

COASTAL PROTECTION, LANDSCAPING AND INFRASTRUCTURAL WORKS IN MAURITIUS

POINTE AUX FEUILLES – GRAND SABLE SITE ENVIRONMENTAL IMPACT ASSESSMENT REPORT

CONTENTS

Chapter	Description	Page
	EXECUTIVE SUMMARY	
1	INTRODUCTION	1-1
	1.1 General	1-1
	1.1.1 Need for EIA	1-1
	1.2 The Project	1-1
	1.2.1 General	1-1
	1.2.2 Coastal Erosion	1-2
	1.2.3 Project Background	1-2
	1.2.4 Previous Studies	1-2
	1.2.5 Actions taken by MSSESD	1-2
	1.3 The Proponent and Project Team	1-3
	1.3.1 The Proponent	1-3
	1.3.2 The Project Team	1-3
	1.4 Project Implementation Timeframe	1-4
	1.5 Method of Assessment	1-4
	1.5.1 General	1-4
	1.5.2 Phases of Assessment	1-4
	1.5.3 Scoping	1-4
	1.6 Structure of Report	1-5
2	LEGAL FRAMEWORK	2-1
	2.1 Introduction	2-1
	2.2 Legal Framework	2-1
	2.2.1 Environment Protection Act, 2002	2-1
	2.2.2 Regulations	2-2
	2.3 Policies, Planning Schemes and Guidelines	2-3
	2.3.1 General	2-3
	2.3.2 National Environment Policy	2-3
	2.3.3 National Development Strategy	2-3
	2.3.4 Environmentally Sensitive Areas (ESA)	2-3

2.3.5	National Forest Policy	2-4
2.4	International Treaties	2-4
2.4.1	The Convention on Biological Diversity	2-5
2.4.2	International Convention and Protocol Signed/Ratified by Mauritius	2-5
2.4.3	Outline Planning Scheme – Grand Port-Savanne District Council Area	2-6
3	BASELINE ENVIRONMENT	3-1
3.1	Site Location	3-1
3.2	Site Context	3-1
3.2.1	General	3-1
3.2.2	Built Environment	3-2
3.2.3	Airport Obstacle Limitation Surface	3-2
3.3	Environmentally Sensitive Areas (ESAs)	3-2
3.3.1	General	3-2
3.3.2	Watercourses	3-3
3.3.3	Tidal Mudflats	3-3
3.3.4	Mangroves	3-3
3.3.5	Sea Grass	3-3
3.3.6	Coral Reef	3-3
3.4	Physical Site Description/Existing Situation	3-3
3.4.1	Site Limits	3-3
3.4.2	Land Use Survey	3-4
3.4.3	Site Topography	3-5
3.4.4	Lagoon Bathymetry	3-6
3.4.5	Stormwater Drainage	3-6
3.4.6	Services/Utilities Infrastructure	3-7
3.5	Site Conditions	3-8
3.5.1	Waterfront Features	3-8
3.5.2	Coast Road (B28 Road)	3-9
3.5.3	Aquaculture	3-10
3.6	Biodiversity/Ecology	3-10
3.6.1	General	3-10
3.6.2	Terrestrial Environment	3-10
3.6.3	Marine Environment	3-11
3.7	Geomorphology and Sediment Survey	3-12
3.7.1	Geology	3-12
3.7.2	Site Observations	3-12
3.7.3	Sediment Sampling and Test Results	3-13
3.8	Sediment Transport and Morphology	3-14
3.8.1	General	3-14
3.8.2	Sediment Transport and Morphology	3-14
3.9	Risks and Impacts of Climate Change	3-16
3.10	Coastal Hydrodynamics – Baseline Modelling	3-16

3.10.1	Water Level Analysis	3-16
3.10.2	Tide Levels	3-16
3.10.3	Climate Change and Sea Level Rise	3-17
3.11	Climate	3-18
3.11.1	Water Levels	3-18
3.11.2	Cyclones	3-20
3.11.3	Wind	3-22
3.11.4	Waves and Surges	3-24
3.12	Hydrodynamic Modelling for Pointe aux Feuilles – Grand Sable Site	3-24
3.13	Historical/Heritage Features	3-25
3.14	Water Quality	3-25
3.15	Landscape and Aesthetics	3-26
3.16	Air Quality	3-26
3.17	Traffic	3-27
3.18	Noise	3-27
3.19	Socio-economic Activities	3-27
3.19.1	Tourist Industry	3-27
3.19.2	Fisheries	3-27
3.19.3	Other Activities	3-27
3.19.4	Places of Worship	3-28
3.20	Consultation with Stakeholders	3-28
3.20.1	Ministries and Authorities	3-28
3.20.2	Public Consultation	3-28

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	MSESSED Requirements	4-2
4.2.2	Stakeholder Requirements	4-2
4.2.3	Protection against Erosion	4-2
4.3	Design Parameters dictated by Met-ocean Conditions	4-2
4.3.1	Extreme Still Water Levels	4-2
4.3.2	Extreme Wave Heights	4-3
4.3.3	Wave Directions	4-3
4.3.4	Overtopping Discharge	4-3
4.3.5	Drainage	4-3
4.3.6	Design Working Life	4-3
4.3.7	Damage Levels	4-4
4.3.8	Reference Standards and Publications	4-4
4.3.9	Protection against Erosion	4-4
4.4	Maximum Crest Level vis-a-vis Visual Impact	4-4

4.5	Other Requirements	4-5
4.5.1	Preliminary Stakeholder Consultation	4-5
4.5.2	Road Widening	4-5
4.5.3	Bus-stops and Vehicle Parking	4-5
4.5.4	Pedestrian Footway	4-5
4.5.5	Filling to Sea-side of Road	4-5
4.5.6	Fishery	4-5
4.5.7	Shore Access	4-6
4.6	Construction Aspects	4-6
4.6.1	External Access Road	4-6
4.6.2	Contractor's Work yard	4-6
4.6.3	Access to Works along the shore	4-6
4.7	Project Alternatives	4-6
4.7.1	General	4-6
4.7.2	Option 1: Do-nothing option	4-6
4.7.3	Option 2: Gravel Beach (Flexible Revetment)	4-6
4.7.4	Option 3: Rock Armoured Revetment	4-7
4.8	Approved Scheme	4-7
4.9	Clearances	4-7
5	PROJECT DESCRIPTION	5-1
5.1	General	5-1
5.2	Proposed Works and Site Layout	5-1
5.2.1	Site Layout	5-1
5.2.2	Principal Work Items	5-1
5.2.3	Revetment Cross-section	5-1
5.3	Landscaping	5-2
5.4	Drainage	5-2
5.5	Monitoring Beacons	5-2
5.6	Construction Methodology	5-2
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	6-8
6.2.8	Noise	6-9
6.2.9	Health and Safety	6-9

6.3	Operation/Utilisation Phase	6-9
6.3.1	General	6-9
6.3.2	Geomorphology and Hydrodynamic Impacts	6-10
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 Sea Water
- Appendix B : Biodiversity Survey Report
- Appendix C : Drawings