CARNIVAL GRAND BAHAMA INVESTMENT LIMITED

ENVIRONMENTAL MANAGEMENT PLAN

May 2025

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FOREWORD

This Environmental Management Plan (EMP) updates the environmental operational procedures outlined in the original EMP to reflect changes introduced to the facility since its initial submission. It specifically addresses the Operational phase of Celebration Key, providing guidance for the ongoing management of environmental aspects during this stage. It is a living document that is subject to revisions based on situations encountered and should be reviewed as often as necessary. As more information becomes available, specific procedures will be incorporated into this document or a revised version. The EMP will be reviewed as necessary by CK team and GPDD. Management and staff are encouraged to provide suggestions that will improve the EMP and benefit the operation at the Port.

The EMP forms the framework for conducting work-related activities for protection of the environment and human health and ensures alignment with the Department of Environmental Planning and Protection's Certificate of Environmental Clearance (CEC) guidelines (See Annex 1). It also describes the environmental policy of Celebration Key, which is a Carnival Corporation subsidiary. Management, staff and contractors are required to abide by the policies and procedures outlined in this document.

Staff, management and contractors will receive training on the EMP. CK will disseminate information regarding the EMP for operations. Celebration Key Health Environment, Safety and Sustainability (HESS) staff will perform inspections and audits to ensure both Celebration Key and Contractors are in compliance with all EMP guidance associated with the project.

The protection of the environment and human health for all Celebration Key staff, food and beverage vendors, shopkeepers, and tourists is of paramount importance to Carnival Corporation. Every person working at Celebration Key should conduct work activities in a safe and environmentally responsible manner. Carnival Corporation will provide staff and management with the necessary training and equipment.

If any employee is uncertain of the proper way to conduct a work activity, they should immediately stop or suspend the activity and consult with a supervisor/manager for clear directions to proceed.

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CARNIVAL
CORPORATION&PLC.

HEALTH, ENVIRONMENTAL, SAFETY, SECURITY AND SUSTAINABILITY CORPORATE POLICY

Carnival Corporation & plc and its Operating Lines are committed to:

- Protecting the health, safety and security of our passengers, guests, employees and all others working on our behalf, thereby promoting an organization that always strives to be free of injuries, illness and loss.
- Protecting the environment, including the marine environment in which our vessels sail and the communities in which we operate, striving to prevent adverse environmental consequences and using resources efficiently and sustainably.
- Complying with or exceeding all legal and statutory requirements related to health, environment, safety, security and sustainability throughout our business activities.
- Assigning health, environment, safety, security (HESS) and sustainability matters the same priority as other critical business matters.

To implement this Policy, the management of Carnival Corporation & plc and its Operating Lines will:

- Ensure compliance with this Policy within each of Carnival's Corporate and Operating Line organizations.
- Identify managers who are responsible for HESS and sustainability performance and ensure that there are clear lines of accountability.
- Develop, implement and monitor effective and verifiable management systems to realize our HESS and sustainability commitments.
- Support a proactive framework of risk mitigation in the areas of HESS aimed at preventing, monitoring and responding to threats.
- Identify the aspects of our business that could negatively affect the environment and take appropriate action to minimize any adverse effects.
- Identify, document, assess and conduct periodic reviews of the principal HESS and sustainability risks affecting our business and implement practical measures to manage the identified risks effectively.
- Provide HESS and sustainability support, training, advice, and information, as appropriate, to passengers, guests, employees, and others working on behalf of the Company.
- Perform annual HESS audits and take prompt action on identified audit findings.
- Maintain an Ethics & Compliance reporting hotline to allow for anonymous reporting of HESS and compliance concerns.
- Promptly report and properly investigate all HESS incidents and take appropriate action to prevent recurrence.
- Establish and act upon goals and objectives to improve our HESS and sustainability performance.
- Promote industry best practices and publicly report to and maintain open dialogue and cooperation with key stakeholders on HESS and sustainability matters.
- Require business partners to know and comply with applicable legal and statutory requirements related to HESS, labor and human rights.
- Require that employees who become aware of any vessel or crew's inability to comply with Company, legal or statutory requirements report same to management and specifically require that Environmental Compliance reports from shoreside employees be made in writing to their Operating Line Compliance Manager.
- Prohibit retaliation against anyone who reports a violation of Company, legal or statutory requirements and establish that an employee's failure to notify regarding any such violation is grounds for discipline or dismissal.
- Conduct a Corporate senior management review of this Policy at least annually.

Approved by:

William R. Burke	*Arnold W. Donald*	*Micky Arison*
Chief Maritime Officer	*President and CEO*	*Chairman of the Board*

Original issue: 10/15/07 | Revised: 10/18/17

Carnival Costa P&O P&O CRUISES PRINCESS CRUISES Holland America Line AIDA CUNARD SEABOURN Sitmar

1.0 INTRODUCTION

The Carnival Grand Bahama Investments Limited (CGBIL) “Celebration Key” is a cruise port destination operated under the Carnival Corporation brand. The facility includes a Welcome Center with shops and restaurants, recreational facilities, and two piers that can accommodate four cruise ships simultaneously. The pier design is sized to accept Carnival’s new class of ships, the XL-Class, which is powered by liquified natural gas (LNG).

This facility is the largest cruise port facility operated by Carnival Corporation and is intended to operate at the highest standard following Carnival’s Health, Environmental, Safety, Security and Sustainability Corporate Policy.

As in all Carnival ports in the Caribbean and Central America, Celebration Key will have a Health, Environment, Safety and Sustainability (HESS) Department comprised of qualified staff who will be trained by corporate specialists and by the staff of the other ports, further enhancing the best practices in this field applied in the operation of all Carnival ports. As in the rest of Carnival ports, the HESS Department will have a fully equipped in-house laboratory. The HESS Department will support the Engineering Department in the management of solid waste (including waste reduction and potential recycling), wastewater system, and potable water. HESS will directly manage public health (potable water and food safety as well as pest management), coastal and marine environment (including but not limited to: beach water quality, benthic resources, coral reef restoration projects and beach management plan), terrestrial environment (including but not limited to: flora and fauna, mangrove restoration and reforestation) and will also implement a comprehensive environmental education program with the participation of key stakeholders, as well as other aspects of the operation of the port.

This facility will have a state-of-the-art wastewater treatment plant that will have a high-quality permeate that will be reused for irrigation purposes in areas of no-passenger interaction. Additionally, Celebration Key will operate a sea water reverse osmosis (SWRO) system for the provision of potable water to the facility. Celebration Key will also incorporate water conservation measures such as the reuse of wastewater, rainwater harvesting and others.

This Environmental Management Plan (EMP) also covers the marine side of the project. The construction of the facility involved the relocation of coral mounds and individual corals, whose health should also be monitored during the Operational phase for a period of no less than three years following relocation. The individual corals have been relocated off Sharp Rocks Point.

2.0 ENVIRONMENTAL MANAGEMENT PHILOSOPHY

CGBIL is committed to operating Celebration Key in a manner that is following all laws of The Commonwealth of The Bahamas, Freeport Bylaws and Bahamas Government Policies. Moreover, it honors the commitments made in the Environmental Impact Assessment (EIA) and EMP submitted to the former Bahamas Environment, Science and Technology Commission (BEST) now known and Department of Environmental Planning and Protection (DEPP) and the Environmental Department of the Grand Bahama Port Authority (GBPA). CGBIL will operate beyond regulatory compliance requirements to reduce risk to human health and the environment and establish its own environmental quality standards where appropriate. CGBIL is committed to operating in a manner that does not create adverse impacts to the environment beyond site development. Management will devote such time and resources as are necessary to carry out this commitment. CGBIL will maintain qualified personnel to handle and manage these duties in a responsible manner. All employees, contractors and service providers are expected and required to conduct their activities in a way that is consistent with the facilities EMP and overall, Health, Environment, Safety, and Sustainability (HESS) policies of Carnival Corporation and best management practices.

All employees are expected to act as stewards for the protection of the environment and to immediately report to their supervisor any potential risks that may result in adverse impacts. Additionally, employees and contractors are required to abide by all safety protocols established at Celebration Key.

3.0 ENVIRONMENTAL MANAGEMENT SYSTEM

Celebration Key´s Environmental Management System (EMS) is integrated by the environmental procedures for the operational phase. The EMP comprises of a set of environmental procedures designed to implement Carnival's Celebration Key environmental policy.

3.1 Purpose and Scope

The purpose of this is to provide an effective environmental management tool for the operation of the facility and pier structure to ensure protection of the environment, employee safety and public safety. With the EMP, Carnival's goal at Celebration Key is to minimize any impacts to the surrounding area. It is imperative that all employees and contractors know and follow all of the procedures detailed in the EMP and industry standards.

Moreover, as a Carnival subsidiary, the facility is governed by the Carnival Corporation's Health, Environmental, Safety and Security (HESS) policy. The key elements of the HESS policy are:

1. Protecting the health, safety and security of our passengers, guests, employees and all others working on our behalf, thereby promoting an organization that always strives to be free of injuries, illness and loss.
2. Protecting the environment, including the marine environment in which our vessels sail and the communities in which we operate, striving to prevent adverse environmental consequences and using resources efficiently and sustainably.
3. Complying with or exceeding all legal and statutory requirements related to health, environment, safety, security and sustainability throughout our business activities.
4. Assigning HESS and sustainability matters the same priority as other critical business matters.

3.2 Resources, Roles, Responsibilities, and Authority

1. The HESS Manager is responsible for the effective operation of the EMP and for compliance with commitments made in the EIA and EMP. Senior management is responsible for providing sufficient resources that are essential to the implementation, control, and improvement of the EMP.
2. The HESS Manager, or designate, will implement and maintain the EMP with the assistance of Carnival Corporation's environmental professionals, if needed. The HESS Manager will report quarterly on the performance of the EMP to the senior management team. This report will include proposed recommendations for improvements to the EMP.

3.3 Revisions, Authorizations and Document Control

1. The EMP and associated procedures are subject to review and changes as deemed necessary based on conditions. The EMP is a living and dynamic document and revised editions are noted in the procedures. Revisions to the EMP are approved by the Vice President of Destination Operations.

Documents, including procedures, policies, and forms will be developed and maintained according to document revision procedures. The document revision procedure will define the process for:

- Reviewing and updating as necessary and re-approving documents
- Ensuring that changes and current revision status of documents are identified
- Ensuring that relevant versions of applicable documents are available at points of use.

2. Documents will be reviewed periodically and revised as necessary as a result of program or legislative changes, or internal audit findings. New or revised documents will be approved and made available electronically. Revisions will be communicated to managers, supervisors and employees.

3.4 Safety Data Sheets

As part of the EMP, safety data sheets (SDS or MSDS) shall be maintained for all chemicals stored at Celebration Key. This includes SDS for laboratory reagents. A folder containing all SDS shall be maintained by the HESS Department with copies circulated to the appropriate departments and/or staff. The SDS folder will be updated as necessary.

4.0 ENVIRONMENTAL POLICY

Celebration Key is located in a fairly unique location characterized by a very sensitive environment. Consequently, Carnival is committed that this port will be the greatest model for environmental sustainability of all the ports Carnival Corporation has ever developed. Celebration Key's Environmental Management System (EMS) will adhere to the following principles:

- *Compliance*

  Complying with or exceeding all legal and statutory environmental requirements, including but not limited to all applicable laws of the Commonwealth of The Bahamas, Grand Bahama Port Authority Freeport Bylaws, Bahamas Government Policies as well as applicable international laws and regulations. Moreover, it will honor the commitments made in the EIA and this EMP for the operation of the facility, as well as all the conditions imposed by all the environmental licenses/permits granted to Celebration Key. Celebration Key´s EMS will also implement Carnival's corporate HESS policy .

  Should any major environmental incidents occur, the relevant agency will be notified as soon as possible.

  Internal audits will be conducted to ensure compliance with the commitments made in the EIA and EMP and Carnival's corporate HESS policy. Internal audits will be during the operational phase by the CK HESS Manager. The audits will make sure that the staff, cruise ships, and various contractors are in compliance with the EMPs. Non-compliance issues will be documented and forwarded to the Celebration Key's HESS Manager for corrective action. Corrective actions recommendations will be documented and checked to ensure the issue is brought into compliance. The audits will include but not limited to issues including:

  - Chemical Management – Storage, Use/Handling, and Disposal
  - Disposal of Oil and Batteries – Management and disposal
  - Fire Safety
  - Fuel Storage Management
  - Management of used oil and batteries
  - Mobile Fueling Procedures
  - Protection of Sensitive Areas (Wetlands and Coral Reefs) and Conservation Areas
  - Public Health Procedures – Implementation and Compliance
  - Spill Prevention and Counter Measure Plan Issues
  - Waste Management – Storage, Transportation, and Disposal
  - Work Safety

  Compliance checks will be conducted on a daily basis and internal audits will be conducted quarterly and documented. Copies of checks and audits will be retained in digital records along with the corrective action recommendations and confirmation that the issue is resolved and in compliance.

- *Prevention*

  Implementing design, construction guidelines and procedures striving to prevent activities and/or conditions that could adversely impact on the environment as well as to use resources efficiently and sustainably.

- *Environmental Education and Awareness*

  Promoting an Environmental Education Program that will raise awareness on the importance of conserving natural resources by learning about the Port's ecosystems as well as providing environmental training to all individuals participating in the design, construction and operation of the port, including tour operators. This program will also encourage learning about the culture of Grand Bahama and The Bahamas, as well as will promote community involvement and stakeholder participation.

  Based upon the zoning and different uses defined by the coastal environment the Environmental Education Program will include a visitor protocol addressing the increased number of visitors across the marine environment and efforts to minimize their impacts.

  The Environmental Education Program will also include systems for the education of guests, including but not limited to excursions (dive trips /fishing trips), risk of spreading stony coral tissue loss disease (SCTLD), use of reef friendly sun lotions and avoidance of sensitive areas. This program will be similar to the ones implemented at other Carnival ports in the Caribbean and Central America.

- *Continuous improvement*

  Establishing a system for controlling the implementation of all guidelines and procedures as well as for their periodic update.

  Prior to opening employees will be required to participate in an environmental awareness and safety session so that information can be disseminated on the Celebration Key EMP and procedures as well as safety training.

5.0 DETERMINING ENVIRONMENTAL LOADS

Celebration Key is a new facility that will be the model for future Carnival ports. Therefore, an important starting point for effective environmental management is determining the waste volumes generated by the facility. A waste flow diagram will be prepared for the facility identifying waste streams and volumes. The process main flows and liquid and solid waste streams should be updated annually. During the environmental audits the documentation of the generation and disposal of waste will be checked. Section 7.0, Waste Management, describes detailed and specific measures and protocols for waste management including but not limited to specific protocols for the collection and recording of data for solid waste streams.

Section 6.0 Wastewater treatment plant describes detailed and specific measures and procedures for managing wastewater in the facility.

It is the duty of the HESS Manager or their designee to ensure that the volume of waste generated and characterization of waste streams are documented. Digital log sheets will be used to track waste.

6.0 WASTEWATER TREATMENT PLANT (WWTP)

As stated in the EIA, the facility will operate its own membrane bioreactor (MBR) technology to treat onsite wastewater. This technology is designed to provide a very high quality of water capable of operating within varying and at higher pollutant loading.

The overall treatment process consists of equalization tanks, fine screens, pre-anoxic tanks, aeration tanks, and membrane tanks that include the Ovivo SiC ceramic membranes.

The design flow rates for the SiC system are summarized in the table below:

Parameter	Value (MGD)	Comments
Average Daily Flow (ADF)	0.05	
Peak Day Flow (PDF)	0.10	24 hours, up to 1 month
Maximum Month Flow (MMF)		
Peak Week Flow (PWF)	0.12	7-day peak (non-consecutive weeks)
1Peak 2-Hour Flow (P2HF)	0.15	Peak flow from equalization tanks
Maximum Instantaneous Flow	347 gpm	Maximum flow to screens

1. All flows to the MBR system above 0.15 MGD (104 gpm) to be equalized.
2. Biological design is based on the 100,000 gpd design flow.

The MBR system has effluent requirements intended to exceed the standard set in The Bahamas. The Bahamas Government standard for WWTP effluent water quality based on The Bahamas Building Code is biological oxygen demand (BOD) maximum of 35 mg/L and total suspended solids (TSS) maximum of 30 mg/L. The proposed Celebration Key effluent water quality criteria are provided in the following table.

WWTP Effluent Water Quality Criteria

PARAMETER	EFFLUENT
PeakDaily Flow, MGD	0.10
cBOD5	<10 mg/L
TSS	<5 mg/L
TKN	<25 mg/L
NH3-N	<1mg/L
TP	<10 mg/L
FOG	<15 mg/L
Max. Water Temp	30 °C
Min. Water Temp	24 °C
Fecal Coliform	<2.2 CFU/100 ml

To minimize the fluctuations in the influent to the WWTP, an equalization tank will be sized to equalize all flows to the MBR system above 0.15 MGD . The last lift station from the wastewater collection system pumps raw wastewater (influent) passing through the fine screens to this equalization tank. Equalized influent (raw wastewater) is then pumped to fill the MBR process.

When required, waste activated sludge is dewatered and used for the nursery/landscaping purposes and/or hauled to the Pine Ridge Landfill for disposal, where a surplus may exist, in accordance with the Grand Bahama Port Authority Freeport Bylaws.

The plant operator will keep a log recording all the daily oversight operations carried out as well as the results of the monitoring of all the water quality parameters.

The Engineering Department supported by the HESS Department is tasked with daily supervision and management of the WWTP. A technical service agreement will be signed with the manufacturer- supplier (OVIVO).

The high quality permeate will either be used for irrigation purposes in areas with no guest traffic or injected into the deep well. The deep well will also be utilized for the disposal of purging the filters from the Water Amenities, and the brine from the Sea Water Reverse Osmosis (SWRO) plant.

6.1 Water Management

An onsite 350,000 GPD SWRO has been installed. The overall desalination treatment process will consist of feedwater pumping, bag filtration, optional media filtration, the addition of a scale inhibitor, cartridge filtration, membrane separation, forced air degasification, re-pumping, and post treatment. Provisions have been included to bypass the post treatment systems for the production of irrigation water with potable water. The

post aeration re-pump station will be designed to transfer either type of water to the appropriate storage tanks located within the project. Membrane concentrate will be disposed via the deep injection well.

The desalination process consists of a dual treatment units or “trains” each equipped with a positive displacement axial piston first pass membrane feed pump, first pass membrane array, energy recovsystem, second pass membrane feed pump, second pass membrane array, high- and low-pressure piping and instrumentation. The second pass system is designed to treat up to 60 percent of the first pass permeate in case the conductivity is higher than CK standards. A membrane cleaning/flush system will be provided. The dual train design provides redundancy for water production. It is envisioned that the two units would be run simultaneously during peak water demand but alternated to provide similar wear during periods of lower water demand.

The membrane post treatment will be designed to receive the flow from both units and consists of a forced air degasifier, repumping, recarbonation, calcium carbonate up flow contactors to boost finished water hardness and alkalinity concentrations; and three chemical feed systems for the metering of a corrosion inhibitor, dilute hydrochloric acid for pH adjustment and sodium hypochlorite for residual disinfection. The final pH and chlorine residual will be controlled and recorded by a separate system.

The estimated Finished Water Quality of the SWRO plant is summarized in the table below.

SWRO Water Quality Summary

Constituent	Finished Water
Calcium, mg/l as ion	24
Magnesium, mg/l as ion	1.1
Sodium, mg/l as ion	49
Potassium, mg/l as ion	2.0
Bicarbonate, mg/l as ion	61
Sulfate, mg/l as ion	4.5
Chloride, mg/l as ion	70
Carbon Dioxide, mg/l as CO2	0.1
Silica, mg/l as Si02	0.1
TDS, mg/l	212
Total Alkalinity, mg/l as CaCO3	50
Total Hardness, mg/l as CaCO3	65
Free Chlorine, mg/L	0.5 to 5
pH, unit	7.6

Considering Carnival's commitment to preserve Grand Bahama's natural resources, a water conservation program will be implemented, which among other measures will include use of alternative sources for certain on-potable uses: rainwater harvesting and the high quality permeate (treated effluent) of the WWTP with MBR. This water conservation program will also contribute to important operational cost savings.

Water management in Celebration Key will be based upon assigning to each use the source of water which quality is more appropriate for it, preserving for the highest quality requirements for the desalinated water.

6.2 Designated Water Uses for each Source

The designated uses for these water sources are:

1. Desalinated water. Drinking, ice production, hand washing and recreational water facilities.
2. Rainwater harvested from the building roofs. Washing equipment
3. MBR permeate. Irrigation in areas with less potential for contact with guests and staff.

The distribution system for each type of water shall be labeled to prevent cross-contamination.

6.3 Public Health

The following Public Health Procedures for the operational phase have been prepared based upon the experience of all Carnival destinations in the Caribbean and Central America.

1. Potable Water
2. Recreational Water Facilities
3. Prevention and Control of Legionella
4. Management of Housekeeping
5. Food Safety and Hygiene
6. Management of elevated levels of AGE
7. Integrated Pest Management

6.4 Beach Microbiological Water Quality

Three sampling points are located in the beach (included in the Recreational Water Facilities Procedures) where the concentration of bathers is highest. The beach areas must comply with the Blue Flag requirements (https://www.blueflag.global/criteria) for microbiological and chemical parameters (Statistical Threshold Value) as follows:

Escherichia coli < 250 cfu/100 ml

Intestinal Enterococci < 100 cfu/100 ml

pH 6 to 9

6.5 In-House Analytical Laboratory

Consistent with all Carnival ports in the Caribbean and Central America, Celebration Key will have an in-house analytical laboratory equipped for testing several important potable and wastewater quality parameters. The results of this in-house analytical lab will be systematically verified by an external certified laboratory.

6.6 Stormwater Management

Stormwater is managed through a series of storm drains at Celebration Key. Storm drains should be maintained to prevent to prevent objects from interrupting the flow into the wells. If water flow into a well is impeded, and the well is free of visual free of an obstruction, the well may need to be "blown" by a drilling company using a drill rig

6.7 Deep Injection Well

A deep well injection is used for the disposal of water from: 1) surplus permeate from the MBR, 2) backwash from the water amenities and 3) concentrate and backwash from the SWRO plant. The injection well is operational and will be maintained in such a manner to: 1) protect the quality of underground aquifer, 2) eliminate the impact of the operations at other facilities in the area and/or residential neighbors, and 3) ensure that the injected fluid remains in the injection zone.

7.0 WASTE MANAGEMENT

Environmentally sustainable collection and disposal of all solid waste generated by the operation of the Port will be in coordination with Sanitation Services Company Ltd. (SSC) with the goal of minimizing the wastes disposed of to the Pine Ridge Landfill located on Rock Plant Rd. SSC is responsible for the collection and disposal of solid waste in Freeport. Waste Management measures for Celebration Key are below.

- No ship waste will be accepted at the Port for disposal in Freeport.
- Ban of single-use plastics bags, plastic utensils, plastic straws, and styrofoam containers and cups per Bahamas Government regulations effective January 2020. Products where alternatives are readily available and affordable will be utilized and measures implemented to reduce usage.
- Minimizing use of aluminum, glass, etc. (reduce utilization instead of focusing on recycling; we will use less things that will become solid waste).
- Implementation of the Environmental Management of Waste Vendors at GPDDG ports in the Caribbean and Central America procedures to ensure that all wastes generated by the operation of Celebration Key that should be disposed of outside their boundaries are disposed of in GBPA and/or Bahamas Government permitted land-based facilities by vendors duly licensed by the GBPA and/or Bahamas Government and approved by the Port's general manager.
- CK has implemented appropriate advanced waste reduction technologies specifically Newster Frictional heat systems. Two NW-50 systems each with a capacity of processing 90-110 kg/h of waste are installed. This technology can reduce organic waste volumes by 80% and weight by 50% to create a zero to landfill solution. With this technology, unsorted solid waste can be transformed into a sterile, inert flock, which can be safely disposed of in landfills.

A recycling program is also implemented considering the lack of recycling facilities in Grand Bahama Island. The Engineering Department with the support of the HESS Department shall manage the recycling program at CK, where recyclable streams such as waste oil, metals (includes batteries of all types), plastics, and wood shall be segregated and exported via vendors duly licensed by the GBPA and/or Bahamas Government. All recycled waste streams shall be accompanied by a certificate of disposal. For this purpose, proper equipment such as glass crushers, can densifiers, waste compactors, etc., were installed. All waste generated from gardening maintenance will be used to create compost heaps. Waste information will be recorded digitally

7.1 Hazardous Materials Storage

A list of Hazardous materials will be kept including weight and volumes and the corresponding Safety Data Sheets (SDS) added to the SDS binder. Hazardous materials will be stored in a secure location using appropriate storage cabinets, if applicable. Non-compatible chemicals (i.e., acids and bases) will be segregated to prevent mixing in the event of a spill. Employees are to read information on labels and SDS. Storage areas are to be kept clean with isles kept clear. Instructions on signs must be obeyed. Appropriate personal protection clothing must be worn if necessary.

Employees will be provided the appropriate personal protection equipment and training in the handling and storage of hazardous material including the OSHA 30-Hour General Industry training course before handling hazardous waste and annual refresher courses. This includes but is not limited to modules on HAZWOPER, process safety management, personal protective equipment, and industrial hygiene) the use of gloves, safety glasses, respirators, boots, and clothing. Training will also be provided for understanding the Hazardous Materials Identifications System and reading and understanding SDS.

The Hazardous Materials Identification System (HMIS) which is a numerical hazard rating that incorporates the use of labels with color developed by the American Coatings Association as a compliance aid for the OSHA Hazard Communication (HazCom) Standard will be utilized if not already present on the purchased products.

The four bars are color-coded, using the modern color bar symbols with blue indicating the level of health hazard, red for flammability, orange for a physical hazard, and white for Personal Protection. The number ratings range from 0 to 4.

Blue (Health)

The Health section conveys the health hazards of the material. In the latest version of HMIS, the Health bar has two spaces, one for an asterisk and one for a numeric hazard rating. If present, the asterisk signifies a chronic health hazard, meaning that long-term exposure to the material could cause a health problem such as emphysema or kidney damage. According to NPCA, the numeric hazard assessment procedure differs from that used by NFPA.

- 4. Life-threatening, major or permanent damage may result from single or repeated overexposures (e.g., hydrogen cyanide).
- 3. Major injury likely unless prompt action is taken and medical treatment is given.
- 2. Temporary or minor injury may occur (e.g., diethyl ether).
- 1. Irritation or minor reversible injury possible.
- 0. No significant risk to health.

Red (Flammability)

For HMIS I and II, the criteria used to assign numeric values (0 = low hazard to 4 = high hazard) are identical to those used by NFPA. In other words, in this category, HMIS I & II are identical to NFPA.[4] For HMIS III, the flammability criteria are defined according to OSHA standards (which add elevated flammability ratings for aerosols).[5] (HMIS II descriptions, excluding the new aerosol criteria, are shown below)

- 4. Flammable gases, or very volatile flammable liquids with flash points below 73 °F (23 °C), and boiling points below 100 °F (38 °C). Materials may ignite spontaneously with air (e.g., propane).
- 3. Materials capable of ignition under almost all normal temperature conditions. Includes flammable liquids with flash points below 73 °F (23 °C) and boiling points above 100 °F (38 °C), as well as liquids with flash points between 73 °F and 100 °F.

- 2. Materials which must be moderately heated or exposed to high ambient temperatures before ignition will occur. Includes liquids having a flash point at or above 100 °F (38 °C) but below 200 °F (93 °C) (e.g., diesel fuel).
- 1. Materials that must be preheated before ignition will occur. Includes liquids, solids and semi solids having a flash point above 200 °F (93 °C) (e.g., canola oil).
- 0. Materials that will not burn (e.g., Water).

Yellow/Orange (Reactivity/Physical Hazard)

Reactivity hazards are assessed using the OSHA criterion of physical hazard. Seven such hazard classes are recognized: Water Reactives, Organic Peroxides, Explosives, Compressed gases, Pyrophoric materials, Oxidizers, and Unstable Reactives. The numerical ratings are very similar to NFPA's yellow "Reactivity/Instability" rating according to the publicly available data, which is limited to "hazard statements" intended to accompany each rating (as shown below).[6] However, HMIS is a proprietary system, and without referring to the actual criteria for each rating, it is not clear how similar they are.

- 4. Materials that are readily capable of explosive water reaction, detonation or explosive decomposition, polymerization, or self-reaction at normal temperature and pressure (e.g., chlorine dioxide, nitroglycerin).
- 3. Materials that may form explosive mixtures with water and are capable of detonation or explosive reaction in the presence of a strong initiating source. Materials may polymerize, decompose, self-react, or undergo other chemical change at normal temperature and pressure with moderate risk of explosion (e.g., ammonium nitrate).
- 2. Materials that are unstable and may undergo violent chemical changes at normal temperature and pressure with low risk for explosion. Materials may react violently with water or form peroxides upon exposure to air (e.g., potassium, sodium).
- 1. Materials that are normally stable but can become unstable (self-react) at high temperatures and pressures. Materials may react non-violently with water or undergo hazardous polymerization in the absence of inhibitors (e.g., propene).
- 0. Materials that are normally stable, even under fire conditions, and will not react with water, polymerize, decompose, condense, or self-react. Non-explosives (e.g., helium).

White (Personal Protection)

This is by far the largest area of difference between the NFPA and HMIS systems. In the NFPA system, the white area is used to convey special hazards whereas HMIS uses the white section to indicate which personal protective equipment (PPE) should be used when working with the material.

Potential Hazardous Materials at Celebration Key in its operational phase includes but is not limited to:

- Acids
- Batteries, sealed and Lead Acid Type
- Cleaners
- Diesel
- Gasoline
- Liquid Propane Gas

- Liquid chlorine
- Motor Oil
- Paint Solvents
- Used Oil

7.2 Hazardous Waste

Hazardous wastes and/or materials, will be collected, stored, and disposed by specialized companies. Should any hazardous waste be exported for disposal, Celebration Key staff will liaise with the Department of Environmental Health Services, Department of Environmental Planning & Protection, and/or other relevant Bahamas Government Departments following the Basel Convention on the Transboundary Movements of Hazardous Waste and Their Disposal. Hazardous waste/materials will be disposed of on a semi-annual basis post construction or on a as necessary basis.

Hazardous Materials disposed in Grand Bahama is done through Sanitation Services Company Limited, which is a subsidiary of Waste Management. Sanitation Services requires completion of the Special Waste Profile Sheet. The Special Waste Profile Sheet is presented on the following page. The completion of the sheet also requires chemical analysis as specified by Sanitation Services. If hazardous wastes cannot be accepted locally, the Celebration Key facility will communicate with Sanitation Services to determine if Waste Management can assist in disposal in the United States.

Sanitation Services
Service First. Safety Always

PROFILE #
(SSC office only)

SPECIAL WASTE PROFILE SHEET

A. Generator

Name _____
Site Address _____
City, State, Zip _____
Contact _____
Phone _____
Fax _____

B. Billing

Name _____
Address _____
City, State, Zip _____
Contact _____
Phone _____
Fax _____

C. Description of Waste

Name of Waste _____
Process Generating Waste _____
_____
Estimated Volume _____ Frequency _____
Special Handling Instructions or Other Waste Data _____
_____

D. Chemical Composition/Physical Properties

Consituents Concentration

Physical State _____
Color _____
Free Liq uids _____
Flash Point _____
pH _____
Total Solids _____
Reactive Cyanide _____
Reactive Sulfide _____

E. Sample/Analysis Information

Check that all apply:

☐ Sample submitted with profile ☐ Laboratory Analysis submitted ☐ Material Safety Data Sheet Submitted

Laboratory Name _____ Sample Date _____ Sample I.D. _____

F. Sample/Analysis Information

1. This waste is not a hazardous waste as defined by federal, state, or local laws and regulations.
2. This waste does not contain regulated quantities of PCBs as defined by federal, state, or local laws and regulations.
3. This waste does not contain infectious wastes as defined by federal, state, or local laws and regulations.
4. To the best of my knowledge, all information submitted in this and all attached documents contain true and accurate descriptions of this waste. Any analysis submitted was performed on a representative sample as defined in 40 CFR 261 – Appendix 1 and was obtained by using this or an equivalent sampling method. All relevant information regarding known or suspected hazards in the possession of the generator has been disclosed.

Generator Signature: _____ **Date:** _____

Approval Signature: _____ **Date:** _____

Where disposal via Waste Management is not permissible, Celebration Key shall communicate with a vendor duly licensed by the GBPA and/or Bahamas Government that can assist in disposal in the United States. All hazardous waste disposal activities shall occur under the jurisdiction of The Basel Convention, Department of Environmental Health Services, and Department of Environmental Planning & Protection to ensure sound transboundary movement of hazardous from within the Bahamas to a consenting receiving country.

Celebration Key employees handling hazardous waste for pickup, via licensed vendor, will be provided the OSHA 30-hour General Industry training course before handling hazardous waste or a disposal firm with appropriately trained personnel will be utilized. All personal protection equipment necessary to conduct the operation will be supplied by the Celebration Key. All necessary safety precautions and warning signs will be posted. A job risk analysis will be performed for any hazardous waste operation for storage, transportation, and disposal. Employees will undergo annual refresher courses. Employee training will be documented in their personnel files managed by the Human Resources Department Learning and Development Team. All hazardous waste transportation, storage and certificates of disposal will be documented; these records shall be retained by the HESS Manager.

7.3 Recycling and Reuse

A formal recycling program shall be managed by the HESS Department through a vendor duly licensed by the GBPA and/or Bahamas Government. The scope of work is as follows:

Provision of, delivery and pick up of roll off bins for recyclable waste streams

Collection of pre-sorted materials & Recycling Activities

- Paper
- Cardboard
- Plastics
- Aluminum cans
- Metals (including batteries of all types)
- Used cooking oil

This program shall not include the disposal of non-recyclable items such as contaminated oily rags, paint and medical waste.

Additional ad-hoc recycling opportunities exist on island for the following potential waste streams:

Epic Batteries (car batteries): Located in Bonded Warehouse off Queens Highway. They buy back used motorcycle, automotive and marine batteries of which they have manufactured.

Sanitation Services Company Ltd: Collects large volumes of used oil. For Celebration Key, i.e. non-segregated mixed oils (such as from operating equipment and vehicles).

Bahamian Brewery and Beverage Company: Located at corner of Queens Highway and Grand Bahama Way. Empty bottle buyback program for their brand beer bottles, i.e., Sands, Sands Light, Sands Pink Radler, Sands Passion Radler, Strong Back and Sixty-Six Step bottles can be recycled in Freeport via its Bottle Buy-Back Program.

8. STORAGE OF FUEL

There is a zero-tolerance policy for spills at Celebration Key. Therefore, all fuel containment tanks will be on a concrete pad with secondary containment. All fuel storage tanks and fuel lines will be above ground and the tank double walled. The fuel line to the generator will be above ground and hard piped, with shut off valves at both ends. The capacity of the concrete containment dike shall be at least 110% of the tank volume and meet any GBPA building code specification. The secondary containment dykes will be gravity fed drains. Any fuel that is spilled in the secondary containment structure or filling pad will be cleaned immediately with absorbent pads from the spill kit stationed at the fuel tanks. Fire extinguishers will also be present in the fuel storage areas. The prevention of spills and keeping the secondary containment clean will avoid having to treat petroleum contaminated water. The use of aboveground storage tanks and piping will allow for the visual monitoring of any leaks on a daily basis by staff and the checks documented on a daily basis through the use of a logbook. Any leaks detected will be reported immediately to the HESS Manager so that immediate action can be taken. The fuel type will be displayed on the tank with the appropriate NFPA diamond sign displaying health hazard, fire hazard, instability, and specific hazard if any. The drawings for the fuel storage areas and connection to the generator will be permitted through the GBPA Building and Development Department. Where required by the building code emergency shut off switches will be incorporated into the design. Any fuel spills of 5 gallons or more will be documented and reported to management.

Celebration Key will prepare a specific Spill Prevention, Control, and Countermeasure (SPCC) Plan based on the Corporate Marine Terminals Oil Spill Contingency Plan

The HESS Manager, supported by a Fire Safety Specialist and Interdepartmental Fire Response Team shall manage all fire safety equipment (fixed, mobile, and vehicular) to ensure operational readiness in the event of a fire threat (included in the CK-HESS-22 Fire Plan).

9. MANAGEMENT OF THE TERRESTRIAL ENVIRONMENT

The design of Celebration Key provided for preservation of a large portion of mangrove habitat on the west side of property. The various species of mangrove species are now protected under Bahamian Law in the Forestry (Declaration of Protected Trees), Order 2021.

In general, removal and eradication of exotic species, most notably the large stands of Casuarina Trees *Casuarina equisetifolia* is highly recommended where the opportunity exists. Where Casuarina were cleared in the development of Celebration Key they were completely removed, and native palms retained and reforested as a part of the landscaping plan. Additionally, some 5000 native plants were sourced via local nurseries and providers to retain native and non-invasive introduced plant species at the port destination.

The Bahamas Government (DEPP) in the Certificate of Environmental Clearance required Celebration Key to perform Avian and Wildlife surveys for no less than three years after operations begin (see below)

"The undertaking of an Avian and Wildlife surveys are to be conducted twice per year during construction and/or a period no less than three (3) years after operations are initiated per the approved submission of 1st October 2021."

10. MANAGEMENT OF THE COASTAL AND MARINE ENVIRONMENTS

- CK will promote coral reef conservation.
- Discharges of any waste to the coastal and marine environments will be strictly forbidden.
- Docking at the facility by non-cruise vessels will only occur under special circumstances and will require formal approval from the CK General Manager..
- Onboard incineration will be forbidden while in port.
- Coastal clean-ups will be systematically organized, encouraging the participation of the community and crew members.
- Measures to preserve natural longshore and cross-shore sand transport, will be implemented.
- CK will establish zoning for different uses to protect sensitive habitats, to separate incompatible uses and to ensure the safety of users.
- CK will establish visitors' carrying capacity of beaches, and other sensitive areas, such as dive and snorkeling sites.
- CK will publish a snorkeling and swimming etiquette.

10.1 Marine Mitigation

Two distinct mitigation strategies were utilized in the relocation of reef mound substrate, and construction of additional mitigation reef substrate with coral relocation. These are addressed separately in the following sections.

10.2 Relocation of Reef Mound Substrate

Approximately 1.09 acres of reef mound substrate were cut and relocated to the east. This allowed for preservation of the substrate structure in addition to the established benthic communities on the mound structures, including soft coral and macroalgal communities that could not be practically transplanted on an individual basis.

The area consists of an open sand area within a bathymetric low of similar depth surrounded by similar isolated mound features (See Figure 10-1 and Figure 10-3)

10.3 Mitigation Reef Construction and Coral Relocations

A mitigation reef was constructed on a 5.18-acre receiver site in the nearshore adjacent to the western property boundary (Figure 10-2). The reef was constructed of limestone boulders of approximately 4-foot diameter in random groupings interspersed with open sand areas between groupings. This site served as a receiver site for suitable coral colonies from dredge impacted area. The DEPP requirements are presented below.

"Not less than 60 days prior to the relocation of any corals, the developer must submit a coral relocation report to the Department for approval and the continued monitoring on the relocated corals. The developer

is responsible for ensuring that an assessment exercise is conducted every six (6) months for a period no less than three (3) years after relocation."

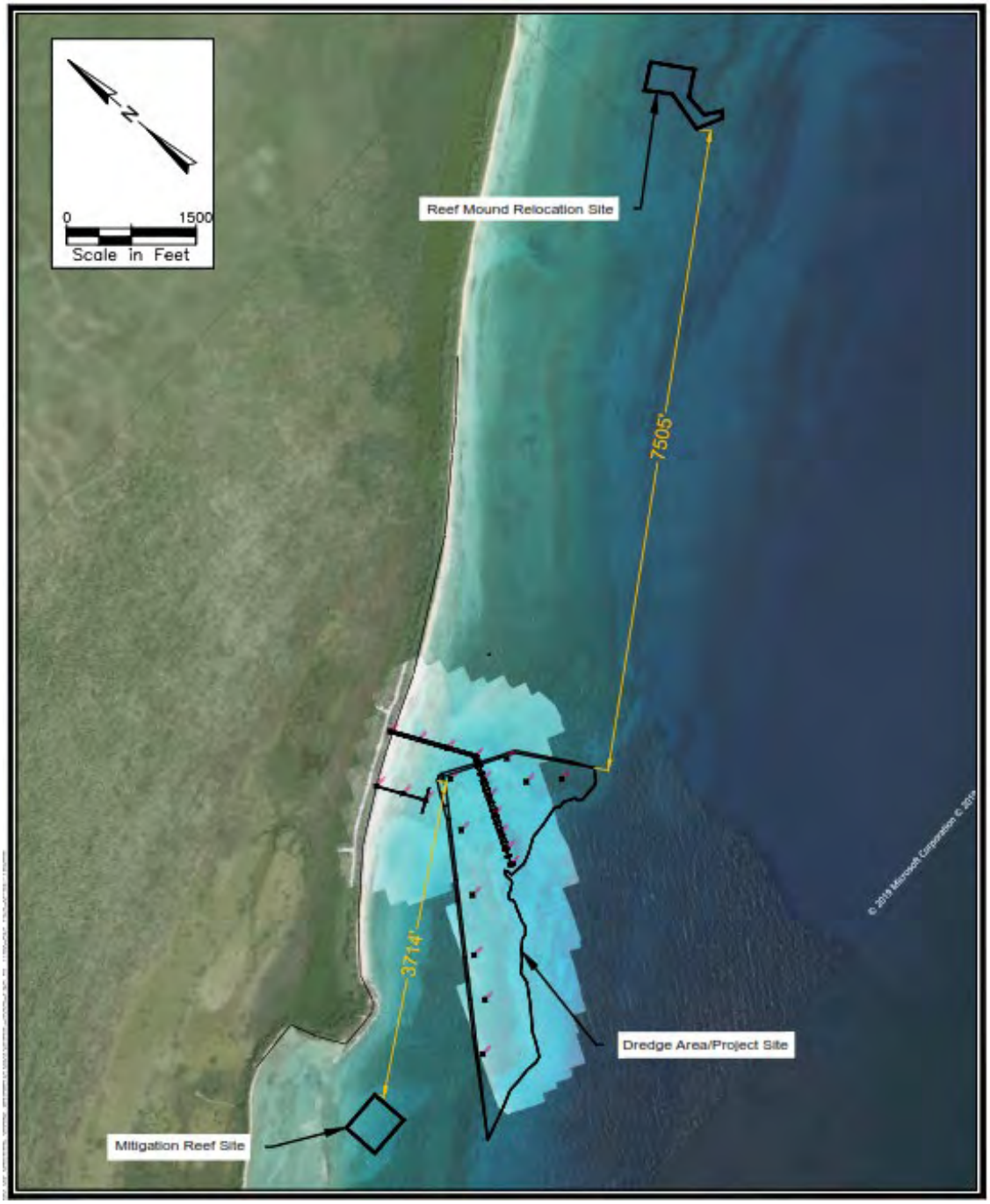


Figure 10-1. Reef Mound Relocation and mitigation Reef Locations

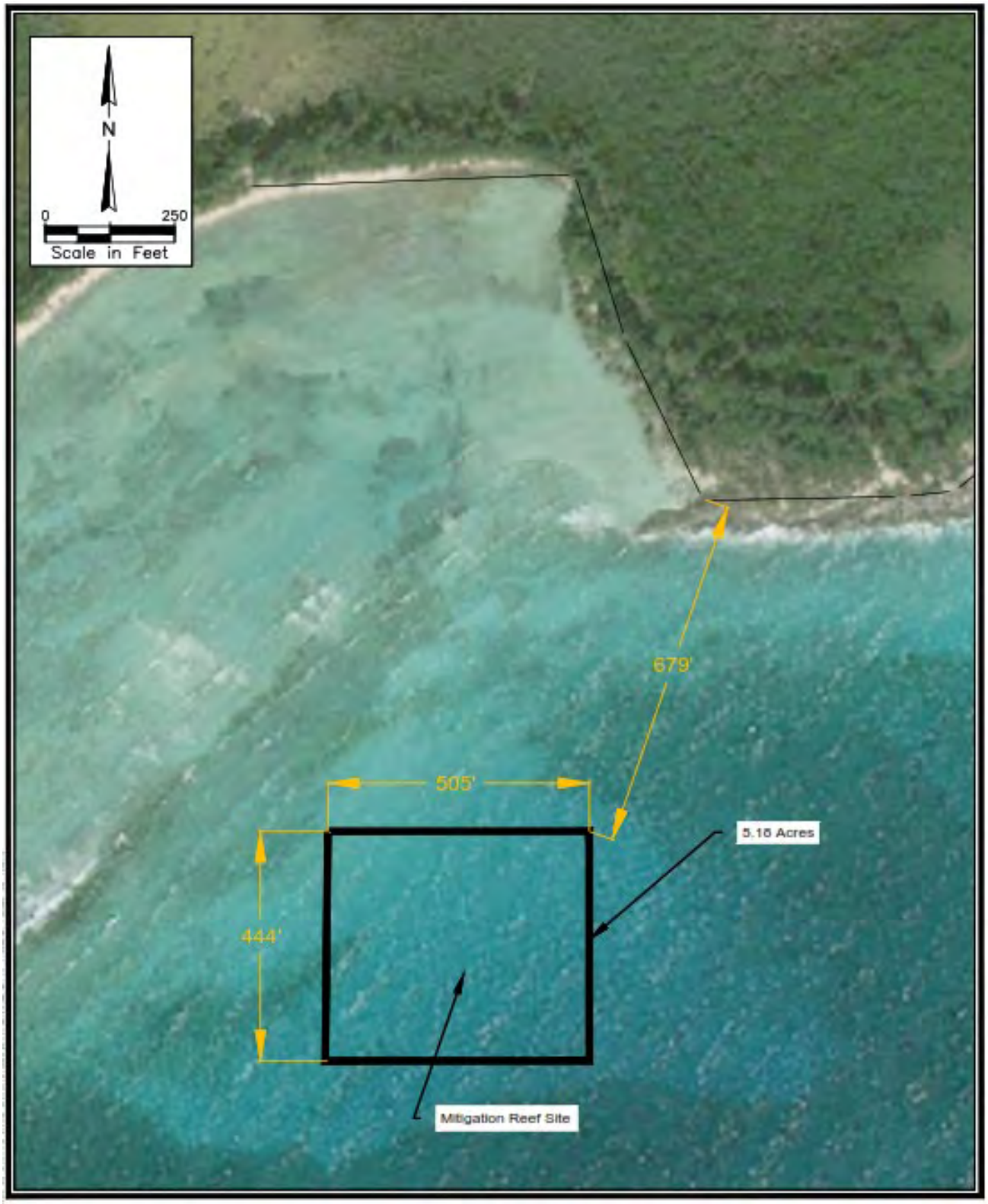


Figure 10-2. Mitigation Reef Sites

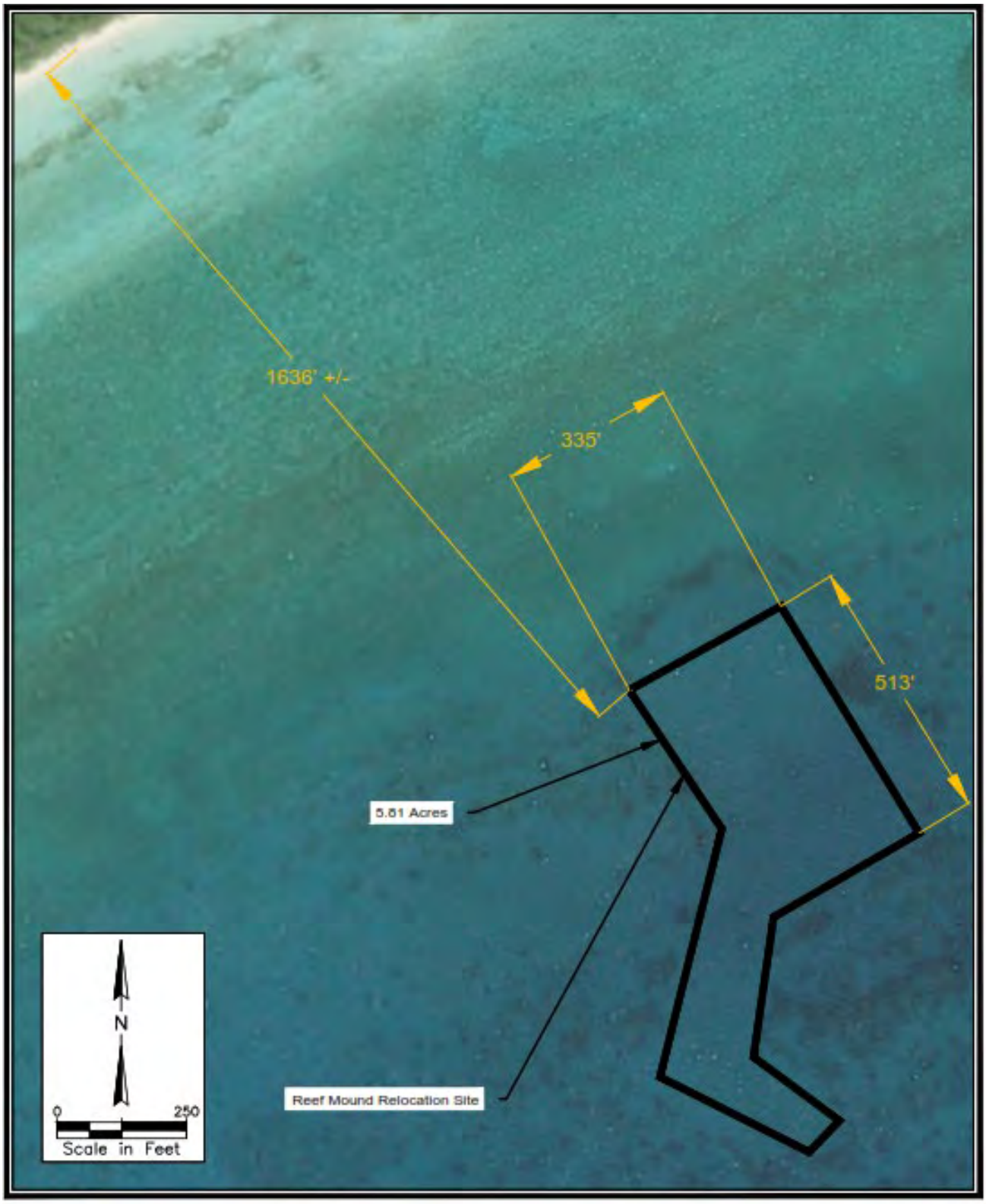


Figure 10-3. Mitigation Reef Site – Reef Mound Receiver Site

10.4 Other coastal environmental management procedures

Beach Tilling

Removal of debris or seaweed accumulations from the beach must be conducted based on accepted general practice. Removal should minimize the loss of sand from the beach. All non-beach-compatible material removed from the beach shall be disposed of in an appropriate manner based on the type of material removed. All beach tilling or raking operations should avoid areas of active turtle nesting.

Beach Nourishment

Based on the coastal impact analysis conducted in support of the EIA, impacts to the beach are anticipated to be minimal under typical conditions and not require additional beach nourishment other than the replacement of material from the coastal inlets on the beach. Major impacts on the beach would most likely occur due to a major hurricane event. If impacts from such an event occur within the project area, a post-storm beach monitoring survey will be conducted to quantify impacts. Based on this survey, the potential for natural recovery will be assessed and, if warranted, consultation with relevant regulatory agencies will occur regarding potential additional restoration efforts.

11. ENVIRONMENTAL PROCEDURES

Small Watercraft Fueling Operations

The fueling of small watercraft such as the Celebration Key rescue vessel and waverunners is outlined in this environmental procedure and shall be restricted to the Shorex Dock. Fueling is essential for ensuring that the vessels are ready for the next day's operations, with specific procedures in place to manage risks and hazards associated with fueling operation (see CK-HESS-20 Small Watercraft Fueling Operations).

Biosolid Management (Wastewater Treatment Plant)

The management practices for biosolids generated from the wastewater treatment plant of Celebration Key is outlined within CK-HESS-8 Biosolid Management from Wastewater Treatment Plant. It encompasses options such as composting, on-site fertilizer application, supporting local farming communities, and disposal at the authorized landfill in Grand Bahama. This procedure aligns with applicable Bahamian environmental legislation and Freeport Bylaws and promotes sustainable practices.

Integrated Pest Management Plan

The CK-HESS-6 Integrated Pest Management (IPM) plan is designed to address and manage pests effectively while promoting sustainability. By integrating various pest prevention and control methods, (including biological, mechanical, and chemical in alignment with Bahamian environmental legislation), it aims to achieve comprehensive and effective pest management. The CK IPM Program focuses on regular surveillance, preventive practices, targeted control methods, and accurate pest identification to minimize pest infestations and vector-borne illness.

Ship Maintenance Activities

Carnival Cruise Line has requested that ship maintenance activities be carried out at Celebration Key and has submitted their standard operating procedures (SOPs) for the following activities (See Annex 2):

- Hull inspection and cleaning
- Deck cleaning
- Painting and chipping

Celebration Key will conduct a detailed environmental and operational review of this request in consultation with DEPP. This review will inform the development of specific SOPs tailored to the unique environmental

characteristics of Celebration Key and the exceptionally high number of passengers expected at this destination.

These activities will be considered for implementation only after the joint evaluation is completed and it is confirmed that appropriate environmental safeguards are in place.

DELINEATION OF CONSERVATION AREAS

1. Purpose

The purpose of this procedure is to protect areas designated for conservation to ensure that there are no inadvertent impacts during site clearing activities.

2. Description

There are two primary areas designated for conservation. The first is approximately 103 acres of mangrove wetland located from the near center of the property extending westward. The second is an approximately 55-acre nature trail located on the northeast corner of the property. If any other areas are identified such as, additional wetlands, critical habitat, protected species, and protected flora they will also be surveyed and flagged and set aside for conservation or will be mitigated if necessary.

Under no circumstance should the hydrology of the wetland be altered without written permission from GBPA and/or DEPP in areas to be protected.

FUELING ACTIVITIES

The Engineering Department shall manage fueling activities of all Celebration Key heavy operating equipment, utilizing best management practices to prevent and minimize fuel and petroleum hydrocarbon spills.

General Fueling Standards

The Engineering Department shall manage diesel fuel stores within a double walled tank at the back of house area, tracking fuel issuance/consumption and maintaining spill kits and response plans. It is the responsibility of the Assistant Technical Manager-Fleet and all associated technical employees to prevent and reduce the release of petroleum hydrocarbons into the environment. The HESS Fire Safety Specialist shall manage all related fire safety equipment assigned to the designated fuelling area and authorized fuelling activities; including awareness training for technicians to minimize risk of ignition sources e.g. equipment idling or cell phone use. Drip pans or absorbent pads may be placed below the fueling area to collect drips that may occur during fuelling operations.

Fueling Operations

- The fuelling area will have a concrete floor to minimize impacts from spills. The fuel dispenser shall be of the automatic fuel shut – off type which automatically shuts off once the fuel tank is filled. As gasoline and diesel are flammable liquids this type of device will prevent spills and the risk of fire.

- A fire extinguisher shall be kept near the fuel dispensing area and shall be checked weekly to make sure it is filled.

- All vehicles must be turned off while fuelling.

- Cell phones are not allowed be used while dispensing fuel.

- Only appropriate fuel containers for storing and carrying fuel can be used. No glass bottles, water bottles, milk jugs, or any other inappropriate container may be filled.

- Small spills should be cleaned immediately with absorbent pads, which should be bagged appropriately and set aside for disposal at the Pine Ridge Landfill.

FUEL BUNKERING

Fuel bunkering is not currently offered as a service by Celebration Key. However, based on cruise ship needs, it may occur in the future. This service would be arranged directly between the cruise line and the fuel provider. Two types of fuel bunkering may take place at the port: (1) marine fuel oil and (2) liquefied natural gas (LNG).

Celebration Key has initiated contact with potential providers for both fuel types. It is likely that the marine fuel oil supplier currently serving Freeport Harbour will also serve Celebration Key, though this is yet to be confirmed.

While the facility is not the direct provider, Celebration Key is responsible for ensuring that all bunkering procedures comply with international standards and that all parties involved have effective spill prevention and response plans.

The fuel provider's SOPs will be reviewed and verified before any bunkering operations begin in consultation with DEPP and GBPA. Celebration Key will work closely with all relevant parties to ensure operations are conducted safely and with full environmental responsibility.

The Spill Prevention, Control, and Countermeasure (SPCC) plan for fuel bunkering will be the responsibility of the fuel supplier. Celebration Key will review this plan to ensure compliance with both international and

local standards and will integrate it into the facility's broader environmental management framework. These revised versions will be submitted to DEPP and GBPA.

Celebration Key staff will also support LNG risk management efforts as needed.

ANNEX 1 – CERTIFICATE OF ENVIRONMENTAL CLEARANCE

The Commonwealth of The Bahamas

Department of Environmental Planning and Protection

CERTIFICATE OF ENVIRONMENTAL CLEARANCE

In Accordance with Section 11 of the Environmental Planning and Protection Act of 2019

Certificate Registration No. 0521A

This is to certify that ***Carnival Grand Bahama Investments Limited (operating as Celebration Key)*** *has met the necessary requirements and has this day been granted a Certificate of Environmental Clearance for the proposed Project/Activity titled* ***The Development of a Passenger Cruise Port Facility*** *to be utilized on,* ***Freeport, Grand Bahama, The Bahamas.***

This certificate shall remain valid only under the terms and conditions identified below.

General Conditions and terms attached to this certificate are set out as follows:

1. *This Certificate of Environmental Clearance is required for the Construction works associated with the Development of a Passenger Cruise Port Facility and the approved Celebration Cay Pier Extension. All works are to be in keeping with the terms and conditions indicated in the approved Environmental Management Plan (EMP).*
2. *This Certificate of Environmental Clearance requires the full-time engagement of a DEPP approved Environmental Manager to ensure the works of the contractors and are in compliance with the approved Environmental Management Plan (EMP) throughout the construction phase.*
3. *The Environmental Manager is to be responsible for ensuring full compliance with the EMP approved for Carnival Grand Port (Celebration Key).*
4. *The Environmental Manager must have the authority to stop works in the event of noncompliance with the EMP.*
5. *All environmental management oversight and reporting should be in keeping with the EMP. All monitoring, reports, checklists, and reporting forms will be provided to the Department on a weekly basis for no incidents and within 24 hours for an incident.*
6. *Not less than 60 days prior to the relocation of any corals, the developer must submit a coral relocation report to the Department for approval and the continued monitoring on the relocated corals. The developer is responsible for ensuring that an assessment exercise is conducted every six (6) months for a period no less than three (3) years after relocation.*
7. *The undertaking of an Avian and Wildlife surveys are to be conducted twice per year during construction and for a period no less than three (3) years after operations are initiated per the approved submission of 1st October 2021.*
8. *All Upland works related to the development of the residential lots require seperate approvals.*
9. *Any modifications or changes to the project the approved environmental monitor or monitoring conditions will require a no objection from the Department.*
10. *All other necessary permits should now be sought from all relevant agencies.*
11. *Any septic tank installation is to be away from the dunes and coastal areas.*
12. *The total surface area allocated to covered space and paved areas should be permeable surfaces, for example, gravel and pea rock to allow for proper drainage and run off.*

ANNEX 2 – CARNIVAL CRUISE LINE STANDARD OPERATING PROCEDURES

PIER SIDE TOUCH-UP PAINTING PROCEDURES GROUND

PPE SAMPLE

TWO TEAM MEMBERS FOR EACH PIER SIDE PAINTING OPERATION

1. One person holds the Portable Tarp in position against the ship side to prevent dripping paint into the water.
2. The other person uses a squeezed paint roller to paint.

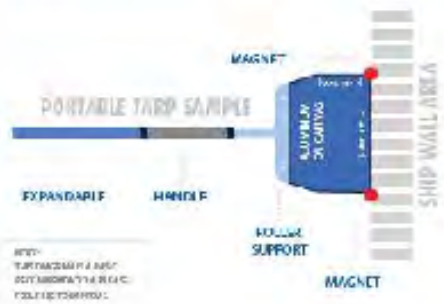
PRECAUTION TO PREVENT PAINT DRIPPING:

1. While Painting the Ship's side shell, take all reasonable precautions to prevent paint spilling or dripping into the water.
2. Use the minimum amount of paint on the paint roller.
3. Only push the Roller into the paint—not the handle.
4. Paint roller must have excess paint removed to prevent dripping use the strainer inside the paint container.
5. Use rags to clean the paint roller to avoid dripping paint.

NOTE:

1. If a trolley is used for carrying paint materials, it should be well secured and tethered to prevent the wind blowing it into the water.
2. One Officer designated by the Staff Captain must conduct a risk assessment from a Safety & Environmental perspective before commencing work.
3. Paint operation should always be under the supervision of the Bosun.
4. Only conduct the operation when prevailing weather conditions allow. (eg: not during high winds)

SAFETY NOTE
USE THE PORTABLE TARP AT ALL TIMES TO PREVENT PAINT DRIPPING INTO THE WATER



PAINTING & CHIPPING PROCEDURES
FLOATING PLATFORM

TWO TEAM MEMBERS FOR EACH PAINTING/CHIPPING JOB

Tarp instructions:

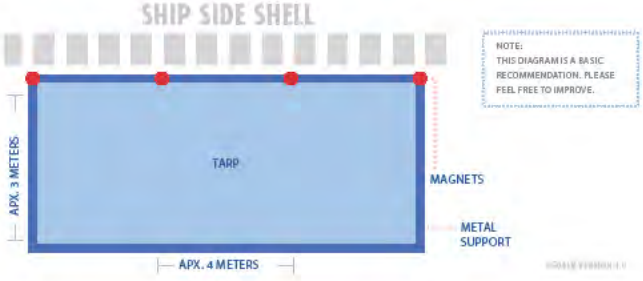
1. Tarp protection must be placed in position against the ship's side to prevent dripping paint or chipped paint debris into the water.
2. Tarp must extend from the platform to the ship's side shell and the entire length of the floating platform (see pictures below)
3. No gaps to be left between the tarp and the ship's side.
4. Portable tarp may be used alone or in combination.

PRECAUTION TO PREVENT PAINT DRIPS & CHIPS FROM GOING OVERBOARD:

1. While painting or chipping the Ship's side shell, take all reasonable precautions to prevent paint spillage/dripping or chipping debris going into the water.
2. Use the minimum amount of paint on the paint roller.
3. Only touch the Roller on the paint - not the handle.
4. Paint roller must be squeezed against the strainer inside the paint container to prevent paint dripping.
5. Use rags to clean the metal support paint roller, to prevent paint dripping.

NOTE:

1. All painting & chipping tools /materials (paint can, roller, brushes, rags, etc…) (hammer, circular drill, brushes, scraper, silicon gun, etc...) on board the floating platform MUST BE SECURED to prevent loss overboard.
2. One Officer designated by the Staff Captain must conduct a risk assessment from a Safety & Environmental perspective before commencing work.
3. Paint and chipping operation should always be under supervision of the Bosun.
4. Only conduct the operation when prevailing weather conditions allow. (e.g.: not during high winds.)



PAINTING & CHIPPING PROCEDURES
CHERRY PICKER

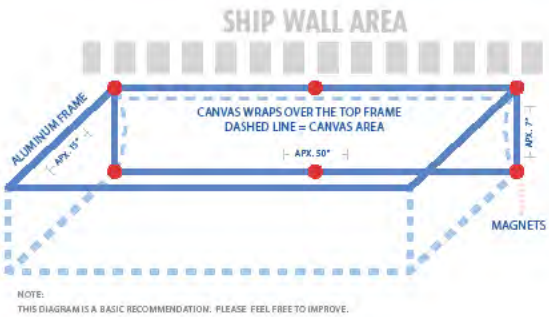
TWO TEAM MEMBERS FOR EACH PAINTING/CHIPPING JOB

Tarp instructions:

1. Tarp Bag protection must be placed against the ship's side to prevent dripping paint or chipping paint debris into the water.
2. Tarp Bag must cover the entire area of painting or chipping.
3. NO GAPS to be left between the Tarp Bag and the ship's side.
4. Tarp Bag must have enough magnetic grip - if necessary, add more. Also it should have a secondary means of securing (rope) to prevent dropping overboard, or onto someone below.

PRECAUTION

1. While paint chipping on the Ship's side, take all reasonable precautions to prevent paint or chipping debris from going overboard. (see paint dripping guide from Pier Side = Ground).
2. All painting & chipping tools /materials (paint can, roller, brushes, rags, etc. ..) (hammer, circular drill, brushes, scraper, silicon gun, etc...) on board the Cherry Picker MUST BE tethered to prevent dropping/tipping overboard.
3. One Officer designated by the Staff Captain must conduct a risk assessment from a Safety & Environmental perspective before commencing work.
4. Paint and chipping operation should always be under supervision of the Bosun.
5. Only conduct the operation when prevailing weather conditions allow. (e.g.: not during high winds.)



GREEN CLEANER CLEANING BOAT

ALUMINIUM BOAT SPECS

Length	8800 cm
Width	3000 cm
Max height	3490 cm
Max weight	3500 kg
Material	Seawater proof Aluminum AL AW 5083
Certificates	The hull is calculated by follow The Recreational Craft Directive (RCD) and ISO 12215-5:2019
Max capacity (persons / kg)	5 Person / 550 kg
• Painted hull and cabin	
• Cabin divided into steering room and technical room.	
Windows	Hard coated polycarbonate, with windscreen wipers
Doors	Seawater proof Aluminum, Anodized and powder coated. Slide door for steering room and hinged door to technical room
Climate control	...
Fuel Tank capacities	200 B / 100 D
Seats	2 helm chair, arm rest with boat and washing unit control joystick + 3 backseat
Lights	Required nav lights, comprehensive amount working led lights
Hatches	The hull has 3 service hatch for fuel tank, bow and rear thruster
Fenders	Heavy duty rubber rail.
Noise insulation	For steering room and engine hatch
Bollards	4 bollards for lifting and mooring

All information presented are preliminary, which will be refined later. Copyright Cleaningboat Ltd. 2024.

MACHINERY

Propulsion system	2 X Honda BF150-250
Bow thruster	2 X Vetus Bow 55KGF
Boat steering control system	...
Engine	Yanmar 3TNV
Hydraulic pump	For lifting device and washing unit
Bilge pumps	2 automatic
Battery system and capacity	Optima bluetop 2X75AH, 1 battery for engine and one for washing control
Charging connections	220v connectors for battery chargers
Lifting device for washing unit	RL50 AL AW 6063 T6 Aluminium beam with hydraulic operation. Anodized and powder coated.

ENGINE SPECIFICATIONS

Rated Output	2 x 150-250 hp
Rated Speed	...
Displacement	...
No. of cylinders	...
Cylinder Bore x Stroke	...
Combustion system	...
Aspiration	...
Alternator	...
Dry weight without gear	...
Dimensions	...
Certifications	...

All information presented are preliminary, which will be refined later. Copyright Cleaningboat Ltd. 2024.

WASHING UNIT

Collecting unit patented with 2 brush	Working width 70 cm
PC based control and data logging system	
Ultra sonic based tracking system, Indicate washing unit location and shows cleaned area	
Two 24" display for washing unit control, one for tracking and one for divided into four camera	
Led lights	Led spotlight forward and backward
Camera system	2 cameras, 1 forward and 1 backward
Cleaning performance	350 to 1050m²/h Operating speed 0.14m/s - 0.42m/s
IP-class for electric components are at least IP69	
Powered by hydraulic	
Spare/exchange washing unit for bigger services or in case of mechanical failures.	

FILTERING SYSTEM

Three phase filtering + UV light	
Collecting pump	200 Liters / minute
Debris collection	Filter bag
Sampling probes	Before and after filter unit

Removal rate calculated from average values

Turbidity (FNU)	Total suspended solids (mg/l)	Total phosphorous (µg/l)	Total nitrogen (µg/l)	Arsenic (As) (µg/l)	Cadmium (Cd) (µg/l)
95%	**86%**	**96%**	**95%**	**87%**	**97%**

Cobalt (Co) (µg/l)	Chromium VI (Cr6+)	Chromium (Cr) (µg/l)	Copper (Cu) (µg/l)	Mercury (Hg) (µg/l)	Nickel (Ni) (µg/l)	Lead (Pb) (µg/l)	Zinc (Zn) (µg/l)
85%	-	**91%**	**85%**	**80%**	**94%**	**56%**	**94%**

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GREEN CLEANER CLEANING BOAT

MAINTENANCE BOOKLET

BOAT

Engine Honda maintenance cycle (According to supplier's instructions)	
First service	...
Motor oil, fuel filter	...
Exhaust cleaning	...
Cooling pump, valve adjustment	...
Propulsion system Gear oil	...

CLEANING UNIT

Brush change	150h
Check: Anodes etc.	150h
Boundary sealing	250h
Hydraulic oil filter	250h or yearly
Hydraulic oil change	250h or yearly
Hydraulic hoses	3 years
Electric cables	3 years

WASHING DEVICE FULL SERVICE

Once per year:
Hydraulic motor 4 pc
4 Uniball joint
Steering shaft bearing
Hydraulic hoses
Zinc anodes
3 wheels
Calibrations and test drive

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MAINTENANCE BOOKLET

MAINTENANCE PLAN

Daily/smaller	By trained onboard personnel
Main maintenance by manufacture	CleaningBoat Ltd., Turku, Finland

SPARE PACKAGE

Listed bellow spare parts included	
Daily/smaller	2 pc Brushes, Brush hub, Wheel, Bearings, 2 hydraulic Motor, hydraulic hoses
Boat	Engine oil, oil filter, fuel filter, belt

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GREEN CLEANER CLEANING BOAT

GUARANTEE
(BEGINNING ON SHIP'S DELIVERY DATE)

Boat	2 Year hull guarantee, equipment by manufacturer
Engine	By manufacturer
Washing unit	1 Year, not include normal wear out
Filtering system	1 Year, not include normal wear out

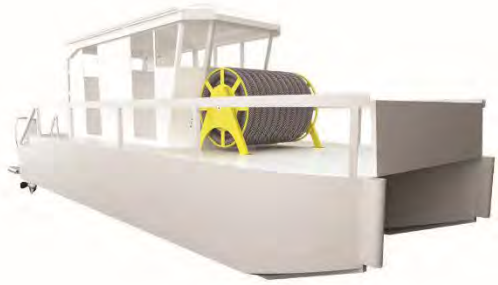
CREW TRAINING

Around 1-2 weeks training period for:

Boat handling

Washing unit handling

Daily service



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