# COASTAL PROTECTION, LANDSCAPING AND INFRASTRUCTURAL WORKS IN MAURITIUS

## PROVIDENCE SITE

## CONTENTS

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>EXECUTIVE SUMMARY</strong></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td><strong>INTRODUCTION</strong></td>
<td>1-1</td>
</tr>
<tr>
<td>1.1</td>
<td>General</td>
<td>1-1</td>
</tr>
<tr>
<td>1.1.1</td>
<td>Need for EIA</td>
<td>1-1</td>
</tr>
<tr>
<td>1.2</td>
<td>The Project</td>
<td>1-1</td>
</tr>
<tr>
<td>1.2.1</td>
<td>General</td>
<td>1-1</td>
</tr>
<tr>
<td>1.2.2</td>
<td>Coastal Erosion</td>
<td>1-2</td>
</tr>
<tr>
<td>1.2.3</td>
<td>Project Background</td>
<td>1-2</td>
</tr>
<tr>
<td>1.3</td>
<td>The Proponent and Project Team</td>
<td>1-3</td>
</tr>
<tr>
<td>1.3.1</td>
<td>The Proponent</td>
<td>1-3</td>
</tr>
<tr>
<td>1.3.2</td>
<td>The Project Team</td>
<td>1-3</td>
</tr>
<tr>
<td>1.4</td>
<td>Project Implementation Timeframe</td>
<td>1-4</td>
</tr>
<tr>
<td>1.5</td>
<td>Method of Assessment</td>
<td>1-4</td>
</tr>
<tr>
<td>1.5.1</td>
<td>General</td>
<td>1-4</td>
</tr>
<tr>
<td>1.5.2</td>
<td>Phases of Assessment</td>
<td>1-4</td>
</tr>
<tr>
<td>1.5.3</td>
<td>Scoping</td>
<td>1-4</td>
</tr>
<tr>
<td>1.6</td>
<td>Structure of Report</td>
<td>1-5</td>
</tr>
<tr>
<td>2</td>
<td><strong>LEGAL FRAMEWORK</strong></td>
<td>2-1</td>
</tr>
<tr>
<td>2.1</td>
<td>Introduction</td>
<td>2-1</td>
</tr>
<tr>
<td>2.2</td>
<td>Legal Framework</td>
<td>2-1</td>
</tr>
<tr>
<td>2.2.1</td>
<td>Environment Protection Act, 2002</td>
<td>2-1</td>
</tr>
<tr>
<td>2.2.2</td>
<td>Regulations</td>
<td>2-2</td>
</tr>
<tr>
<td>2.3</td>
<td>Policies, Planning Schemes and Guidelines</td>
<td>2-3</td>
</tr>
<tr>
<td>2.3.1</td>
<td>General</td>
<td>2-3</td>
</tr>
<tr>
<td>2.3.2</td>
<td>National Environment Policy</td>
<td>2-3</td>
</tr>
<tr>
<td>2.3.3</td>
<td>National Development Strategy</td>
<td>2-3</td>
</tr>
<tr>
<td>2.3.4</td>
<td>Environmentally Sensitive Areas (ESA)</td>
<td>2-3</td>
</tr>
<tr>
<td>2.3.5</td>
<td>National Forestry Policy</td>
<td>2-4</td>
</tr>
<tr>
<td>2.4</td>
<td>International Treaties</td>
<td>2-4</td>
</tr>
<tr>
<td>2.4.1</td>
<td>The Convention on Biological Diversity</td>
<td>2-5</td>
</tr>
<tr>
<td>2.4.2</td>
<td>International Convention and Protocol Signed/Ratified by Mauritius</td>
<td>2-5</td>
</tr>
</tbody>
</table>
3       BASELINE ENVIRONMENT

3.1  Site Location

3.2  Site Context
3.2.1  General
3.2.2  Watercourses
3.2.3  Environmentally Sensitive Areas (ESA)

3.3  Site Limits
3.3.1  Site Limits
3.3.2  Site Topography
3.3.4  General Site Conditions

3.4  Heritage Features

3.5  Utilities and General Infrastructure
3.5.1  Coast Road (B28 Road)
3.5.2  Power, Potable Water and Telecommunication
3.5.3  Stormwater Drainage
3.5.4  Existing Protection Structures

3.6  Geology and Geomorphology
3.6.1  Geology
3.6.2  Site Observations
3.6.3  Sediment Sampling and Results

3.7  Sediment Transport and Morphology
3.7.1  Sediment Transport and Morphology

3.8  Coastal Hydrodynamics – Baseline Modelling
3.8.1  Water Level
3.8.2  Tide Levels
3.8.3  Climate Change and Sea Level Rise

3.9  Climate
3.9.1  Water Levels
3.9.2  Cyclones
3.9.3  Wind
3.9.4  Waves and Surges

3.10  Hydrodynamic Modelling for Providence Site

3.11  Water Quality

3.12  Biodiversity
3.12.1  General
3.12.2  Terrestrial Environment
3.12.3  Marine Environment

3.13  Landscape and Aesthetics

3.14  Air Quality

3.15  Traffic

3.16  Noise
3.17 Socio-economic Activities 3-24
3.17.1 Fisheries 3-24
3.17.2 Recreational/Leisure and other Activities 3-25
3.17.3 Places of Worship 3-25
3.18 Consultation with Stakeholders 3-25
3.18.1 Ministries and Authorities 3-25
3.18.2 Public Consultation 3-26

4 PROJECT ALTERNATIVES AND JUSTIFICATION 4-1
4.1 General 4-1
4.2 Functional Requirements (Client’s Requirements and ToR) 4-2
4.2.1 MSSESDD Requirements 4-2
4.2.2 Stakeholder Requirements 4-2
4.2.3 Protection against Erosion 4-2
4.2.4 Maximum Crest Level vis-a-vis Visual Impact 4-2
4.2.5 Construction Aspects 4-2
4.3 Development Options 4-3
4.3.1 Design Considerations 4-3
4.4 Project Alternatives 4-4
4.4.1 Alternative 1 - Gravel Beach (Flexible Revetment) 4-4
4.4.2 Alternative 2 - Vertical Seawall 4-4
4.4.3 Alternative 3 - Rock Revetment 4-4
4.5 Approved Scheme 4-5

5 PROJECT DESCRIPTION 5-1
5.1 General 5-1
5.2 Proposed Works and Site Layout 5-1
5.2.1 Extent of site 5-1
5.2.2 Site Layout 5-1
5.2.3 Principal Works Items 5-1
5.2.4 Landscaping and Greening 5-2
5.2.5 Stormwater Drainage Measures 5-2
5.2.6 Overtopping Seawater Drainage 5-2
5.3 Reference Standards and Publications 5-2
5.3.1 General 5-2
5.4 Engineering Design 5-2
5.4.1 Design Working Life 5-2
5.4.2 Damage Levels 5-3
5.4.3 Extreme Water Levels 5-3
5.4.4 Extreme Wave Heights 5-3
5.4.5 Overtopping 5-3
5.4.6 Design Criteria 5-4
5.4.7 Design Method 5-4
5.4.8 Revetment Cross-section 5-5
5.5 Construction Methodology 5-5
6  IMPACT IDENTIFICATION, ASSESSMENT AND MITIGATION  6-1

6.1  Methodology  6-1

6.2  Construction Phase  6-3
6.2.1  General  6-3
6.2.2  Geology and Geomorphology  6-3
6.2.3  Water Quality  6-4
6.2.4  Biodiversity  6-5
6.2.5  Air Quality  6-6
6.2.6  Traffic  6-7
6.2.7  Socio-economic  6-7
6.2.8  Noise  6-8
6.2.9  Health and Safety  6-8

6.3  Operation/Utilisation Phase  6-9
6.3.1  General  6-9
6.3.2  Geomorphology and Hydrodynamic Impacts  6-9
6.3.3  Landscape and Aesthetics  6-11
6.3.4  Socio-economic Impact  6-11
6.3.5  Significance of Impacts during Operation Phase  6-11

6.4  Maintenance as a Mitigation Measure  6-11

7  ENVIRONMENTAL MONITORING PLAN  7-1

7.1  Monitoring during Construction Phase  7-1
7.1.1  Air Quality  7-1
7.1.2  Noise  7-1
7.1.3  Water Quality  7-2
7.1.4  Solid Waste  7-2
7.1.5  Traffic  7-2
7.1.6  Infrastructure  7-3
7.1.7  Health and Safety  7-3

7.2  Monitoring during Operation Phase  7-3

8  RECOMMENDATION AND CONCLUSION  8-1
List of Appendices:

Appendix A  : Laboratory Test Results for Water and Sediment Samples
Appendix B  : Biodiversity Survey Report
Appendix C  : Drawings
Appendix D  : Notes of Public Consultation Meeting

List of Drawings:

Context Map            M190/PR/EV/01  
Sampling Location      M190/PR/EV/02  
Location Plan          M190/PR/DD/01  
Topographic Map        M190/PR/DD/02  
Plan and Profile along Coast Road    M190/PR/DD/04  
Proposed Layout Plan   M190/PR/DD/05  
Typical Cross Sections of Rock revetment  M190/PR/DD/06