ENVIRONMENTAL ASSESSMENT REPORT FOR THE USVI SOCCER FEDRATIONS' ST. THOMAS SOCCER FACILITY

Estate Nazareth, St. Thomas U.S. Virgin Islands

Prepared for:

THE OFFICE OF COASTAL ZONE MANAGEMENT
DEPARTMENT OF PLANNING AND NATURAL RESOURCES,
AND THE GOVERNMENT OF THE VIRGIN ISLANDS

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FEBRUARY 2026

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1.0 NAMES AND ADDRESS OF APPLICANT

US Virgin Islands Soccer Federation
23-1 Upper Bethlehem
PO Box 2326 Kingshill
Christiansted, St. Croix
US Virgin Islands 00851

2.00 LOCATION OF PROJECT

The proposed soccer field is located on the eastern end of the island of St. Thomas on the northwest side Vessup Bay at 18.322818°N latitude and -64.857059° W longitude. The field will be located on a Subplot of Parcels No. N-1-Remainder of Tract 1 Estate Nazareth - No. 1 Red Hook Quarter, St. Thomas, U.S. Virgin Islands.

The Location and Agency Review Map in Figure 2.00.1 below depicts the areas of Coastal Zone Management First Tier jurisdiction.

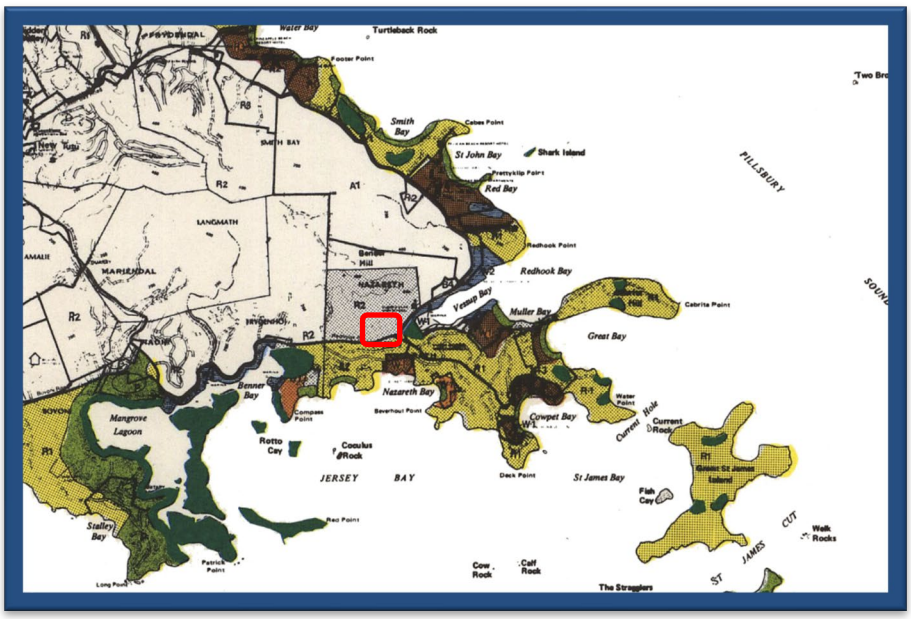


Figure 1. Location and Agency Review Map. The areas in color, which include the proposed soccer field location, are under the jurisdiction of D.P.N.R.'s Division of Coastal Zone Management.

Figure 2. Location of the Proposed Soccer Center

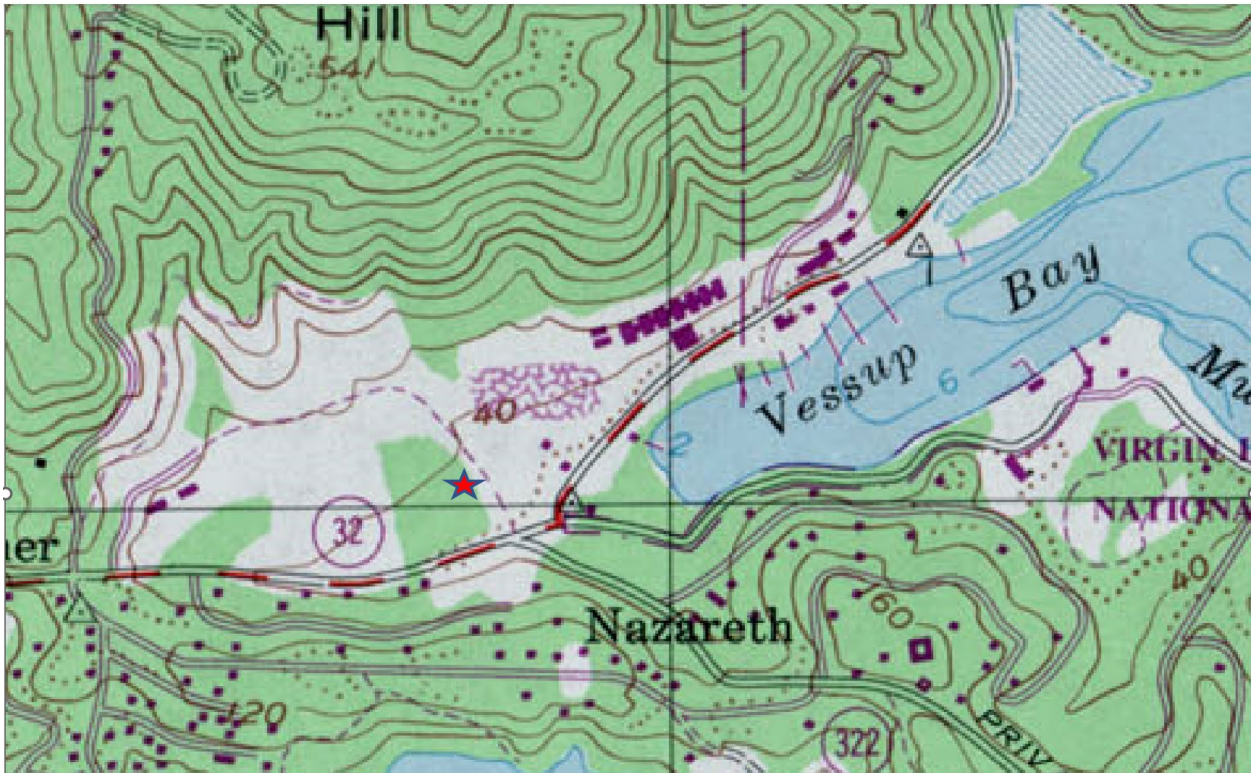


Figure 3. Relationship to island features

3.00 ABSTRACT

The U.S. Virgin Islands Soccer Federation proposes to develop a new soccer field on a subdivided portion of Parcel N-1, Remainder of Tract 1, Estate Nazareth, St. Thomas. The project includes installation of an approximately 225-foot by 330-foot artificial turf playing surface, construction of an associated parking area, and related site improvements. The development will incorporate site lighting to enhance visibility and safety, as well as perimeter fencing to provide security and controlled access.

4.00 STATEMENT OF OBJECTIVES SOUGHT BY THE PROPOSED APPLICATION

The objective of this application is to obtain a Major Coastal Zone Management (CZM) Permit for the proposed soccer facility in order to advance its development in compliance with applicable territorial regulations. Approval of this permit will enable the U.S. Virgin Islands Soccer Federation to establish a properly designed, code-compliant athletic venue that serves the residents of the Virgin Islands by expanding access to organized sports, youth development programs, and community events.

5.0 DESCRIPTION OF PROJECT

5.01 Summary of Proposed Activity

The proposed project consists of the development of a new soccer facility on a subdivided portion of Parcel N-1, Remainder of Tract 1, Estate Nazareth. The facility is designed to enhance recreational infrastructure within the Virgin Islands by providing a dedicated, regulation-sized artificial turf playing field capable of supporting both grassroots and competitive soccer programs. The field will measure approximately 225 feet by 330 feet and will be constructed to meet applicable athletic and safety standards.

In addition to the playing surface, the project includes the construction of an on-site parking area to accommodate players, staff, and spectators. Site improvements will include perimeter fencing for security and controlled access, as well as site lighting designed to provide adequate illumination for evening practices and events while minimizing light spill and glare beyond the property boundaries. In a future phase of development, the facility is planning to include public restroom facilities, a dedicated players' locker room, and pre-manufactured aluminum bleachers with an approximately 1,200-seat capacity and roof covering. The future program will also incorporate a conference room to support meetings and administrative functions, as well as a dedicated training pitch to further support player development and technical training initiatives.

All site development, grading, drainage, lighting, and infrastructure components will be designed and constructed in accordance with applicable Coastal Zone Management (CZM) regulations and environmental best practices. The completed facility will serve as a venue for youth training, local league play, tournaments, and regional events, supporting the continued growth of soccer in the Virgin Islands while contributing to sports tourism and community engagement.

5.01.a Purpose of Project

The purpose of this application is to obtain a Major Coastal Zone Permit for the permit a new soccer center on the east end of the island to better serve the community.

5.01.b Presence and Location of Any Critical Areas and Possible Trouble Spots

The property is within the range of the Virgin Islands Tree Boa, and the partially cleared site does have interdigitation of the vegetation that would allow movement for tree boas; and rubble piles, termite nests, and tangled plants could provide refugia. According to FWS iPaC, Virgin Islands Tree Boa

(Chilabothrus granti) could occur onsite, though no critical habitat is designated. The site provides prey (lizards) and some refugia, but no boas were found, including during nighttime surveys.

The project will follow the USVI Boa Conservation Measures and recommend hand clearing. Workers should receive training from Fish and Wildlife before clearing and construction. Debris piles should be hand-cleared first to protect any boas using them as refugia. If these measures are implemented, the project may affect but is unlikely to adversely affect the Virgin Islands Tree Boa.

The property is within Flood Zone A, and the future amenity buildings associated with the soccer field will be located North of the proposed parking area.

5.01.c Method of Land Clearing

Because of the potential for tree boas the initial clearing will be by hand following the USVI Boa Conservation Measures. There are no large trees on the property.

5.01.d Provisions to Preserve Topsoil and Limit Site Disturbance

Any topsoil excavated will be saved in a protected stockpile to be used in the revegetation of the disturbed area. No large trees will be removed as a part of this application.

5.01.e Erosion and Sediment Control Measures to be Implemented

Silt fencing will be installed at the lowest contour of the area of construction. Any stockpiles will be surrounded with silt fencing and covered if left more than 7 days. Once the construction is completed the area will be sodded and landscaped. Silt fencing will not be removed until all exposed soil is stabilized by vegetation or other means.

5.01.f Schedule for Earth Change Activities and Implementation of Erosion and Sediment Control Measures

All necessary permits will be obtained before any earth disturbance occurs. Re-enforced silt fencing will be installed prior to any earth disturbance. Earthen berms will be utilized to direct runoff around areas of exposed soil.

5.01.g Maintenance of Erosion and Sediment Control Measures

Erosion control measures will be checked daily and anytime when more than ¼ inch of rainfall occurs. Soil will be removed when it reaches ¼ the height of the silt fencing. Fencing must be repaired if it is found to be damaged, has deteriorated or has proven to become ineffective. The fencing must always be properly toed-in.

5.01.h Method of Storm Water Management Post Construction

.This development includes comprehensive stormwater management practices by incorporating stormwater controls into both the parking area and playing field design to control runoff, promote stormwater infiltration back into the earth, and maintain the natural drainage patterns of the site. For the proposed 18,000 square feet of parking area, two primary stormwater management options are under consideration:

- **Option 1:** Permeable Paver System: Installation of 18,000 square feet of permeable pavers over a 13-inch stone base capable of providing approximately 58,350 gallons of immediate stormwater storage. This system would require an excavation depth of approximately 14 inches and would allow for on-site infiltration through the stone reservoir layer.
- **Option 2:** Underground Infiltration Chambers: Installation of 18,000 square feet of underground infiltration chambers providing up to approximately 166,575 gallons of immediate stormwater storage. This option would require an excavation depth of approximately 24 inches and would provide significantly increased subsurface detention capacity.

Under either parking configuration, an additional option is being evaluated to incorporate gray water storage beneath the parking area or beneath the field for reuse in irrigation of the soccer field and associated landscaping, thereby reducing potable water demand.

Soccer field stormwater management will include rerouting the existing drainage pipe located west of the proposed field and extending the existing swale away from the field, supplemented with check dams to slow and control runoff velocity. A small intermediate retention pond is proposed at the southwest corner of the site to temporarily detain stormwater prior to discharge. Alternatively, a culvert system may be installed to redirect stormwater away from the field and guide it back into the natural drainage pattern south of the site.

Subsurface field drainage will be controlled by a grid of underground perforated piping beneath the playing surface, installed in conjunction with a layer of ¾-inch stone to facilitate percolation and promote infiltration into the native soils. In addition, the existing retention pond at the southeast corner of the site will be cleaned out and restored to improve its storage capacity and function. This pond will serve as a final

collection point where stormwater can be detained and allowed to percolate back into the ground before reentering the established drainage pathway.

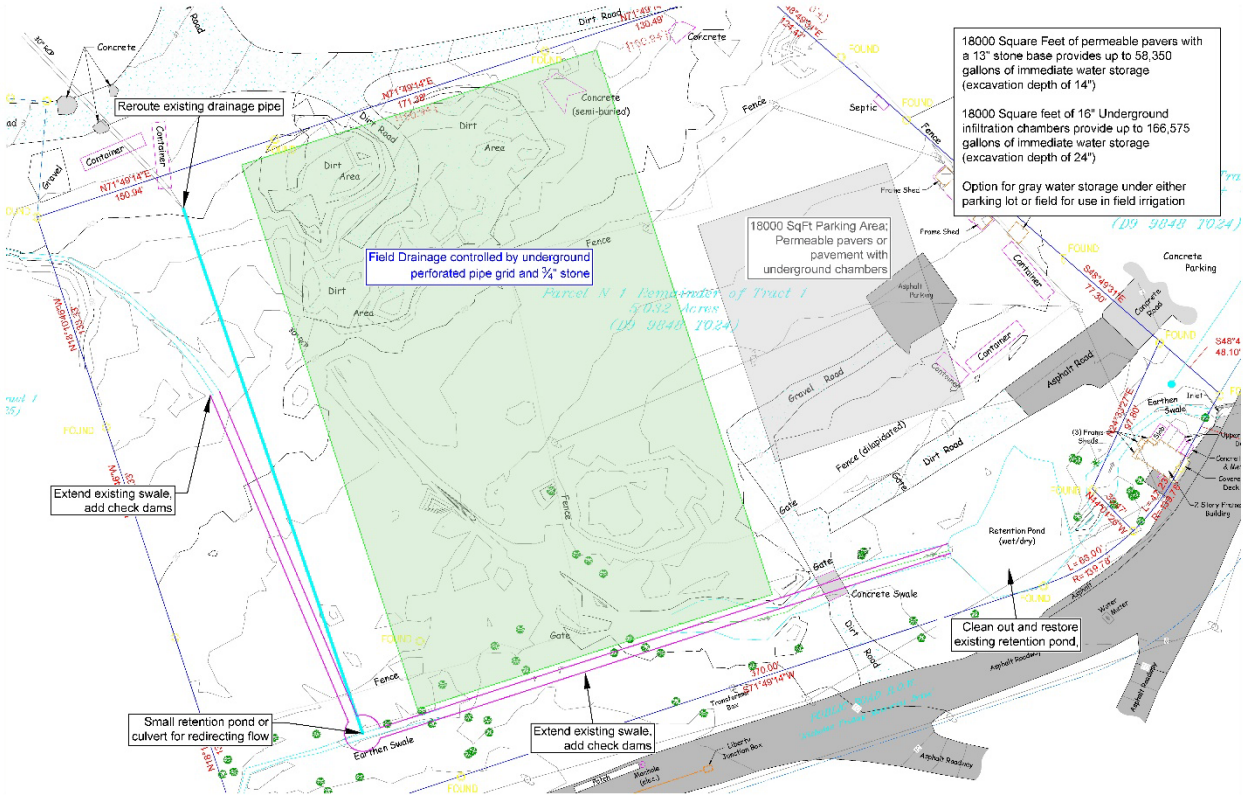
5.01.i Maintenance Schedule for Storm Water Facilities

The storm water collection swales and storm drains will be cleaned after storms to ensure they do not become blocked and create flooding.

5.01.j Method of Sewerage Disposal

At a future phase of work the facility will feature public restrooms, a players' locker room, and pre-manufactured aluminum bleachers with a 1,200-seat capacity and a roof covering. These amenities will be connected to any existing public sewer lines available or a wastewater treatment plant will be installed.

5.02 Site Plan



6.0 ECOLOGICAL SETTING AND PROBABLE PROJECT IMPACT ON THE NATURAL ENVIRONMENT

6.01 Climate and Weather

Prevailing Winds

The Virgin Islands lie in the "Easterlies" or "Trade Winds" that 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 4 seasonal modes: 1) December to February; 2) March to May; 3) June to August; and 4) September to November. Below are the characteristics of these modes as taken from Marine Environments of the Virgin Islands Technical Supplement No. 1 (IRF, 1977).

December - February

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

March - May

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

June - August

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

September - November

During the fall, winds blow mainly from the east or southeast and speeds reach an annual minimum. Only seven percent of the winds exceed twenty knots in October. The low speeds result from a decrease in the Equatorial Trough. During this period, especially during late August through mid-October, the normal trade wind regime is often broken down by easterly waves, tropical storms and hurricanes.

Storm and Hurricane

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 may significantly affect the area. These hurricanes occur most frequently between August and mid-October with their peak activity occurring in September. The annual probability of a cyclone is one in sixteen years (Bowden, 1974). However, in September of 2017, the U.S. Virgin Islands was hit by two category 5 hurricanes within a span of 2 weeks. The future buildings within the soccer center will be built to withstand a category 5 storm.

Climate

The climate is maritime tropical and is characterized by generally fair weather, steady winds, and slight but regular annual, seasonal, and diurnal ranges in temperature. Rain-producing weather systems generally move into St. Thomas from the east in summer and from the northwest in winter.

Major rainfall events are associated with weather systems that enhance the uplift of moist air in the region. Orographic lifting of moist air over hilly terrain is the most common cause of rainfall in St. Thomas. The amount of rainfall increases with increasing elevation. The total annual rainfall differs substantially at various locations throughout the island. The average annual rainfall on St. Thomas 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. Leeward aspects receive greater amounts of rain because clouds develop over the slopes on a daily basis. In general, days have a higher incidence of rainfall than nights. St. Thomas's wettest period generally is from September to November, and the driest period is from January to June. Occasionally, intense rainfall occurs during the drier period (USGS 1998). The Red Hook area receives around 30 inches of rainfall annually (Jordan 1971).

Rainfall data from 1972 to 2012 for the Red Hook Weather Station is presented below, in Table 1.

The difference between the mean temperatures of the coolest and warmest month is only 5 to 7 degrees F. The highest temperatures August or September and the lowest are in January or February.

The highest average daytime temperature in the warmest months is about 88 degrees F, and in the coolest months is in the low 80's. On the east end of St. Thomas, temperatures stay warm and steady year-round, generally ranging from the mid-70s at night to the upper-80s during the day.

CHARLOTTE AMALIE HAR, VIRGIN ISLANDS (678905)
Period of Record Monthly Climate Summary
Period of Record : 1/12/1972 to 4/30/2012

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (F)	84.7	85.0	85.5	86.4	87.4	89.1	89.9	90.1	89.5	88.6	87.0	85.5	87.4
Average Min. Temperature (F)	72.3	72.2	72.7	74.2	76.3	77.7	78.0	78.1	77.6	76.6	75.1	73.3	75.3
Average Total Precipitation (in.)	2.03	1.45	1.46	2.74	3.35	2.75	2.66	3.83	5.42	5.94	5.54	2.84	40.01
Average Total Snowfall (in.)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Average Snow Depth (in.)	0	0	0	0	0	0	0	0	0	0	0	0	0

Percent of possible observations for period of record.
Max. Temp.: 84% Min. Temp.: 83.6% Precipitation: 80.9%

Table 1 Monthly Climate Summary from 1972 to 2012

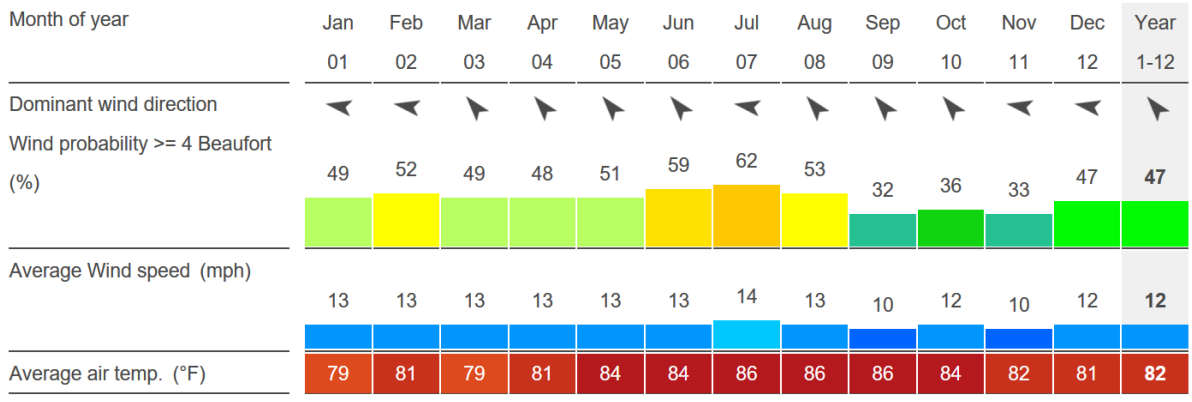


Figure 4. Prevailing Wind and Temperature, St. Thomas, U.S. Virgin Islands, Statistics based on observations taken between 08/2003 - 09/2017 daily from 7am to 7pm local time. Windfinder (https://www.windfinder.com/windstatistics/st_thomas)

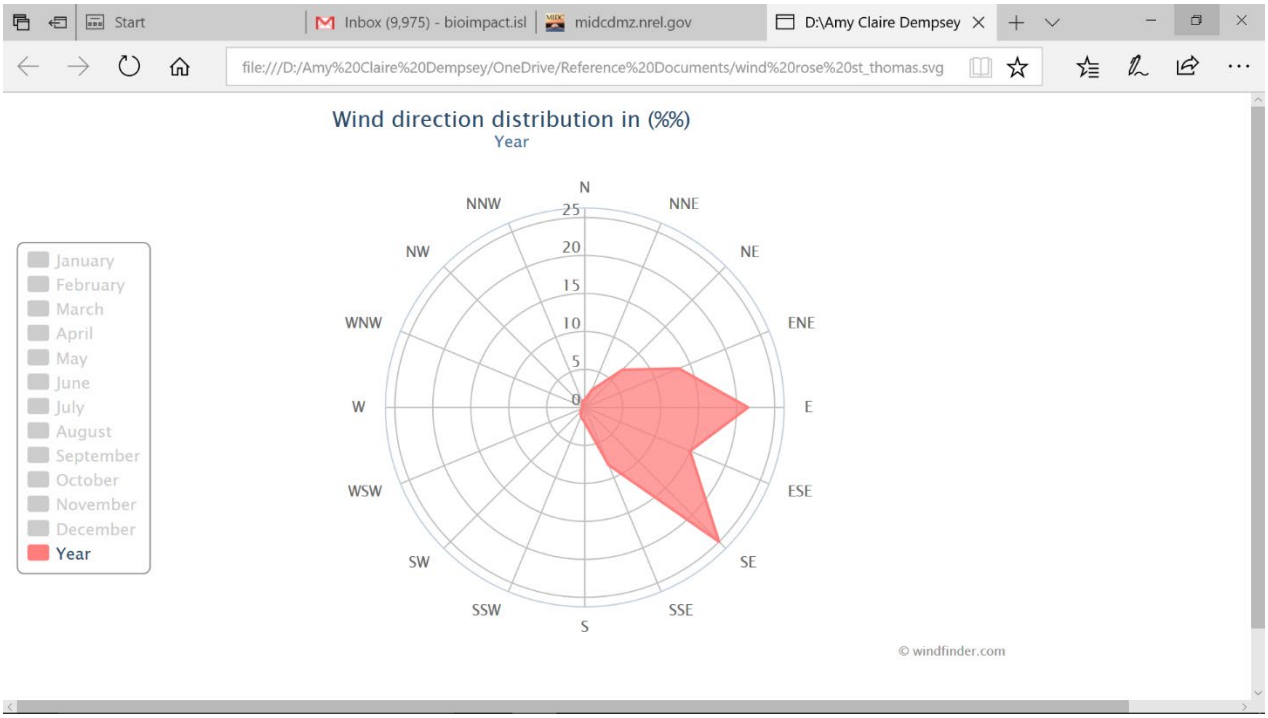


Figure 5. Windrose St. Thomas, U.S. Virgin Islands Windfinder (https://www.windfinder.com/windstatistics/st_thomas)

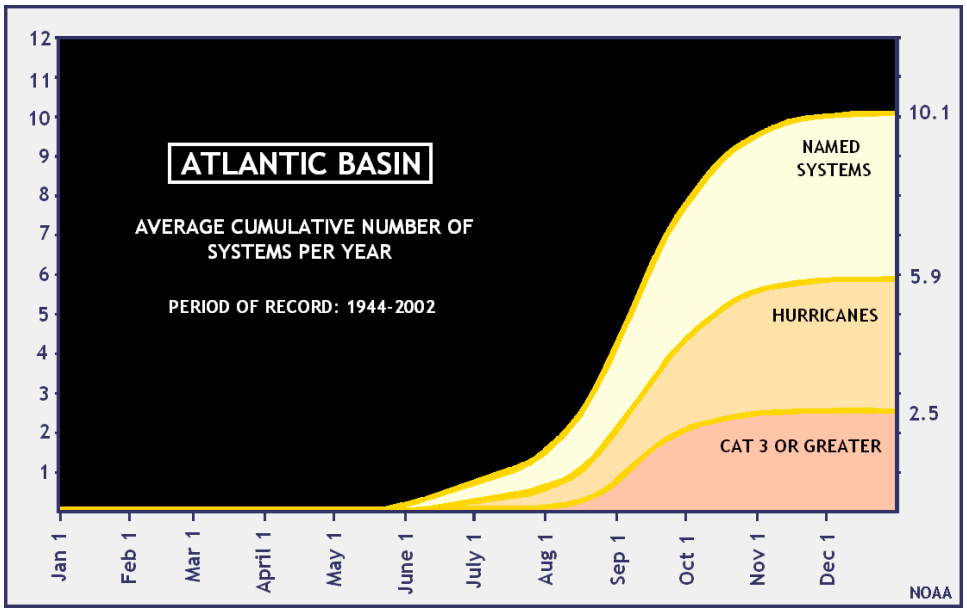


Figure 6. Tropical Cyclone Frequencies in the Atlantic (National Weather Service).

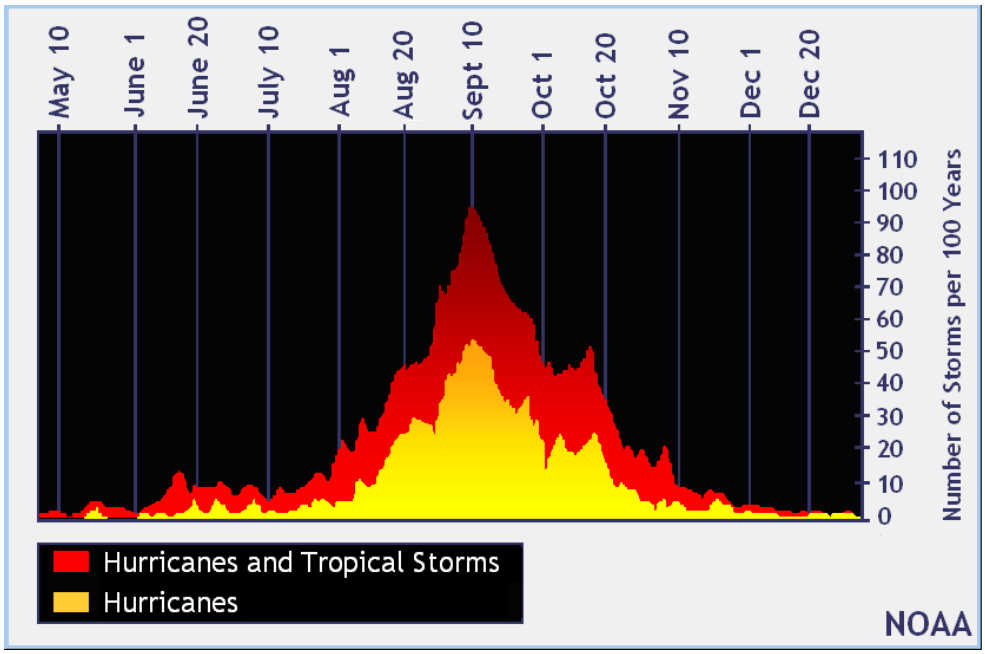


Figure 7. Tropical Storm and Hurricane Occurrences in the Atlantic (National Weather Service). The risk of hurricanes is greatest in mid-September.

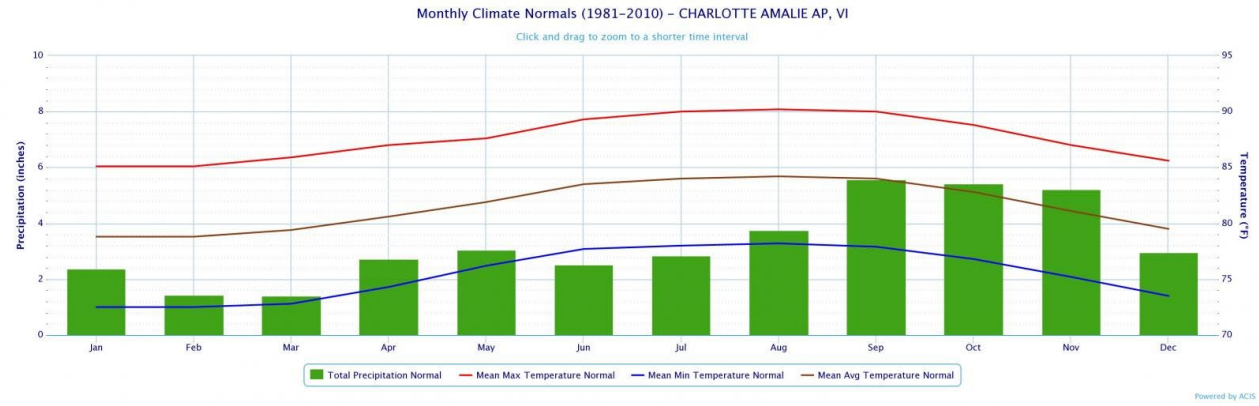


Figure 8. Climate Normals, National Weather Service
(http://www.weather.gov/sju/climo_pr_usvi_normals)

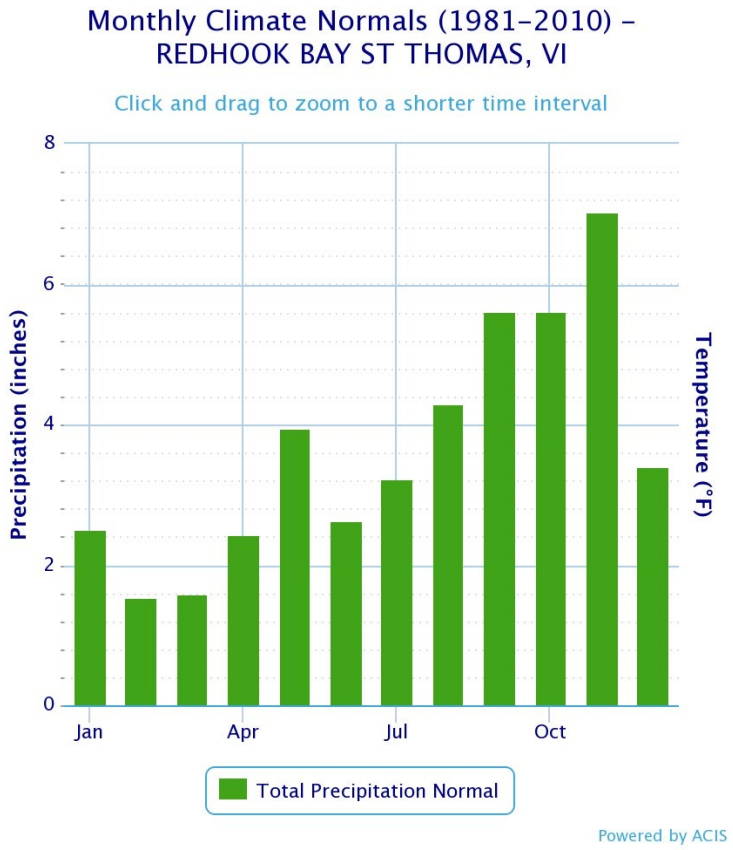


Figure 9. Rainfall Normals for Red Hook, St. Thomas.

https://www.weather.gov/images/sju/Interactive_Map/RedHookBay.jpg

Impact of Weather on Soccer Field

It is probable

6.02Landform, Geology, Soils and Historic Land Use

Geology of St. Thomas

The Virgin Islands are near the northeastern corner of the present Caribbean Plate, a relatively small trapezoidal-shaped plate that is moving eastward relative to the North and South American continents carried on the American Plate. The arc of the Lesser Antilles is an active volcanic arc above a subduction zone in which the Atlantic oceanic crust of the American Plate is carried downward under the Caribbean Plate. The closest volcano to the Virgin Islands that is still active is Saba, about 160 km. to the east.

St. Thomas is composed of stratified volcanic and volcaniclastic rocks with minor limestone of the Early Cretaceous (Albain) to possibly the late Cretaceous Age (Donnelly 1966). These rocks are granitic composition, some of which may be as young as Tertiary (Kesler and Sutter, 1979). The oldest rocks of St. John are submarine lavas (keratophyre and spilite), beds of volcanic debris and chert. Associated intrusive rocks of the Water Island Formation are overlain by andesitic volcanic and volcaniclastic rocks of the Louisenhoj Formation which underlies the island of St. Thomas to the east and much of the northwestern portion of St. John. Donnelly (1966) suggested that the Louisenhoj Formation was deposited unconformably on the Water Island Formation after a period of emergence, tilting and erosion, on the slopes and environs of a subaerial volcanic island located roughly between St. Thomas and St. John, an area now occupied by Pillsbury Sound. The youngest layered deposits on St. Thomas are volcaniclastic rocks of the Tutu Formation. Fossils contained in the Tutu Formation suggest that those deposits are of the Early Cretaceous (Albain) Age (Donnelly et. al. 1971). It appears that all of the volcaniclastic rocks of St. Thomas were deposited in a relatively short period of time spanning 10 to 15 million years approximately 100 million years ago (D. Rankin 1988).

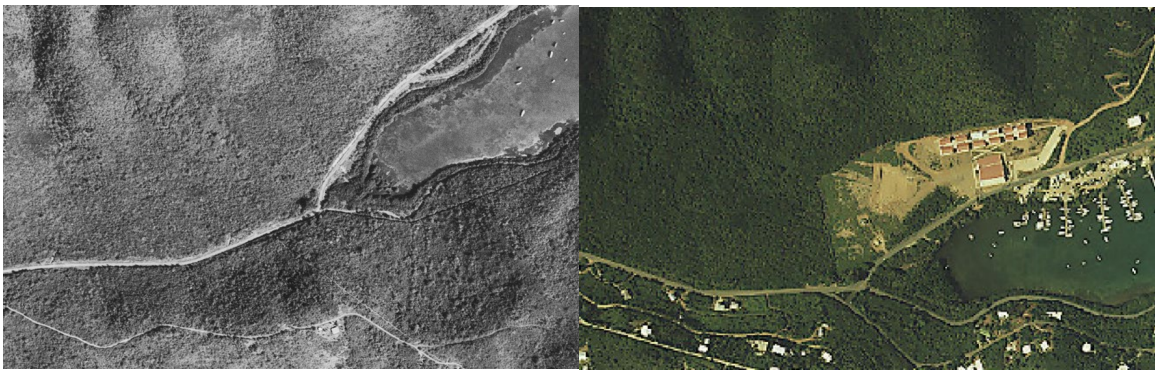
An irregular coastline, numerous bays, steep slopes, and small drainage areas characterize St. Thomas. For the most part, the topography is mountainous and coastal plains are absent.

Geology of Project Site

The project site has been altered and graded in the past.

History of the Project Site

The 1954 USGS aerial below shows the area was heavily wooded and that clearing and grading were being undertaken to east as part of the development of the Kean High School around 1970.



1954 1972

By 2002 the entire area had been cleared and graded.

Soils of Project Site

Two soil types are associated with Cowpet Bay West according to the Custom Soil Survey of the United States Virgin Islands. Southgate-Rock outcrop complex (SrD), 12 to 20 percent slope, these soils are found on hillslopes, mountain slopes, and ridges and often have as much as 40% exposed rock outcroppings. This is the soil found throughout the northern portion of the property. The southern portion of the site is Solitude gravelly fine sandy loam, 0 to 2 percent slopes, frequently flooded.

Figure 10. USDA-NRCS Soils Map

Adverse Site Conditions

The proposed soccer field site is protected from typical wave and wave patterns by its location inland from the sea at the head of Vessup Bay. The site however is in a flood zone. The property is within Flood Zone A where 100-year coastal flooding is expected but flood elevations have not been determined as shown on FIRM Map 29 of 94, April 16, 2007 (Figure 11). The USVI Advisory Flood Hazard Resource Map (Figure 6) shows the area as being subject to 1% flooding to an elevation of 11.0 feet throughout most of the property and 12.7 feet at the western boundary. This will mean a 1% chance of one foot flooding each year. (Figure 12).

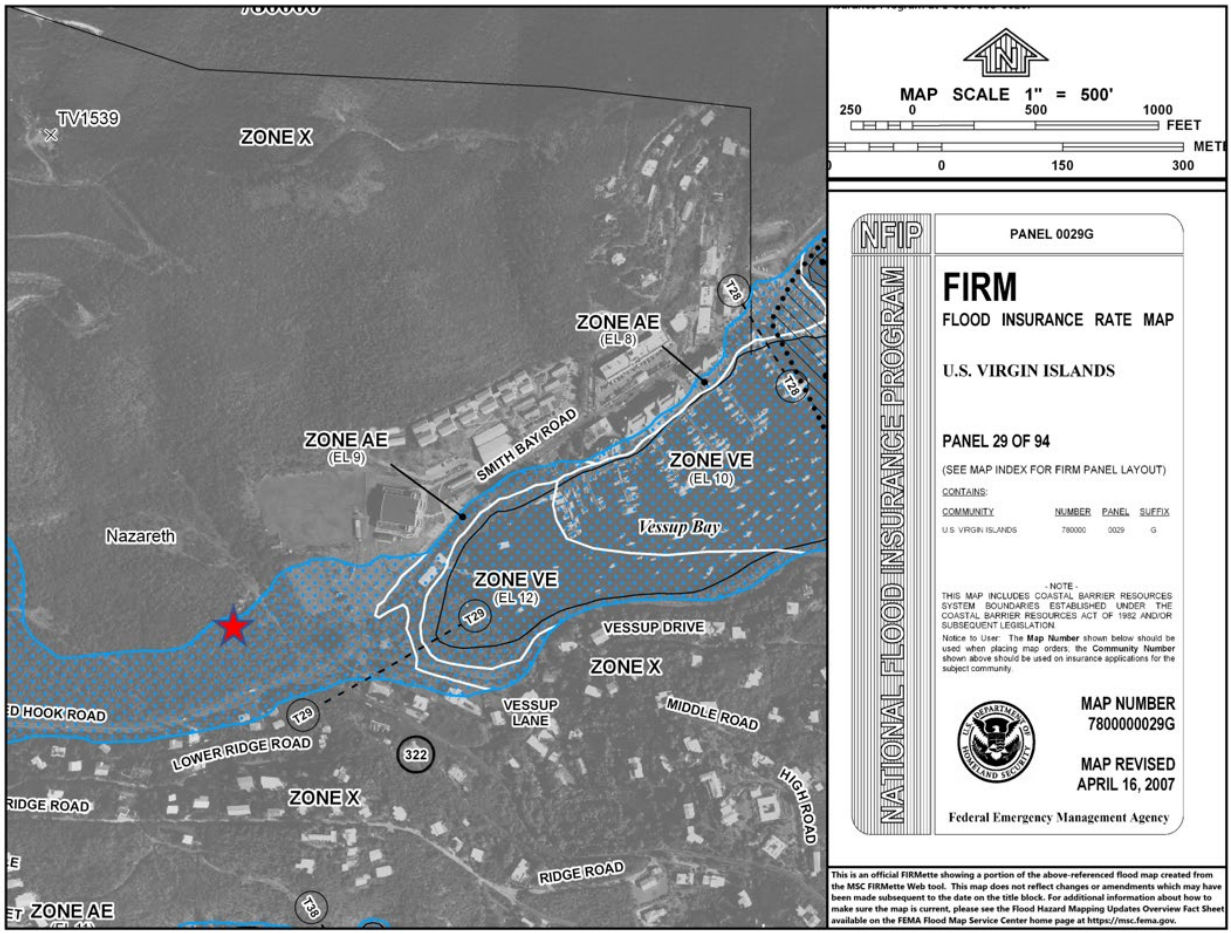


Figure 11. USDA-NRCS Custom Soil Map for the Soccer Field.

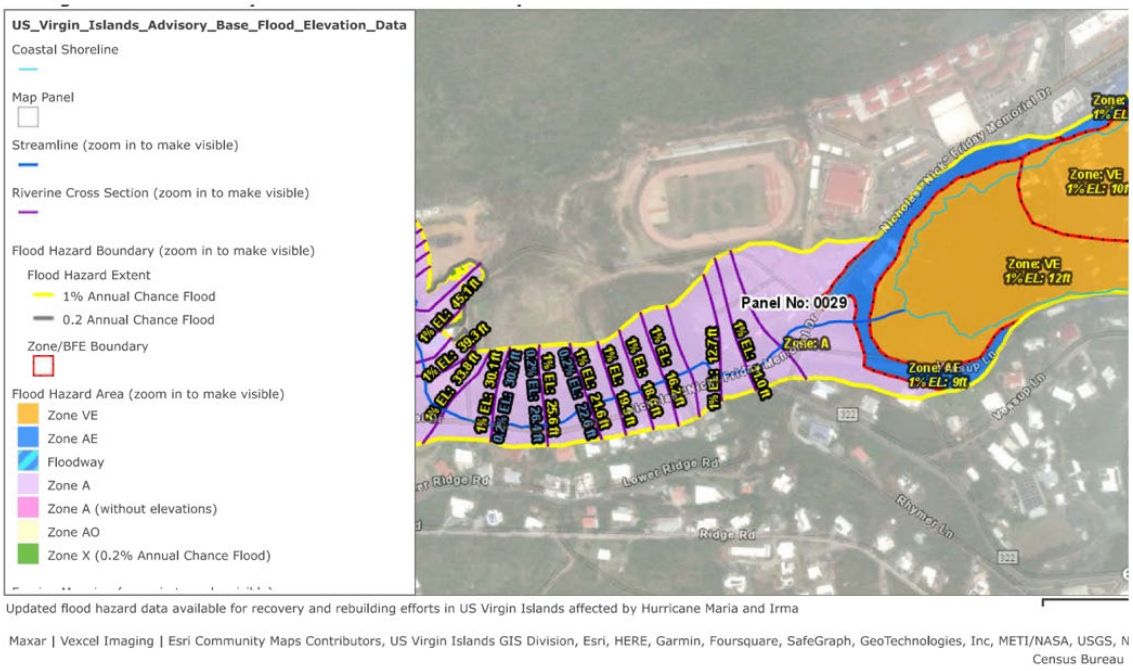


Figure 12. USVI Advisory Base Flood Elevation Map

Seismic Activity

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 willow 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). Since the 1867 quake, there has been continuous low intensity activity all below 6.0 Richter.

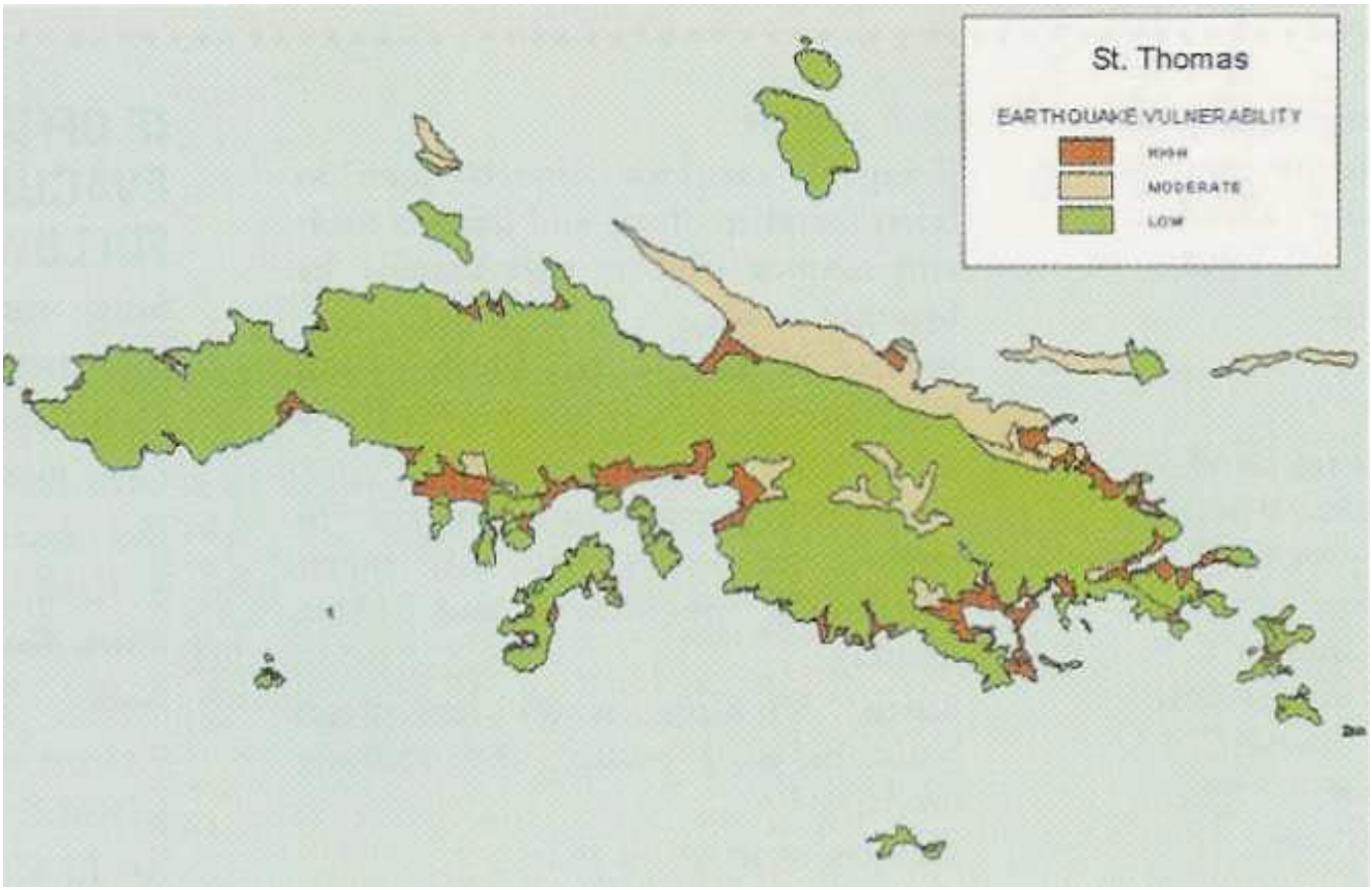


Figure 13. Earthquake Probability Map

Impact on Site Geology

A grid of perforated pipes will be placed under the field over a bed of gravel to percolate stormwater, this will change the drainage across the site.

6.03Drainage, Flooding and Erosion Control

There is a 36" culverted with riprap below it which discharges into a earthen swale that runs across the center of the site.

6.03.a Existing Drainage Patterns

Figure 14. below shows the earthen swale which bisects the property, runoff flows from southwest to northeast across the property and the drainage way stands out in the aerial photographs as greener due to the periodic water flow. There is a smaller secondary branch of the drainage to the east that is less defined.

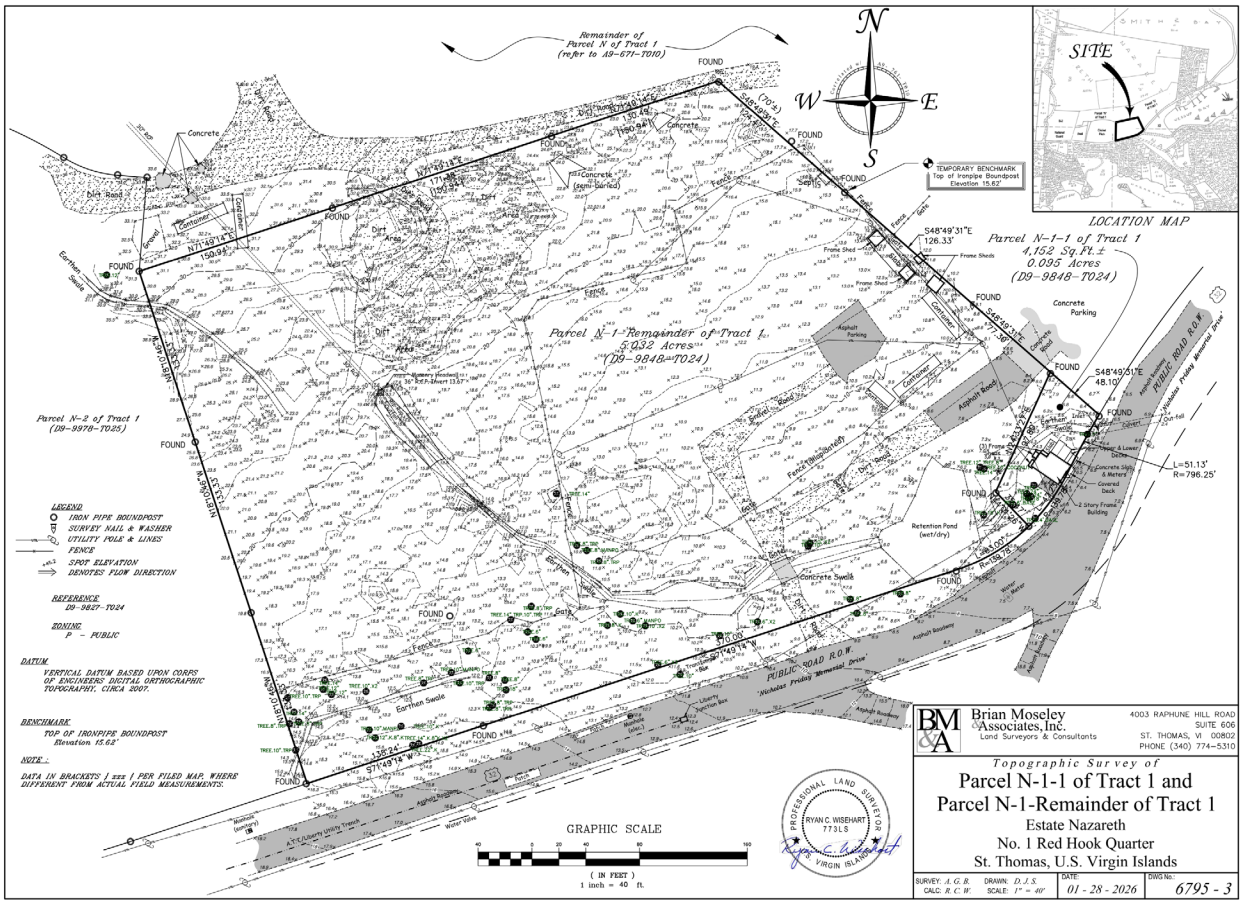


Figure 14. Topographic map showing drainage swale across the property

6.03.b Proposed Alterations to Drainage Patterns

Runoff will be directed around the field with earthen swales. The existing drainage will be intercepted and directed to the south and then to the east along the roadway as shown in Figure 15.

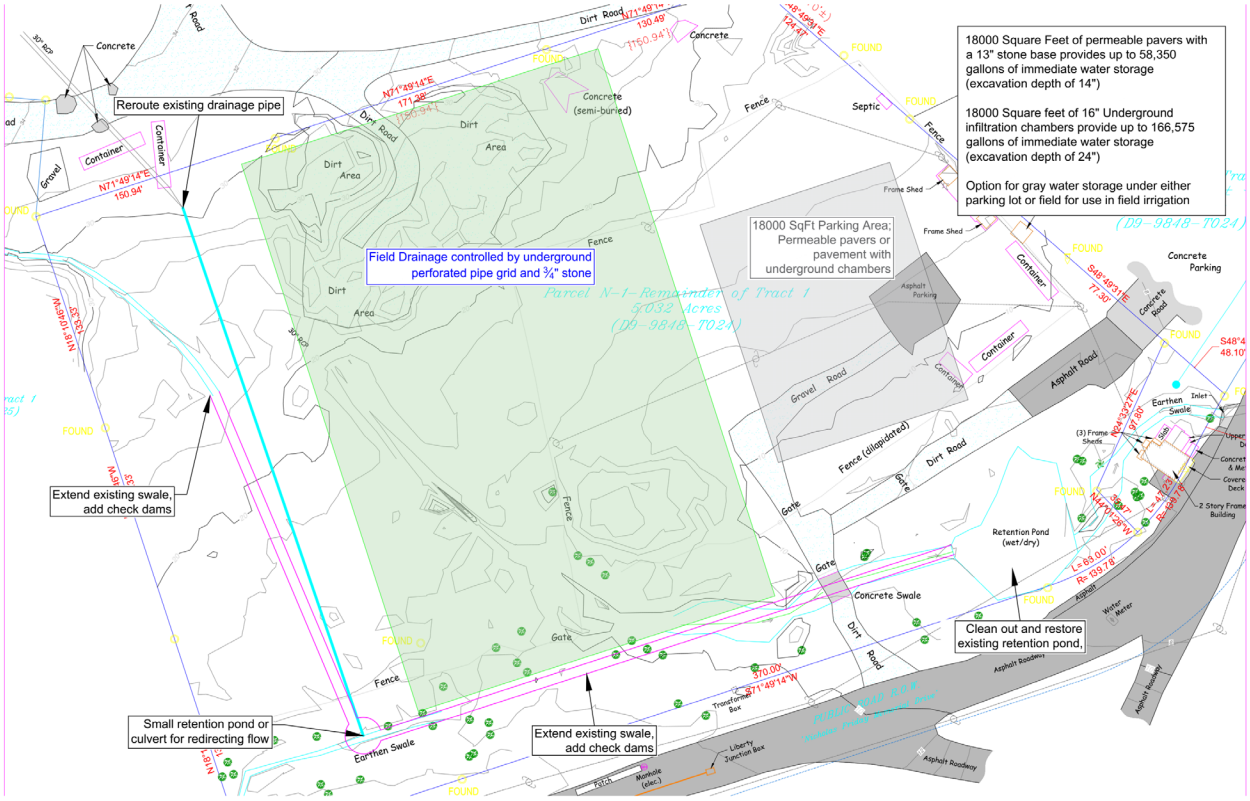


Figure 15. Proposed drainage around playing field

6.03.c Relationship of the Project to the Coastal Flood Plain

The proposed soccer field site is protected from typical wave and wave patterns by its location inland from the sea at the head of Vessup Bay. The site however is in a flood zone. The property is within Flood Zone A where 100-year coastal flooding is expected but flood elevations have not been determined as shown on FIRM Map 29 of 94, April 16, 2007 (Figure 11). The USVI Advisory Flood Hazard Resource Map (Figure 6) shows the area as being subject to 1% flooding to an elevation of 11.0 feet throughout most of the property and 12.7 feet at the western boundary. This will mean a 1% chance of one foot flooding each year. (Figure 12) (as noted above),

6.03.d Peak Storm Water Flow Calculations

6.03.e Existing Storm Water Disposal Structures

There is a 36" RCP culvert which discharges into the earthen swale across the property, this will rerouted as shown in the proposed drainage in Figure 15.

6.03.f Schedule of Maintenance of Storm water Facilities

The storm water collection swales and storm drains will be cleaned after storms to ensure they do not become blocked and create flooding.

6.03.h Proposed Method of Land Clearing

Because of the potential for tree boas the initial clearing will be by hand following the USVI Boa Conservation Measures. There are no large trees on the property.

6.03.i Provisions to Preserve Topsoil and Limit Site Disturbance

Any topsoil excavated will be saved in a protected stockpile to be used in the revegetation of the disturbed area. No trees will be removed as part of this application.

6.03.j Presence and Location of Any Critical Areas and Possible Trouble Spots

The property is within the range of the Virgin Islands Tree Boa, and the partially cleared site does have interdigitation of the vegetation that would allow movement for tree boas; and rubble piles, termite nests, and tangled plants could provide refugia. According to FWS iPaC, Virgin Islands Tree Boa (Chilabothrus granti) could occur onsite, though no critical habitat is designated. The site provides prey (lizards) and some refugia, but no boas were found, including during nighttime surveys.

The project will follow the USVI Boa Conservation Measures and recommend hand clearing. Workers should receive training from Fish and Wildlife before clearing and construction. Debris piles should be hand-cleared first to protect any boas using them as refugia. If these measures are implemented, the project may affect but is unlikely to adversely affect the Virgin Islands Tree Boa.

The property is within Flood Zone A, and the future buildings associated with the Center will be located to the north of the field outside the floodzone.

6.03.k Erosion and Sediment Control Devices to be Implemented

Silt fencing will be installed at the lowest contour of the area of construction. Any stockpiles will be surrounded with silt fencing and covered if left more than 7 days. Once the construction is completed the area will be landscaped. Silt fencing will not be removed until all exposed soil is stabilized by vegetation or other means.

6.03.1 Maintenance of Erosion and Sediment Control Devices

Erosion control measures will be checked on a daily basis and anytime when more than ¼ inch of rainfall occurs. Soil will be removed when it reaches ¼ the height of the silt fencing. Fencing must be repaired if it is found to be damaged, has deteriorated or has proven to become ineffective. The fencing must be properly toed-in at all times.

6.03.m Impacts on Terrestrial and Shoreline Erosion

The property is not located on the shoreline and should have no effect on shoreline erosion since any runoff will flow through a mangrove colonized shoreline. The field and center layout will be such that no erosion points will be created.

6.04 Fresh Water Resources

There were no ponds or streams on the property, however some water was standing down stream of a culvert and in several puddles on the property after heavy rainfall.

St. Thomas, USVI is limited in the amount of freshwater resources to a few wells located around the island, and intermittent and ephemera streams and ponds which dry up during periods of limited rainfall. The majority of potable water is either captured by rooftops and stored in cisterns or is desalinated seawater. The soccer field will use graywater collected in the underground water chambers and for future building facilities, above ground concrete cisterns will be built to support each building.

6.05 Oceanography

6.05.a Seabed Alteration

No alternation of the seabed is proposed. The property is located inland.

6.05.b 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 offshore are primarily semi-diurnal in nature, with two cycles of high and two of low water every 24 hours. The mean tides range from 0.8 feet to 1.0 feet, and the spring tidal ranges reach up to 1.3 feet (IRF 1977). There are not locally driven tidal currents off the resort property due to the openness of the embayment.

NOAA has a tide gauge in Charlotte Amalie and has recorded water levels since 1975. The high tide recorded on September 18, 1989 (Hurricane Hugo) was +3.35ft. In 1995, during Hurricane Marilyn, the Charlotte Amalie tide station recorded the highest tide height 3.98' above Mean Lower Low Water. The lowest tide recorded was on February 6, 1985, and was -1.44ft.

The tidal ranges of the Charlotte Amalie station are as follows and as shown in Figure Table 2 and Figure 13.

Table 2. Tides in the USVI

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

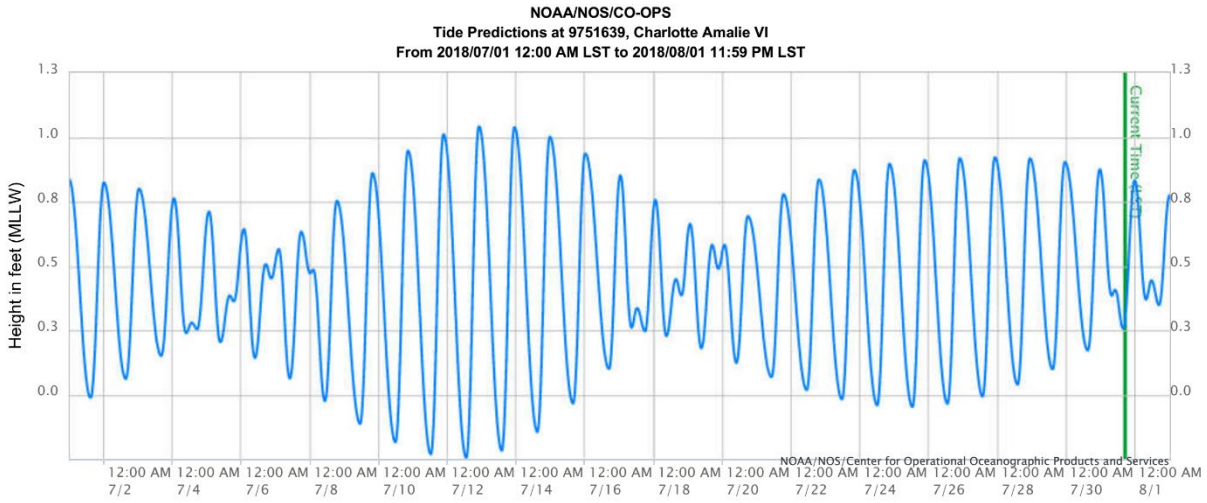


Figure 16. Tides in Charlotte Amalie, St. Thomas, there is no station in Red Hook.

Currents

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 (Figure 14). These currents change very little from season to season with the currents coming more from the south during the summer months. Because of the shallowness of the Caribbean basin (less than 1000m), mainly surface water from the Atlantic flows through the islands. The westerly drift of the Caribbean current sweeps into Pillsbury Sound from the

Southeast, seeking a way North through the barrier set up by the Cays to discharge along the North Shore of St. Thomas and out into the Atlantic (Figure 15). Currents off the south side of St. Thomas average 0.7 knots 23 percent of the time. The current flows along the north side of St. Thomas in a westerly direction. The current flowing through Pillsbury Sound is typically to the north. The water flows past the opening to Vessup Bay and the deep reach inland creates a bay with very limited discharge in the headwaters. It is imperative that runoff from the soccer field no further add to the degradation.

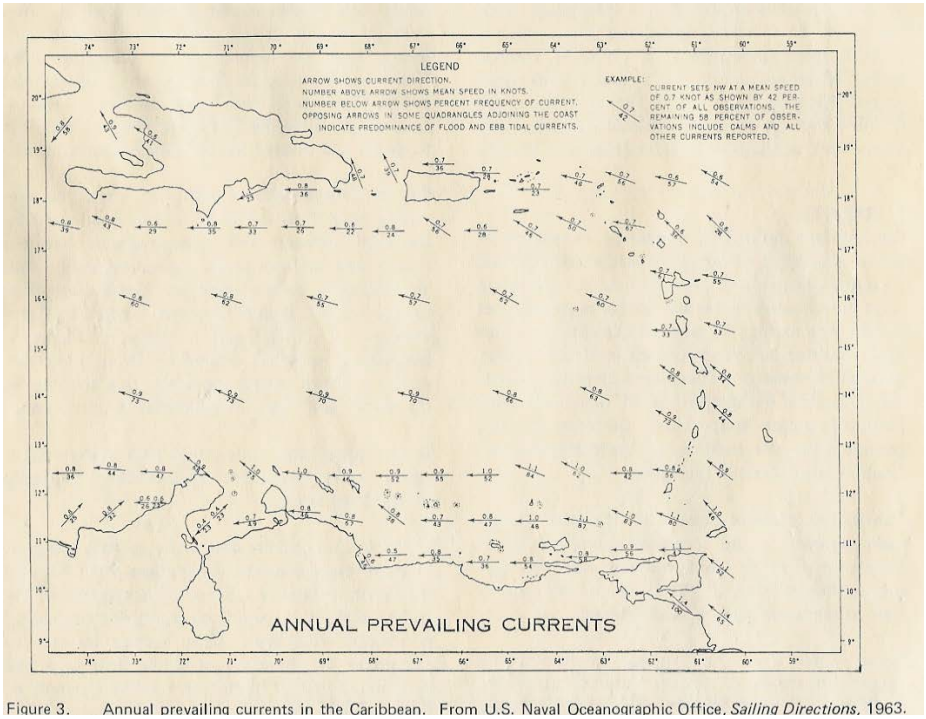


Figure 3. Annual prevailing currents in the Caribbean. From U.S. Naval Oceanographic Office, *Sailing Directions*, 1963.

Figure 17. Annual Prevailing Currents in the Caribbean

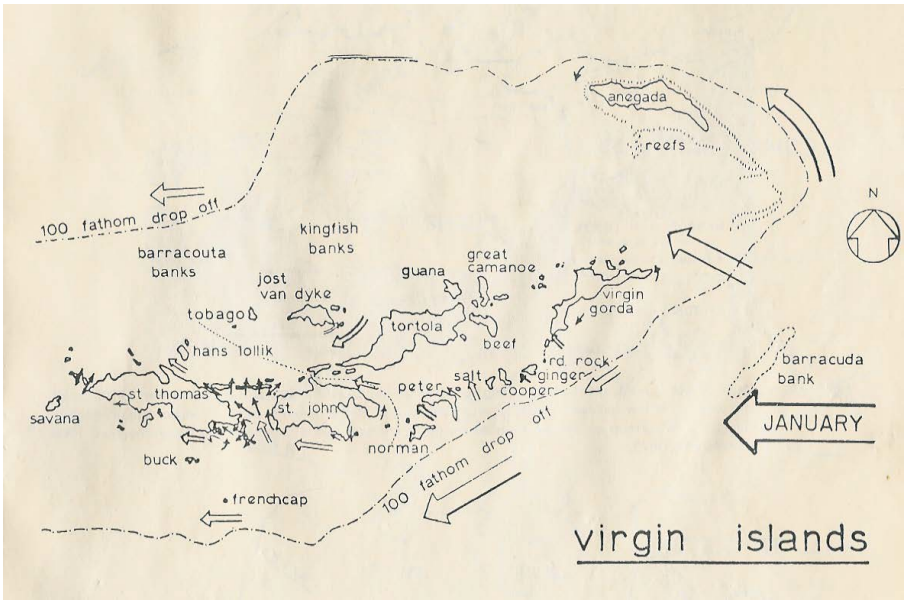


Figure 18. Currents in the Northern Virgin Islands

6.05.c Waves and Wind

The deep-water waves off St. Thomas are primarily driven by the northeast trade winds that blow most of the year. Waves average from 1 to 3 feet from the east, 42% of the time throughout the year (IRF, 1977). For 0.6% of the time, easterly waves reach 12 ft. in height. The southeasterly swell with waves one to twelve ft. high becomes significant in late summer and fall when the trade winds blow from the east or when tropical storms and hurricanes pass the islands at a distance to the south. During the winter months, long length, long period northern swells develop to a height of 1 to 5 ft.

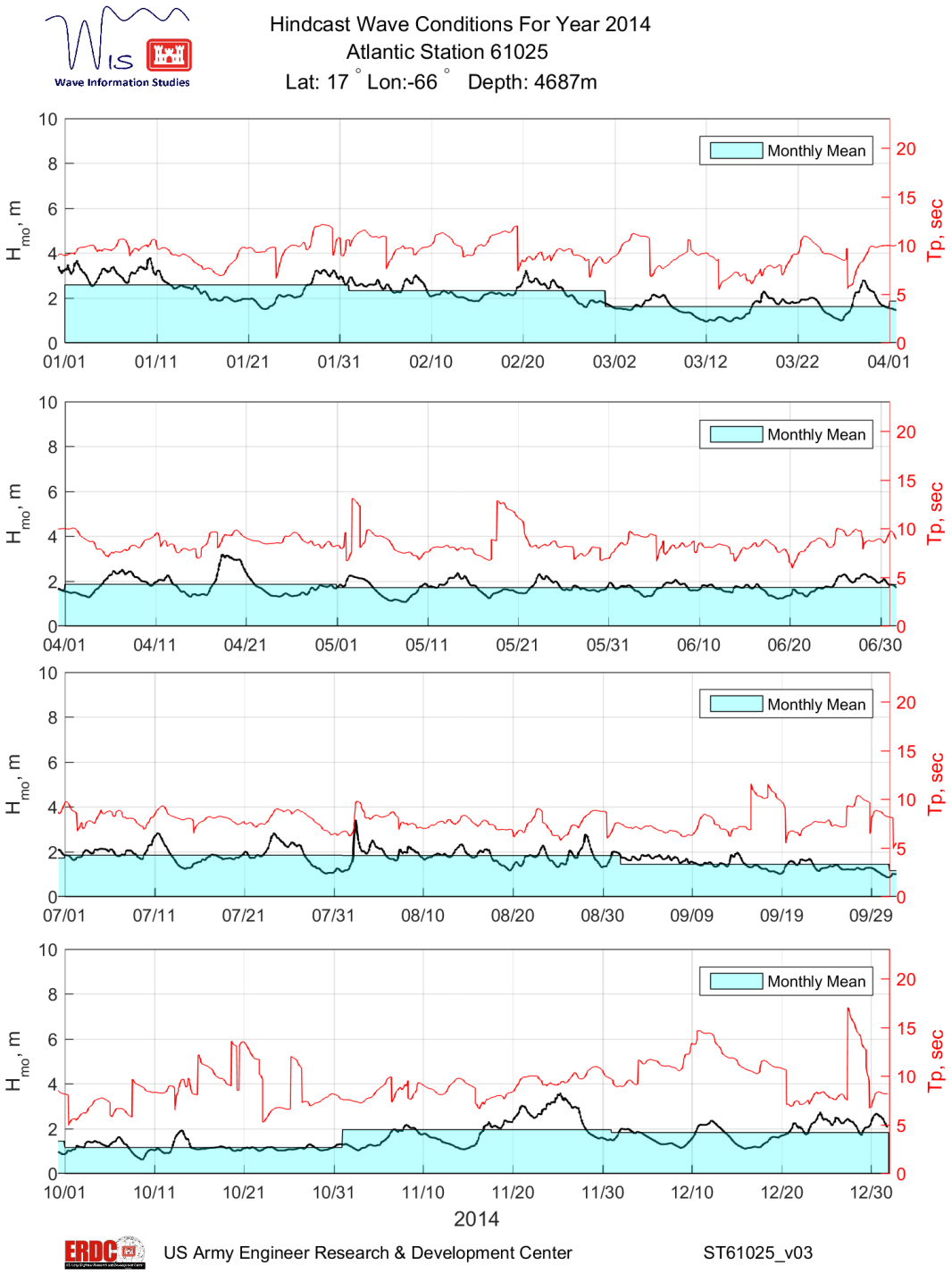


Figure 19. Significant wave height, ERDC, USACE WIS, (http://wis.usace.army.mil/data/atl/onlns/2014/stplots/TimePlt_ST61025_2014.png)

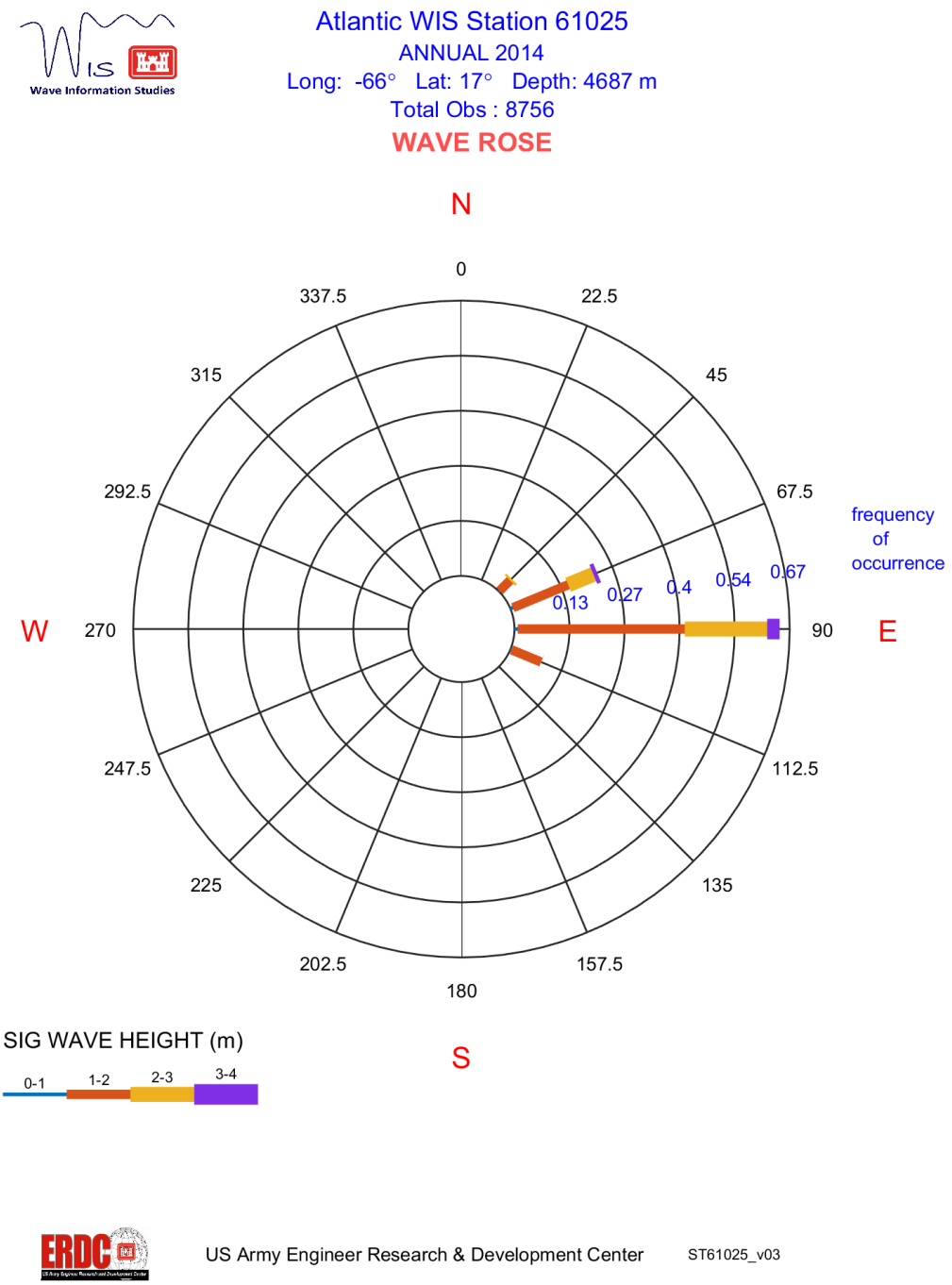


Figure 20. Wave Rose Station 61025 (most direct approach to resort property) USACE WIS (http://wis.usace.army.mil/data/atl/onlns/2014/stplots/TimePlt_ST61025_2014.png)

Because of the depth of the bay wave action except during extremely bad storms does not reach the headwaters and aid in mixing.

6.05.d Marine Water Quality

The water runoff from the site will enter the sea is classified as Class B and the best usage of the water is listed as the propagation of desirable species of marine life and for primary contact recreation (swimming, water skiing, etc.). The quality criteria include dissolved oxygen not less than 5.5mg/l from other than natural conditions. The pH must not vary by more than 0.1 pH unit from ambient; at no time shall the pH be less than 7.0 or greater than 8.3. Bacteria (fecal coliform) cannot exceed 70 per ml, and turbidity should not exceed a maximum nephelometric turbidity unit of three (3) NTU. Water quality within Vessup Bay is usually very poor due to the limited circulation of Vessup Bay, the discharge of the Red Hook public WWTP, and the build up of sargassum. It is imperative that the soccer field runoff no add to the nutrients or turbidity in the bay and further exacerbate the already degraded water quality.

Impact of the Proposed Project

The proposed project alteration should not result in any negative impact on offshore water quality. The installation of a new WWTP should minimize the potential of nutrient input from the condominiums.

6.06 Marine Resources and Habitat Assessment

No impacts to marine resources and habitat are anticipated in connection with this application. Stringent sedimentation and erosion control will be implemented both during construction and operation.

6.06 Terrestrial Resources

The site has been cleared several times in the past and there is a lot of clearing and activity within the immediate vicinity.

Methods

Walk-through transects covered the entire site, which now contains secondary growth vegetation like guinea grass (*Panicum maximum*), tan-tan (*Leucaena leucocephala*), casha *(Acacia tortuosa, A. macracantha*), crotons (*Croton astreoides, C. discolor*), caster bean (*Ricinius communis*), sages (*Lantana involucrata*), water mampoo (*Pisonia subcordata*), black mampoo (*Guapira fragrans*), turpentine (*Bursera simaruba*) and columnar cactus (*Pilosereus royenii*), with most plants under 6-8 inches diameter at breast height.

Impact of Development

The secondary vegetation will be cleared to allow for the development of the soccer center and appropriate site drainage will be installed so the correct turf can be planted for the playing surface.

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).

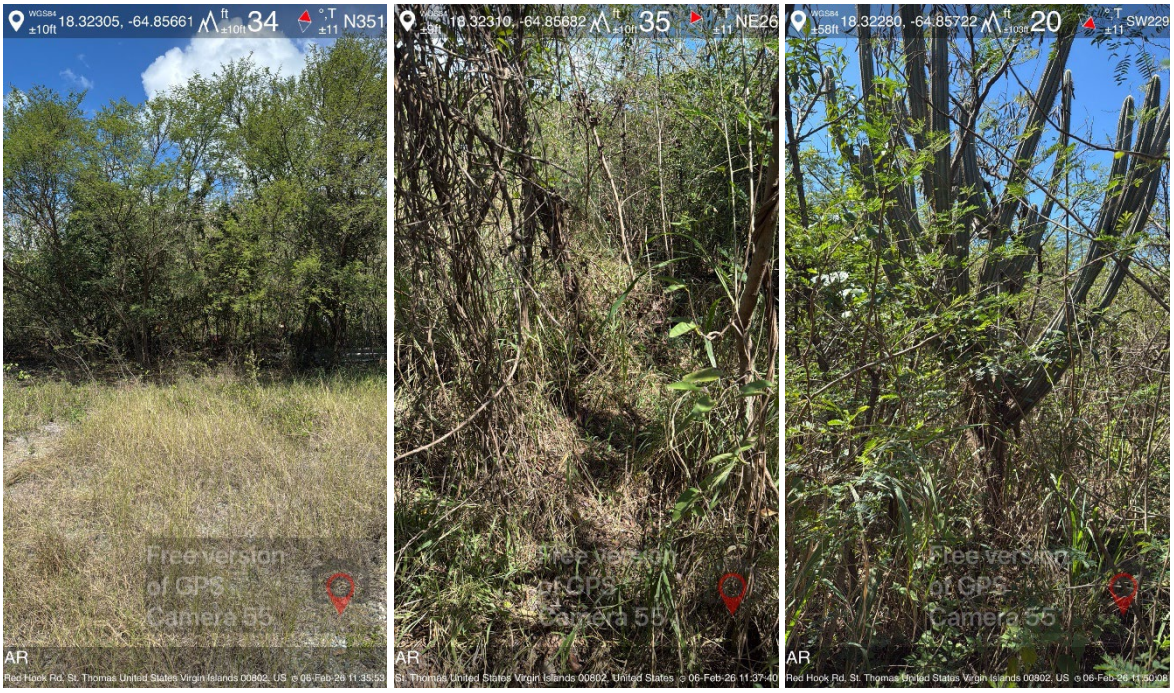
There are no terrestrial wetlands within the property.

6.09 Rare and Endangered Species

Bioimpact, Inc. conducted endangered species surveys of a sub parcel of Estate Nazareth Tract 1, No. 1 and 2, Red Hook Quarter, St. Thomas, U.S. Virgin Islands in January and February of 2026. The site has been cleared in the past and there is a lot of clearing and activity within the immediate vicinity.

Methods

Walk-through transects covered the entire site, which now contains secondary growth vegetation like guinea grass (Panicum maximum), tan-tan (Leucaena leucocephala), casha (Acacia tortuosa, A. macracantha), crotons (Croton astreoides, C. discolor), caster bean (Ricinius communis), sages (Lantana involucrata), and columnar cactus (Pilosereus royenii), with most plants under 6 inches diameter at breast height.



There is sufficient interdigitation for the tree boa to move around in the scattered secondary growth vegetation on the site.

Rubble piles provide “refugia” for the tree boa, as do the termite nest and other tangles of vegetation.

The interdigitation of the vegetation allows movement for tree boas; rubble piles, termite nests, and tangled plants provide refugia. Two listed plant species, Marron Bacora (Solanum conocarpum) and St. Thomas prickly ash (Zanthoxylum thomasianum) were not observed.

According to FWS iPaC, Virgin Islands Tree Boa (*Chilabothrus granti*) could occur onsite, though no critical habitat is designated. The site provides prey (lizards) and some refugia, but no boas were found, including during nighttime surveys.

The project will follow USVI Boa Conservation Measures and recommend hand clearing. Workers should receive training from Fish and Wildlife before clearing and construction. Debris piles should be hand-cleared first to protect any boas using them as refugia. If these measures are implemented, the project may affect but is unlikely to adversely affect the Virgin Islands Tree Boa.

VI Tree Boa Protocol, U.S. Fish and Wildlife Service IpaC Report as well as suggested Tree Boa Signage is found in Appendix II

6.10 Air Quality

The project will have no impact on air quality once completed. During construction there will be minor increases due to the use of heavy equipment during earth change. Once complete the combustion engine emissions from the site will no longer be created. There project will implement a dust plan during construction which will be detailed in the Stormwater Pollution Prevention Plan which will be produced for Coverage under the Construction General Permit.

6.0 IMPACT OF THE PROPOSED PROJECT ON THE HUMAN ENVIRONMENT

6.01 Land and Water Use Plans

The site is zoned R-2 which does allow for the development of recreational field (allowed as a conditional use under § 231 of the Virgin Islands code Title 29, Chapter 3.

6.02Visual Impacts

The site is overgrown and there are junk cars on it, making it into a Soccer Center will be an improvement to the viewshed.

7.03 Impacts of Public Services and Utilities

7.03.a Water

When the future phases of the facility are undertaken it is likely they will attach to the public water service which is available along the roadway..

7.03.b Sewage Treatment and Disposal

The facility will be attached to the public sewerage system in the future when building are constructed. The Red Hook WWTP is across the street from the proposed facility.

7.03.c Solid Waste Disposal

The garbage and debris on site will be disposed of at the Bovoni Landfill. A waste disposal permit will be sought from VIWMA.

7.03d Roads, Traffic and Parking

The project will have an impact on local traffic during construction with an increase in vehicles carrying workers and materials to the site. Once complete the facility will draw individuals to the site to play and watch soccer. The roads are suitable to handle this traffic. The facility will create parking for use at the facility. There is a parking issue in Red Hook due to persons taking the ferry to St. John and there is a parking lot which is used for this purpose to the west of the site. The the parking area will be constructed fully within the parameters of the leased property, with one or two controlled access points to ensure compliance and proper site management. The intention is not for the parking lot to function as a completely public facility

7.03.e Electricity

The project will tie to VIWAPA distribution system. The Federation is very interested in incorporating renewable energy solutions in the future, for both options of solar panels on proposed buildings and the possibility of a solar awning or canopy structure over the parking lot

Schools

The project will not have an impact on Public Schools except for offering a new amenity for students and parents interested in soccer. This is a benefit to the youth of the USVI.

7.03.g Fire and Police Protection

The project will rely on public fire and police protection. The facility should not create a strain on these services.

7.03.h Health

This application will have limited if any impact on the use of public health facilities. The people using the facility will already be residents of the island.

7.04 Social Impacts

The development of the

7.05 Impacts on Historical and Archaeological Resources

The site has been highly altered in the past, the archeological survey did not reveal archaeological resources. The report is recommending that archeological monitoring be undertaken during excavation.

7.06 Recreational Use

The project is a recreational facility being built on land which currently has no recreational use.

7.07 Waste Disposal

The debris and junked vehicles on the site will be disposed of at the Bovoni Landfill. Permits will be required for disposal.

7.08 Accidental Spills

During construction all equipment will be properly maintained and if fueling is done on site special precautions will be required and presented in the SWPPP. Any spills which occur during construction will be cleaned up and materials properly disposed of. Care will be taken during the removal of the junked vehicles to minimize potential spills.

7.09 Potential Adverse Effects that Can Not be Avoided

The actions proposed in this application do not create any potential adverse effects that may not be avoided. This is a previously altered site which has been graded and at present the only use has been dumping junk vehicles and refuse.

8.00 MITIGATION PLANS

Because of the potential for tree boas the VI Tree Boa Protocol will be followed, and the site will first be cleared hand to minimize impacts on tree boas.

9.0 ALTERNATIVES TO PROPOSED ACTION

The site could be left as it is and continue to be used for illegal dumping. The soccer field could be developed in another location, but this site has previously been disturbed, will require limited clearing and excavation and will have limited impacts. Unless a similar previously disturbed site is selected impacts of developing another site will most probably be higher.

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

The best use of the environment is to develop brown field areas like the site chosen rather than develop green fields which support forested communities.

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APPENDIX I

APPENDIX II