of IGBA/IGLA initiatives – Guest panelist for recent renewable energy forum sponsored by Island Green Building Association
- Volunteer with St. John recycling

Chaliese Summers

- Member of Moorings, Dingy Dock & Anchorage Subgroup of the Marine Uses Planning Group, Phase ll of The Coral Bay Watershed Management Plan through Coral Bay Community Council
- Participant in preliminary and primary AIA-SDAT meetings
- Volunteer with St. John recycling

The St. John Marina's proposed **Adopt-A-Site** program whereby St. John businesses, civic organizations and religious groups adopt a waste collection site, seeks to refine the process of waste management through improved collection methodology, elevating site standards, landscaping, signage and maintenance.

Fishermen

According to a recent Fisheries of the United States (2011) report by National Oceanic and Atmospheric Administration (NOAA)National Marine Fisheries Service, commercial fishing in the USVI represents a $7.1 million industry, which equates to approximately 1.3 million pounds of fish, most of which is consumed exclusively in the territory.

The USVI has a history of supporting commercial fishermen through a variety of initiatives, including dedicating government controlled land for exclusive use by fishermen. The St. John Marina is firmly committed to preserving the historical culture of Coral Bay fishermen and their contribution to the local economy and convenience to residents by providing fresh

catch. The developers of the project have done much research and legwork to ensure that conditions are improved for this integral part of St. John culture and commerce.

In an effort to support and encourage local fishermen and increase public safety, the applicant proposes to improve safety and marketability for Coral Bay fishermen by providing space and incorporating a “catch of the day” at their proposed Fish & Farmer’s Market. This will eliminate the imminent danger of vehicular traffic and provide a platform from which fishermen may address the other health and safety issues they face.

7.05 Economic Impacts

The information presented in this section is the result of research using an analytical model developed by Drs. Ed Mahoney, Dan Stynes and Yue Cui of the Recreational Marine Research Center, Michigan State University, with the considerable assistance of Dr. David Harding, Florida Fish and Wildlife Conservation Commission.

The model was developed through the compilation of data collected from approximately 30,000 surveys of registered boat owners that distilled and analyzed 17,300 specific boat trips and annual vessel spending of almost 3,800 boat owners from 2006 to 2008.

The model estimates annual vessel -related spending in eight categories and trip spending in ten categories. Employment and income effects are reported for a dozen economic sectors. Data about boat size, type and lease or rental term specific to The St. John Marina was input into the matrix to generate the results for this study.

Even at moderate occupancy, The St. John Marina’s impact is estimated to contribute $8,786,500 contribution to the economy of St. John and the USVI. For the most part, these are new dollars that were not a part of the local economy prior to the development of The St. John Marina. As examples, on a typical day trip, a powerboat in the 42-ft to 48-ft category will spend an average of $671 and a sailboat of 36 ft or greater would spend an average of $197, in part on fuel, marina services, provisioning, marine supplies, recreation and entertainment. Virtually all areas of the local economy are impacted secondarily through taxi fares, car rentals, restaurants and tourist services providers.

Jobs

This research indicates that a minimum of 90 jobs will be created, with the vast majority of them made available to qualified St. Johnians. To ensure this, a job fair is planned for Coral Bay to give local residents every opportunity for employment. These jobs equate to labor income of $3,046,000, which is perhaps the greatest value added by The St. John Marina as it provides opportunities for the families of Coral Bay and the East End.

Internship/Mentoring

The St. John Marina will provide the opportunity for professional jobs in the marine industry. The St. John Marina will establish internships and mentorships in marine related professions.

Fish & Farmer's Market

A fish & farmer's market is proposed. The market will allow area farmers and fishermen to sell everything from fresh vegetables, fruit, honey, lobster and other catches of the day. This market is intended to support local farmers and fishermen.

Real Estate Valuation and Marketability

St. John Realtors have stated that the addition of The St. John Marina will have a significant, positive impact on real estate values and marketability. Qualified brokers estimated that, conservatively, the construction of the marina had the potential to increase real property values 10 to 20 percent within 3 to 5 years.

In summary, according to the Economic Development Authority of the USVI government, 90 percent of the territory's Gross Domestic Product is based on tourism and nearly 100 percent of St. John's economy is directly related to tourism. The St. John Marina gives Coral Bay and St. John the opportunity to expand its tourism potential.

7.06 Impacts on Historical and Archaeological Resources

A Phase I Archaeological Underwater Survey investigation was conducted at the marina site in January 2013. The investigation utilized diver transects, metal detecting, and probing in concert with differential global positioning system, and was designed and implemented to identify the presence or absence of submerged historic remains. Results of the

investigation documented no potentially significant archaeological sites within the project area.

Based on the results of the Phase I Archaeological Underwater Survey, the VISHPO concurred that no significant cultural resources were discovered onsite, had no objection to this development, and is requiring no additional studies. This investigation and the VISHPO clearance letter are provided in Appendix I.

7.07 Recreational Use

The shoreline and upland areas are not used for recreational activities. People kayak and paddle board within the bay. The development of the marina will not preclude those activities. It is probable the marina development will include recreation related businesses.

7.08 Waste Disposal

VIWMA requires a Special Waste Disposal Permit for certain types of solid or liquid waste deemed non-hazardous, yet unacceptable for landfill disposal. The St. John Marina intends to submit the Special Waste Disposal Application for the appropriate VIWMA permit to be compliant throughout the construction process as well as once the marina is operational.

Hazardous waste at The St. John Marina will likely consist of used engine oil, batteries and flares. Dedicated secure storage areas on the uplands will be provided for temporary storage of used batteries and out-of-date flares. A used-oil storage tank will be located near the marina for the temporary storage of used engine oil. These materials will be stored safely under roof until a licensed private waste hauler removes them offsite for proper disposal.

7.09 Accidental Spills

The St. John Marina staff will be well trained and regularly drilled to prevent, identify and properly respond to spills of all types as will be required by the SPCC and Terminal Facility License for the marina. Potential sources of liquid spills at the marina include wastewater from vessel holding tanks, oily water from bilge pumps, and fuel. Oil changes and other boat maintenance activities will be prohibited.

Wastewater spills are unlikely to occur due the nature of the vacuum-powered pumpout system. However, if a wastewater spill originating from a vessel holding tank does occur, it would likely occur during a pumpout procedure. Protocol in this case will be to cease the transfer of the wastewater until the source of the leak is determined and eliminated.

As part of providing full service to the guests of The St. John Marina, diesel and gasoline fueling facilities will be incorporated into the project. Fuel will be made available to both guests of the marina and the public. Boaters on the south and east side of St. John will no longer have the expense and inconvenience of motoring to Cruz Bay for fuel. This service saves both time and money for consumers and help to protect the environment through lower fuel usage and traffic and proper dispensing method.

Aboveground storage tanks with integrated secondary containment with capacity for approximately 45,000 gallons of diesel and 5,000 gallons of gasoline will be located on the western portion of Parcel 13 Remainder as shown on the site plans. These tanks will be surrounded by concrete retaining walls and will each contain inventory monitoring, spill, and leak detection system equivalent to a Veeder Root TLS 300 leak detection system. This system provides in-tank warnings and alarms for leaks, overfills, low product, sudden loss, high water, delivery needs and test failures. The system will also incorporate a printer providing a printed record of inventory control, leak detection and alarms. Both the tanks and fuel lines will be doubled walled and inspected regularly to ensure their integrity as per the Terminal Facility Requirements. In addition, fuel lines over water will be contained in an additional conduit for further redundancy.

Floating booms and sorbent pads will be staged in water resistant containers strategically placed on the uplands and around the marina. This assures that this equipment will be available for use immediately in response to oily bilge water or fuel spills. Additionally, emergency shutoff valves will be installed at the point of distribution, delivery and storage in the unlikely event of a spill.

7.10 Marina Security

The St. John Marina will be governed by all United States federal and territorial regulations, as well as those of the International Maritime Organization (IMO) and the International Ship and Port Facility Security Code (ISPS Code).

U.S. Customs and Border Protection

The U.S. Coast Guard recognizes Coral Bay as an officially port of entry, according to the local U.S. Customs and Border Protection office. The St. John Marina will provide CBP space based on its specifications to service the needs of incoming international guests and residents returning from foreign visits.

U.S. Coast Guard, DPNR & CZM

USCG officials as well as DPNR and CZM staff are welcome onsite at the marina at any time. It will be standing policy at The St. John Marina to accommodate these agencies and their vessels in the performance of their business.

Marina Security

The St. John Marina will have a security chief and security guards on staff, in addition to 24-hour monitored security. Security guard(s) will be on patrol at all times and be responsible for patrolling both the upland and waterside marina elements.

The main walkway that connects the dock to the shore will have a card-activated security gate. Marina management will distribute cards exclusively to guests and marina personnel. The gate will remain locked at all times and will only be accessible with the assigned cards. There will be no unauthorized overnight parking at the dingy dock or in the land-based parking lots.

Security cameras will be installed throughout the marine and upland facilities and the feed from these cameras will be monitored and recorded by marina security. Cameras will be positioned to ensure that each of the dock trees, as well as all of the primary upland areas are under video surveillance at all times.

7.11 Hurricane Preparedness

Hurricanes are a risk for any coastal marina operating in the Caribbean, Gulf of Mexico or Atlantic Ocean. For owners and managers of marinas, hurricanes and other natural disasters are considered manageable risks worldwide and The St. Johns Marina will manage this risk through comprehensive insurance and through a hurricane contingency plan (HCP).

As a marina operating in the Caribbean Basin, a comprehensive HCP is an absolute necessity and must be reviewed periodically to ensure its effectiveness. Alerts and warnings issued by the National Weather Service, USVI and federal authorities will activate a condition level with a response preparation time ranging from 36 to 72 hours prior to the occurrence of a tropical weather event. Appropriate actions and responses are predetermined for each condition level and involve every aspect of marina operations from securing docks, managing evacuations, and ensuring the safety of visitors, personnel and property.

In addition to the HCP, innovative engineering and construction methodology developed over the past few years gives the added benefit of being able to resist moderate hurricane influences as well as seismic activity. The St. John Marina incorporates much of this modern engineering and design for hurricane resistance. The dock structures in the marina are designed with grated decking installed as discrete panels which provides less resistance to wave forces and will remain attached to dock structure during severe weather conditions. Reverse flow valves will be a part of both fuel and liquid waste systems. In the event of a hurricane, this allows for fuel lines and liquid waste disposal lines to be emptied, thus reducing any danger of spillage.

For the Post-Storm Stage, all personnel deemed essential will notify management of their personal status and then, if appropriate, will report for duty as soon as permitted by emergency management authorities. Reporting personnel will begin an immediate assessment and documentation of any damage and render assistance as deemed necessary to protect life and property. Upon securing the facility, a sequential protocol will be followed to return The St. John Marina to operational status as soon as safely possible.

7.12 Potential Adverse Effects, Which Cannot be Avoided

The general rule of construction in the Virgin Islands is 6 days a week except on residences, which is 7 days a week. The applicant agrees that construction noise during church services would be unacceptable but would not want to be restricted to 5 days per week which will prolongs the construction time. As for work hours, 7:30 is a late start on weekdays as construction workers like to get started with the sun and not work during the heat of the afternoon. Most families are up and getting ready for the day by 7:00. The

applicant proposes working 6 days per week, with a 7:00 AM - 5:00 PM work schedule for the weekdays and 7:30 AM – 3:00 PM on Saturday.

Virgin Islanders have had firsthand experience with what happens during hurricanes, both to marinas, land structures and infrastructure. The VI Legislature acknowledged the need to provide the territories with the best current codes applicable to our natural conditions. These codes will be followed in the construction of The St. John Marina as well as the upland structures. The minimum finished floor elevations of any occupied structure will be based on flood elevations contained in the FEMA FIRM map.

It is probable that if a major hurricane was to pass over the territory this marina and facilities as well as the bay would be impacted. As with all facilities, a hurricane preparedness plan will be developed for pre- and post-events. This plan will include the responsibility for cleanup and assistance within the community to minimize long-term impacts to the human environment. The St. John Marina will have backup power capable of running the water pumps and providing potable water to Coral Bay residents.

Other potential impacts from the project may arise primarily from temporary disturbance and sedimentation on and into adjacent waters during construction. To mitigate for these potential effects, strict turbidity, erosion and sediment control measures will be employed during construction. The purpose of these measures will be to prevent uncontrolled runoff into Coral Bay and excessive turbidity plumes.

There is expected to be some unavoidable increase in noise and traffic during construction. However, most of the construction effort will be at the marina and will occur from the waterside and will not impact vehicular traffic significantly. There will be noise during construction from general construction activities as well as pile driving at the marina. Noise will minimized as much as possible during placement of the piles through the use of a vibratory hammer as much as possible. This method of construction emits much less noise than an impact pile driver.

The development of the site will result in the loss of seven large trees, all are common local species.

8.0 MITIGATION PLANS

This upland redevelopment project is being constructed on previously developed upland parcels with little to no remaining natural unaltered environment. Trees and natural vegetation will be preserved where possible.

This project will also have advanced onsite wastewater treatment facilities that will be utilizing the effluent for irrigation. This practice does have the potential of introducing additional nutrients into an already nutrient rich environment and could lead to additional algal growth. To mitigate for this potential, during periods when irrigation is not feasible, the treated effluent will be stored onsite and utilized for toilet flushing and other non-potable uses or hauled offsite for treatment and disposal.

Given the minimal impact this redevelopment project will have on the environment, no additional mitigation activities are proposed for the upland impacts. Compensatory mitigation plans have been developed for the marine impact and are presented in the Major Water CZM permit application.

9.0 ALTERNATIVES TO PROPOSED ACTION

This redevelopment project is entirely dependent on the adjacent marina project that is the subject of a separate Major Water CZM permit application. A very rigorous alternatives analysis is contained in that application.

No-action alternative - If this project is not constructed, the adjacent marina will not be viable as the required land-side support would not exist.

Decrease the size of the project - The project area subject to this permit application is the minimum project area needed to support the existing and new businesses required to support the marina. Decreasing the project size will result in inadequate availability of support services for the marina. This would decrease the opportunity for new businesses and restaurants in Coral Bay.

Alternative locations - An alternatives analysis considering various other locations on St. John is detailed in the Major Water CZM permit application for marina and concluded that there are no other alternative locations for The St. John Marina. This upland project is entirely dependent on the marina being located at this location in Coral Harbor so alternative locations are not deemed viable.

10.0 RELATIONSHIP BETWEEN SHORT- AND LONG-TERM USES OF MAN'S ENVIRONMENT

The Coral Bay area is currently heavily used for boat mooring and there is no full-service marina located at the eastern end of the U.S. Virgin Islands or on the island of St. John. The creation of such a facility with fueling, provisioning and pumpout capabilities will serve to bring back marine businesses that have moved into the British Virgin Islands.

The area immediately surrounding The St. John Marina is primarily commercial use. The development of the project would not result in a change of land use. Commitment to the type of use proposed was made in 1972 when the area was zoned W-I. The land was removed from its natural state by construction of the culverts and its use as a refuse location. The proposed development is consistent with the goals and polices of the VI Coastal Zone Management Act and with the stated policies of the government of the Virgin Islands.

This project will generate employment and increase tax revenue and will also provide additional recreational opportunities for both residents and visitors. The associated marina project will result in a managed mooring system within Coral Harbor and will help limit future impacts to the marine environment and will help facilitate the management the resources.

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