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Biological Evaluation Study. Proposed Emergency Shoreline Protection Measure. Asociación Condómines Azure Beach, San Juan, Punta Las Marías, Puerto Rico.

Prepared for:

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Azure Beach in Punta Las Marías, Puerto Rico

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1 Introduction

Condominium Azure Beach at 1 Calle Almendro is located in Punta Las Marías, San Juan. On March 30, and April 2, 2019 a biological evaluation of the benthic area was performed at the project site on behalf of Mr. Raj Mundkur to satisfy requirements associated with the establishment of a proposed emergency shoreline protection measure at Azure Beach in Punta Las Marías, Puerto Rico.

This marine biological evaluation identifies and delineates sensitive natural resources and will therefore, be used to avoid or minimize, to the extent possible, impacts on sensitive bottom habitats, if present.

2 Project

2.1 Regulatory Requirements

For this Biological Report we recognize the regulatory requirements that might apply in case of a proposed action in the area.

a. Section 7 of the Endangered Species Act of 1973 (ESA) directs all Federal Agencies to utilize their existing authorities to conserve threatened and endangered species. Federal agencies are also required to consult with the U.S. Fish and Wildlife Service (FWS), to ensure that any action, authorized, funded or carried out by the agency, does not jeopardize the continued existence of federally listed endangered or threatened species, or destroy and adversely modify their designated critical habitat.

2.2 Overview of the Biological Report

Section 7 stipulates that a Biological Evaluation must be prepared if listed species or their critical habitat may be present in the area to be impacted by a "non-major construction activity".

The presence of *Acropora palmata* (elkhorn coral) or the staghorn coral, *Acropora cervicornis*, both federally listed endangered species, at the project site has not been documented by a NMFS representative. According to the official USFWS tool-Information for Planning and Consultation (IPaC), the project area is within the range of other listed species: *Trichechus manatus manatus*.

The purpose of this Report is to characterize, briefly describe and keep documented the general biological conditions of the specific project site at Azure Beach. The outline for this document follows USFWS Section 7 guidance.

3. Biological Assessments

The Endangered Species Act (ESA) of 1973 provides for the conservation of threatened and endangered plants and animals and the habitats in which they are found. The lead Federal agencies for implementing ESA are the USFWS and NOAA's National Marine Fisheries Service (NMFS). The law requires Federal agencies to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of designated critical habitat of such species. The law also prohibits any action that causes take of any listed species of endangered fish or wildlife.

Federal agencies are required to "request of the Secretary of Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action (Section 7 of the ESA). *Table 1* presents a list of threatened or endangered species that may occur within the Project Area reviewed with the official USFWS tool- Information for Planning and Consultation (IPaC):

Table 1 – Federally Listed Species Within the Project Area

Marine Mammal Species	Scientific Name	Status
West Indian manatee	*Trichechus manatus*	E

In order to comply with the requirements of the ESA, a benthic study was conducted to determine the presence or absence of listed species and benthic resources (i.e., corals, seagrasses), to characterize organisms within the Project Area, and to provide documentation regarding the potential impact of the Proposed Actions on corals, mangrove, and seagrass areas.

3.1 Existing Conditions

The Biological Survey was conducted on March 30, 2019 and April 2, 2019 (2 days). It included an inspection by a Marine Biologist starting from 150 feet out towards

shore. This area is described as relative flat bottom with gentle slopes, with medium grain sand near the existing seawall, and fine silt/mud (unconsolidated sediments) north of the line of armor stone (remnants from the former wall), covering around 20%. Based on historical photographs, the alignment of the armor stone coincides with the former seawall that appears to have failed over 25 years ago. Water depth ranged from 1-ft. to 7-ft. Marine bottom cover is 95% not colonized and 5% colonized by encrusting brown algae. Light penetration is partially restricted due to turbidity. This reach of shoreline has been well documented over the years and although at the time of the survey it was covered by a sand veneer, recent photographs clearly reveal that the area where the revetment is proposed is primarily weathered stones and concrete debris (see Figure 1).

Figure 1. Rock, weathered stone, and concrete debris substrate throughout area seaward of existing seawall where revetment is proposed.

This area gets covered with a sand veneer which is occasionally deposited during northwest swells (personal communication with F. Pagés, PE, Principal Coastal Engineer, Tetra Tech, Inc.)

No listed corals or listed species within the project site area were observed. Seagrass beds (Essential Fish Habitat) were not observed within the limits of the project site area. Based on the results of the survey, the sea bottom within the project site consisted of sand. An Antillean Manatee was observed swimming from west to east at approximately 200 ft outside the project site. No other threatened or endangered species were observed. The assessment showed the lack of presence of seagrass and corals in the vicinity of the project site area.

4. Operations and Logistics

The biological evaluation was performed by marine scientists trained in biological resource and habitat identification. Field activities in support of the benthic characterization included a qualitative survey method. The baseline benthic characterization was conducted within a total study area of 100 x 213 feet (Figure 2).

Figure. 2- Project Footprint area surveyed showing 100 x 213 feet.

4.1 Current Conditions at Project Site

Current conditions at the site were assessed during a 2-day survey conducted on March 30, 2019 and April 2, 2019. The survey consisted of a complete assessment of the benthic area north of the seawall of Condominium Azure Beach and included portions of the adjoining property to the east and the municipal street, Calle Almendro, to the west.

4.2 Current Conditions

The supralittoral and littoral portions of the site consists of a 2-3 feet area of sand and boulders. The area presents moderate to high wave action. The sublittoral portion of this zone is composed of a continuous sandy bottom exposed to current and wave action. The assessment performed in this area do not show coral colonies attached. In general, the site is comprised of old, imported rock boulders, weathered stone with little sand.

4.3 Results:

4.3.1 Weather conditions:

Weather conditions throughout the 2 days 7-10 knots winds, mostly partially cloudy, offshore waters 2-3 ft., No rain, water temp 81°F, underwater visibility 6 inches to 1 feet and light surge provoking high sedimentation at site.

4.3.2 Biological Characteristics:

Biotic parameters were measured to characterize benthic composition and structure. The contents of each transect placement were visually inspected and assigned a percent cover value. Percent cover values were based on two-dimensional, broad-cover estimations describing the total transect area when viewed from directly above for cumulative biotic cover and individually for each parameter of interest (Figure 3).

Figure 3- Showing Transects Location

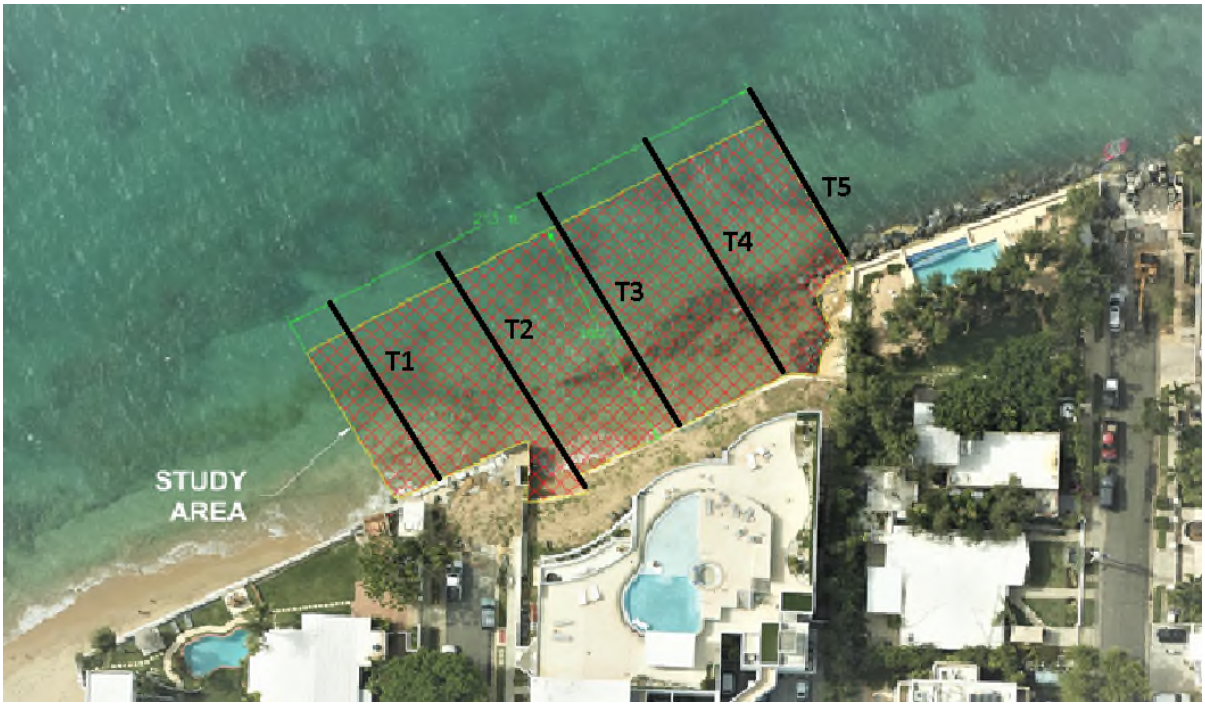

Table 2 provides a summary of all parameters and respective measurements that were catalogued for each transect. Percent cover was estimated using 1-m2 quadrats subdivided into 1/100-m2 (10 x 10-centimeter [cm]) increments, thus a precision level of 1 percent.

Table 2- Quantitative (Quadrat) Survey Abiotic and Biotic Parameters

Parameter	Percent Cover (%)	Abundance (No. colonies)/Frequency	Other observations
Hardbottom	25%		
Sand	75%		
Rubble			
Fine sediment/silt			

BIOTIC			
Scleractinia (stony corals)			
Gorgonians (soft corals) ***Other benthic macrofauna*** Anemones and hydroids Tunicates and zoanthids Bryozoans and *Millepora*			
Seagrass			
Macroalgae	4 inches *Padina sp.* (Brown algae)		
Crustose coralline algae			
Porifera (sponges)			

Threatened and endangered species (e.g., the West Indian manatee (*Trichechus manatus*), the hawksbill turtle (*Eretmochelys imbricate*), the green turtle (*Chelonia mydas*) and other federally regulated species (e.g., the queen conch [*Strombus gigas*], the spiny lobster [*Panulirus argus*]) and /or any other observations of interest made by divers, if any, were recorded.

5. Physical Characteristics:

Biologists measured and recorded, water depth, and percent coverage of the substrate type (hardbottom, sand, rubble, fine sediment, silt). Table 3 shows transects with coordinates and percentages.

Transect	Max Depth (ft)	Description	Coordinates
T1	7	100 % sand	18°27'13.55" N 66°02'31.64" W
	1		18°27'13.03" N 66°02'31.374" W
T2	7	100 % sand	18°27'13.63" N 66°02'31.09" W
	1		18°27'13.03" N 66°02'30.81" W
T3	6	75 % sand/ 25 % boulders	18°27'13.82" N 66°02'30.59" W
	1		18°27'13.27" N 66°02'30.32" W
T4	7	80% sand/ 20% boulders	18°27'13.94" N 66°02'30.23" W
	1		18°27'13.50" N 66°02'29.84" W
T5	7	70% sand /30% boulders	18°27'14.22" N 66°02'29.82" W
	1		18°27'13.91" N 66°02'29.66" W

Water depths were recorded using the diver's depth gauge while rested on the substrate. Additionally, local weather (cloud cover, wind, temperature, etc.), sea conditions, water temperature, and visibility were documented.

Table 2 presents a summary of the biotic (biological) and abiotic (physical) survey parameters. Data recorded includes:

1. Abiotic cover (physical)- the percent cover (to the nearest 1%) of four substrate categories (i.e., hardbottom, sand, rubble, fine sediments/silt) and water depth were also recorded.

2. Biotic cover - the percent cover (to the nearest 1%) of stony corals, macroalgae, crustose coralline algae, seagrass, gorgonians, sponges, and other benthic macrofauna was estimated within each 1 m2 quadrat. Taxa level identification is provided in Table 2.

3. Number of individuals (abundance) - the number of individual stony corals and upright sponges, and of gorgonians.

6. Conclusions:

The total mean biotic cover within the area is 0%, which makes all the points surveyed depleted of biotic components.

6.1 Current Conditions of Protected Species

During the 2-day survey, the endangered Antillean manatee was observed outside the study site. Sea Turtles probably could not use the proposed project site for nesting because there is no beach. It is also probable that sea turtles are not using the project foot print area for various reasons:

- Our findings are consistent with previously reported benthic characterizations for the area (González Marrero, 2005). Our results showed extremely low presence of biological diversity found in the project foot print area.
- It is unlikely that the Antillean manatee or sea turtles are using the project site as a feeding ground as no seagrass was observed.

- Manatees are not usually compatible with human activity, and this area is heavily used for recreational purposes (including boat traffic).
- No impacts to listed corals species are either anticipated, nor likely to adversely affect listed species or designated critical habitat as these organisms or habitat are not present in the Project Area.

7. References

González Marrero, R.L. 2005. Biological Monitoring and Assessment Balneario de Carolina, Puerto Rico. 4pp.