Department of Environment

NATIONAL GUIDELINES ON OVERWATER STRUCTURES

Assisted by: **Belize Environmental Technologies**

National Guidelines for Overwater Structures

Introduction

Background

Global Tourism Trends

Global Tourism today generates over US $6.2 trillion in expenditures and is expected to grow 4.6% per annum between 2006 and 2015. In 2005 the sector represented 6.5% of total global exports and contributed 3.8% of estimated total GDP. Taking into account spin-off effects, GDP contribution was estimated to be 10.6%. The industry generated 74 million jobs or 2.8% of total world employment.

Tourism is one of the top five exports for 83% of all countries and is the main source of foreign currency for 38% of the world's nations.

Belize Tourism Trends

In Belize, the rate of growth in tourism has been significant. The international visitor arrivals (overnight tourists and same-day visitors) for Belize almost reached 800,000 in 2003, and exceeded 1,000,000 in 2004. By 2007 the total arrivals had declined and were more in line with the 2003 figures at 876,183 arrivals. The cruise sector has accounted for the majority of this growth. This has created a significant number of issues and challenges for the Belize tourism sector.

Belize is ranked seventeenth in the world as a destination for adventure and experiential travelers (BTB 2009). A study conducted in 2002 by the Travel Industry Association of America to examine attitudes of tourists related to sustainable tourism behaviour, showed at least 55 million Americans who could be classified as sustainable tourists who have high expectations for unique and culturally authentic travel experiences that preserve and protect the ecological and cultural environment. Also of particular interest to Belize is the fact that 81% of this segment of tourists (16.3 million American adults) report that they prefer to stay in small-scale accommodations and visit small towns and rural areas.

Tourism's Impact

The ongoing growth of the global tourism industry and the expectations that it will double in size by 2020 have fuelled considerable discussion on the question of tourism's impact.

The increasing awareness of the economic development potential of tourism together with concern over tourism impacts has motivated many destinations to become more strategic in their role in managing tourism sector growth. For years, there has been a focus on issues such as overuse of water resources, air pollution, land degradation; waste and litter problems, inadequate sewage treatment, aesthetic pollution, habitat destruction and eco-system alteration have all been raised as important areas to address when considering tourism impacts. Many destinations have emphasized program development, legislation and regulations to respond to the need for responsible environmental management of tourism's impact.

In recent years, international debate has evolved to concern about the opportunities and threats that tourism presents for biodiversity conservation. Indeed, biodiversity was identified as one of the top five priority areas for the 2002 World Summit on Sustainable Development.

The flip-side of this increasing concern is a growing appreciation that tourism can make significant contributions to local environmental management and the conservation of biodiversity. It can provide a source of financing and an economic justification for protected areas, offer economic alternatives for local communities, and raise awareness through interpretive practices about the importance of biodiversity.

Overwater Structures

For several years the Department of the Environment (DOE) and the National Environmental Appraisal Committee (NEAC) has received numerous applications for the construction and operation of overwater structures, specifically, overwater cabanas, villas, restaurants and bars. These structures have been proposed primarily for tourism purposes and are located in the coastal areas such as the offshore cayes, river banks and lagoons. Proponents have repeatedly expressed the desire for developments of this nature to appeal to the high end/ high income tourist simultaneously offering the exclusivity of an overwater villa/cabaña.

In response to these proposals, the DOE and the NEAC has summarily not approved or considered these proposed overwater structures due to concerns with: addressing issues of waste (solid and liquid) generation and disposal; construction in sensitive areas leading to destruction of habitat and sedimentation, potential hazards to navigation, potential hazards to marine life, i.e. turtles and other finfish; impacts to the aesthetic value of the coastline; access/removal of the seafront and seabed to the general public; potential for expanding the property greater than the actual size; safety; placement of structures in communities; the placement of a permanent structures (concrete) in areas vulnerable to natural disasters, i.e. hurricanes, storm surges, floods; and endorsing developments without any due consideration to effects of climate change.

The Department of the Environment and the NEAC has recognized that the tourism industry is a pillar of the Belizean economy and the ability to offer the exclusivity of an overwater structure may be an asset to certain developments. However, the DOE and the NEAC also recognize that developments of this nature should be conducted in a prudent and regulated manner and have embarked in the development of Guidelines for the Construction and Operation of Overwater Structures. These guidelines are intended to assist the DOE, NEAC and the Proponents in determining where, how and what type of structure can be allowed throughout the country. They are also expected to reflect and be consistent the existing regulations and legislations of relevant government agencies; and best practices and standards for the activity; consideration of communities, while still being economically viable for the proponent.

National Overwater Guidelines Questionnaire

A Questionnaire was prepared as a consultative tool to obtain the views and advice of relevant stakeholders in the development of the national guidelines for "overwater structures" for tourism or other commercial related purposes, specifically, overwater cabañas, villas, dive-shops, restaurants and bars. DOE sent out the National Overwater Guidelines questionnaire to one hundred and fifty eight stakeholders via email. It was also noted that the Belize Tourism Industry Association in turn forwarded the questionnaire to it membership.

The National Overwater Guidelines

It is presupposed that the guidelines will be supported by a National Policy that limits the construction of theses structures to only those that will be able to meet these guidelines and structures that will bring value added economic benefits, thereby discouraging the construction of these structures for individual and non–commercial use.

Furthermore, these guidelines are not intended to address the construction of decks, piers, fisher folk camps, groynes, buoys and other "overwater structures" which do not fall within the definition of "overwater structures" as discussed in this paper since these structures are presently processed through existing administrative and legislative regimes. However, some of these guidelines developed could also be used to assist in the review process of these structures.

This initiative intends to developed the Guidelines for the Planning, Construction and Operation of Overwater Structures (as defined in this paper) throughout Belize to be utilized by the DOE, NEAC, government agencies and the general public in conducting this activity.

Definition: For the purpose of these Guidelines the following definition considered:

"Overwater structures": Any structure suitable for use as a restaurant, bar, dive shop or dwelling for commercial purposes and the enjoyment by tourists, which extends in any part beyond the shoreline of any public water or publicly-owned water body and includes pontoons and floatels.

"Suitable for use as a dwelling'': Any structure which is used for temporary residence purposes by one or more persons, or which contains kitchen, bathroom, shower, or toilet facilities.

Overwater Structures are usually located close to the shore, allowing easy access to the main resort building, its beaches and amenities. Where there are several structures these are usually clustered together with one common deck connecting them to shore.

1. General Criteria

Overwater Structures could have significant impacts on the Environment and are required to carry out an Environmental Impact Assessment (EIA) in accordance with the Environmental Impact Assessment Regulations.

1.1 The construction of these structures in coastal Urban Areas (Corozal Town, Belize City, Dangriga Town, Punta Gorda, San Pedro East Coast, Caye Caulker East Coast, St. George's Caye East Coast and Placencia East Coast) will be discouraged and where exemptions may occur they will be required to have the written approval of the local planning authority or local Government following a public consultation before proceeding to obtaining the pertinent permits as specified in Guideline 2.1 below.

1.2 No overwater structures will be allowed to be built over any section of the Belize Barrier Reef or other coral reef structure, and Marine Protected Areas.

1.3 All overwater structures will be required to conform to the highest environmental standards for the prevention of pollution and are intended to be a high end facility.

1.4 Only persons owning sea frontage properties shall be permitted to construct overwater structures.

1.5 To discourage proposals aimed at compensating for 'land shortage', all proponents will be required to leave as open space, an area of land equivalent to the area of the footprint of the overwater structures **located on the sea frontage of the property**.

1.6 The impact of habitat loss has been identified as one of the greatest threats to fisheries resources. Permitting agency should **implement a policy of no-net-loss** of certain critical habitats such as riparian and littoral forests, fringing mangroves, corals and sea-grass beds and policies intended to prevent the introduction or spread of exotic species and the over-exploitation of fishery resources. **Thus, habitat restoration measures (either onsite or offsite and either in-kind or out-of-kind, of an area equivalent to the area disturbed or altered) should be used to compensate for unavoidable habitat impacts at the expense of the developer.**

1.7 To lessen the visual impact on the natural landscape, only 20% of the total length of sea frontage would be permitted for overwater structures and the area would not exceed 20% of the actual land area.

1.8 No person will be allowed ownership of the land where overwater structures have been constructed but would be permitted to have long-term leases or concessions. The length of lease would not exceed 25 years. The owner(s) will have the option to renew the lease. Should the owner(s) want out of the lease and has no intention of renting/leasing to a

third party or continue the operation of such overwater structure, he will be responsible for the proper dismantling of such overwater structures.

1.9 An annual rental fees equivalent to 5% of the market value for an equivalent area of beachfront property should be charged.

1.10 NO overwater private dwellings will be allowed.

1.11 The direct access to the overwater structure itself may be restricted, that is, a gate may be placed on the connecting deck only for security purposes.

1.12 Only 70% of the beach length can be allocated to guest rooms as 20% has to be allocated to public use and 10% left as open space for land based development.

1.1.3 All structures will be required to be kept in good repair and will be required to ensure its proper maintenance at all times.

2.0 Procedural Issues

2.1 The installation of any overwater structure will be required to obtain the following permits:

Note: The issuance of a permit from one agency does not imply that the other has to be granted.

2.1.1 Environmental Clearance from the Department of the Environment;

2.1.2 Permit from the Lands and Survey Department for lease of the seabed;

2.1.4 Construction Permit from the Local Planning Authority in whose jurisdiction the proposed structure falls;

2.1.5 Permit from the Port Authority for clearance if project lies near or within a navigational channels;

2.1.6 Permit from the Petroleum and Geology Department for any dredging or removal of material.

2.1.7 Permit from the Belize Tourist Board for cabañas intended as hotel rooms.

2.1.8 Permit from the Fisheries Department where the project is located near a Marine Protected Area.

2.2 Any permit issued will be in the name of the duly registered applicant(s) and any transfer of ownership once permit is issued will require permits be renewed with the names of new owner(s) for permits to remain valid.

2.2. b If during the operational phase any change of ownership and/or management, be it due to sale of or rental lease of or any combination thereof, will require permits be renewed with the name(s) of new owner(s) and/or management for permits to remain valid.

2.2 c Processing Fee: Each renewal will carry a processing fee to be determined by DOE.

2.3 The applicant must show proof of ownership of seafront property and the company must be a duly registered company in Belize with a minimum of 10% local equity.

2.4 The applicants will have responsibilities in relation to the overwater structure and the remainder of the project, including:

2.4.1 To comply with all relevant laws and conditions of the permit;
2.4.2 To meet all costs associated with the permit assessment and subsequent installation and operation of the overwater structure;
2.4.3 To provide indemnity and adequate insurance cover against death, personal injury and property damage and to take any action necessary to protect the environment and users of the facility should any problems arise with the structure.

2.5 During application an Environmental Management Plan will be required providing details of the proposed installation and its proposed operations.

2.6 The Environmental Management Plan must include:

2.6.1. Identification of potential environmental impacts; ☐
2.6.2 How activities will be managed to reduce these impacts; ☐
2.6.3 A monitoring program; ☐
2.6.4 Emergency response plans including the removal of the structure as result of damage by fire, hurricane or other natural disaster or at the end of its useful life;
2.6.5 A management plan for the use the commons; ☐
2.6.6 Operational plan; ☐

2.7 As a precaution, the cost of removal or cleanup of the structure as a result of an accident or an act of nature must be covered by a bond provided by the applicants, which is lodged

with Department of the Environment in perpetuity or until the structure is removed from the public water body.

2.8 The bond amount will need to be reviewed on an annual basis to ensure it keeps abreast of: inflation, costs for removal, and any other changes which may affect its appropriateness.

2.9 The size of the bond will be equivalent to the estimated cost of construction of the facility less the cost of material and could be determined by a certified valuer.

3.0 Siting

In general, attention to selection of sites with the "maximum natural physical benefits" can help to avoid alterations and continual maintenance associated with dredging.

3.1 Overwater structures will not be allowed to be constructed over the Belize Barrier Reef or any living reef structure(s).

3.2 Overwater structures should be sited in sandy or muddy, or coral rubble areas to avoid impacts on sensitive environments and conflicts with other uses of the area.

3.3 Sites should have a set back distance of a minimum of 550 yards from the Belize Barrier Reef or any atoll. In the instance of pontoons serving as launch pads for snorkeling and viewing of corals, a set- back distance of 100 feet could be allowed.

3.4 Overwater structures should have a minimum set-back distance of 50 feet from shore to minimize impacts on shoreline processes by boats and to minimize impacts on potential usage of beaches. For shoreline without beaches and which have mangroves and other littoral forest a minimum set back of 15-20 feet should be required.

3.5 Sites should be selected that would prevent any clearance of fringing mangroves or other riparian vegetation offering coastal protection to shoreline property.

3.6 Construction of overwater structure should preferably be carried out on the leeward side of an island whenever possible.

3.7 Overwater structures intended to be accessed by boats should select areas of least currents and avoid sea grass beds, and corals.

3.8 Piers allowing boat access to overwater structures and vice versa should extend out far enough to reach depths of at least 10 feet in which dredging will not be required and intended boat traffic would have sufficient draft to prevent resuspension of silt by propellers, providing this does not pose a threat to navigation.

3.9 Overwater structures shall not be built within known navigational channels.

3.10 The location of an overwater structure must not conflict with zoning objectives, Management Plans, or other management measures within a zoned area.

4.0 Design

4.1 These overwater structure must be appropriately designed for its intended purpose, including, for example; stability, structural integrity, life span, corrosion resistance, maintenance, ease of removal, and its ecological role and impact.

4.2 The design of the overwater structure and any associated support system will need to be certified by a suitably qualified and experienced professional structural or civil engineer.

4.3 The design of overwater structure shall not be permitted to have solid foundations but would have to be built using support piles to reduce the effect of the structure on water circulation.

4.4 The deck of the overwater structure should be constructed high enough above the beach ridge to allow light to reach the water surface to reduce the impacts of shading on the ecology of the area. A narrow structure extending from north to south will not produce as much shade as a wide structure running from east to west.

4.5 The height of the deck shall be at least two (2) feet above the height of the beach ridge. In this regard, light-penetrating elevated walkways can be used for preventing habitat damage where access to a sensitive or critical area is required. These structures prevent erosion and protect underlying vegetation, allowing vegetation recovery while providing access.

4.6 The design of the overwater structure and the outlay design should be such that it blends with the natural surroundings and maintains a tropical look.

4.7 The design of the overwater structure will be such that all electrical conduits, water, wastewater and butane pipes, would be shielded from view and would need to meet the highest code of international standard.

4.8 The overwater structure shall be limited to one storey level.

4.9 Only floating breakwaters in water deeper than 20 feet and no closer than 50 feet from the shoreline will be permitted for wave attenuation in docking areas.

5.0 Materials

5.1 Over water structure must be constructed of light, strong, non-corrodible, durable materials that are either natural or have the appearance thereof and which:

5.1.1 suit the objective of the Structure (restaurant, bar or living quarter)
5.1.2 are clean and are not toxic;
5.1.3 will not easily fragment; and
5.1.4 will not immediately, or through decomposition, harm or injure wildlife or the ecology of the area.

5.2 Materials used should be those that do not further degrade baseline conditions. Hence, materials used in the construction of an overwater structure must not have been recently (within 3-5 years) treated with toxic compounds such as anti-fouling paints containing TBT (tributylin) or CCA (chromated copper arsenate).

5.3. It is recommending that some aspects of the sub-structure can be re-enforced concrete, such as columns and beams so as to be able to withstand a Category 4 hurricane while the rest of the structure can be as per Guideline 5.1.

5.4 No coral rubble and coralline sand shall be used for the construction of any overwater related structure.

5.5 The materials proposed for installation of overwater structure must be inspected and approved as per the Approved Materials Construction List by the DOE and Planning Authority prior to the structure being installed.

6.0 Construction

6.1 The safest months for construction of overwater structures shall be the period outside of the hurricane season between December and June.

6.2 Land disturbing activities should be scheduled to occur during the dry season to prevent excessive storm run-off, and erosion.

6.3 Sedimentation control measures such as sediment traps shall be used to minimize water quality impacts from land based activities.

6.4 ”In-water” constructions should be scheduled during the periods of reduced currents to avoid excessive sedimentation of surrounding ecosystem.

6.5 Staging of required vegetation clearance so that cleared sections are re-vegetated, while sections remain with its natural vegetation to minimize the proportion which has been cleared and easily eroded.

6.6 Where the only access to the construction site is by means of water, a temporary pontoon type pier should be constructed that would allow access by barge and discharge of equipment and material.

6.7 Where access is by means of land requiring the construction of a new access road, the environmental issues associated with the impacts of this road will addressed in the project proposal submitted to DOE for its consideration.

6.8 The placement of the structure relative to the sun, as well as the height and width of the deck of overwater structures, is an important factor to consider during design and construction.

6.9 No sheet piling will be used instead of pole piling. The number and diameter of pilings must be minimized as appropriate without reducing structural integrity.

6.10 The placement of pilings should be properly evaluated to reduce impacts on current and ecology of the area while still permitting the requisite structural integrity of the overwater structure.

6.11 No construction material except piles and other support structures are permitted to enter the waterway during construction.

6.12 Any stain, paint or preservative to be applied should be completely dried/cured on land before installation. Notwithstanding this, the use of stains and paints are strongly discouraged on overwater structures.

6.13 Painting underwater surfaces should be avoided. The basis for this recommendation is that overwater structures "provide additional substrate for the growth of fouling communities." Painting of under water surfaces discourages such growth.

6.14 Piles near sensitive coral and other sensitive ecosystems shall not be installed by means of hydraulic water jets. Low-pressure jettying techniques may be permitted in other coastal areas and auger drills for areas having shallow bedrock.

6.15 The installation of piers near sensitive coral and other sensitive ecosystems shall utilize silt curtains around the work area to lessen the impact of sedimentation on these ecosystems.

6.16 Any pier or ramp connecting the overwater structure will be elevated above the beach crest and be eight (8) feet in width or less.

6.17 A plan detailing the process for construction and installation of the overwater structure addressing possible affects on the environment must form part of the information submitted to DOE for their consideration.

6.18 The maximum limit for a single unit cabañas overwater structure should be 450 square feet.

7.0 Shading

Light is very important in the life of organisms. Overwater structures shade aquatic habitat and limit ambient light, affecting macrophyte and phytoplankton primary production. This shading could result in a decreased survival rate, or at least promote behavioral changes in various components of the biological community. Lighting associated with these structures may possibly alter fish species behavior, posing increased risk of predation and causing disruption of fish migration patterns

7.1 In instances where structures wider than 6 feet are constructed above mangroves or other vegetation, they should be required to include grating or translucent panels such that light under the structure is at least 60% of ambient open water light.

7.2 Moorage piers and boats will be spaced so that the shadow cast by the boat/pier combination will not reduce light by more than 60% of ambient.

7.3 Boats will be moored in water deep enough so that they never ground out or prop wash the bed in the moorage or channel area.

8.0 Lighting

The purpose of these guidelines is intended to control beach front lighting and lighting of overwater structures to protect nesting sea turtles and their hatchlings.

8.1 Exterior light fixtures shall be designed and positioned so that: point source of light or any reflective surface of the light fixture is not directly visible from the beach.

8.2 Areas in front of the beach dune are not directly or indirectly illuminated.

8.3 Exterior light fixtures with direct line sight of the beach should have their bulbs and non reflective interior surface completely shielded down light or most be recessed and be of low wattage and yellow “bug’ type lights (≤ 50 Watts).

8.4 All fixtures must be mounted as low in elevation as possible through use of low mounted wall fixtures, low bollards and ground level fixtures.

8.5 Floodlights, uplights or spotlights that are directly visible from the beach shall not be used.

8.6 Exterior light used expressly for safety or security purposes shall be limited to the minimum number and configuration required to achieve their functional roles.

8.7 The use of motion detection that keep lights off except when approached and switch lights on for the minimum duration possible are preferred.

8.8 Only low intensity lighting shall be used in parking areas within line of sight of the beach and these lights must be positioned or shield so that the light is cast downwards.

8.9 Tinted glass shall be installed on all windows and glass doors on structures within the line of sight of the beach.

9.0 Pollution Control and Prevention

Construction Phase

9.1 During construction all construction waste that could pollute ground and water resources must be transported back to mainland for proper disposal. Innocuous construction waste may be used as fill provided it is properly covered.

9.2 During construction work camp must provide portable latrines, they are to be routinely emptied and waste disposed of properly. Failure to comply will result in fines and/or cancellation of permit.

9.3 Provided that the area is suitable for gray water disposal, work camp for construction workers must ensure that gray water is properly disposed through leach fields built in areas containing vegetation to allow for uptake of nutrient.

9.4 During the construction phase, all dry organic waste may be burnt in metal containers and ash collected and should be properly disposed of.

9.5 Noise from construction must be maintained to a minimum and in areas where noise may produce a nuisance and disruptive to the fauna of the area, work must be scheduled where it causes the least disturbance.

9.6 No material will enter any water body during construction and removal of temporary structures.

Operational Phase

9.7 Sewage from the facility shall be treated by means of a wastewater treatment system which meets or exceed the following standards: biological oxygen demand less than 20 mg/l; Ammonia nitrogen 2-4 mg/1, 50 /100ml MPN and suspended solids 20 mg/l.

9.8 Only vacuum sewer line systems will be permitted to minimize impacts associated with leaks.

9.9 Treated effluent shall be discharged away from beaches and recreational waters by means of leach fields utilizing vegetation having high evapo-transpiration rate for the uptake of nutrients or through deep well injections with the prior approval of DOE.

9.10 Submerged outfalls which extend beyond tidal or seasonal low water levels should be permitted.

9.11 The siting of the sewage treatment system must be located in an area designated for utilities that is removed from the main facility areas and located down wind where issues associated with odor and noise would be minimized.

9.12 Gray-water should be recycled and used for garden and landscape irrigation. Excess gray-water may be discharge through the leach field system.

9.13 Only phosphate free, biodegradable detergents, degreasers and cleaners shall be used within the facility.

9.14 All facilities having overwater structures are required to have incinerators, bottle crusher and compactors. Solid waste has to be burnt, metal cans compacted, and bottles crushed before disposal. Recycling is strongly recommended

9.15 Decaying organic matter such as wooden piles may promote a reduction in dissolved oxygen in the overlying water and a corresponding anaerobic layer near the bottom, resulting in the generation of toxic sulfide compounds affecting benthic communities and must be removed.

9.16 All vessels docking within the facility will be prohibited from discharging bilge water while dock within the facility.

Fuel and Solvent Management

9.17 Any facility that will provide fueling must be required to comply with the strictest standards required for the prevention of leaks and spill.

9.18 Facility must provide fueling equipment with automatic shut-off nozzles to reduce spillage during fueling operations

9.19 Facility must be required to provide impervious pavement, berms, or other means of spill containment, spill control equipment and connection to spill collection sumps for fuel and storage tank areas.

9.20 The use of underground storage tanks which lead to very expensive clean up costs when they eventually corrode and leak and cause extensive ground and water pollution will be prohibited.

9.21 The facility must ensure that the storage of fuels and other highly inflammable fluids are located in a separate fenced and covered and secured area that meets the Fire Department requirements.

9.22 Facilities will be required to use fluid storage containers with level indicators to prevent overfilling and spillage.

9.23 Facilities dispensing fuel will be required to keep an accurate and up-to-date inventory of everything in storage.

9.24 Facilities dispensing fuel will be required to install oil/water separator that meet a discharged standard of 15 mg/L of oil.

9.25 Facilities will be required to develop site-specific spill contingency plans, including reporting, and training of employees in the use of the required equipment. All accidents and oil spills must be report to DOE as stipulated in the environmental laws and regulations.

10.0 Energy Generation

10.1 All facilities having overwater structures and which are unable to access the national grid will be required to meet their electrical demand by means of renewable energy such as solar, wind etc.

10.2 Backup thermal (diesel/gas) generators will be permitted.

11.0 Boating Activities

11.1 Cleaning of boat hulls in the water shall be strictly prohibited to prevent the release of cleaner, paint and solvent into water column.

11.2 All solid and liquid waste produced while boating shall be disposed in a proper facility away from surface waters.

11.3 A No-wake zones extending 300 feet from the structure will be required for the prevention of shoreline and stream bank erosion.

11.4 Fender pads or walers will need to be added to the face of docks or structures to protect fender piles from excessive force or rubbing by vessels.

11.5 Absolutely no personal watercraft (jet skis) shall be allowed

12.0 Site Inspection/Monitoring

12.1 Existing shoreline conditions (e.g., riparian and shallow-water) should be documented by videotaping and properly measured prior to construction of overwater structures to facilitate detection of impacts on shoreline and to help assist in determining effectiveness of mitigation measures.

12.2 A post-installation monitoring program shall be required to confirm whether mitigation measures are achieving intended objectives and not resulting in unacceptable impact.

12.3 Monitoring of the installation and operation of an overwater structure should include monthly site inspection during construction phase and bi-annual site inspection by the DOE, Fisheries Department and Coastal Zone Management Authority

12.4 A Monitoring Consultant or Environmental Site Supervisor will may be required during the installation of overwater structures. within an environmentally sensitive zone.

12.5 The Monitoring Consultant or Environmental Site Supervisor must be funded by, but independent of, the applicant and without any conflict of interest.

12.6 All other incremental cost of monitoring shall be borne by the applicant.

13.0 Safety

13.1 The applicant or owner of facility, his assigned or agent is responsible for ensuring that they take all appropriate measures to address the safety of life and property of its employees and guests in accordance with applicable laws.

14.0 Public Awareness and Environmental Education

14.1 Educational Signs to educate the public about pollution and its prevention, must be posted and maintained on permanent sign in conspicuous areas.

14.2 Signs need to be simple and easily understandable to the general public.