

McCONNELL DOWELL CONSTRUCTORS LTD.

CLIENT: GOVERNMENT OF REPUBLIC OF KIRIBATI

PROJECT: KIRIBATI ROAD REHABILITATION
PROJECT

LOCATION: TARAWA, KIRIBATI

PROJECT NO.: 2536

Environmental Protection Instruction

FLORA & FAUNA PROTECTION PLAN

Document number 025-Y002-2536

Revision History

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1.0 INTRODUCTION

The Flora and Fauna of Kiribati aptly complement the humid and wet climate of the Kiribati islands. The Flora and Fauna of Kiribati include various vegetation and animals that adorn the islands of Kiribati. Heavy rainfall and high temperature of the tropical climate give rise to some distinctive flora and fauna which are found only in Kiribati. The Flora and Fauna of Kiribati make it an interesting and popular tourist spot of the world.

FLORA	FAUNA
<ul style="list-style-type: none"> - includes abundant growth of the <i>coconut trees</i> throughout the islands - proud owner of other plants and trees like the following: <i>Pandanus, Pawpaw, and Breadfruit</i> - availability of the <i>coastal shrubs</i> that are found in large numbers in the Kiribati islands - Mangrove trees 	<ul style="list-style-type: none"> - comprises various species of animals - reptiles and other animals – sea water and lagoons in Kiribati make it a perfect place for fishing - various types of fishes are the following: <i>Bonefish, Trevally, Wahoo, Yellowfin tuna, Sailfish, Grouper, Sharks, and Milkfish</i> - famous for the variety of birds: <i>Shearwater, Petrel, Tropic bird, Frigate birds, Terns, Noddys, Christmas Island warbler (found exclusively in the Christmas island), and White-tailed tropic bird</i> - famous for the large <i>Robber crabs</i> and the <i>Red crabs</i>

Forests (mostly outside the construction zone) serve as nesting places for flying migratory birds. There are no natural forest of major significance in terms of size, age and biological diversity. Mangrove forests grow on muddy shores and coastal beaches. The tiny Pacific islands nation declared the world's largest marine protected area (Figure 2 Kiribati – the World's Largest Marine Protected Area in the Pacific) – an ocean wilderness that includes pristine reefs and eight coral atolls teeming with fishes and birds.



Figure 1 Mangroves of Kiribati



Figure 2 Kiribati – the World's Largest Marine Protected Area in the Pacific

This Flora and Fauna Protection Plan is prepared to satisfy the requirements of the Government of Republic of Kiribati during the implementation of contract conditions for Kiribati Road Rehabilitation Project. As stated, Part A Sub-clause 4.18 Condition under Protection of Environment, McConnell Dowell shall comply with all applicable national, local and environmental laws and regulations:

- Establish an operational system for managing environmental impacts;
- Carry out all of the monitoring and mitigation measures set forth in the Initial Environmental Impact Assessment and Environmental Management Plan;

McConnell Dowell shall submit monthly reports on the carrying out of such measures to “the Engineer”.

2.0 OBJECTIVES

- To minimise the effect on local flora and fauna, particularly any endangered or protected species, by construction operations.
- To minimise the effect on aquatic flora and fauna by construction activities.

3.0 TARGETS

Performance Criteria	Target	Measurement
Terrestrial Flora & Fauna Protection	Zero reportable incidents No impact on flora and fauna in the vicinity of the project beyond that reasonably anticipated at the design phase.	Incident reports
Aquatic Flora & Fauna Protection	Zero incidents Acceptable ecological conditions for aquatic flora and fauna are maintained. Exotic flora and fauna are not introduced to the aquatic work environment.	Incident reports
Compliance with consent conditions	100%	No infringements or abatement notices

4.0 RESPONSIBILITIES

The Project HSE Advisor is responsible for implementing flora and fauna protection measures, inspecting the site and the adjoining habitats notifying of any failures.

5.0 LEGISLATIVE INFORMATION/REFERENCES

5.1 WILDLIFE CONSERVATION ORDINANCE 1975

To provide for matters related to the conservation of wildlife. Wildlife sanctuaries may be declared under this Act.

5.1.1 Section 3

Birds and animals may be declared either fully or partially protected. Partial protection prevents hunting during a closed season. "Designated areas" may be declared for the protection of certain species.

5.1.2 Section 11

Wildlife wardens are given powers of arrest, search and seizure.

5.2 PROHIBITED AREAS ORDINANCE 1957

To provide for certain islands and their territorial waters to be prohibited areas. Prohibited areas declared under this Act could be set aside for conservation purposes.

5.2.1 Section 2

The "territorial waters" of the islands is defined.

5.2.2 Section 3

Any island can be declared to be a prohibited area.

5.2.3 Section 4

Entry into prohibited areas is forbidden without permission.

6.0 CONTROL METHODS

6.1.1 General

- Survey areas identified in the contract as environmentally significant.
- Mark on site all environmentally significant areas (e.g. with flagging, bunting, fencing etc.).
- Prior to commencing any marine works carry out a visual inspection of the work area to identify the presence of any protected flora or fauna. Notify the client if such presence is identified (as necessary obtain photographs).
- Ensure all site workers are made aware of the environmentally significant areas and protected species at the site induction.
- If required by the contract, areas to be cleared are to be inspected for flora or fauna by the Client's representative or other authority prior to commencing clearing.
- Prevent the spillage of fuels, oils and other hazardous substances into the water. Refer also to Environmental Protection Instruction – **Storage & Handling of Hazardous Substances** (Document # **025-L008-2536**).

- Do not introduce to the water any exotic flora or fauna from other locations.
- Keep construction teams informed of adjacent protected flora & fauna in toolbox meetings & prestart meetings

6.1.2 Protection of Flora

- Peg or mark limits of clearing or tree removal.
- As necessary Client's representative to approve pegged areas or designated trees.
- Machine operators and other workers to be instructed on limits of clearing, special fauna and flora in the area and the importance of remnant vegetation patches.
- Obtain Client's representative approval prior to removal of additional trees or vegetation.
- Fell trees into construction zone, not into undisturbed vegetation.
- Designate, sign and enclose site areas, traffic and haul routes.
- Do not burn cleared vegetation but chip, mulch and reuse where feasible unless otherwise allowed by the contract.
- Instruct workers not to damage vegetation and not to park or store material under tree canopies.
- Do not stockpile topsoil against trees or under the drip line of trees.
- Instruct operators to remain on designated haul roads.
- Use only approved chemical sprays.
- Minimise the risk of uncontrolled fires in adjoining native vegetation.

6.1.3 Protection of Fauna

- No animals to be deliberately killed.
- If possible transport injured native animals to an animal hospital, vet or refuge.
- Remove all rubbish to avoid attracting feral and introduced animals and birds.
- Provide a waste management system that will discourage animal pests.
- Minimise the risk of uncontrolled or unapproved fires in adjoining native vegetation.

7.0 MONITORING

- Day to day observation of the disturbance boundary by the foreman to confirm that the works are not extending beyond the approved limits of disturbance.
- Day to day visual observation of aquatic conditions by the Client's representative.
- Regular turbidity monitoring as required by the contract.
- Inspection of revegetation areas to verify the health of plants and confirm progressive revegetation principles are being implemented.
- Inspection of the erosion and sediment management controls to verify effectiveness.
- Monthly inspection of any key habitat sites identified as susceptible to disturbance by the construction operations.

A field inspection checklist has been prepared based on the EMP and monitoring plan. The field monitoring checklist will be used by the supervising field engineers. The signed checklists will be provided by MPWU who will be responsible for the appropriate follow-up and compliance reporting.

7.1 MANAGEMENT STRATEGIES AND MITIGATION

Project Phase/Activity	Management Strategies and Mitigation	Responsible Person/Unit
Vegetation removal from areas containing permanent and temporary works	Mitigation options listed in EPI 025-L002-2536 entitled "Disturbance to Terrestrial Flora and Fauna" and EPI 025-L003-2536 entitled "Disturbance to Aquatic Flora and Fauna". Oil Spills will be contained, isolated and removed All workers must wear PPE	McConnell Dowell (HSE Advisor, Client's representative)

8.0 EMERGENCY RESPONSE

In the event of any significant failure of the flora and fauna protection measures:

- The Project HSE Advisor is to determine whether the failure constitutes an ongoing threat to the flora and fauna in the vicinity. If not, review the flora and fauna protection measures and implement them. If the failure constitutes an ongoing threat to flora and fauna in the vicinity notify the Project Manager and Client's representative.

9.0 RECORDS

Written records are to be kept showing:

- Inspection Records
- Reporting records
- TBT / Prestart meeting minutes