

Environmental Protection Plan (EPP): Geotechnical Investigations

Lighthouse Point, Eleuthera, The Bahamas

November 2019 Rev. 1

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Submitted on Behalf of DCL Island Development Ltd.
To The Bahamas Environment, Science, & Technology Commission

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Geotechnical Investigations
Lighthouse Point, Eleuthera, The Bahamas

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1 Executive Summary

This Environmental Protection Plan (EPP) pertains to geotechnical investigations at Lighthouse Point, Eleuthera. These geotechnical investigations are a continuation of environmental due diligence for the proposed Cruise Port and Entertainment Destination by DCL Island Development, Ltd. (DCL) on Lighthouse Point, Eleuthera, The Bahamas. The development of Lighthouse Point for this purpose will be directed by Walt Disney Imagineering (WDI), an affiliate of DCL. This EPP is to provide best management practices (BMPs) for management of environmental aspects related specifically to geotechnical investigations at Lighthouse Point. BMPs will be identified, implemented and monitored for conformance to the EPP during geotechnical investigations to ensure human health and safety, and protection of the environment.

An EPP for geotechnical investigations is not required by the Government of The Bahamas. This EPP is an example of the innovative approach to sustainable project development being employed by DCL. Please note this EPP shall not be considered the project Environmental Impact Assessment (EIA) or Environmental Management Plan (EMP). The overall project EMP will be submitted to the Bahamas Environment, Science and Technology Commission (BEST) for approval prior to commencing any construction activities on site and following Government acceptance of the EIA.

Geotechnical investigations performed by ENCO, a Bahamian company, are anticipated to commence the week of November 11, 2019. BEST performed a site visit for upland activities on October 22, 2019 and an offshore review took place on November 2nd and 3rd, 2019. These investigations will entail 36 land based borings and 8 overwater borings, 3 ¾ in. (95mm) in diameter, to occur on the upland at the northwest boundary and moving in tandem with offshore investigations shortly thereafter. The location of planned boreholes coincides with the development Conceptual Plan. Movement of equipment between locations will follow proposed road corridors and other project development areas to limit vegetation clearing to that which will be required to facilitate access for geotechnical testing.

The Contractor's environmental management team (EMT) will complete a preclearance investigation to identify and mark, if any, notable tree species, protected tree species, cultural resources or other features that may warrant adjustment to the planned route and borehole location. In the marine environment, preclearance entails a local benthic assessment to identify, if any, coral species within the area for spud and drill placement. The barge is set in place by four (4) spuds that offer jack-up capabilities.

Together, the Contractor's Environmental Manager and the Owner's Environmental Manager, will engage in frequent communication to continually plan, perform, and monitor means and methods employed on site. Monitoring reports will be provided to document conformance to BMPs. Overall, geotechnical investigations are intended to leave a light footprint on site while enabling important data collection for project design specifications. Employment of this EPP during geotechnical investigations reiterates commitment by the project team to engage in sustainable building practices.

This EPP has been prepared by Waypoint Consulting Ltd., a Nassau-based environmental consultancy and Applied Technology and Management, Inc. (ATM) in conjunction with the project owner for the BEST Commission. This EPP is based on a meeting held at the offices of the BEST Commission including Director Newbold, on August 15, 2019. The EPP TOR was submitted to the BEST Commission on September 19, 2019 for comment. In preparing this EPP, Waypoint, ATM, and WDI have incorporated knowledge gleaned from site visits and quantitative investigations of habitats and conversations held with the geotechnical contractor, ENCO for means and method statements.

2 Purpose and Scope

Off-shore and on-shore geotechnical investigation services are to identify geologic features and subsurface conditions in project areas, and provide engineering recommendations for the design of the proposed facilities at Lighthouse Point, Eleuthera. The information collected will be used for final design of the marine facilities and for the foundation concept selection for the onshore facilities, to evaluate the constructability of the proposed facilities, as well as to provide information to aid in the evaluation of alternative foundation systems.

The EPP is a guide that identifies relevant management techniques, including BMPs and Emergency Response Plans, based on site-specific physical and biological conditions including the potential for the discovery of unknown site features. The EPP outlines measures to be implemented in order to minimize potential adverse environmental and social impacts, and safety hazards.

The EPP shall be continually revised to reflect any changes on site. A copy of the BEST approved EPP will be available on site at the ENCO site office at all times. The ENCO site office is located on the property's northern periphery in the area to be designated as the project's back-of-house.

3 Document Objective

This EPP is to provide best management practices (BMPs) for management of environmental aspects related specifically to geotechnical investigations at Lighthouse Point. BMPs will be identified, implemented and monitored for conformance to the EPP during geotechnical investigations to ensure human health and safety, and protection of the environment.

This EPP shall not be considered the project Environmental Impact Assessment (EIA) or the Environmental Management Plan (EMP). The overall project EMP will be submitted to the Bahamas Environment, Science and Technology Commission (BEST) for approval prior to commencing any construction activities on site and following Government acceptance of the EIA.

4 Environmental Management Team (EMT)

The Environmental Management Team (EMT) will be comprised of representatives from WDI, WDI's Construction Management, Owner's Environmental Manager (EM), Waypoint, Contractor's Project Manager, ENCO, and the Contractor's Environmental Manager (EM), CCS. Each team member will be tasked with consensus building within their area of influence. The Owner's EM and Contractor's EM are Bahamian companies.

Owner's Environmental Manager

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4.1 Duties of the EMT

The objective of the EMT is to familiarize themselves with the project specific environmental requirements and implement the environmental requirements and BMPs. Tasks to accomplish this objective include:

- Kick-off meeting;
- Preliminary reviews of the EPP;
- Monitor adherence to the EPP;
- Corrective action; and
- Communicate compliance.

4.2 Organizational Chart

An organizational chart and a communication plan facilitate a network of strong internal and external communication. It also establishes protocols for emergency response and community grievance redress. The project team will have a designated Environmental Manager and Safety Manager, the position can be combined.

Weekly site meetings will highlight items of immediate environmental concern; a compilation of environmental issues will be highlighted in monthly reports presented to BEST. The Environmental Manager will engage in frequent communication with the BEST Commission. Local government, community leaders have been notified of planned geotechnical testing activities.

Mobile service may not be reliable on site; alternative forms of communication include:

- On-site communication: Garmin Rino
- Off-site communication: Iridium Satellite Phone

Organizational Chart: See next page.

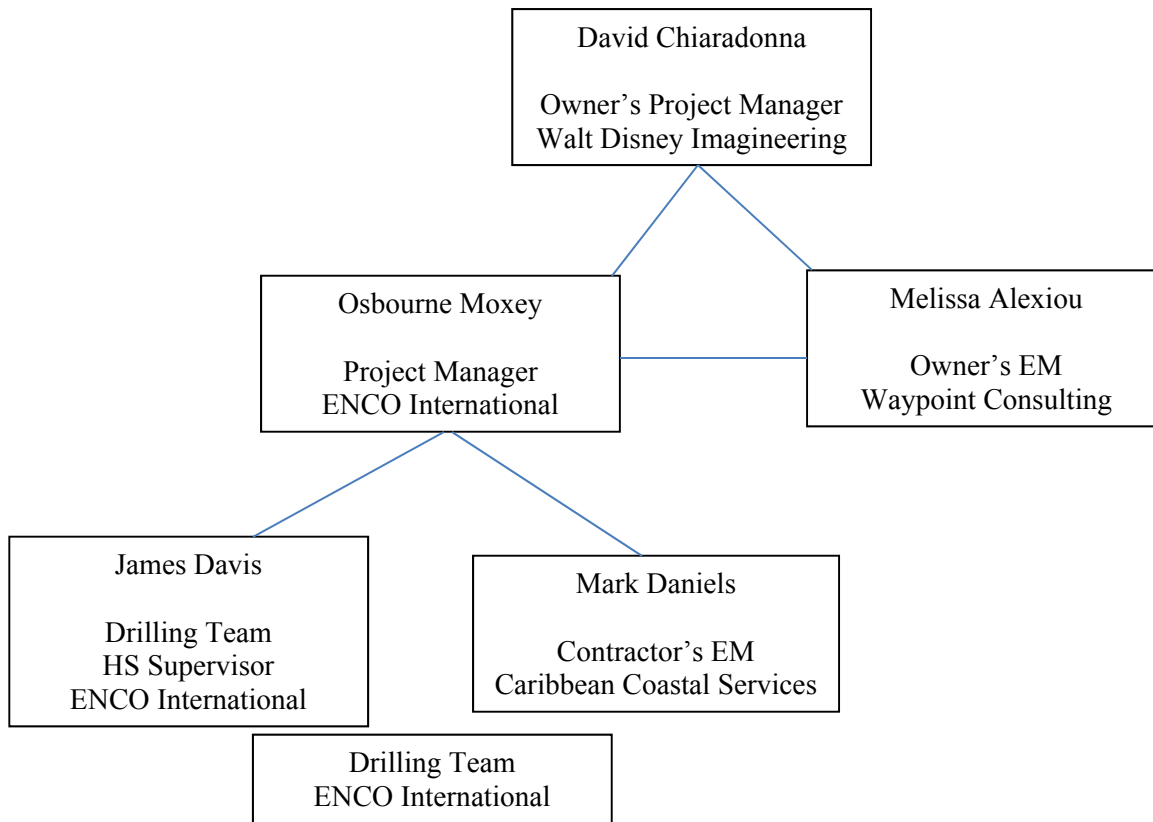


Figure 4-1 Organizational Chart: Environmental Management Team (EMT)

4.2.1 Owner's Authorized Project Environmental Manager

The Owner's Environmental Manager (EM) will be responsible for monitoring the performance of the project against statutory requirements and the agreed objectives and targets and liaising with BEST and the Government of The Bahamas. Duties would include:

- Review and approve the Contractor's site specific Environmental, Health, and Safety plans including method statements (Section 11).
- Review method statements for environmental aspects and advise of any suggested improvements prior to work starting.
- Announced and unannounced site visits to verify compliance reports.

4.2.2 Contractor's Project Environmental Manager

The Contractor's Project Environmental Manager (EM) will be responsible for coordinating and managing all the environmental activities during the geotechnical investigation phase. The Contractor's EM is responsible for the operation of employer. The Contractor's EM would carry out the following duties:

- Develop and review the Contractor's Environmental, Health, and Safety plan including method statements;
- Identify and ensure delivery of the appropriate environmental training to the project team;
- Review and improve method statements for environmental aspects prior to work starting;
- Monitor investigation activities performance to ensure that the control measures are effective and in compliance with the EPP;
- Preparation of the status reports as necessary;
- Liaison with the Owner's EM; and
- Perform environmental audit of the subcontractors and suppliers.

4.2.3 Compliance Status Reports

The Contractor will submit daily reports to the Owner's EM and PM during the investigation summarizing the events of the day, and the planned work for the following day.

4.3 Environmental Training and Awareness

The EPP is a written guide for the workforce and the Contractor that outlines roles and responsibilities for human health and safety, and the protection and preservation of the natural environment.

All personnel will be required to attend an environmental induction session followed by on-going training to reinforce environmental stewardship. On-going training may include a weekly Toolbox talk to address specific concerns and preparation for future works.

5 Geotechnical Investigation Work Overview

5.1 Phasing

Geotechnical investigations performed by ENCO, a Bahamian company, are anticipated to commence the week of November 11, 2019. ENCO will complete 36 land based borings and 8 overwater borings, 3 ¾ in. (95mm), to occur over four (4) phases. Please refer to the Drill Plan, Section 5.3, for the schematic detail.

For all phases, the location of planned boreholes coincides with the development Conceptual Plan. Movement of equipment between locations will follow proposed road corridors and other project development areas to limit vegetation clearing to that which will be required to facilitate access for geotechnical testing. Preclearance will occur prior to any vegetation removal to avoid and reroute due identification of protected and notable tree specimens, avifauna nests, and cultural resources. Preclearance activities are outlined in Section 7.

Phase 1

Back-of-house area. Initial geotechnical activities will occur in the back-of-house area. Access to this area will be via a cleared pathway aligning with the final roadway to the designated project back-of-house area. Phase 1 entails thirteen (13) boreholes, numbers 1-13.

Phase 2

Atlantic Coastline. Phase 2 works will occur along the east and Atlantic facing coastline. Access to this area will follow planned roadways. Phase 2 entails ten (10) boreholes, numbers 25-36, except for 34.

Phase 3

Cruise Pier Landing. Phase 3 works will occur in the vicinity of the proposed landing of the cruise pier. Access to the area is planned via a road corridor extending north of Shad Pond. Phase 3 entails seven (7) boreholes, 14-19 and number 34.

Phase 4

South Lighthouse Bay Beach. Phase 4 works will occur along the southern coastline immediately adjacent to the Lighthouse Bay Beach. Phase 4 entails five (5) boreholes, 21-24.

Offshore

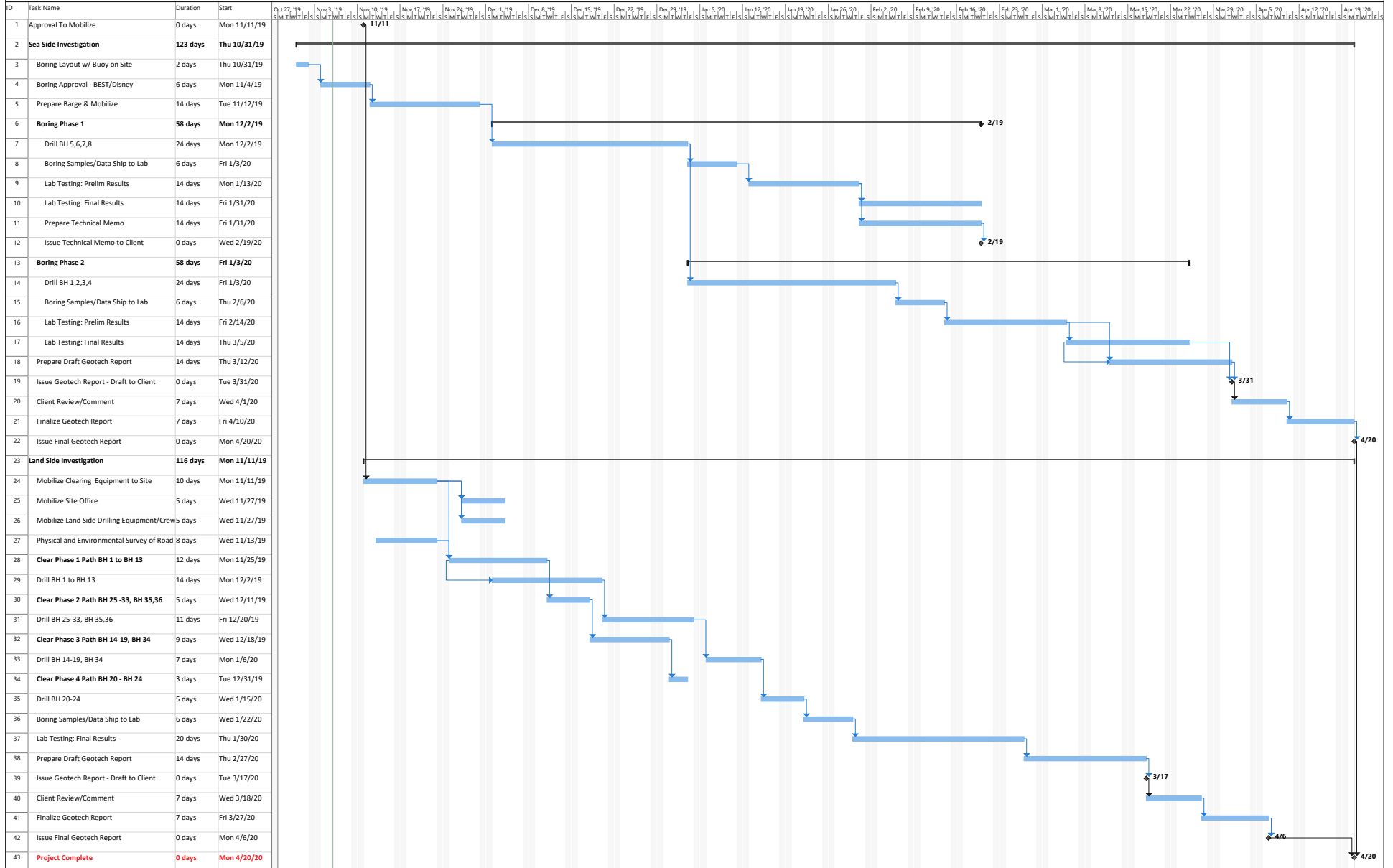
Offshore. Offshore geotechnical investigations will use a jack-up barge and occur in tandem with upland geotechnical activities. There are eight (8) offshore boreholes, 1-8, that follow the proposed layout of the cruise pier. Offshore geotechnical activities will undergo preclearance to avoid coral species.

5.2 Project Schedule

Please refer to the next page.

Figure 5-1 Project Schedule

**Project Phoenix - Lighthouse Point
Eleuthera, The Bahamas
Geotechnical Investigation Schedule**



5.3 Drill Plan

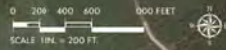
Please refer to the next page.

Figure 5-2 Conceptual Plan with Drill Plan Overlay

LIGHTHOUSE POINT ILLUSTRATIVE CONCEPT PLAN

OCTOBER 16, 2019

PROPERTY OF DCL ISLAND DEVELOPMENT, LTD.



- XX PROPOSED BOREHOLE LOCATION
- PROPOSED LAYDOWN LOCATION

NOTE:

APPROX. 14,800 LINEAR FEET OF PATHWAY, 2.75 ACRES TOTAL, TO BE CLEARED TO ACCESS BOREHOLE LOCATIONS. ACCESS ROAD LOCATIONS THAT ARE TO BE LOCATED THROUGH EXISTING LAND RIDGES MAY REQUIRE REPOSITIONING IF RIDGE GRADIENT CREATES A CONCERN DURING CLEARING.

PROPERTY BOUNDARY

ADMINISTRATIVE & SERVICE FACILITIES

CREW HOUSING

CREW RECREATION

SOLAR FARM

SERVICE RAMP

MARINA
SECURITY CENTER

ACCESS PIER

SHIP BERTH

PHASE 1
CLEARING

EXISTING
ROAD

PHASE 3
CLEARING

QUEEN'S HIGHWAY

DISNEY DONATED
PUBLIC ROAD

VEHICULAR ENTRY

PRIVATE ROAD

BIG POND

ADVENTURE CAMP
(TRAILS & LOOKOUT TOWERS)

PHASE 2
CLEARING

PEDESTRIAN
NATURE TRAILS

WHITE POND

PHASE 4
CLEARING

SOUTH BEACH
CABANAS

SOUTH
FAMILY BEACH

DISNEY DONATED
PUBLIC LANDS

ATLANTIC BORINGS WILL BE DONE BY TRACKED MINI-DRILL. BASED ON SITE VISIT 22/10/2019, IT DOES NOT APPEAR CLEARING IS NEEDED. THE TRACKED MINI-DRILL WILL BE ABLE TO TRAVERSE THE BACK OF DUNE VEGETATION WITH MINIMAL IMPACT ON THE VEGETATION

DISNEY DONATED
PUBLIC LANDS

DISNEY DONATED
PUBLIC ROAD

PUBLIC BEACH ACCESS

PROPOSED
DISNEY SPONSORED
CONSERVATION CENTER

NORTH
BEACH

ART & CULTURE
CENTER

EAST FAMILY
BEACH

SPA & WELLNESS

FUTURE CABANA
EXPANSION

6 Geographical Setting

Eleuthera is located east of the capital island of New Providence. The narrow island is 110 miles long from the settlement of Current in the North to the Bannerman Town in the south. Lighthouse Point is located 75 miles southeast of Nassau, New Providence, and 11 miles west of Little San Salvador.

The cruise port and entertainment destination is to be located at the property known as Lighthouse Point on Eleuthera, The Bahamas. The private property consisting of 758 acres is situated immediately south of Bannerman Town comprising the entirety of the southeastern peninsula. The property is interspersed with Crown Land including Big Pond, White Pond; and several Crown Land parcels. There are five waterbodies on the property: Big Pond, White Pond, Shad Pond, Salt Pond, and the Northwest pond. Approximately 193 acres of the privately owned lands will form the Public Land Donation. Total site acreage is 919 acres inclusive of private and public lands.

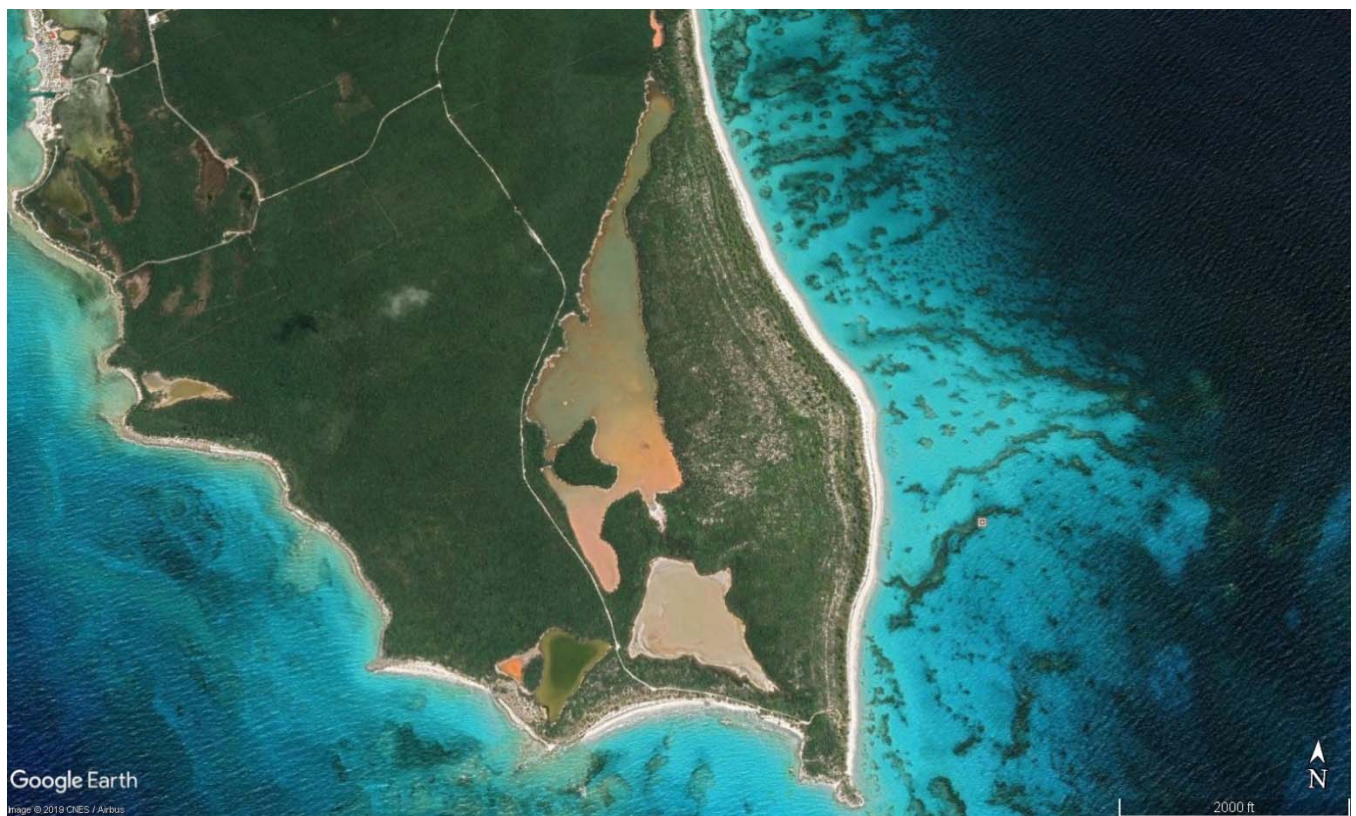


Figure 6-1 Satellite Image, Lighthouse Point, Eleuthera

7 General Climate and Site Characteristics

7.1 Vegetation and Avian Communities and Management

7.1.1 Botanical and Avian Assessment

Botanical and avian surveys took place to capture seasonal variations in wintering and migrant bird activities. Field investigations occurred over a twenty-four (24) month period and were performed in October 2017, November 2017, December 2017, November 2018, December 2018, January 2019, April 2019, June 2019, and October 2019. Additional surveys are planned during November 2019 and beyond.

Botanical

In terms of vegetation community classification, the site contains eleven (11) vegetation types including Dry broadleaf evergreen formation Forest, Sand Strand, Sand, Herbaceous and Shrub-dominated dunes, Casuarina dominated dunes, *Conocarpus erectus*, Herbaceous wetland, mixed mangrove, exposed rock, human altered (roads), and five (5) ponds: Big Pond, White Pond, Shad Pond, Salt Pond, and Northwest Pond. The site is dominated by dry broadleaf evergreen forest covering approximately 48% of the property followed by sand strand at 27% coverage with other land classifications at less than 5% each.

Protected Trees

Three (3) species listed on the Protected Tree Order (Conservation and Preservation of the Physical Landscape Act) were observed during field investigations including *Guapira discolor* (blolly), *Guaicum sanctum* (lignum vitae), and *Swietenia mahagoni* (Mahogany). Four (4) other species are listed under IUCN Endangered/Vulnerable or CITES Appendix II including *Guaicum officinale* (*Lignum vitae*), *Zanthoxylum flavum* (Yellowwood), *Encylcia altissima* (Tall Orchid), and *Opuntia stricta* (prickly pear cactus). A majority of these species are found within the dry broadleaf evergreen formation.

Prior to limited vegetation clearing required for geotechnical boring access, the Contractor's EM will perform a protected tree survey in the affected areas to identify and flag Protected Trees and/or any other notable tree specimens. The Owner's EM will be informed of findings. Protected trees and notable specimens will be avoided.

Avian

The Avian Survey identified sixty-four (64) avifauna during observations made between November 2018, April 2019, and June 2019. Areas of highest use varied by species. Wading birds were most frequently observed in the salt ponds, with White Pond attracting the highest numbers and species diversity. Gulls and terns were observed along the shore and in several of the salt ponds. The Dry Broadleaf Evergreen Forest, the most abundant vegetative community on the property, provides habitat for permanent resident species, migrants and winter residents.

Of note is the siting of a banded Piping Plover and small number of piping plovers, 6-8 individuals, observed on repeated occasions at Bottle Bay Beach. This small shorebird which shows a high level of site fidelity is protected under the Wild Birds Protection Act, Endangered Species Act in the United States and by international treaties. The banded individual is the product of one of nineteen (19) known piping plover nests in Quebec.

Prior to commencing work in the vicinity of the Bottle Bay Beach area, avian guidelines specific to the piping plover will be provided to the Contractor by the Owner's EM.

7.1.2 Marine Benthic

The Marine Benthic Assessment identified seven (7) benthic habitats and marine flora and fauna within area of influence: Sand, Dense Submerged Aquatic Vegetation, Rock Outcrops with Macroalgae and Intermittent Corals,

Hardbottom with Sparse Corals and Macroalgae, Hardbottom with Intermittent Corals and Macroalgae, Sand and Hardbottom with Coral Dominated Outcrops, and *Acropora* (Elkhorn) Colonies.

Areas of mostly barren sand were mapped in polygons of varying sizes mostly in nearshore areas on the east, south and west regions of the assessment area. Often interspersed between barren sandy areas and hardbottom, areas of submerged aquatic vegetation were present. These patches were highly variable, in species composition, species density/cover, spatial distribution, and proximity to shore. Much of the nearshore area in the south and west regions of the assessment area was mapped as Hardbottom with Sparse to Intermittent Coral and Macroalgae. Mostly encountered in deeper water than the previously described communities, coral-dominated outcrops were areas of comparatively higher biodiversity than in the previously-described communities.

The *Acropora* colonies in closest proximity to the berthing area are more than 2,500 feet (820 m) to the east, where no impacts from the boring operations are anticipated. Bathymetric studies performed in 2017 indicate currents in the area of the *Acropora* colonies are completely reversing (i.e. consistent flood and ebb during normal tidal cycles). The flood currents, or currents to north, away from *Acropora* colonies are slightly stronger than the ebb, or currents to the south towards the *Acropora* colonies.

A local benthic assessment will be performed before the barge is set to document coral and other species, to enable placement of spuds to avoid impacts to protected and other significant corals and motile species such as conch.

7.2 Site Constraints Map

Please refer to the next page.

Figure 7-1 Site Constraints Map

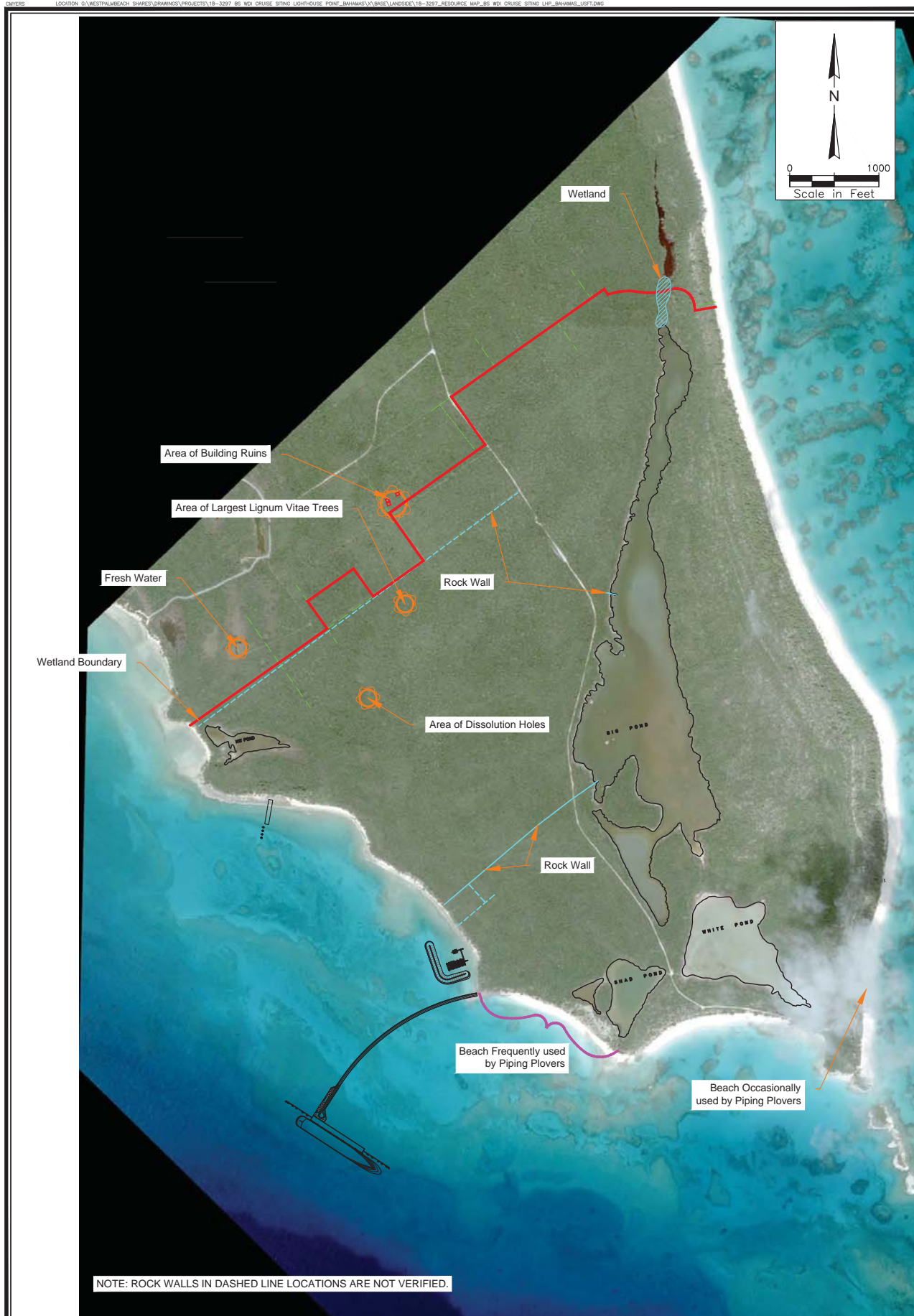


FIGURE 8-2
NOTABLE FEATURES
LIGHTHOUSE POINT, BAHAMAS
JULY 15, 2019

8 Overview of Method Statements – Environmental Measures

8.1 Upland Geotechnical Investigations

Upland geotechnical investigations are expected to include areas to be developed as part of the overall master plan to include Back-of-House areas, roads (public and private), and guest experience areas. The approximate area for limited clearing activities associated with geotechnical investigations is 2.6 acres, approximately 14,000 feet of road. This 2.6 acres is not continuous. It is entirely comprised of areas that will ultimately be part of the project footprint, please refer to Figure 5-2.

The Contractor's EM will provide oversight of all activities to ensure environmental compliance. Should any previously unknown cultural resources be discovered, the Owner's EM will be notified immediately with Colin Brooker of Brooker Architectural Designs on call.

Any bird nests encountered within the proposed clearing areas will be avoided.

For specific upland geotechnical engineering methods, please refer to Section 11.2 below.

8.1.1 Upland Environmental Measures

According to ENCO International, the layout of the center line for boreholes and access roads will utilize hand-clearing techniques where possible to minimize disruption to existing vegetation and avifauna; however on occasion, clearing will be carried out by mechanical means as needed. Prior to layout and staking of offsets, a rapid assessment will be conducted to confirm the absence of protected species.

1. Prior to commencement of vegetation clearing activity, on-site training will be conducted to train site staff on recognition of protected species and locations of flagged species within the area of impact. The laydown area for drilling equipment will be at the borehole locations and site office.
2. The Contractor will use latest site plans in CAD format at the time of limited clearing for geotechnical testing to generate coordinates and positions. These will be laid out in the field by physical survey methods (GPS). The roadway layout will be brought into position by GPS navigation based on predefined boring locations as agreed between ENCO and the Owner.
3. Preclearance survey (rapid assessment) will be performed to identify protected tree species, bird nests, cultural resources, or notable features within the area of proposed clearing. If protected species are identified within the area of impact during borehole and access road layout, alternative positions for the center line should be evaluated to exclude protected species from the area of impact. Any bird nests encountered within the proposed clearing areas will be avoided. If shifting the center-line is not feasible, an alternative access road for the respective bore location should be selected.

Difficult terrain will be evaluated during access road layout and may be avoided in the final layout design. Mats may be used for traversing sandy dunes areas with the rig.

4. Upon selection of the final borehole and access road layout, hand clearing will be utilized where possible but mechanical means will be needed to remove for layout of the center line and offsets. High visibility stakes and flagging will define boundaries for vegetation removal.
5. The Contractor's EM will supervise all vegetation clearing activity and work in conjunction with an assistant to ensure adherence of heavy equipment operators and other personnel to best practice guidelines. Felled vegetation will be stockpiled at borehole locations.
6. Following completion of drilling, the dried slurry will be returned to the hole.

7. Breaches to environmental best practices should be immediately recorded and reported to the Site Supervisor and Environmental Manager. A stop work order will be issued to assess the nature and extent of the breach, and corrective action initiated accordingly. BEST will be notified of incidents, stop work orders, and the corrective action taken.

8.2 Offshore/Marine Investigations

During the offshore portion of the geotechnical investigation, the Contractor's EM will provide oversight of all activities to ensure environmental compliance. The Contractor will access the offshore barge via a work boat departing and returning to Davis Harbour. The barge will stay in location overnight with illuminated navigational lights.

For specific upland geotechnical engineering methods, please refer to Section 11.2 below.

8.2.1 Offshore Environmental Measures

According to ENCO International, the barge is set in place with four (4) spuds that offer jack-up capabilities. Prior to spud and drill placement, a rapid assessment will be conducted to identify the benthic substrate and presence of coral species.

1. Prior to commencement of barge operations, on-site training will be conducted to train site staff on recognition of protected species and locations of those species within the area of impact. There is to be no discarding of waste of any kind into the ocean; this includes no feeding of fish and sharks.
2. The Contractor will use latest site plans in CAD format to generate coordinates and positions. These will be laid out in the field by physical survey methods (GPS) in advance of barge positioning. The barge location will be brought into position by GPS navigation based on predefined boring locations as agreed between ENCO and the Owner.
3. A local benthic assessment will be done before the barge is set with four spuds to document coral species and place spuds such that there are no impacts to protected or otherwise significant corals. Preclearance shall also ensure that no mobile organisms such as conch will be impacted. Spud placement may be adjusted based on the presence, size, and density of coral species to be impacted.
4. During field operations, the Contractor's EM will confirm that all aspects of this EPP are being met. The Contractor's EM will be responsible for observing any potential environmental concerns such as,
 - The presence of any marine mammals in the immediate area;
 - Excessive turbidity (none anticipated) caused by drilling activities;
 - Discharge of fuel/oil or drilling fluids (if used); and
 - Unsafe operating conditions.

Please note that no turbidity management is proposed as the depth of boreholes at 50 ft. and the rock core will measure 3 ¾ inches (95mm) will produce minimal turbidity localized to the immediate area of the borehole.

5. Following completion of drilling, no drill cuttings are returned to the hole as they are minimal.
6. Breaches to environmental best practices should be immediately recorded and reported to the Site Supervisor and Environmental Manager. A stop work order will be issued to assess the nature and extent of the breach, and corrective action initiated accordingly. BEST will be notified of incidents, stop work orders, and the corrective action taken.

9 General Environmental Monitoring Measures (EMM)

The EMM identified below are global expectations for site environmental management during geotechnical investigations. ENCO International has prepared management guidelines and method statements which are found in the Appendix.

The Site Office, a shipping container, is to be situated in a laydown area of less than one-half (½) acre within the planned project clearing limits. The office will be outfitted with temporary generator, AC, sanitary facilities, potable water supply, external site communication infrastructure, refrigerated storage space, first aid, shaded lunch area and other items referenced within this EPP.

9.1 Good Housekeeping Practices

Good housekeeping practices help to maintain a safe and healthy workplaces by eliminating hazards. While seemingly simple, a well-kept site improves productivity and worker health thereby aiding in accident and fire prevention. A tidy work site, free of clutter and organized, allows for more effective use of the site.

9.2 Site Safety and Health

General site safety and health practices include:

- All personnel will undergo an initial site safety and health training followed by weekly tool-box talks.
- A first aid kit and emergency contact list will be available at all times.
- Potable drinking water will be available on site at all times.
- Activities will cease during inclement weather.
- A clean sanitary facility.
- Signage and flagging.

Additional PPE will be available for work sites near water and will include ladders, safety harnesses, and training. PPE shall be inspected and maintained in good condition. If PPE becomes worn or broken, new PPE shall be distributed and used.

PPE will include but is not limited to the following:

- | | |
|--------------------|-------------------------|
| • Steel toed boots | • Eye Protection |
| • Safety Vests | • Boats |
| • Hard hats | • Life jacket/preserver |
| • Gloves | • Ladders |

9.2.1 *Protocols for working over water & coastal environments*

From ENCO's Environmental Management methodology:

The drilling rig will be mounted on a barge or jack-up system allowing for a stable and safe work platform. A small motorized assist boat will be used in combination with the barge or jack-up rig to provide personnel and equipment transport as necessary. All employees that will be working on or over water will be required to receive site specific training regarding the use of life preservers, the use of the assist boat, the location available landing areas for return to land in case of emergency, and regarding the specific hazards related to the barge or jack-up rig being utilized.

Working over water

Increased level of alertness, caution, and diligence are required when working over water. At a minimum, a high visibility personal floatation device (PFD) is required.

Hazards

- Falling overboard, drowning
- Falls or slips associated with wet surfaces or rough water
- Overturning or capsizing due to improperly loaded or overloaded vessels
- Collisions with other vessels or debris
- Seasickness
- Weather Changes
- Hyperthermia

Additional precautions are provided in ENCO International's Health and Safety Plan, Section 11.1.

9.3 Security

Lighthouse Point is accessible by a single unimproved roadway that requires a high clearance vehicle to traverse. This roadway is used by tour operators, self-drive rental cars, and residents. The Royal Bahamas Police Force will be engaged for further direction at the discretion of the Contractor's Project Manager.

9.4 Materials Storage

Materials stored according to best management practices prevent spills through hazard avoidance. Materials shall be stored in a designated and secured area. Every material requires specific handling procedures as materials differ by composition, size, and weight. Materials shall be handled and stored according to specifications found in the Material Safety Data Sheet (MSDS). MSDS shall be kept on site at all times.

Flammable materials will be stored away from ignition sources to prevent fire. The Contractor shall have fire extinguishing equipment on site at all times.

9.5 Waste Management

Solid Waste Management

Solid waste will be collected daily in trash bags stored by equipment operators. These trash bags will be discarded daily and taken to the place of accommodation by the Contractor. There shall be no burning or burial of waste materials.

There will be no feeding of wildlife including fish and/or sharks from the barge. There will be no dumping or discharge of any kind.

Liquid Waste Management

Liquid wastes includes wastewater, fuels, oils, lubricants, chemicals, and other contaminants that can enter the soil, ground water and surface water. The sanitary facility will be located at the site office in the laydown area. The site office is located on the property's northern periphery in the area to be designated as the back-of-house area, please refer to Section 5.3 Drill Plan which identifies the site office location. This sanitary facility will use a soak-away to manage wastes.

- Designated wash-down area for equipment with no reuse of wash-down water
- No discharge of liquid wastes to waterbodies
- Proper storage and disposal of oil products

9.6 Prevention of Pollution of Groundwater Resources

Employment of best management practices will minimize adverse impacts to natural resources and ensure viability of sensitive environmental features such as wetlands and nearshore habitats.

9.6.1 *Equipment Refueling, Storage & Maintenance*

Refueling

A 500 gallon fuel trailer will bring fuel to and from the site where it will be store at the site office compound. A 50 gallon fuel tank will be delivered to the barge daily via the work boat. The work boat will leave and return to Davis Harbour Marina.

Equipment should be kept in good working order with regularly scheduled maintenance. Preventative maintenance reduces the likelihood for unintentional spills or leaks during operation on site.

All fuel shall be stored away from waterbodies in a designated area and in containers suited for their application. A designated refueling area shall be identified on site away from sensitive environmental features such as wetlands.

Spills

The offshore barge, onshore bore rig, vegetation clearing equipment and site office will be equipped with spill kits and printed protocols. In the event of a spill, all operations must cease, with notification of a spill immediately reported to the Contractor's EM and Site Supervisor. Work may commence after the spill has been contained and contaminants removed.

In the event of a spill of petroleum products, the BEST Commission and the Department of Environmental Health Services shall be notified within 24 hours. In the event that the spill is major (in excess of 55 gallons), the BEST Commission shall be notified immediately.

Equipment Storage & Maintenance

On shore rig and heavy equipment to be stored on site at borehole, access road locations, and/or site office compound. Maintenance and inspections will be conducted prior to deployment to job site, prior to commencement of work, and on an as-needed basis. The site office compound will be the equipment wash-down area, if equipment requires washing. The site office is located on the property's northern periphery in the area to be designated as the back-of-house area, please refer to Section 5.3 Drill Plan which identifies the site office location.

9.6.2 *Erosion and Sediment Control*

No dewatering activities are anticipated. Slurry produced by the drill will dry at the site and the sediment used to refill the borehole.

Preclearance surveys will identify and avoid sensitive features. Access to borehole locations within wetlands will utilize mats to provide protection to sediment.

BMPs for erosion and sediment control include but are not limited to the following:

- Installation and on-going maintenance, on an as-needed basis, for sediment and erosion control devices such as silt fencing and/or turbidity curtains
- Equipment wash-down will occur in a pre-approved location to capture runoff

9.7 *Air Quality and Noise*

Air

No dust control measures are anticipated to be needed. ENCO International's personnel will follow its Health and Safety Plan in Section 11.1. Dust produced by individuals or groups visiting the property is outside the scope of this EPP as those activities are unrelated to geotechnical investigations.

To note, fine sediment may become airborne during the dry season which typically begins in November and ends in late May.

Noise

The Contractor shall work daylight hours from sunrise to sunset. There are no residential or commercial businesses in the area. ENCO International will follow noise protocols identified in its Health and Safety Plan, Section 11.1.

9.8 Fire and Hurricane Risks

The North Atlantic tropical cyclone season begins June 1st and ends November 30th. However, tropical disturbances may form prior to the start and after the close of this time period. The Bahamas lies within the hurricane zone, it is expected that tropical disturbances, tropical depressions through Category 5 Hurricane, may periodically make landfall. Risks associated with tropical cyclones include storm surge, high winds, and heavy rainfall. Given the low elevation of the site and the surrounding areas, the drainage system must be able to effectively dispose runoff during heavy storm events.

Fire-fighting equipment such as a fire extinguisher must be available on site at all times. The inventory of materials shall dictate any substances requiring additional specialty fire-fighting equipment. A list of emergency numbers should be available on site at all times.

9.9 Transportation and Traffic Management

For human, health, and safety, BMPs will be employed for adequate signage and hazard warning. Works will take place from sunrise to sunset unless otherwise advised.

General BMPs for traffic management include:

- **Operator Training.** Operators will undergo continuous driver safety training. Drivers and workers will be aware of emergency medical plans, fire suppression, and oil spill plans in the event of an accident.
- **Equipment Maintenance.** Routine maintenance deters machinery malfunctions during use. Routine maintenance should include checks for oil leaks, hydraulic fluid leaks, tire pressure, back-up alarms, lights and indicators, and other inspections required for roadworthiness.

9.10 Special Environmental Conditions

Employment of best management practices will minimize adverse impacts to natural resources and ensure viability of sensitive environmental features such as wetlands and nearshore habitats.

Upland

Limited vegetation clearing will occur in areas with a likelihood for identification of Protected Tree Species and a discovery of historic resources. Discovery of historic resources including but not limited to stone walls, dwellings, or other non-natural elements must be reported immediately to the Owner's EM with all work in the area of the discovery stopped.

Preclearance surveys will identify and avoid sensitive features including protected and notable trees, and bird nests and known nesting bird sites. Upon identification of nesting birds by the Contractor's EM, the Contractor will proceed with caution and avoid immediate disturbance to the nesting area. Access to borehole locations within

wetlands will utilize mats to provide protection to sediment. Please refer to Section 7 for specific upland monitoring protocols.

Marine

The *Acropora* colonies in closest proximity to the berthing area are more than 2,500 feet (820 m) to the east, where no impacts from the boring operations are anticipated. Per the ENCO International “Environmental Management: Drilling” plan (Section 11.1), a local benthic assessment will be conducted before the barge spuds and drill location are set. The survey will document locations of reef building coral and other sensitive species, including conch and other, minimally motile species. The spud and drill will then be located to avoid these species.

Bathymetric studies performed in 2017 indicate currents in the area of the *Acropora* colonies are completely reversing (i.e. consistent flood and ebb during normal tidal cycles). The flood currents, or currents to north, away from *Acropora* colonies are slightly stronger than the ebb, or currents to the south towards the *Acropora* colonies. Please refer to Section 7 for specific marine monitoring protocols.

10 Environmental Monitoring

Environmental compliance is achieved through frequent and consistent site inspection and strong communication between the Contractor and Owner. Construction monitoring documents Contractor compliance to the EPP with respect to but not limited to: site safety and health, protection of ground water, general housekeeping, hazardous waste disposal, noise and air quality control, and protection of sensitive environmental features.

The monitoring checklist is the mechanism within the environmental management system to document onsite practices, provide recommendations, and note when corrective action is required. Should corrective action not take place, the Owner’s EM will file a non-conformance report to effect corrective action. The Owner’s EM will have the authority to cease and desist installation works. Weekly environmental monitoring reports will be provided to the Contactor’s Project Manager and Owner’s EM with a copy provided to BEST by the Owner’s EM.

10.1 Monitoring Checklist

Please refer to a sample Environmental Monitoring Checklist on the following page.

Environmental Monitoring Checklist – LHP Geotechnical Investigations EPP

Environmental Specialist: _____ Date: _____

Site Description: _____ Time: _____

Location: _____

Weather (Circle One): Sunny Partly Cloudy Cloudy Rain Temperature (°F): _____

Special Weather Notes: _____

1	Site Safety and Health			
		In Compliance with EPP		Comments
		YES	Corrective Action Required	
1a	Personal Protective Equipment Used			
1b	Proper safety requirements signage for Safe Road and Hazardous Sites			
1c	Adequate Freshwater drinking supplies			
1d	Sanitary facilities clean and functional			
1e	General Tidiness of the Site			
2	Ground Water Management			
		In Compliance with EPP		Comments
		YES	Corrective Action Required	
2a	All diesel, fuels, and other toxic materials are secured and stored appropriately.			
2b	All mobile machinery is in good condition and free from engine, lubrication, and oil leaks with drip trays when not in use			
2c	Spill kits, adsorbents, emergency kits on site			
3	Biological Conditions: Vegetation & Marine			
		In Compliance with EPP		Comments
		Yes	Corrective Action Required	
3a	Pre-clearing vegetation assessment completed.			
3b	Identification of Protected or Notable Tree Species			
3c	Bird nesting discovery			
3d	Identification of historic artefacts			

3e	Identification of Corals			
3f	Identification of mobile benthic species			
4	Materials Storage & Solid Waste Management			
		In Compliance with EPP		
		Yes	Corrective Action Required	Comments
4a	Site Office compound equipment and storage are appropriately secured and organized			
4b	Hazardous materials identified, stored, and disposed of properly			
4c	Collection, containment, and proper removal of solid waste debris			
5	Miscellaneous			
5a	Accident Log - Any reported Environmental Incidents or Safety Accidents? Personnel Involved and Accident Details			

* To note, the monitoring checklist is limited to observations at a specific time and place and cannot account for activities occurring outside the time of inspection unless such activity or the results thereof are observed during inspection.

11 Appendix

11.1 ENCO International Health and Safety Plan: Lighthouse Point Project



Health and Safety Plan

Lighthouse Point Project

September 2019

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INTRODUCTION

One of the primary objectives of ENCO is to ensure the performance of work in all phases of operations are conducted in a manner that will ensure the health & safety of all job site personnel. In meeting this objective, and in keeping with our philosophy that there is no job so important that it cannot be done safely, there are certain responsibilities and procedures that must be defined. This Health & Safety Plan outlines the procedures and assigns responsibilities.

To the greatest degree possible, ENCO will provide all mechanical and physical facilities required for personal safety and health. In return, all job site personnel will follow all safety rules, take no unnecessary risks, and utilize all safeguards and safety equipment provided; inclusive of the project Environmental Management Plan (EMP).

Compliance with the health & safety program will minimize, control, and hopefully eliminate injuries and illnesses. Our goal is to be leaders in the control of losses.

Health & Safety is a responsibility that will be assumed by everyone.

SAFETY RESPONSIBILITIES

Owners and Employees

All owners and employees have a responsibility for their own safety, but they likewise have a responsibility to their family, their fellow workers, and to their employer to work safely. Owners and employees will be responsible for:

1. Complying with all policies including the Client's Health & Safety Policy, project EMP and all government safety regulations.
2. Following instructions from their supervisors/seniors.
3. Using personal protective equipment and devices provided for machinery, equipment, tools and processes.
4. Reporting all accidents and injuries immediately.
5. Understanding emergency procedures in case of fire or other catastrophe.
6. Reporting all unsafe conditions to their supervisors/seniors or appropriate person.



7. Understanding the importance of the safety meetings and safety materials presented to them.
8. Cooperating when injury investigations are being made so that accident causes can be determined and corrective action taken.
9. Understanding their assigned task. If there are any questions or doubts, the employee must ask his immediate supervisor.

GENERAL PROJECT HAZARDS AND CONTROL PROCEDURES

- At least one copy of this plan must be readily available to all personnel.
- All site personnel must use the buddy system whenever practical (working in pairs or teams).
- Emergency equipment must be removed from storage locations and staged in readily accessible locations.
- Owners and employees must inform their partners or fellow team members of non-visual effects of exposure to toxic materials. The symptoms of such exposure may include:
 - Headaches
 - Dizziness
 - Nausea
 - Blurred Vision
 - Cramps
 - Irritation of the eyes, skin, or respiratory effects

Although chemical and/or hazardous materials are not expected to present on most projects, field personnel must observe each other for signs of chemical exposure. Indication of adverse effects include, but are not limited to changes in complexion, skin coloration, coordination, demeanor, speech pattern, and excessive papillary response or salivation.

Environmental hazards such as weather, wild animals, insects, and irritant plants are always potential problems in outdoor work. Field personnel will make every effort to alleviate these hazards should they arise. Potential environmental hazards include thunderstorms, lightning and tornadoes. The Supervisor should observe to see if



lightning is approaching the area or if conditions for the development of a tornado are possible. The Supervisor shall halt work and seek the safety of a shelter including permanent buildings.

Exposure to noise over the OSHA action level can cause temporary hearing loss and prolonged exposure can develop permanent hearing loss. In addition to damaging hearing, noise can impair voice communication, therefore increasing the risk of accidents on the site. All personnel must wear hearing protection when noise levels exceed 85 dB and incorporate hand signals to increase communication ability.

The control of losses is dependent upon the ability of owners and employees to perform their job tasks correctly. Specific job safety training is a proven method of instructing owners and employees how to do the job for which they are hired. The following steps should be taken to ensure understanding and learning:

1. Each field person must be instructed in the recognition and avoidance of unsafe conditions and the regulations applicable to their work environment to control or eliminate any hazards or other exposure to illness or injury.
2. Each field person required to handle potentially harmful substances must be instructed in their safe handling and use and be made aware of the proper protective measures to follow.
3. Each field person required to handle a flammable or potentially toxic material will be instructed in the safe handling and use of these materials, and be made aware of proper protective measures to follow.
4. A continuing safety and health awareness program will be maintained throughout daily and weekly tailgate meetings, work area signs and posters, etc.

MSDS Awareness

Copies of Material Safety Data Sheets for all hazardous substances to which owners and employees may be exposed will be available and accessible to all personnel. Owners and employees will be thoroughly trained in the informational areas of the MSDS and will be instructed as to the appropriate assimilation and use of this information in both routine and emergency events. ENCO will provide periodic training



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sessions to applicable personnel on hazardous substances, hazardous areas, hazardous operations and hazardous conditions.

PROJECT SPECIFIC HAZARDS AND CONTROL PROCEDURES

On-site hazards may include physical and chemical hazards. These products can affect the body if they come in contact with the eyes or skin, are ingested or inhaled. These materials may be released during soil-intrusive activities.

Soil-intrusive activities such as drilling or sampling may provide the potential for encountering buried hazards. It will be the Driller's responsibility to make sure utilities have been located/cleared before drilling begins. If a buried hazard is encountered, the drilling will be halted and the Driller will notify the appropriate person of the hazard and immediately review the utilities. Drilling will not proceed until a thorough utility recheck is completed.

The following protocols shall be utilized during all site work when chemical contamination is suspected or discovered through noticeable odors or visual indications:

- Halt work immediately.
- Report the suspected condition to the appropriate person.

Proceed with work only after clearance from the appropriate person and/or agency.

LOSS INVESTIGATION AND REPORTING

To prevent future losses we must learn from our past experiences. If effective measures are established and carried out, based upon previous losses, the probability of a recurrence of a similar type loss will be reduced. All owners and employees with loss investigation responsibilities will follow the Client's Accident Investigation format in the project EMP.



Method of Investigation

1. When an accident/loss occurs, the first concern is for the injured person. They should have immediate access to first aid or medical facilities.
2. In the event of an accident, the injured person's supervisor is in the best position to initiate an accident investigation and prepare a sound analysis of the basic causes. The investigation should be conducted immediately after providing assistance to the injured employee at the accident site before facts become obscure or distorted.
3. After a loss occurs, all necessary steps must be immediately taken to prevent further injury or damage. Control the cause(s) of the loss permanently. Temporary measures should only be taken to prevent further immediate danger.
4. The cause(s) of the injury, illness or property damage must be determined. It is important to conduct a thorough investigation and identify all possible contributions to the incident.
5. The "Report of Accident Investigation" will be utilized as a basis for completing the investigation. The report must be completed within 48 hours from the time of the accident. Accurate information must be available pertaining to the description of loss, the analysis and remedial action taken.
6. Accidents must be reported immediately to the Owner.
7. Accident/loss causes identified will be immediately corrected to prevent future injury.

INSPECTIONS

Machines, materials, tools and equipment will eventually wear out or be abused by owners and employees with use. Owners and employees may place these and even themselves in unsafe positions or locations. For the safety and health of personnel, clients, and the public, it is imperative that existing hazards be identified and eliminated or controlled. Regular inspections of the total work place environment are essential in view of the legal and moral obligations to provide for the safety of owners and employees and the public. The following methods should be applied to:

- Maintain a safe work environment
- Control the unsafe actions of people
- Assure quality of workmanship
- Uphold operation profitability



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Safety inspections will be an integral part of the job site safety program. There shall be a general safety inspection of the jobsite no less than once a day and appropriate measures shall be taken to assure compliance with the safety program.

Method of Inspection

1. The job site will be thoroughly inspected. A common hazards checklist may be utilized as an inspection guide.
2. The inspection must be systematic and complete. Once the areas requiring inspection are identified, including those out-of-the-way places that are rarely looked at, they will be reviewed and inspected.
3. Any area believed to pose a potential hazard or to present a safety risk will be marked and access to this area restricted until further investigation can be completed and the area is deemed safe and secure.
4. Upon discovery of an unsafe area, corrective action must be taken promptly. When permanent measures are not feasible at once, temporary measures may be undertaken to avert immediate danger.
5. Follow up to assure that corrective action has permanently eliminated or controlled the basic cause of each unsafe practice or condition.

TAIL GATE SAFETY MEETINGS

Jobsite safety meetings will be held each day (when appropriate) and should cover any and all potential hazards and concerns. During the safety meeting, the following should be discussed:

1. Any existing unsafe physical conditions or hazards.
2. Unsafe acts observed by others.
3. Accident hazards associated with work to be performed that day.
4. Any accidents occurring prior to the safety meeting.
5. Any observations or concerns regarding unsafe or hazardous conditions or practices.

A daily safety meeting form will be filled out and initialed by all persons on site that day indicating they attended the meeting. Any problems, which have been brought up



during the meeting that cannot be resolved on site, should be brought to the attention of the appropriate person.

SAFETY RULES

The following safety rules and procedures apply to all ENCO owners and employees and must be complied with at all times while on the job site.

1. Owners and employees must wear hard hats, safety glasses and sturdy, construction type work shoes. Other personal protective equipment, life vests, etc., must be worn as appropriate.
2. Goggles shall be worn when there is danger from flying objects.
3. Hearing protection may be necessary during the operation of loud machinery.
4. Work areas will be kept neat and clean. Good housekeeping will be practiced at all times.
5. Materials will be stored in an orderly and accessible manner.
6. All power and hand tools must be used in a safe manner. Owners and employees must be instructed in the proper use of these tools before they use them.
7. Tools must be kept in safe working condition. Defective tools or equipment are to be labeled and removed from circulation for repair or disposal.
8. Only authorized personnel will operate equipment and motorized vehicles.
9. Live electrical wires are to be marked as such and secured to eliminate any threat.
10. Owners and employees must be instructed not to walk under suspended or overhead loads.
11. The use, distribution and/or possession of, or being under the influence of, alcoholic beverages or controlled substances while on the job is strictly prohibited.
12. Seat belts shall be worn while operating over the road vehicles.
13. Our line of business can be a hazardous occupation; "horseplay" will not be tolerated.
14. Hazardous and unsafe acts are to be reported to the supervisor immediately.
15. Owners and employees will be required to attend their applicable job site safety meetings.
16. Life jackets will be required at all times on all over water work.
17. All accidents are to be reported to the supervisor immediately.



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EMERGENCY MEDICAL TREATMENT/CONTINGENCY PLANNING

Provisions for emergency treatment shall include the following:

- First Aid kits.
- Phone numbers, maps, directions and procedures for contacting medical services, police and fire departments can be found in the project EMP. Some information is provided in the Emergency Contact Information table below.

If an accident occurs, the following procedures will be used:

- The incident will be evaluated and the need for assistance will be assessed
- The Supervisor will be notified
- The call for outside assistance will be made if appropriate
- The incident scene will be photographed/documented

Emergency Contact Information

	Eleuthera, Bahamas	Nassau, Bahamas
Office	ENCO International (Bahamas) Ltd. Site Office Lighthouse Point Coordinates: TBD	ENCO International (Bahamas) Ltd. Headquarters Building A, Unit 2, Windsor Business Park Windsor Field Road (242) 327-8708
Contacts	James Davis, (813) 363-1600 Melissa Alexiou, (242) 376-1448	Osbourne Moxey, (242) 825-1978 Scott Blacquiere, (242) 424-3518
Medical	Rock Sound Community Clinic (242) 334-2226/2139 Coordinates: TBD	Princess Margaret Hospital Shirley Street (242) 322-2861 Accident & Emergency: (242) 502-7811, (242) 326-7014 Doctors Hospital 1 Collins Avenue (242) 302-4600/4700 Emergency: (242) 302-4658, Ambulance: (242) 302-4747
Police	Royal Bahamas Police Force Deep Creek Station (242) 334-8207, 919	
Fire	South Eleuthera Emergency Partners (SEEP) Meridian Highway Tarpum Bay (242) 334-4630	
Electrical	Bahamas Power and Light (BPL) Company Rock Sound Power Station (242) 335-0041	
Water	Therice Thomas Water & Sewerage Corporation (WSC) Rock Sound/Tarpum Bay (242) 334-2680	

ENCO International (Bahamas) Ltd.
Building A, Unit 2, Windsor Business Park
Windsor Field Road, Nassau, Bahamas
Tel: 242-327-8708
info@encointl.com | www.encointl.com



HOUSEKEEPING

Good housekeeping on job sites and the office means more than just cleanliness. It relates to a good planning which will promote both efficiency and the control of accidents. Good housekeeping in all projects will be maintained and promoted by the use of the following basic requirements.

1. Storage of materials and equipment: A well-planned storage area is basic to good job site housekeeping.
2. Storage methods: The following procedures should be followed in the storing and piling of materials:
 - a. Do not overload vehicles, floors, platforms, racks or bins.
 - b. Ensure that surfaces intended to support stacks of material are even and level.
 - c. Keep all stacks at safe heights to prevent collapse or unnecessary strain when removing from storage.
 - d. Use mechanical equipment to stack material whenever possible.
3. Disposal of trash and scraps: Provide a means to dispose of trash and scraps from the job site on a regular basis. It is particularly important that a regular schedule be maintained for cleaning up areas and disposing of trash and debris collected. Class A material (paper, cardboard, wood) will be disposed of properly and not allowed to accumulate.
4. Work areas: It is particularly important to keep excess materials out of walkways and roadways, away from ladders and stairs and off scaffolds. Temporary pipe, hoses, electric cords, etc., shall be routed or protected so as not to create a tripping hazard.
5. Leakage and spillage: Grease, oil or other liquids should not be allowed to accumulate. Proper oiling of machines and equipment reduces slip hazards. Closed containers should be used to control spillage. This can be a hazard both in respect to slipping and falling, as well as obvious fire hazards, which may be created.
6. Flammable and combustible liquids
 - a. Approved containers and portable tanks will be used for storage and handling of flammable and combustible liquids.
 - b. Flammable liquids will be kept in closed containers when not actually in use.



PERSONAL PROTECTIVE EQUIPMENT

Personal protective equipment includes articles of clothing and devices worn to protect parts of the body. When a hazard cannot be eliminated or controlled, it becomes the responsibility of the worker to make sure he/she is equipped with the necessary protective equipment. The level of activities for most projects will require the following PPE to perform the job in a safe manner:

1. Head protection: All owners and employees, visitors, inspectors and other people on the job site are required to wear hard hats at all times while in the work area.
2. Eye protection: All owners and employees will be provided and must wear adequate equipment for protection against eye hazards, which may be encountered on the job. The size and style should be selected to protect the eye fully.
3. Foot protection: All owners and employees shall wear adequate, sturdy shoes. Shoes worn on the construction site should have soles, which guard against punctures and slipping. Where there is a frequent possibility of hard objects being dropped on the foot, proper protection should be provided in the form of steel-toe shoes with water and chemical resistances.
4. Hand protection: Gloves that provide protection from cuts, bruises, concrete burns, caustic substances, slivers, and chemical burns.
5. Respirator: Should conditions merit, all personnel in affected area shall wear respiratory protection appropriate to the hazard present.
6. Hearing protection: Should conditions merit, all affected personnel shall wear appropriate hearing protection.

FIRE PREVENTION

The best way to reduce fire-related loss is to stop fires from starting. Each person on the project is a fire inspector and should take this responsibility seriously, both on and off the job. Each job should be inspected on a continuing basis to eliminate fire hazards. Some examples of common fire hazard areas, which should be closely monitored, are:

- Fuel storage - bulk tanks must meet codes. Portable fuel cans should be OSHA approved. Paint, thinners, and other flammable chemicals should be properly stored.



- Electrical systems must not be overlooked. Fuse sizes are in proportion to wire sizes. Care must be taken not to overload circuits.
- Good housekeeping prevents fires. Scraps should be disposed of before they become a fire hazard. Combustibles must never be stored near a furnace, hot water heater or in other hot areas.

HAZARD COMMUNICATION PROGRAM

ENCO is firmly committed to providing all of its owners and employees with a safe and healthy work environment. Owners and employees will be provided with information about hazardous substances on the work site through the Hazard Communication Program, which includes instruction in container labels and labeling, Material Safety Data Sheet (MSDS) interpretation, and employee information/training courses conducted on an as needed basis.

A list of all hazardous chemicals that will be used on the work site is compiled by reviewing container labels and Material Safety Data Sheets. The list will be updated as necessary and will be kept in crew trucks, and shop and maintenance areas. Each container of hazardous substances, hazardous areas and vehicles carrying hazardous substances will be properly labeled and/or placarded. In addition, all secondary containers are labeled.

ENCO provides owners and employees with the training on how to lessen or prevent exposure to hazardous substances by using good work place practices, personal protective equipment, etc. Owners and employees are given emergency procedures to follow if they are exposed to hazardous substances.

TOOLS AND EQUIPMENT

1. All electrically powered tools or equipment will be grounded by means of a third wire to a proper ground.
2. All extension cords and electrical service outlets will be of the grounded type utilizing a third wire for grounding purposes.



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3. All power tools used in wet conditions shall be connected to a Ground Fault Interrupted (GFI) circuit.
4. Power tools will be operated by qualified, authorized personnel only.
5. Tools, equipment or material will not be thrown up or down from one working level to another. They will be sent up or down by use of a hand line or other safe, suitable method.
6. Hand tools will be used only for the purpose for which they are intended. Tools found to be unsafe will be removed from the job, whether Client, company or employee owned.
7. The use of unsafe tools, frayed or defective electrical cords or equipment and unguarded equipment will not be permitted.
8. Utilizing gasoline as a cleaning solvent is strictly forbidden. An approved cleaning solvent will be used to clean tools, machinery and equipment.
9. All gasoline will be transported from storage to machinery only in safety cans. Transfer from the can to the machine will be done through a metal funnel inserted into the mouth of the fuel tank.
10. Power tools and equipment will be shut down before cleaning.
11. Gasoline motors will be shut down before refueling.
12. Tools or equipment will be shut down before safety guards are removed for repairs or adjustment.

TRAFFIC SAFETY/CONTROL

1. Any construction, storage of materials, equipment, excavation or trenching operations creating a hazard to vehicular traffic will be protected by flagmen, barricades, flags, warning lights or other necessary forms of protection in accordance with the applicable permitting agency.
2. All posted signs and speed limits will be obeyed, and the rules of the road will be observed in all operations in all areas.
3. A full stop will be made at all railroad crossings.

MOTOR VEHICLES, EQUIPMENT AND MAINTENANCE



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1. General requirements

Heavy machinery, equipment or parts thereof which are suspended or held aloft by use of slings, hoists or jacks will be substantially blocked or cribbed to prevent falling or shifting before owners and employees are permitted to work under or between them. Equipment will not be operated within 15 feet of unprotected, energized power lines or transformers.

2. Motor vehicles

- a. All vehicles will have all tires, lights, horn, brakes, windshield wipers and glass maintained in good condition.
- b. Motor vehicles and equipment having an obstructed view to the rear will be used in reverse only if the following conditions are met: a signalman is used to direct the driver and/or back up alarms are installed.
- c. Vehicles used to transport owners and employees will have seats firmly secured and adequate for the number of people to be carried.
- d. Seat belts will be required for all vehicle occupants while the vehicle is in operation.
- e. All vehicles in use will be checked to assure that all equipment and accessories are in good operating condition.

WATERBODY OPERATIONS

These safety rules apply to ENCO personnel and their subcontractors working wherever the danger of drowning exists, with or without barge support.

- a. All personnel working in or over a waterbody, with no exceptions, will wear a life vest or life jacket.
- b. While workers are on a barge, there will be a work or crew boat with that vessel at all times.
- c. All owners and employees working on a barge must sign in on a daily safety meeting form.
- d. The Supervisor is responsible for the daily safety meeting.
- e. No unauthorized personnel will be permitted to board the barge or enter work area for any reason.



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- f. An air horn will be placed on the barge and will be readily accessible for any employee to use in case of an emergency.
- g. A fire extinguisher will be in place on the barge and easily accessible in case of a fire.
- h. In the event of any emergency on the barge, all owners and employees will exit barge onto work/crew boat and will be transported back to land until further notice.

Safety is everyone's responsibility!
Everyone work safe!

11.2 ENCO International Drilling and Soil Sampling Methodology, Lighthouse Point Project



Drilling and Soil Sampling Methodology

Lighthouse Point Project

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Geological Sampling Procedures

The geologist or his representative will be responsible for the collection of samples from the drill crew, field logging of the samples, and identification and preparation for storage and/or transportation of samples.

- Detailed field logs will be maintained by the geologist, including method of exploration and detailed soil stratigraphy. Logging will be in general agreement with ASTM D2488.
- SPT samples will be collected at maximum intervals of 5 feet, and stored in individually labelled air-tight bags including boring number, sample number, and depth. These bags will then be stored in wooden rock core boxes or similar for transport.
- Shelby tubes will be sealed and transported and stored upright and out of direct sunlight.
- Core barrel samples will be logged in general agreement with ASTM D2113 and D6032 including RQD and percent recovery. Cores will be stored in wooden core boxes and labeled with the boring and core number, and depth. Digital photographs will be taken including labeling.
- Grab samples and other manually collected samples will be stored in air-tight bags in similar fashion as the SPT sample.

Collected samples will be gathered and stored in a secure location prior to shipment. Chain of custody forms will be recorded and included with each unit of shipped samples.

Offshore Deep-water Borings Methodology

Safety Procedures

1. Safety will be by Priority.
 - a. All workers will wear hard hats, gloves, safety glasses, long pants, shirts with at least 4" sleeves and steel toed boots.
 - b. All workers working on the barge are required to wear approved life vest.
2. A tailgate safety meeting will be held at the start of every shift.
3. Job assignments and tasks will be given to each worker before any work is started.
4. All crew will be in constant communication throughout the day.
5. Regular breaks throughout the day will be taken under pop-up canopies to avoid heat related issues and concerns.

Operational Procedures

1. Depth to be measured from the top of the barge to the mud line.
2. A SPT sample starting at the mud line will be completed.
3. 4" HW casing will be set to the next sample interval.
4. Once the casing is set into competent rock, borings will be continued using 3" NW casing installed by drilling method.
5. 3" casing will continue to be installed to each of the SPT sampling intervals.
6. Continued sample interval will be every 3 1/2" with an 18" sample driven at three 6" intervals for a total of 5ft.
7. We will continue to sample at 5ft intervals until rock refusal requirements are met, which is 50 blows for less than 6".
8. At this point we will change over and begin coring with NW core barrel.
9. If rock strata is not consistent where unacceptable core returns are seen SPT sampling will be completed at 5ft. intervals until coring resumes in acceptable strata.
10. Methods will be alternated to retrieve the best possible information available.
11. All samples will be handled by the Geologist or his representative.
12. Seawater will be used during drilling; no slurry will be used because the rock will be too porous and too broken to maintain circulation.
13. The boring will then be cased from top to bottom.
14. All of the cuttings will be discharged into the formation leaving very little environmental impact.
15. Regular breaks throughout the day will be taken under pop-up canopies to avoid heat related issues and concerns.

Land Borings Methodology

Safety Procedures

1. Safety will be by Priority.
 - c. All workers will wear hard hats, gloves, safety glasses, long pants, shirts with at least 4" sleeves and steel toed boots.
 - d. All workers working on the barge are required to wear approved life vest.
2. A tailgate safety meeting will be held at the start of every shift.
3. Job assignments and tasks will be given to each worker before any work is started.
4. All crew will be in constant communication throughout the day.
5. Regular breaks throughout the day will be taken under pop-up canopies to avoid heat related issues and concerns.

Operational Procedures

1. Where necessary paths will be cut at least 10ft. wide to accommodate the drill rig and service vehicle.
2. Land Boring will be drilled with a TMG Track Drill.
3. SPT boring to be completed using 3 1/4" Hollow Stem Auger. Hollow Stem is the most accepted method to given the porous characteristics of the native limestone rock strata and coarse over-burden.
4. Samples will be taken at 2ft intervals to 10ft. (first 10ft. to be sampled continuously) then 5ft. intervals to desired depth (3 1/2" with 18" sample driven three 6" intervals)
5. A plastic basket is placed in the lead auger to keep sediment from heaving up into the auger.
6. Geologist will collect all samples and ensure that they are catalogued and prepared for shipping to laboratory for testing.