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July 11, 2016

Mr. Sindulfo Castillo
Chief, Antilles Section
Regulatory Division
U.S. Army Corps of Engineers
Jacksonville District - Antilles Office
Fund. Angel Ramos Annex Bldg., Suite 202
383 F.D. Roosevelt Ave.
San Juan, PR 00918

Re: SAJ-1982-05019 (SP-JCM)
Sirius Marina, Coral Bay, St. John

Dear Mr. Castillo:

We are pleased to submit our responses to your March 8, 2016 letter requesting additional information in order that the Corps can complete its analysis of compliance of the Project with the Clean Water Act (CWA). Our responses are as follows.

A. *Project Scope, Description and Drawings - Your permit application was submitted requesting Corps authorization for the construction of a private commercial offshore marina with ancillary facilities in adjacent uplands at Coral Bay. However, various sections of the Environmental Assessment Report (EAR), including the Marina Market Analysis Report, submitted with the permit application make reference to a resort, which would be developed in association with the proposed marina. We request that you please clarify the scope of this proposed resort and its relationship with the proposed marina in terms of interdependency and economic viability. Specifically, please clarify whether the proposed resort and marina are interdependent components of a single and complete project, or whether each component could have independent utility and economic viability on their own. Please be advised that portions of a multi-phase project that depend upon other phases of the project do not have independent utility. If the proposed marina and the other components of the resort do not have independent utility, it may be necessary to evaluate them as a single action for NEPA and Corps Regulatory purposes. In this regard, please clarify whether any components of the proposed resort development would require discharges of dredged or fill material into waters of the U.S. or the installation of structures or work in navigable waters of the U.S. Also, please clarify whether the proposed*

resort development would require impacts or alterations to an existing gut or ravine which traverses through Parcel 10A.

The Marina is a stand-alone project and is financially viable. Utilities for the Marina is independent from any future Resort. The proposed Sirius Marina will not impede or restrict any future Resort which would be subject to NEPA and Corps Regulatory as applicable.

In addition to the above, please note that many of the drawings included in your permit application and its attached EAR are somewhat inconsistent in terms of components of the proposed marina, particularly the size and details of the docks and slips. Although the information submitted was sufficient for PN purposes, consistent and more detailed drawings would be required to complete the evaluation of your permit application. Therefore, we request your submittal of revised drawings, accurately and consistently depicting the components and layout of the proposed marina. Please ensure that the revised drawings clearly illustrate which docks would be pile supported and which docks will be floating docks. Also, please clarify in the drawings whether reverse intake and outfall lines from the reverse osmosis or waste water treatment plant would be installed in waters of the U.S. as part of the proposed project. Furthermore, the drawings should clearly illustrate all project components, which would be installed or built in waters of the U.S. All drawings should depict the project components relative to the ordinary high water mark for non-tidal waters, and/or the mean high tide and highest high tide line for tidal waters.

Attached are the revised ACE Permit Drawings which address the concerns above.

There will be no Reverse Osmosis intake and outfall line into the water nor WWTP effluent discharged into Coral Bay.

Potable water will be supplied by wells drilled on Parcel 10C which is at the bottom of a major watershed and the brackish water processed thru an R/O system to produce the potable water needs for the Marina operation. A total of 4,000 gal/day is required for the Marina operation. The R/O effluent will be blended with the WWTP effluent and used for irrigation.

B. Project Location

1. Alternatives analysis - The documents submitted as part of your permit application did not include any information about alternative sites considered for the location of the proposed project. In order to satisfy the requirements of NEPA and the 404(b)(1) Guidelines and properly determine whether the proposed project is the LEDPA, please submit an analysis describing alternative sites considered to locate the proposed project. This analysis must include a proper evaluation and balancing of the practicability of the different sites to meet the overall project purpose (as established in our PN) and their

potential effects (benefits and detriments) on the public interest and the environment, particularly the aquatic ecosystem. As part of this alternatives analysis we request that you: (1) define a set of criteria for site evaluation; (2) define a system to rate a site against each of the criteria; (3) describe a method to comparatively weigh each rating as to its importance; and (4) prepare a report describing the search for the sites, identification of their location and rating, and a narrative which shows which site is the preferred alternative and whether it is the LEDPA.

See page 4 for Matrix of Alternative Sites

2. Federal investment in Coral Bay - As explained in the enclosed letters from EPA and the CBCC (see attached disk), significant investments have been made by EPA, NMFS and the US Department of Agriculture (USDA) to support the development and implementation of watershed level management plans and actions directed to reduce land-based sources of pollution and improve water quality, seagrasses and corals within Coral Bay. The CBCC has been involved for many years in the development and implementation of a Watershed Management Program for Coral Bay and has received various grants and awards from NMFS, EPA and the USDA in this regard. We request that you please include in your response to this letter an assessment and discussion regarding whether the proposed project would be compatible or in conflict with the goals, programs and investments supported by these Federal agencies and the CBCC to improve the Coral Bay watershed, water quality and aquatic resources.

The CBCC has developed proposed mitigation measures and preliminary design features to reduce sediment from the Johnny Horn Gut. We have been in contact with the CBCC and will work with them in the final design of the proposed Johnny Horn Gut watershed improvements to reduce sediment runoff. We will work closely with the Moravian Church and adjacent landowners to define and obtain the necessary easements to provide the necessary check dams, sedimentation basins and emergency spillways. It is in our interest to improve the water quality in the Bay.

Matrix of Alternative Sites

Evaluation Criteria	Location								
	Cruz Bay	Enighed Pond	South Side	North Shore	East End	Johnson's Bay	Sander's Bay	Coral Harbor West	Coral Harbor East*
Land Available	1	2	1	1	2	2	2	5	5
Exposure	3	5	1	2	3	3	3	3	5
Zoning	5	5	1	1	1	1	1	5	5
Buildability	4	5	2	2	2	1	1	5	5
Environmental Concerns	3	4	2	2	2	3	3	4	5
Best Use	5	5	1	1	1	2	2	4	5
Location	3	5	1	1	1	2	2	5	5
Access	5	5	1	1	2	2	2	5	5
Community	5	5	2	2	3	3	3	5	5
Present use	5	5	1	1	1	2	2	3	5
TOTAL	39	46	13	14	18	21	21	44	50

* Moravian Church Site

Land Available: Is there sufficient upland available for the support activities

Exposure: Is the site protected from wind and waves

Zoning: Is the upland zoned for Marina Use

Buildability: Is the shore and upland conducive to adequate construction methods

Environmental Concerns: The extent of environmental impact to construct the project.

This considers present marine conditions and uses of the uplands

Best Use: Is the site the best use for a Marina. Is it compactable to surrounding uses?

Location: Is the site a viable location for a Marina

Access: Is there good access to the site by the near-by community

Community: Will the project provide services to the community

Present use: Is the project compatible with the existing uses.

Rating System: 1 to 5 points with 5 being most favorable

The top three site were: Enighed Pond; Coral Bay West Side and Coral Bay East Side.

Enighed Pond is controlled by the VI Port Authority and is not available.

Coral Bay West property that is zoned for Marina use is under lease and not available. It has extensive seagrasses in front of the property.

Coral Bay East is property owned by the Moravian Church and was available for Marina development. The site presently is used for marine service, has a boat ramp and has a dingy dock for use by boats moored in Coral Bay. It has less extensive seagrasses and is conducive to a marina with limited layout and location.

3. Exposure to prevailing and storm winds and waves - The EAR submitted with the permit application describe that based on the orientation of Coral Harbor, the project site is well protected and has limited fetch. However, this conclusion was mostly based on general wave and wind information for the U.S. Virgin Islands, and no local data measured specifically for the project site was provided. On the other hand, the project drawings submitted illustrate that wave attenuators would be installed in some of the marina piers. In addition to the above, the Corps has received numerous communications from the public indicating that prevailing wind and wave patterns, as well as potential effects of storms and hurricanes, at the proposed project site could create unstable and unsafe conditions for boats, which could in turn affect the viability of the project.

The Corps understands that additional local data collection and analysis are necessary to adequately evaluate the potential effects of the prevailing and storm wind and wave conditions on the proposed docking marina. This information is necessary not only to evaluate the feasibility of the proposed project location and design, but also to prevent potential piecemealing in the evaluation of the project, if modifications in the project design or additional structures such as groins or wave breakers are determined to be necessary to protect the proposed marina structures and vessels from the effects of the waves and wind. Please provide these data and analysis in your response to this letter.

A coastal engineering assessment at the project site was conducted to evaluate prevailing and storm wind, wave, and water level conditions at the site. This report is attached with this response. Wind speed measurements are based on collected data from a NOAA, FEMA, Global Hindcast Model, and CDMP. The prevailing wind direction is easterly, with winds approach from the east and southeast during the summer months (May through September). During the winter months, the wind direction may shift to the east northeast direction as cold fronts from the continental US bear down on the island. Prevailing wind speeds average less than 20 knots. Storm wind speeds are primarily generated from hurricanes and tropical storms that pass north, south, or through the Island of St. Johns. These storm winds may approach Coral Bay from any direction depending on the storm track. An extremal analysis based on wind hindcast models that includes historic hurricanes and tropical storms was performed and is presented in the report. The 50- and 100-year return period wind speeds are 107 mph and 123 mph, respectively.

Water level measurements for Coral Bay are based on recorded tide measurements from a tide station at Lameshur Bay, St. John. The mean tide range is less than 0.72 feet with the diurnal range (which includes the average of spring and neap tides during the course of the year) is approximately 0.82 feet. Recorded tide measurements for mean and diurnal tide levels for Charlotte Amalie, St Thomas, USVI, and Road Town, Tortola, USVI are within 3 inches of the water levels measured at Lameshur Bay, confirming that tide amplitude and phase at Coral Bay is similar. The magnitude of elevated water levels (storm surge) were evaluated by performing an extremal analysis of historical tropical storms and hurricanes that passed within 100 miles

of St. John. The storm surge level (above mean sea level) ranges from 3.9 feet during the 10-year return period storm to 8 feet during the 100-year return period storm.

Prevailing waves (sea conditions) in Coral Bay are generated by local generated winds. A nearshore spectra wave model was executed to evaluate the magnitude and direction of the seas. Due to the orientation of Coral Bay, prevailing winds from the southeast generates sea conditions up to 1.5 feet at the project site. Swells (waves generated from storms passing far offshore) are less than 1.5 feet. An extremal analysis of historical tropical storms and hurricanes was performed to determine offshore storm waves conditions. These storm wave conditions were then transformed into Coral Bay, taking into consideration shoaling and refraction effects. Storm wave heights range from 2 to 6 feet depending on storm track. These elevations are consistent with FEMA.

The marina was designed to accommodate wave heights up to and including the 50-year storm event, approximately 4 foot wave. A fixed dock structure with wave attenuation panels is proposed along the south and east perimeters of the marina to reduce sea/swell conditions to less than 0.5 foot during prevailing conditions and 2 feet during storm conditions. The American Society of Civil Engineers (ASCE) guidelines for Small Craft Harbors indicates that the 0.5 foot threshold meets criterion for safe mooring during prevailing conditions. Marina will be designed to moor vessels up to 95 mph and offshore wave heights up to the 50-year storm event.

4. *Virgin Islands National Park (VINP) and Virgin Islands Coral Reef National Monument (VICRNM) - The Corps is very concerned with the proximity of the proposed marina to the VINP and the VICRNM, and its potential direct, indirect and cumulative impacts on the sensitive marine resources located therein, especially within Hurricane Hole. This concern was also expressed by many commenters to our PN, in particular by the NPS, which is the federal agency responsible for the management of the VINP and VICRNM.*

We all share the concern of protecting our sensitive marine resources, and educating the public is the key to conservation. Marina management intends to install prominent signage and print and distribute literature describing our many natural resources, and stressing that boating traffic must stay within preferred designated channels and avoid all coral reefs and other resources of special concern. We will solicit input from the appropriate agencies and community organizations to define the preferred channel and to identify known resources of special concern. These will be prominently marked on a chart given to all tenants and visitors, and instructions will be given to all captains hailing the marina prior to arrival.

Based on the small total areal size of the project footprint and the fact that the project is located in the far northeastern-most reaches of Coral Bay – the area in the bay furthest from Hurricane Hole and VINP, we believe that these steps will reduce the likelihood of this project would have any adverse or deleterious impact on the resources of VINP.

The VICRNM was established on January 17, 2001, by Presidential Proclamation 7399 to provide greater protection to sensitive coral reef resources located within federally owned submerged lands beyond the VINP. In light of this proclamation, recreational or commercial boat anchoring is prohibited within the VICRNM. In addition, operation of personal watercraft is prohibited in the VINP and VICRNM.

We understand this, and this project in no way undermines that executive order. Accordingly, signage and informational kiosks located in the marina will highlight the rules and regulations to boaters in and around VINP. See comments above.

Hurricane Hole, a NPS designated no-anchoring bay, which is part of the VICRNM, is located approximately 1.5 miles from Coral Harbor. The NPS has described that Hurricane Hole supports the most extensive pristine and well developed mangrove habitat on St. John. The NPS also described that aside from the Hurricane Hole area, the majority of the VICRNM and some of the most pristine beach and marine habitat in VINP lie on the south side of St. John and could be immediately accessed from south of Coral Harbor. In addition, the NPS has noted that Lagoon Point, which has been designated as a National Natural Landmark (NNL), is located in Coral Bay directly along the transit routes to and from the proposed marina.

We agree that these are the facts and that the same boater traffic patterns presently used to enter and exit the bay will not differ after the building of the small marina in the northeastern-most reaches of Coral Bay.

Those presently moored or anchored in Coral Bay as well as those who will visit the marina will be educated upon their first arrival. In its literature and signage, the marina will describe the preferred approaches to Coral Bay and the areas to avoid, as well as applicable rules and regulations, including one prohibiting recreational personal watercraft, e.g., jet skis, in Hurricane Hole. Approach headings from the sea to a prominent light mounted on the marina or to other visible landmarks will be given, with cautionary notes to remain in the preferred channel. Of particular importance management will disseminate precautionary measures to be taken regarding Lagoon Point and other environmentally sensitive habitats in the vicinity of and along the route to the marina. Further, we will endeavor to have this information published in United States Coast Pilot, in the Seventh Coast Guard District *Local Notice to Mariners*, and will have it published on the Active Captain charts. <https://activecaptain.com/> Active Captain is now used by majority of cruising yachts to better understand ports of call prior to arrival, and preferred channels and areas to avoid may be placed on electronic charts in the near future. Marina management intends to provide Active Captain with updates and specific information regarding precautions to be taken in navigating through Coral Bay to the marina. Management hopes to work closely with National Park Service and DPNR in implementing these and other measures to protect the environment. Accordingly, we do not see an increase in adverse impacts to the resources of VINP or Lagoon Point.

The proposed marina would be reasonably expected to increase boat traffic activity in the vicinity of Coral Bay, not only by the vessels occupying the marina, but also by their tender boats and recreational personal watercrafts, such as dinghies and jet skis. The NPS has expressed that due to limited resources and personnel it could be difficult for them to effectively enforce the boating regulations, protect the sensitive marine resources, and respond to potential boat accidents and groundings within the VINP and VICRNM with the increased boating activity that could be expected from the development of the proposed marina.

The number of marina slips proposed for this facility when compared to the overall boat traffic in Coral Bay will have only a minimal impact on the overall boater traffic, and visitation on sites outside of Coral Bay.

Presently, comments on the Active Captain charts for Coral Bay sometimes refer to the lack of information about anchorages, and that going ashore means tying to a line along the dinghy dock and wading ashore. Marina management has recently investigated and prepared an updated breakdown of the vessels moored and anchored in Coral Bay and their registration numbers which has been provided to DPNR and will be given to other government agencies to assist in determining the status and legality of the vessels in the Bay. Further, we will work with local agencies (DPNR) to identify preferred anchorage locations and help define and implement mooring procedures which will best mitigate any potential adverse effects to the natural resources. This will greatly reduce the present scarring of the bottom and destruction of sea grasses caused by the numerous boats presently anchoring randomly and also pumping out their sewage into the Bay. To assist in correcting this problem, the marina will offer a sanitary pumpout station for all vessels in the marina and Coral Bay, and, combined with possible DPNR regulations mandating periodic pumpouts, this will greatly eliminate the sewage presently being dumped into the Bay and help restore the natural environment and mitigate any further damage to the environment of Coral Bay,

In summary, the alternative to anchoring offered by the marina, the educational process to be undertaken by the marina and the pumpout facilities to be offered by the marina will result in adequately mitigating damage to sensitive marine resources and less pollution in Coral Bay.

In spite of the above, the information provided in your permit application did not include an evaluation of the potential effects of the proposed marina on the marine resources within the VINP, VICRNM, or Lagoon Point NNL. Based on the above, it is imperative for our evaluation of your permit application that you please complete and submit an assessment of the potential direct, indirect and cumulative effects of the proposed project on the resources of the VINP, VICRNM and Lagoon Point NNL, including but not limited to boat traffic, enforcement, safety, marine resources, water quality, landscape, viewshed, lightscape, soundscape, carrying capacity, and visitor use and experience. In addition, as part of this assessment, please describe in detail the measures you propose to implement to adequately mitigate (i.e., avoid, minimize and compensate) any potential adverse effects of the proposed project on the VINP, VICRNM and Lagoon Point NNL.

The number of marina slips proposed for this facility when compared to the overall boat traffic in Coral Bay will have only a minimal impact on the overall boater traffic, and visitation on sites outside of Coral Bay. With the above proposed steps it is unlikely that the marina proposed herein will have a detrimental impact to VINP and its resources and services. The availability for Boat Sewerage Pumpout and the elimination of some un-regulated moorings will improve the marine environment within Coral Bay.

It is possible that another Marina might be built in Coral Bay. If this happens, the 200 +/- total slips would require about 50 existing moorings, most of which do not have any permits, to be lost as they could not be relocated to other areas within Coral Bay. If another Marina would take the same precautions that the Sirius Marina propose, (signage, handouts, maps, etc.), this would minimize any potential adverse impacts to the National Park and VICRNM. Sirius Marina will offer a boat slip for the DPNR Enforcement to use.

5. *Economics - Numerous commenters to our PN expressed concerns with the potential adverse effects of the proposed marina on the existing ecotourism based attractions, services, businesses and economy of Coral Bay. Numerous communications were also received from visitors of Coral Bay expressing that they would not return to St. John if the proposed marina is built. In order to adequately address these issues in our public interest review of your permit application and comply with our requirements under NEPA, we request that you please provide an analysis of the potential effects of the proposed project on the existing business and economy of Coral Bay.*

Many Caribbean island nations lack significant industry and sufficient natural resources to provide employment for their residents, and have turned to tourism to support their economies. Economic growth is one of the most fundamental indicators of a community's economic health, and one of government's most important roles is to promote tourism. Both the Virgin Islands government and the National Park Service (NPS) advertise extensively to attract tourism. The US Virgin Islands are blessed with beautiful beaches, mountains, flora and fauna, making it one of the most visited destinations in the Caribbean. St. John is particularly blessed that Laurence Rockefeller donated majority of the island for dedication to the public.

Over 500,000 visitors each year come to St. John for many reasons, including hiking, exploring the petroglyphs and plantation ruins, for boating, fishing, diving and snorkeling. The NPS offers boat moorings throughout the island. However, presently there is no marina with dock facilities, which would surely enhance the attractiveness of St. John for the boating community and bring back many of the charter services and private yachts that moved to the BVI after hurricane Marilyn because the former Yacht Haven, a popular marina in Charlotte Amalie offering docking and marina services, was destroyed. Our planned marina development in Coral Bay would offer to the community and boaters services such as provisioning center, boat slips, fueling, shops, athletic facilities, and related services. These enhancements would generate more than fifty jobs for locals, training programs, internships, and even more work opportunities during

construction and afterwards. Further, it would attract a new market and new revenues to Coral Bay and St. John. There would be new businesses and services offered to the community and visitors as well. All of this would create a trickle-down effect to improve the economy not detract from it. All of the present businesses in Coral Bay would also benefit from the enhanced overall attraction to Coral Bay.

Development and tourism on St. John are now centered around Cruz Bay, the westerly port that includes the ferry landing from St. Thomas and other ports, and the population and tourism continue to grow around the Westin Hotel Resort at Great Cruz Bay and the Caneel Bay Resort on the West side of St. John. Numerous homes are owned by part time residents, who often rent the homes when not in use. As all of St. John is within a few minutes' drive from anywhere on the island, tourists are drawn to these locations by the convenience of nearby shops, services and restaurants, grocery stores and boat rental locations. Our marina development would bring tourism and services to Coral Bay therefore generating greater revenues thus improving economics on the East End of St. John.

Coral Bay has been an important port throughout the 300+ year history, and was the largest community on the island before the ferry to St. Thomas began arriving at Cruz Bay. It was the convenience of transportation and availability of goods and services that attracted many to visit and to move to Cruz Bay. The Moravian Church with its waterfront location in Coral Bay for more than 300 years, the proposed site of the marina development, has always been a major part of that history and the community of Coral Bay. They now wish to develop their property and believe this marina development would be a social, cultural and economic benefit to the entire community, as was strongly testified to at the recent re-zoning hearing before the Legislature by Superintendent Euceline Christopher of the Moravian Church Conference of the Virgin Islands and several other members of its congregation, as well as by Dawn Henry, the Commissioner of Virgin Island Department of Planning and Natural Resources on April 12, 2016. These are the quality voices the Corps should consider above the quantity of format letters received, which were predominately solicited over the internet by a few 'NIMBYs' opposing any development in their back yard whose solicitations painted a largely inaccurate picture to gain support for their self-serving agenda. The format letters received were mostly sent by off-islanders who visited St. John in the past and have little or no recent connection or knowledge of the present needs of the Coral Bay community or the benefits this development would bring. In reality, the proposed marina will blend well with the local community. It will continue to provide basic marine service now offered by Coral Bay Marine, and will improve the availability of goods and services and provide an overall benefit to the community of Coral Bay and St. John. And in that most of the facilities and services it will offer are not presently offered in Coral Bay, it will bring new businesses to the community and not depreciate or unfairly compete with the existing ones, thus enhancing not detracting from the local economy.

The marina is located in the lee of a portion of Usher's Cay, and largely protected from wave action; but the owners of the Cay would still enjoy their riparian rights and continued access to the Sea as the nearest dock is 125' from the Cay. Local vendors at the marina will offer sailing lessons, sailboat rentals, fishing charters, SCUBA and snorkeling excursions and other popular services. The type of services to be offered

are those found to be most popular with tourists and local residents throughout the islands. The availability of these services will attract more visitors to the community, which will result in increased expenditures in local shops and restaurants and increased occupancy in the available tourist accommodations. These factors will result in greater employment and improved living standards for local residents, who often must commute to St. Thomas or move from their homes in Coral Bay for employment.

In addition to the multiplier effect on employment throughout the community, the marina and related facilities will employ over fifty persons, plus those employed during construction with payrolls in excess of \$2,000,000 per year. The marina positions include management and supervisory employment, accounting positions, customer service positions and dock personnel. The service yard will employ engine mechanics and riggers, and each vendor will employ both specialist and highly trained positions, such as charter captains, dive instructors and fishing guides. The marina management strongly supports and will assist in establishing training and internship programs to educate young and older Virgin Islanders and help provide them with the experience that will raise their employment status throughout their lives. And, those who have such experience will be prime candidates for employment in the marina development. The Sirius Marina will work closely with the Moravian Church, the Virgin Islands Department of Education and community leaders to promote the establishment of these technical education classes.

Despite the inaccurate comments that the marina will force KATS program to relocate, the marina management has met with KATS' leaders and consistently supported this fine program and will always provide this program and the community with access to the sea. The present concrete dinghy dock will remain and the marina will also construct a new dinghy dock and a new boat ramp which will be offered for use by the public. The development will also construct a new ball field and basketball court for the community on the adjoining parcel to the marina.

6. Infrastructure - Numerous commenters to our PN expressed concerns with the potential adverse effects of the proposed marina on the infrastructure at Coral Bay, particularly with respect to traffic, energy, potable water, solid wastes and wastewater. The EAR submitted with your permit application provided evidence of traffic estimates, potable water demand calculations, wastewater collection and disposal plans, energy demand calculations, and solid waste management plans. However, the EAR indicates that detailed studies to determine fresh water yield and viability of wells for potable water production have not been completed. Therefore, it is not clear how the project would satisfy its potable water demands, and how it would avoid adverse impacts to the fresh water aquifer in the area. Please provide supplemental information to document how these issues would be addressed. Furthermore, no documentation was provided to evidence that the pertinent agencies (i.e., Virgin Islands Water and Power Authority, Virgin Islands Waste Management Authority, and Virgin Islands Department of Public Works) have evaluated, approved or commented with regards to the infrastructure needs or potential impacts of the project, including any related studies, calculations or

plans. In order to adequately evaluate the potential effects of the proposed project on the existing infrastructure of Coral Bay, please submit evidence of the evaluation by those agencies regarding the proposed marina.

Parcel 10C is located at the bottom a large watershed and preliminary research has indicated that well-designed and located wells will have a daily yield of brackish/fresh water of over 30,000 g/d which is substantially higher than the 4,000 g/d required by the Marina. Once all permits are received, a detailed Groundwater Development Program would be prepared and undertaken. The program would include hydrogeological evaluation, site visits by a geologist and test wells. Based on this information, location, type and depth of the well(s) would be determined. The wells would be designed to prevent saltwater intrusion and negative impacts on any existing nearby wells.

The Virgin Islands Water and Power Authority, Virgin Islands Waste Management Authority, and Virgin Islands Department of Public Works will be evaluating the Project during the current CZM Permit Process and their evaluations will be forwarded to the Corp upon receipt.

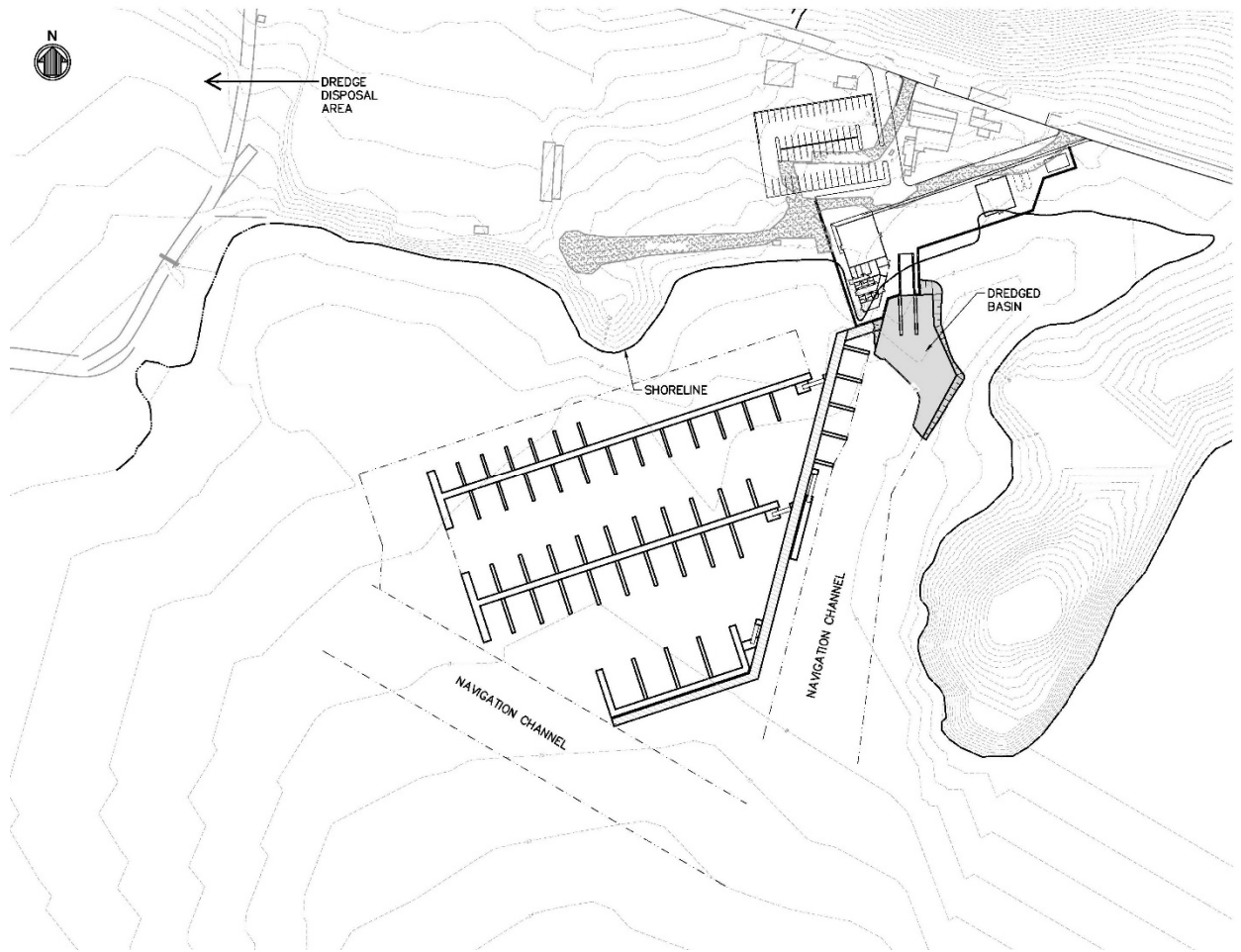
C. Size and Design of Proposed Docking Structure

The Corps is concerned with the size and layout of the proposed marina, and its potential impacts to the existing resources, conditions and uses within Coral Bay. As discussed below in more detail, we request that you evaluate possible project modifications and measures, including reductions and/or modifications in the size or layout of the proposed project and structures, to prevent potential adverse effects on the aquatic resources, and the existing conditions and uses within Coral Bay. In addition, please submit a discussion of which measures would be implemented to mitigate (i.e., avoid, minimize and compensate) those potential impacts. Particular considerations that should be addressed as part of this evaluation include:

1. Loss of waters of the U.S. - The Corps is very concerned with the proposed project impacts to open waters and mangrove wetlands. According to the information provided in the permit application, the construction of the proposed marina would require the discharge of 582 cubic yards of dredged fill material over 0.34 acres on open waters of Coral Harbor for the construction of the marina bulkhead, concrete apron and boat ramp. The permit application further states that the construction of the bulkhead and boat ramp would also result in the loss of 0.1465 acres of mangroves. However, the Corps understands that the impacts of the proposed project to wetlands may have been underestimated.

In reassessing the construction of the marina facility, we have employed as much avoidance and minimization as practicable and still be able to construct the necessary facilities for the proposed marina facility. We have revisited the avoidance and minimization process and has revised the location and geometry of the marina service

yard and boat launch facility to avoid and/or minimize impacts to the waters of the US. The boat launch facility was repositioned to the west side of the small embayment to minimize impacts to mangroves and reduce the amount of dredging. The dredged area has been reduced by 48 % (17,500 sq. ft) and the volume of dredged material reduced by 35% to 1,200 cubic yards. The bulkhead supporting the marina service yard has been repositioned landward, reducing its overall length, the amount of fill that will be placed behind the bulkhead, and impacts to mangroves. The bulkhead is required to the boat service facility; an existing operation in Coral Bay. Due to constraints with existing businesses and designated road right-of-ways, the amount of available upland areas is not sufficient to maneuver boats in the service yard, including launching operations at the boat ramp.



Accordingly, the footprint of the impact has been significantly reduced (please note revised permit drawings submitted by M&N). Specifically, the area of loss of fringe mangrove wetlands has been reduced from 0.1465 acres to 0.138 acres. A reduction of more than 6 %.

A review of the plans, illustrations and aerial photographs submitted with the permit application indicate that fringing mangroves wetlands, which were not included in the impact estimates could be present at additional locations along the proposed bulkhead and within the proposed dredging footprint, particularly

along the shoreline of Usher Cay. In addition, the construction of the proposed bulkhead could sever the surface hydrological connection between Coral Bay and a salt pond located to the east of the proposed marina. Information provided by SCB indicates that a tidal mangrove channel presently provides surface hydrological connection between the bay and the salt pond. The potential loss of waters of the U.S. which could result from severing this connection and isolating the pond were not included in the impact estimates described in the permit application. Likewise, a site visit conducted by the Corps on October 8, 2015, revealed that the proposed dredged material disposal site may contain wetlands. The information provided with the permit application did not include an evaluation of the potential presence of wetlands within the proposed dredge disposal site, nor an estimate of potential wetland impacts therein. In order to more precisely assess the extent of impacts to waters of the U.S., including open waters and mangroves, we request that you please complete a more detailed evaluation of the presence of waters of the U.S. within all project areas and prepare a plan illustrating the boundaries of those waters overlaid with all components of the proposed project.

The new Marina Layout and dredging plan will totally avoid Usher Cay and impacts on the Mangroves lining Usher Cay. Usher Cay is 125' from the proposed Dock. There will be no impact to mangrove wetlands along Usher Cay. Based upon our evaluation of the new bulkhead location, the tidal impoundment in the northeastern most corner of Coral Bay which is tidally connected to the salt pond will not be severed.

A Wetland Delineations Survey was done on Parcel 10C by EcoScience (Site 1) in 2007 and no wetlands were observed. In 2015, personnel from Dial-Cordy inspected the low areas of the parcel. Based upon their desktop and field evaluation of wetlands, they did not find any wetlands, either isolated or connected, in the vicinity of the proposed dredge material disposal site. We will gladly meet with field biologists of the USACE to determine if any jurisdictional wetlands are present.

The mangrove/wetland map below depicts all jurisdictional wetlands within the revised project footprint. This map is based on field data collected in December 2014.

This has been addressed in Item C. 1 above

This has been done, see response above.

2. Impacts to seagrass and benthic habitats - The Corps understands that the assessment of potential impacts to seagrasses and benthic habitats provided in your permit application should be revised to provide a more detailed analysis and discussion of the rationale and considerations used to estimate those potential impacts, particularly with respect to potential impacts during construction and operation of the proposed marina.

Outside of the direct impacts to seagrass communities during construction of the docks the contractor will use BMP's developed for coastal construction projects by the Florida Department of Environmental Protection.

https://www.dep.state.fl.us/coastal/programs/coral/reports/MICCI/MICCI_06_Workshop_Proceedings.pdf

These BMP's are the present-day standard for avoiding unnecessary impacts to adjacent submerged biological resources. Accordingly, significant buffers should be maintained around all reefs (natural or artificial), hardbottoms, submerged aquatic vegetation (SAV) and other high value habitats, including areas designated as Essential Fish Habitat (EFH) or Habitat Areas of Particular Concern (HAPC). Buffers should be delineated prior to construction so that the design and construction planning can incorporate avoidance measures in advance.

The revised assessment should clearly illustrate, using benthic and bathymetric maps overlaid with the footprint of the project components, and the location, extent and source of all potential impacts by habitat type. All project related components potentially affecting seagrasses should be considered in this analysis, including the proposed fill and dredge areas, navigation channel, docking structures, and associated basin and navigation areas. In this regard, please note that the transects established for the benthic assessment, which was included in the project's EAR and permit application, did not extend into the proposed dredge and fill areas.

The areas in the proposed dredge and fill areas were completely devoid of seagrass.

The area between Ushers Cay to the east and the first appearance of seagrass (denoted in red) to the west was an area of muddy – barren bottom.

Figure 1 indicates the SAV impacts by the Docks (Primary) and by the slip areas where the boats tie-up (Secondary). The area of impact to just native seagrasses is zero. Within the project area, there is only areas of just *Halophila stipulacea* (Exotic) and mixed areas of native and exotic seagrasses. The total areas of mixed seagrasses are: Primary Impacts = 0.145 acres; and Secondary Impacts = 0.439 acres. The marine benthic survey noted that the exotic seagrass, *H. stipulacea* is starting to move into the native seagrass beds and displacing them.

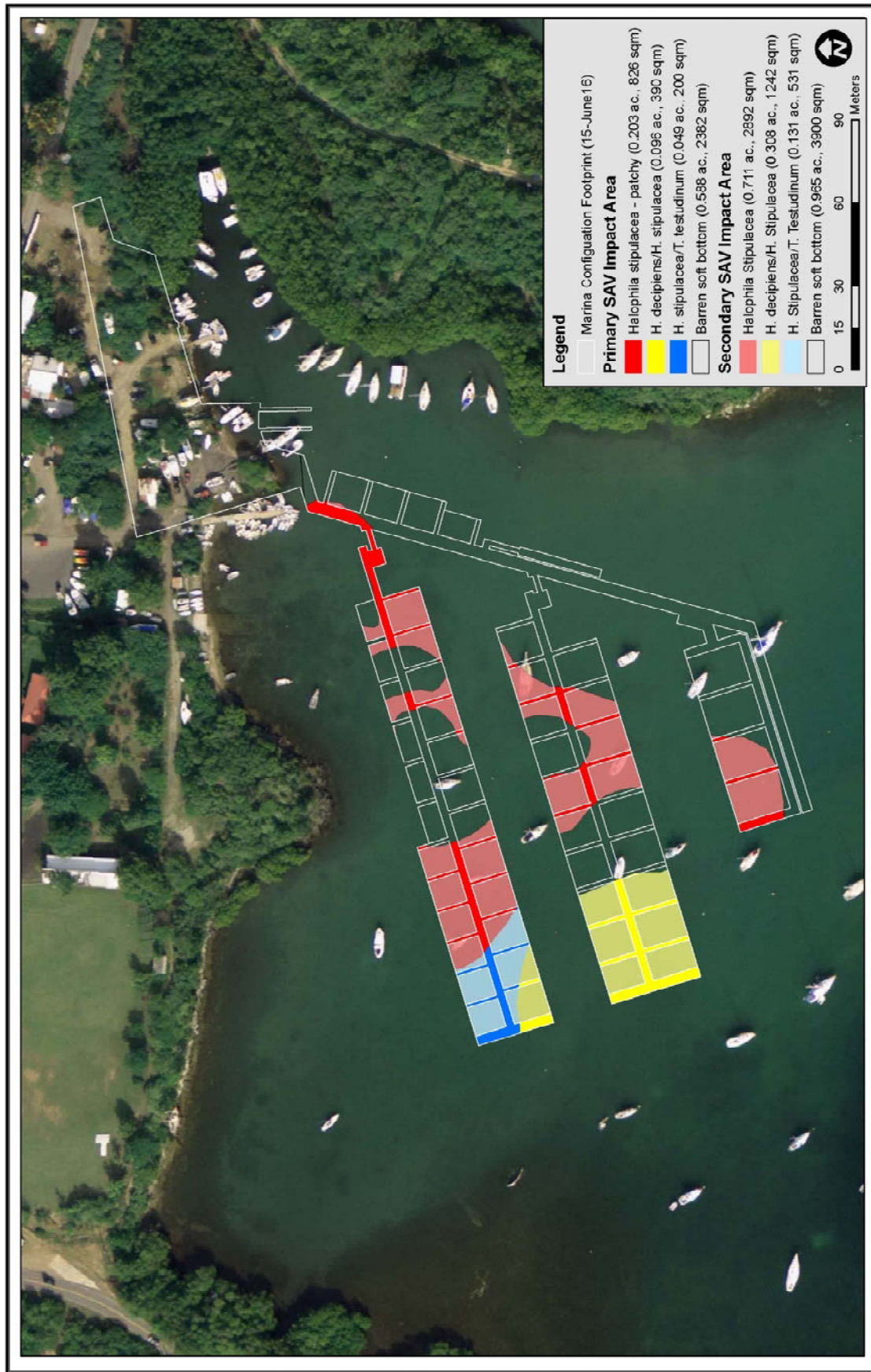


Figure 1

Although the EAR described those areas as barren soft-bottom habitat, information provided by SCB evidence that seagrass and other SAV are located within the proposed dredge and fill areas. The analysis of potential impacts to seagrass and benthic habitats should also consider the draft, movement and anchoring of construction vessels and barges. In addition, the analysis should consider the potential effects of the operation of the marina, including draft considerations for propeller wash and turbidity generated by the vessels using the facility, as well as service barges such as the fuel barge.

We respectfully disagree. Scientific divers carefully surveyed these areas with belt transects and with presence/absence surveys. NO living seagrasses were found in areas denoted as barren-bottom within the project area.

Only shallow draft vessels and barges will use the Marina to avoid impact with seagrasses. At present, based on BMP's, we do not anticipate any secondary, construction related impacts or injuries to seagrasses or benthic habitats (with the exception of those already noted in the EAR) within the project vicinity

Water depth is sufficient in these areas to avoid these impacts.

Furthermore, the analysis should consider the proposed location for the reverse osmosis and waste water treatment plants intake or outfall pipelines and their potential effects on seagrass beds. Similarly, the analysis should include the proposed site to relocate the existing dinghy dock and the existing mooring buoys and boats, as well as of any related impacts to benthic habitats.

There will be no R/O or WWTP effluent into the Bay. The existing dinghy will remain.

The Department of Planning & Natural Resources has stated that if the marina is approved, each of the moored/anchored boats will have to come to DPNR to request a new location. It is not theirs or Sirius Marina's obligation to provide an alternate site. The final determination rests with boat owners and DPNR as it is important to realize is the submerged lands belong to the People of the Virgin Islands, administered by the VI Government. Everyone is given a lease.

As part of this revised analysis we ask that you please evaluate and discuss the practicability of potential design modifications or reductions in the size of the proposed project footprint (including the proposed structures and dredge area, as well as construction and operation footprints), which could avoid and minimize the potential adverse effects to seagrasses and benthic habitats.

The Project footprint has been reduced. The service building is smaller, the bulkhead moved back and the Boat ramp moved to the west. The amount of dredging has been reduced from 34,125 sf to 17,500 sf or a reduction of 48%.

In addition, please note that via letter dated January 8, 2016 (copy provided in attached disk), NMFS - Habitat Conservation Division (NMFS-HCD) provided Essential

Fish Habitat Conservation Recommendations for your proposed project, particularly to avoid and minimize impacts to seagrass. Please review NMFS-HCD communication and provide adequate responses to their concerns and requests. This information will be necessary to complete our required interagency consultation pursuant to the Magnuson-Stevens Act.

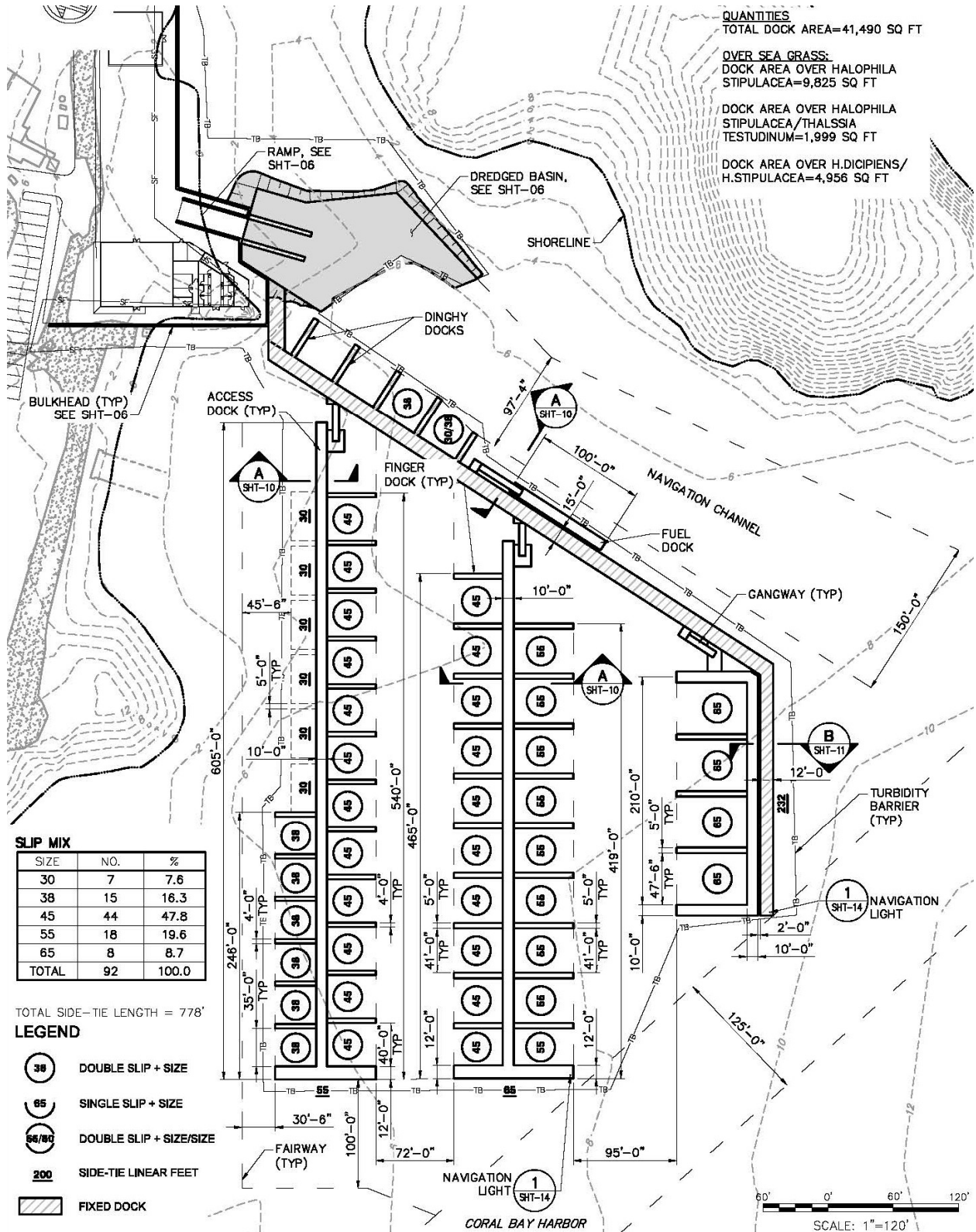
We are presently in the throes of completing the Essential Fish Habitat study for NOAA-NMFS-HCD. Accordingly, we will provide of final responses to their concerns and requests when completed.

The Essential Fish Habitat (EFH) Assessment for potential impacts to nearshore and hardbottom habitat associated with proposed construction of an approximate 92-wet-slip marina at Coral Bay, St. John, U.S. Virgin Islands.

Avoidance and minimization of effects associated with the project have been achieved through revised design by Moffatt & Nichol. The number of wet slips is 92, and the slip structure has been pulled back toward the north shore in order to avoid unnecessary impacts to seagrass beds. The proposed facility will incorporate the following See marina Layout below.:

- 92 wet slips for vessels from 35 to 70 feet in length
- Boat Service Yard
- Septic pump-out facilities
- Fuel facilities
- Use of wave-attenuation panels
- Flexibility to accommodate a few vessels up to 150 feet
- Accommodations for transient boaters and dinghies
- Retains marine service capability
- Public boat ramp and navigational channel to the bay
- Dock master building
- Parking

Most of the land-side facilities would be constructed on previously developed terrain, but filling a small area of wetlands would also be unavoidable in order to site the facilities in an area with the least impact while maximizing the efficiency and use of the facility and available real estate. Along the shoreline, a mangrove fringe is present, which must be filled to provide access between the various sections of the facility (buildings, docks, etc.). Other impacts to EFH include direct removal of both seagrasses and unvegetated soft-bottom habitat, and indirect effects on seagrasses due to shading due to docks and vessels. Indirect effects to the water column may include temporary increases in turbidity due to dredging the small navigational channel extending from the boat ramp to the bay.



Marina Layout

Most of the land-side facilities would be constructed on previously developed terrain, but filling a small area of wetlands would also be unavoidable in order to site the facilities in an area with the least impact while maximizing the efficiency and use of the facility and available real estate. Along the shoreline, a mangrove fringe is present,

which must be filled to provide access between the various sections of the facility (buildings, docks, etc.). Other impacts to EFH include direct removal of both seagrasses and unvegetated soft-bottom habitat, and indirect effects on seagrasses due to shading due to docks and vessels. Indirect effects to the water column may include temporary increases in turbidity due to dredging the small navigational channel extending from the boat ramp to the bay.

As noted above, we have already used significant avoidance and minimization measures to keep the footprint of the proposed marina over areas of “barren-bottom” or invasive/exotic seagrasses.

3. Existing mooring buoys and moored boats - The EAR submitted as part of your permit application acknowledges that a mooring field with more than 100 moored vessels, primarily private sailboats is located within Coral Harbor. Many of those boats and moorings are located within the footprint of the proposed marina and would have to be relocated prior to project construction. The Corps has not received any information describing the proposed plan and process for relocating the existing moorings and boats, including details about the coordination that would be required with boat owners and the USVI-Department of Planning and Natural Resources (USVI-DPNR). Likewise, we have not received a description of the proposed sites for relocating the moorings and boats, or an evaluation of the potential benthic habitat impacts of relocating the existing moorings and boats. Therefore, please provide this information in your response to this letter. In addition, please discuss the measures that would be implemented to avoid and minimize adverse effects to the present uses of the bay as a mooring area.

Of the 100+ boats moored in Coral Bay only 23 have VI DPNR mooring permits. The Department of Planning & Natural Resources has stated that if the marina is approved, each of the affected moored/anchored boats will have to come to DPNR to request a new location. It is not DPNR's or Sirius Marina's obligation to provide an alternate site. The boat owners will have to provide a benthic survey of the area that they propose to set a mooring. The final determination rests with boat owners and DPNR.

Sirius Marina will provide DPNR approved boat mooring anchoring designs to all the permitted boat owners. Sirius Marine is prepared to work DPNR in their development of an overall mooring field.

4. Navigation and recreation - Numerous communications received in response to our PN for your permit application expressed concerns regarding the potential impacts of the proposed marina to the existing navigation and recreation practices within Coral Harbor. Numerous commenters expressed that the proposed marina is too large for the needs of the existing boating community and that its large slips were designed to exclude the existing boaters with their small boats. Several commenters also indicated that the Kids and the Sea (KATS) boating education program for children would be forced to relocate and most

likely not be able to continue operating within Coral Bay, because its current location would be occupied by the proposed marina. In addition, numerous commenters indicated that the removal of the existing dinghy dock and ramp, if not relocated or replaced, would create severe hardship to local boaters, as they would have no public access to the water during the construction of the proposed project. Numerous commenters also expressed that no information has been provided regarding the impacts to local boaters and the general public related to additional costs for using the dinghy docks and the ramp that would be constructed as part of the proposed marina after eliminating the existing public ones. Furthermore, commenters expressed that the construction of the proposed marina would limit and obstruct recreational boating and navigation within the bay, and would prevent public access to the shoreline. We request that you please address these concerns and discuss which measures would be implemented to prevent adverse effects on the existing navigation and recreational practices that take place within Coral Bay, as well as on the public's general right of navigation.

The Sirius Marina design is based on a careful study of the market, and is well-suited for the needs of the local boating public and members of the community. The marina is planned to include 92 boat slips, and about half are expected to be filled by boats already in the market. Other residents of St. John who desire a boat; but, who do not wish to leave it at anchor or to commute to a St. Thomas marina are expected join us. This will leave perhaps 30 slips for transient boaters who frequent the waters, particularly during the busy winter season, and who will contribute significantly to the local economy.

Market studies show that many boats in the local market are below 40 feet, and nearly one third of the marina wet slips target this market segment. Numerous local sail and fishing charter boats, as well as visiting yachts, tend to be in the range of 40 to 55 feet, and about 60% of the Sirius boat slips target this market segment. The remainder of the slips will accommodate larger charter boats that we intend to attract back to the USVI from the BVI.

The existing boatyard, Coral Bay Marine Service, which has been a tenant of the church performing boat repairs for over 25 years, now occupies the site of the proposed marina, and will relocate their operation to the repair portion of the new facilities.

The Moravian Church is well known for its many educational programs and has a long history of supporting our youth. The church was instrumental in and has made available both storage and launching space for the Kids and the Sea (KATS) program at no cost for many years. Although the exact location on the site has not yet been identified in the preliminary drawings, as mentioned above, we will continue to accommodate this meaningful program.

The existing concrete dinghy dock provided by the church will remain in place for the continued use of boaters without charge. Additional space will be made available for visiting boaters to come ashore for buying provisions and to do other personal business. We do note, however, that some of the dinghies presently tied up to the dock

have not been moved in many months, and we may need to set reasonable time limits to make the dock space available to other boaters needs.

A modern new boat launching ramp is to be installed, replacing the existing concrete and mud ramp the church presently allows the local residents to use. In that use may, at times, be congested, due to space constraints, launching by the public may need to be scheduled by the marina Dock master.

An existing navigation channel presently extends north up the center of the bay to the concrete dinghy dock. This channel will remain essentially unchanged, curving slightly around the new pier.

Active Captain is a web-based charting system where all captains may provide input on local conditions, and is now used by majority of cruising yachts to better understand ports of call prior to arrival. The preferred channels through Coral Bay and areas to avoid, such as Lagoon Point, will be published with information we will assist in providing, and may be placed on electronic charts available on major manufacturer's chartplotters in the near future. Presently, comments on the Active Captain charts for Coral Bay sometimes refer to the lack of information about anchorages, and that going ashore means tying to a line along the dinghy dock and wading ashore. Marina management is presently and will continue working with local agencies, such as DPNR, to identify preferred anchorage locations and help define and implement mooring procedures. This will greatly reduce the present scarring of the bottom and destruction of sea grasses caused by boats anchoring in the Bay. Further, the marina will offer a sanitary pump out station, and, assuming DPNR Environmental Enforcement Division mandates periodic pump outs for all vessels, this will assist in eliminating the sewage presently being dumped into the bay.

Majority of those who are presently anchored in or who frequent Coral Bay will visit the marina and will be educated upon their first arrival. Some of the boaters who utilize the many NPS moorings in Hurricane Hole are expected to also visit the marina at times to utilize its facilities and services. In its literature and signage, the marina will describe the preferred approaches to Coral Bay and the areas to avoid, as well as applicable rules and regulations, including that no personal watercraft, such as jet skis are allowed within the park. Approach headings from the sea to a prominent light mounted on the marina or to other visible landmarks will be given, with cautionary notes to remain in the preferred channel. Of particular importance will be to avoid Lagoon Point. We will endeavor to have this information published in United States Coast Pilot, in the Seventh Coast Guard District *Local Notice to Mariners*, and to have it published on the Active Captain charts. <https://activecaptain.com/>

If the marina development meets the approval of the Army Corps of Engineers and Virgin Island Government approvals, it is our intention and goal to enhance the ecotourism, environment, boating safety, economy, employment possibilities and the overall welfare of Coral Bay and St. John, USVI.

We believe our project is properly located, well suited in size, facilities, services offered and appropriate for Coral Bay and respectfully submit our application and responses for your consideration.

5. Water quality, flow and circulation - Please note that the Monitoring Plan for Water Quality submitted with your permit application is too conceptual. More precise information is needed regarding proposed location of monitoring stations, as well as thresholds and contingencies for environmental monitoring of benthic organisms and sediment loading. In addition, numerous commenters to the PN expressed concerns with the potential effects that the proposed marina could have on the water flow, circulation patterns and water quality within Coral Harbor, particularly considering that the proposed marina would be constructed in an area of limited natural water circulation. Changes in water circulation could lead to deterioration of the water quality and marine habitats within the Coral Bay. We request that you please provide an assessment of these potential adverse effects of the proposed project. Furthermore, please discuss the measures that would be implemented to adequately mitigate these adverse effects. In this regard, we ask that you please evaluate potential design modifications of the proposed docking structures, which could contribute to avoid and minimize these potential adverse effects. Furthermore, please keep our office informed of the status of your application for a U.S. Virgin Islands Territorial Pollutant Discharge Elimination System (TPDES) Permit from the USVI-DPNR for the proposed marina.

In order to ensure that water quality is maintained throughout construction a water quality monitoring program will be implemented. This plan is designed to assess turbidity and address the efficacy of sedimentation control during dredging activities. The purpose of this monitoring plan is to document any degradation in water quality or in the health of the benthic community and detail a course of action that can be immediately implemented to abate that degradation if significant changes are observed. This plan will also monitor the benthic community adjacent to and within the potential impact area of the proposed project.

A marina flushing study was conducted and is discussed in the attached coastal engineering report. Marina flushing is defined as the length of time required to exchange a volume of water equivalent to the marina basin volume with the ambient body of water. A well flushed marina typically signifies good water quality. The U.S. Army Corps of Engineers Coastal Engineering Manual (USACE-CEM) provides marina flushing guidelines and examples which suggest that a flushing time of 2-4 days is acceptable, 4-10 days is marginal, and greater than 10 days is unacceptable. The flushing time of the proposed marina facility was analyzed using the hydrodynamic module (HD) of MIKE21 suite of computer models. The tidal currents represent the primary hydrodynamic forces. Wind and wave induced currents, which may enhance mixing and improve flushing, were excluded from the model setup to present a more conservative flushing estimate. The model results indicate that the average residual constituent concentration is less than 37% after 24 hours, and falls below 10% level after 96 hours. The proposed marina site meets the flushing criteria established by USACE.

Water Quality Monitoring

Prior to the start of construction, a baseline of water quality conditions will be established. A total of no less than six (6) sampling locations will be established within

the project area and an additional six (6) control sampling sites. The monitoring samples will be placed in the areas most likely to be impacted by the final approved permitted project. The control sites will be placed in areas which should be exposed to essentially the same ambient conditions, but should not be directly impacted (within the footprint of) by the marina project.

At each site the turbidity expressed as NTU's will be sampled. Samples will be taken on a weekly basis for 2 months prior to the start of construction. Baseline data will be used to compare with data collected during the construction project to help assess whether readings are a result of the construction project or are due to natural variability related to local conditions. A final sample shall be taken at six months after construction has been completed. All monitoring will be established based upon requirements and water quality monitoring standards as set forth by the USVI -DPNR.

Physical oceanographic parameters within Coral Bay will not be adversely impacted by the small dock facility tucked in the northeast corner of the Bay.

This area of the bay is currently one of the most polluted water bodies in all of the USVI. As such, this project, through implementation of pump-outs, will greatly enhance NOT diminish water quality within Coral Bay – especially in the immediate vicinity of the project footprint. As previously noted in the EAR while” there are dense seagrass beds in the shallow, well flushed areas on the westernmost margins of the bay; these seagrasses diminish as ones moves east due to a decrease in water clarity (turbidity) caused by suspended sediments, high nutrients levels and high levels of Chlorophyll A. This poor water clarity is exacerbated by poor circulation in the northern and northeastern most portions of the bay.”

The Project is undergoing CZM evaluation by the Department of Planning & Natural Resources. Upon their approval of the Project, A Water Quality Certification and a TPDES Permit will be filed for and obtained. Copies will be submitted to the ACE upon receipt.

6. *Property ownership and riparian rights - Several commenters to our PN expressed that the size and layout of the proposed marina would interfere with the ability of adjacent riparian property owners to access the navigable waters of Coral Bay. Please see the comments provided in this regard by SCB in their submittal dated January 24, 2016, and by Camille and Allegra Kean via e-mail dated January 25, 2016. We request that you please provide a response to these concerns, including an evaluation of the potential effects of the proposed marina on the riparian rights of adjacent property owners. The evaluation should consider potential design modifications or reductions in the size of the proposed docking structures, which could contribute to avoid and minimize these potential adverse effects.*

The littoral rights of neighboring coastal land owners are not impacted by the proposed development of the land owned by the Moravian Church. Usher Cay, which is the

adjacent property, has a 125' navigation channel between Ushers Cay and the closest dock. Usher Cay has full access to the sea with two-third beyond Marina and has unfettered access.

When dealing with a cove or bay, subject to local law, the accepted method of respecting the coastal land owners' respective littoral rights of access to the shore, the right to construct a pier out to navigable water, and equitable access to the line of deep water is to proceed from the point at which the property boundary meets the shore toward the line of navigable water. The direction of the upland property boundary lines before they reach the shore are disregarded for this purpose. In this case, proceeding from the eastern and western boundary points on the shore toward the line of deep water creates a sizeable area, in which the entire proposed development is situated. Neither the littoral property owner to the east, nor the littoral property owner to the west suffer any encroachment into their area of littoral rights based upon the proposed development. Moreover, the proposed development is of a modest size such that it does not encroach upon or threaten the littoral rights of property owners on the opposite side of the bay.

7. *Ambient and underwater noise - Numerous commenters to our PN expressed concerns with the potential noise impacts of the proposed project, particularly in relation to pile driving during the construction of the docking structures. The EAR submitted with the permit application indicates that one of the proposed measures to minimize noise impacts during project construction is to use vibratory hammers to drive piles wherever technically feasible. However, no evaluation of the technical feasibility of using vibratory hammers, such as geotechnical data, was provided. Therefore, the Corps cannot determine the extent in which this technique would be utilized and its actual effects on minimizing noise related impacts. In order to fully evaluate the potential effects of the proposed project regarding ambient and underwater noise levels, a more detailed description of the actual construction techniques that would be utilized must be provided, including appropriate technical data supporting its proposed use, their expected effects in terms of generation of ambient and underwater noise, and the specific proposed measures to minimize those potential adverse effects. Please include this information in your response to this letter. Please note that via e-mail dated January 5, 2016 (copy provided in attached disk) NMFS - Protected Resources Division (NMFS-PRD) requested submittal of additional information necessary to evaluate the proposed project potential acoustic impacts to Federally protected species, in particular to sea turtles. Please provide the information requested by NMFS-PRD in your response to this letter. This information will be necessary to complete the required interagency consultation procedures pursuant to Section 7 of the ESA.*

Acoustic Minimization and Mitigation Plan

Sound in water moves four times faster than in air, and attenuation and dissipation of that sound is lower in water than air. When an in-water sound is generated, a pulse is created that radiates out from the source. Geotechnical conditions

(e.g. substrate density) and ocean conditions (e.g. surface condition, current strength, depth of water, salinity, suspended solids in water column) affect the propagation and the attenuation of in-water sound. Attenuation depends on both the frequency and distance travelled, in that as both increase, attenuation increases (Richardson et al. 1995). Sound typically dissipates more rapidly in shallow, turbid waters over soft substrates (the conditions presently encountered in Coral Bay).

Underwater sound in the marine environment is generated by a broad range of sources, both natural and human (anthropogenic). Open ocean ambient sound has been recorded between 74 and 100 dB off the coast of central California (Heathershaw et al. 2001). Ambient noise levels for other water bodies based on surveys generally follows in this range. Based on deep-water studies in the Northeastern Pacific, low-frequency background sound has doubled each decade for the past forty years as a result of increased commercial shipping (Andrew et al. 2002, McDonald et al. 2006) resulting in a 15 to 20 dB increase in ambient conditions compared to preindustrial levels. Table 1 identifies ambient underwater sound levels at various open water and coastal water locations.

Table 1 - Ambient Noise Levels (RMS refers to rate-mean-square)

Based on the above it can be predicted that Coral Harbor in Coral Bay would have a dBPEAK of somewhere below 80-87 dBpeak range based on the light commercial and recreational boat traffic observed in the project vicinity.

Potential Impacts

Pile driving has been studied for its impact on noise in the marine environment and its residents (Fish, marine mammals, etc.). Underwater noise from impact pile driving is impulsive in nature and the sounds are created by the pile and the substrate it strikes. Research has shown how to reduce noise from pile driving. Creating a physical barrier is an effective method to reduce the noise between 15-23dB (Peak). (Spence et al, 2007). One such method is the use of bubble curtains. To be effective a bubble curtain has to completely surround the pile (or area in which the noise is being created) through the entire water column.

US Fish and Wildlife Service (USFWS) and the National Oceanic and Atmospheric Administration's (NOAA's) National Marine Fisheries Service (NMFS), have developed threshold values, values that elicit some response from a target species, for making effect determinations for Endangered Species Act (ESA) listed species as follows:

- Detectability threshold (where the noise is detectable, but reactions are not observable).
- Alert and disturbance threshold (alert is where the noise has been identified by the target species, interest is shown; disturbance is where the target species shows avoidance of the noise by hiding, moving, or postponing feeding).
- Harassment/injury threshold (where the target species is actually injured).

NMFS's current thresholds for impulse noises (ex. impact pile driving or in our case rock breaking) and non-impulse noises (ex. vibratory pile driving, dredging, etc.) for marine mammals are listed in the table below.

Table 2. Thresholds for Impulse & Non-Impulse Noises for Marine Mammals

Based on recommendations of the Fisheries Hydroacoustic Work Group (FHWG) in June of 2008, the current sound thresholds from impulse noises (such as pile driving) that cause injury to fish are:

- 206 dBPEAK
- 187 dB cSEL for fish > 2 grams
- 183 dB cSEL for fish < 2 grams

The in-water sound energy from pile driving occurs at lower frequencies between 100 Hz and 1 kHz. Typical sound levels from a single strike on a pile or hammer can range from 208 dBPEAK to 220 dBPEAK (Reyff 2003). The in-water sound is affected by hammer equipment and material (steel), the size of the hammer, the geotechnical conditions (e.g. driving resistances), and the water depth. This level is within the range of NOAA's predicted injury to whales and dolphins and injury to fish. Vibratory hammer activities should be below that range. The threshold for behavioral impacts for all fish is 150 dBRMS (FHWG 2008). The designation cSEL indicates the "sound exposure level in octave C".

Proposed Minimization Methods

All three federal rare and endangered sea turtle species are known to occur in the offshore waters of St. John and could be found within the project area. These include: hawksbill (*Eretmochelys imbricata*), leatherbacks (*Dermochelys coriacea*) and green turtles (*Chelonia mydas*). Abundant foraging habitat for both hawksbill and green turtles occurs both within and immediately adjacent to the proposed project area. Accordingly, the following measures will be implemented to minimize noise impacts to protected species of sea turtles and marine mammals. It is not anticipated that the pile driving will result in direct injury to these species but it is probable that this could result in changes to their behavior if they were to come into in the area. It is possible that these species may be stressed by the noise. In order to minimize that impact to sea turtles and all other protected species, mitigation measures will be implemented to minimize the noise that will be created during pile driving activities.

To minimize in-water noise impacts, a vibratory hammer will be used to drive piles wherever feasible. Vibratory hammers are recommended by NOAA as that they have a lower acoustic impact. Based on this information if a vibratory hammer is used the sound created during construction should be no greater than 120 dB. This is below the threshold level at which injury occurs.

Numerous methods of additional noise reduction have been reviewed and the most feasible methods will be the use of an in-water noise attenuation system (e.g. bubble

curtain or similar performing system), will further reduce the in-water sounds produced by the hammer. These will be deployed in all areas of pile driving work to further attenuate underwater noise levels in the project area. It is anticipated that this barrier will result in a reduction of noise of between 15 and 23 dB.

In order to determine the impact of the project and the effectiveness of the bubble curtain, a noise baseline will be established prior to all work using an Acoustic Sensor with a 10-meter underwater capability. Once the project begins sound measurements will be analyzed in and outside of the curtains and at distance from the pile driving activity. The distance at which the sound has sufficiently been attenuated will be determined. If the barriers are found to be effective in limiting the sound below that which results in injury to the species, they will be maintained throughout the project. If the curtains are found to be ineffective additional methods will be devised to abate the noise below the level at which they result in harm to the listed species.

A baseline of existing noise will be established by taking readings at all water quality monitoring stations for one month prior to start of dredging. Readings will be taken during both periods where vessels are traversing the area as well as when there is limited activity. This data will be used to determine what the ambient noise is within the harbor.

Once the project starts and the distance at which the noise can cause potential injury to the animals is determined a knowledgeable monitor will monitor the potential impact area during all pile driving activity.

In addition, a 500-m safety zone shall be established around the project area for sea turtles and marine mammals. Trained observers will be used to visually monitor the safety zone for at least 30 minutes prior to beginning all noise creating in-water activities.

If at any time a sea turtle or marine mammal is observed in the safety zone or the zone at which noise is known to be injurious the operation will be shut down until the animal has left the safety zone on its own accord.

Observations for protected species will occur at least twice a day to maintain watch for animals in the area, and ensure the curtains are functioning properly. If at any time an animal is observed in the safety zone during the noise creating in-water activity, work shall cease until the animal has left the area of its own volition, or coordination with a DPNR representative has occurred, if the animal is injured.

Records will be maintained of all sea turtle and marine mammal sightings in the area, including date and time, weather conditions, species identification, approximate distance from the dredging area, direction and heading in relation to the dredging area, and behavioral observations. When animals are observed in the safety zone, additional information and corrective actions taken such as a shutdown of rock breaking/dredging equipment, duration of the shut-down, behavior of the animal, and time spent in the safety zone will be recorded. Reports will be provided to NMFS, USACE, and CZM on a monthly basis.

8. ***Historic and cultural resources - The Phase I archaeological survey submitted with your permit application did not include an evaluation of the potential historical or cultural significance of the Coral Harbor dock, which presently serves as a dinghy dock and would be removed as part of the proposed project. According to information submitted by CBCC in response to our PN, this dock was constructed and has been in use since at least 1896 and probably much earlier. Therefore, we request that you please submit an evaluation of the potential eligibility of this dock for inclusion in the National Register of Historic Places (NRHP). This information will be necessary to complete our consultation with the Virgin Islands State Historic Preservation Officer (VISHPO) and satisfy the requirements of Section 106 of the NHPA. Please note that numerous commenters recommended that the existing dinghy dock should be incorporated as part of the project and not demolished as currently proposed. In addition, the Cultural Resources Remote Sensing Survey completed to assess the potential presence of submerged cultural resources within the project areas indicates that the survey did not cover the entire in-water footprint of the proposed project, in particular the proposed dredging area. Please clarify why this area was not included in the survey, and why a survey of this area should not be required or necessary. In this regard, we also request that you provide us with copies of any communications you may have received from the VISHPO regarding the evaluation of the proposed project, particularly with respect to the archaeological survey reports submitted with the permit application.***

The existing dingy dock will not be removed and no evaluation for its eligibility to be included in the National Register of Historic Places is necessary. The existing upland and underwater Phase 1 Archaeological surveys are being reviewed by the VISHPO as part of the CZM review by DPNR.

D. ***Environmental Assessment (EA) vs Environmental Impact Statement (EIS) - Numerous commenters to our PN indicated that a Federal EIS should be required and prepared for your proposed project. As indicated above, the information being requested in the present letter will be necessary for the Corps to comply with the procedural and documentation requirements of NEPA. At this time the Corps has not determined that preparation of an EIS will be necessary to satisfy the NEPA requirements applicable to your permit application. However, we request that you please submit your response and/or rebuttal to the above recommendations that an EIS should be prepared, and discuss why you understand that an EIS should not be required.***

Based on constant communication with both the local regulators (USVI) and the USACE it was determined that an EAR would suffice for this project and an EIS would not be required.

E. ***Additional Federal Agencies Comments and Requirements***

1. U.S. Environmental Protection Agency (EPA) - Via letter dated January 21, 2016 (copy provided in attached disk), EPA determined that the proposed project would adversely impact aquatic resources of national importance, provided formal objections to the proposed project, and recommended the Corps to deny a permit for this project. Please review EPA's letter and provide adequate responses to the concerns detailed therein. This information will be necessary to complete our required interagency coordination and address the objections presented pursuant to Part IV 3(a) and 3(b) of the Section 404(q) Memorandum of Agreement between the Environmental Protection Agency and the Department of the Army dated August 11, 1992.

See attached detailed responses to EPA's January 21, 2016 letter.

F. Coastal Zone Management and Water Quality Certifications or Permits - You are reminded that two necessary prerequisites to the issuance of a Department of the Army permit for your project are the issuance of a Water Quality Certification and a Coastal Zone Management Plan Consistency Certification by the U.S. Virgin Islands Department of Planning and Natural Resources (USVI-DPNR). Please keep our office informed of the status of your applications to the USVI-DPNR for the Coastal Zone Management permit and Water Quality Certificate for the proposed marina.

The Project is being reviewed by DPNR for a CZM permit and when it is approved, a Water Quality Certification will be issued. Upon receipts of the CZM Permit and WQC, they will be forwarded to the ACE.

G. Cumulative Impacts - The Corps is very concerned with the potential cumulative impacts of the proposed marina on the aquatic environment of Coral Bay, Hurricane Hole, VINP, VICRNM, and Lagoon Point NNL, particularly considering that another marina (i.e., St. John Marina; DA Permit application number SAJ-2004-12518) is being proposed within Coral Bay, and that on October 19, 2015, the Corps issued a permit to the CBCC for the removal of derelict vessels within Coral Bay (DA Permit number SAJ2015-02010). In order for the Corps to adequately consider the potential cumulative environmental impacts of your proposed project and comply with the corresponding requirements of NEPA, we request that you please provide information regarding your evaluation of potential past, present and foreseeable future environmental impacts of the proposed action in relation to the above referenced projects and any other existing or proposed projects, which have affected or could affect the aquatic environment at Coral Bay, Hurricane Hole, VINP, VICRNM, and Lagoon Point NNL.

The small number of marina slips proposed for this facility when compared to the overall boat traffic in Coral Bay will have only a minimal impact on the overall boater traffic, and visitation on sites outside of Coral Bay. Marina management intends to install prominent signage and print and distribute literature describing our many natural resources, and stressing that boating traffic must stay within preferred designated channels and avoid all coral reefs and other resources of special concern. We will

solicit input from the appropriate agencies and community organizations to define the preferred channel and to identify known resources of special concern. These will be prominently marked on a chart given to all tenants and visitors, and instructions will be given to all captains hailing the marina prior to arrival. With the project located in the far northeastern-most reaches of Coral Bay – the area in the bay furthest from Hurricane Hole and VINP, we believe that these steps will reduce the likelihood of this project would have any adverse or deleterious impact on the resources of VINP. Sirius Marina will offer a boat slip for the DPNR Enforcement to use.

If an additional marina(s) is proposed and approved, it is not possible for Sirius Marina to assess any cumulative impacts. However, if any additional marina is approved, Sirius Marina attends to work with them to mitigate any increased cumulative impacts.

H. *Compensatory Mitigation Plan - Please be advised that the mitigation described in your permit application would not provide sufficient compensation for the potential impacts of the proposed project to the aquatic environment, particularly to waters of the U.S., mangroves and seagrasses. Once you demonstrate that the potential impacts of the proposed project to waters of the US and seagrasses have been avoided and minimized to the maximum extent possible and the extent of those impacts has been accurately documented, a compensatory mitigation plan to adequately offset those impacts must be developed and submitted to the Corps in accordance with the requirements of 33 CFR 332.*

A compensatory mitigation plan will be developed using a Habitat Equivalency Model in conjunction with all regulatory bodies including NOAA-NMFS-HCD.

We trust that our responses adequately address the Corps and other Federal Agencies concerns and to a look forward decision regarding our permit.

Sincerely:

William F. McComb, PE

Cc: José A. Cedeño Maldonado, Project Manager
Rory Calhoun

Attachments:

- Revised ACE Drawings
- Responses to EPA January 21, 2016 Letter
- Coastal Engineering Report
- EcoScience Terrestrial Report