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GOVERNMENT REQUIREMENTS

(NEED STATEMENT)
(TERM OF REFERENCE)

ENVIRONMENTAL PROTECTION AND ENHANCEMENT REQUIREMENTS

(FOR DESIGN AND BUILD PROJECTS ONLY)

Fill in Name of Project

ENVIRONMENTAL PROTECTION AND ENHANCEMENT REQUIREMENTS

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GENERAL

1.0 Scope of Works

1.1 The works shall cover planning, design, construction, monitoring, auditing, reporting, training and maintenance of environmental protection and enhancement works.

1.2 The Contractor is deemed to have visited the site to familiarize himself with site and local conditions that pertain to the necessary programme, design and execution of this work. The Contractor shall take all necessary action and precaution during construction and maintenance works so as not to affect the surrounding environment.

2.0 Special Requirements

2.1 Forty five (45) days prior to site possession, the Contractor shall submit for the P.D/S.O approval a detailed EMP based on the Arahan Teknik (Jalan) 16/03 – Pindaan 2008. For projects subjected to EIA requirements, the EMP shall be submitted 45 days after the approval of the EIA. No site clearing and earthworks shall be carried out prior to EMP approval by relevant parties/authorities.

2.2 The Contractor shall need to include the environmental activities in the program (CPM) to be submitted to the P.D/S.O. These activities shall contain all the necessary actions and interactions in detail.

2.3 The onus of obtaining timely approval from each relevant Local Approving Authority on environment shall be the Contractor's responsibility. Untimely receipt of approvals which may affect the Contractor's design/construction program shall not in any way be a basis/cause for consideration of time extension or variation to the contract.

2.4 The Contractor must take serious and urgent actions on all findings and recommendations toward protecting the environment as in the report or/and as instructed by the P.D/S.O.. Failure to do so, the P.D/S.O shall appoint other party and all cost will be borne by the contractor.

2.5 The Contractor shall provide turbidity measuring equipment to determine direct in-situ measurement on water quality for immediate rectification should pollution occur.

3.0 Legal Requirements

3.1 Compliance with the Legal Requirements

Prior to the execution of the project, the Contractor shall comply with the Environmental Quality Act 1974, Act 127 and other related environmental legislations including, but not limited to:

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- a) National Land Code (Act 56 of 1965)
 - b) Town and Country Planning Act 1976, (Act 172)
 - c) Street, Drainage and Building Act, 1974: Act 133 and Amendment, 1978
 - d) Protection of Wildlife Act, 1972 (Act 76)
 - e) Forestry Act 1984 (Act 313)
 - f) Land Conservation Act 1960 (Act 385)
 - g) Occupational Safety and Health Act 1994 (Act 514)
 - h) Solid Waste and Public Cleansing Management Act 2007 (Act 672)
 - i) Environmental Quality Act 1974 (Act 127 & Subsidiary Legislation)
 - j) Federal Territory (Planning) Act 1982 (Act 267)
 - k) Workers Minimum Amenities Act 1990 (Act 446)
 - l) Local Government Act 1976 (Act 171)

3.2 Environmental Impact Assessment (EIA)

Where EIA is required by the said Act, the Contractor shall prepare, submit and obtain approval from the Department of Environment (DOE). The Contractor shall incorporate in his Works all the abatement and mitigation measures for environmental protection and enhancement including monitoring and auditing.

3.3 Environmental Protection Works

The Contractor shall identify the significant environmental aspects and impacts of the projects and execute all mitigating measures proposed in the Conditions of Approval by the Approving Authority and in the EMP. **Reference shall be made to the Arahan Teknik (Jalan) 16/03 – Pindaan 2008 for a more comprehensive understanding of the scope of works.** The contractor shall also observe / carry out the following:

- i) Limit and control site clearing works to construction areas only. Existing trees of 80cm diameter at breast height (dbh) are to be retained as much as possible and only minimum tree cutting is allowed unless they impose danger to the public and traffic after completion of the project.
- ii) Transport and stockpile topsoil to designated areas approved by the P.D./S.O for reuse during turfing, hydroseeding and landscaping.
- iii) Turf or hydroseed slopes immediately upon reaching their formation levels. For cut slopes, hydroseeding shall be carried out together with supportive materials. Landscaping works shall commence early as directed by the P.D./S.O.
- iv) Take necessary precautions to prevent deposition of debris, rubbish, silt, waste materials, polluted water, chemicals, etc. during execution of the Works from entering existing streams/waterways.
- v) Construct berm/bench drains, interceptor drains and other related drainage works to slopes which have reached the required formation levels. Provide temporary cover, for example, polythene or plastic sheet to exposed slopes.
- vi) Provide and maintain sediment control measures namely silt fences, silt traps, sediment basins, gabion walls, check dams, silt curtains, etc. Upon completion, reinstate site including landscaping where sediment basins

were located and remove other measures which are not required as directed by the P.D./S.O.

- vii) Take necessary precautions to ensure that tyres of all vehicles leaving the site are free of mud.
- viii) Not to carry out open burning on site unless with written approval from the DOE.
- x) Supply and lay immediately at least to binder course layer on roads which have reached the required formation levels including the required drainage system.
- xi) Preserve mangrove areas on site unless deemed necessary for construction. However, the clearing of mangroves shall be limited to construction infrastructural area only and with approval from P.D./S.O.
- xii) Bakau piles are not allowed to be used.

4.0 Safety and Health Requirements

The Contractor shall provide and maintain suitable accommodations for workmen by carrying out the following:

- (i) Locate suitable workmen's accommodation to be agreed by the P.D./S.O.
- (ii) Provide sufficient toilet facilities to the satisfaction of the P.D./S.O.
- (iii) Provide proper disposal for waste and refuse.
- (iv) Provide adequate supply of water for washing, cooking and drinking.
- (v) Maintain site in a clean and sanitary condition and that complies with all requirements of Government, Health and Sanitary Authorities.
- (vi) Prohibit activities such as hunting/trapping of wildlife. Fines/penalties imposed by the relevant Government Departments due to such activities shall be borne by the Contractor.

5.0 Waste Management and Disposal System

5.1 All types of waste i.e Solid waste, Liquid waste, Domestic waste (non-hazardous) and Scheduled wastes are to be segregated, stored and disposed in accordance with the Ministry of Health requirements , the DOE requirements and other approving Authority requirements(e.g the Local Authority)

5.2 Wastes with sharp edges are to be stored in specially designed containers and specially manufactured for that purpose.

5.3 Scheduled waste shall be kept in labeled containers/ drums and stored in storage shed which shall both be maintained and removed in accordance with the DOE requirements. Schedule waste shall be disposed by a licensed contractor to approved prescribed premises for treatment.

5.4 The disposal of Liquid or Solid waste and scheduled wastes must be properly designed and programmed to abide with the Authorities' requirements.

6.0 Stormwater Management

Stormwater management design and construction works shall conform with the requirements of Jabatan Kerja Raya 'Drainage System', 'Erosion and Sedimentation Control Plan (ESCP)', Jabatan Pengairan dan Saliran 'Urban Stormwater Management Manual (MSMA) and Local Authorities requirement.

Stormwater drainage shall be designed for least maintenance cost, effective initial cost and serves its function. There shall be no flooding, ponding/silting up and erosion during construction and after completion of the works.

7.0 Environmental Management Plan (EMP)

The Contractor shall submit for prior approval by the government, an environmental consultant registered with DOE, for preparation of a site specific EMP. The EMP shall be submitted to the S.O. for endorsement 45 days prior to site possession in compliance with the Conditions of Contract and/or in compliance with the requirements of the conditions of approval of the EIA report by the Department of Environment.

The EMP shall make reference to the following but not limited to:

- DOE Format for the Preparation of EMPs
- JKR Environmental Management System (EMS)
- The approved EIA report
- EIA Approval Conditions from DOE (attached if any).

It should be clearly noted the EMP is a document for practical use on site by nominated personnel and thus should be concise, up to date and site specific.

The Contractor shall engage the following qualified personnel (degree holder in related fields) on site:

- (i) Environmental Officer (Full Time)
- (ii) Safety and Health Officer (Full Time)
- (iii) Horticulturist / Plant / Tree Expert (Part Time), if required
- (iv) Fauna Expert (Part Time), if required

7.1 Erosion and Sediment Control Plan (ESCP)

The Contractor shall prepare an ESCP. This document which is to be prepared and certified by a Professional Engineer shall be submitted to the P.D. / S.O and Environment Branch, JKR Malaysia 30 days prior to commencement of any earthwork activity at project site.

The P.D. / S.O shall then submit the ESCP document to the Drainage and Irrigation Department (D.I.D) for approval upon document review by the Environment Branch, of JKR Malaysia.

The following items apply to an ESCP document:

- a. The document shall be prepared in accordance with the Storm water Management Manual (MSMA) published by D.I.D.
- b. It must be amended whenever a change in the design, construction, operation or maintenance at the construction site has a significant effect on the discharge of pollutants to the waters at project site not previously addressed in the document
- c. It must be amended if discharges are causing water-quality "exceedances" or the Best Management Practice (BMP) are ineffective in minimizing pollutants in storm water discharging from the construction site.
- d. The document must be revised within 7 calendar days following an inspection when additions and/or modifications to BMPs are necessary to correct observed problems.

8.0 Environmental Monitoring, Auditing and Training

8.1 Monitoring

The Contractor shall monitor water and air quality, noise and vibration, if required. All samples taken must be tested by an accredited laboratory. The Contractor shall produce and submit monthly and quarterly environmental quality reports consisting in-situ and laboratory results, sampling photographs with weather charts and analyses of the monitoring data in terms of environmental performance. Reference to the contents of the reports can be made to the Standard Report Format attached in Appendix 2.

8.2 Auditing

The Contractor shall engage a registered Third Party Environmental Auditor to audit all activities on site as per JKR EMS: MS ISO 14001 requirements. The tasks of the Auditor among others are:

- (i) To carry out environmental compliance of JKR EMS: MS ISO 14001 audits quarterly.
- (ii) To interpret monitoring data in terms of environmental performance.
- (iii) To verify effectiveness of corrective and preventive action implemented.
- (iv) To recommend requirement and improvement of mitigating measures.
- (v) To produce and submit a comprehensive environmental auditing report.

8.3 Reports

The Contractor shall submit environmental quality and audit reports to JKR Environment Branch and Portfolio Branch, DOE HQ/State and P.D./S.O. Contents of the report must be in accordance with the Standard Report Format as attached in Appendix 2 of this document.

8.4 Training

The contractor shall provide training for 10 (ten) JKR personnel in the field of environment. This training shall include Environmental Conservation, Post EIA

and Environmental Monitoring, Environmental Management System in Project Construction, Safety and Health Courses, and Technical visits. The training shall be conducted and given by an established organization with reputable track records in environmental protection during project management and construction with opportunity for transfer of technology in enhancing such development. The Contractor's EO shall also provide training/awareness briefing for site personnel involved in works that have impact on the environment.

APPENDIX 2 : STANDARD REPORT FORMAT FOR EMP, EQR, EMAR AND CAR

TITLE OF DOCUMENT: ENVIRONMENTAL MANAGEMENT PLAN (EMP) STANDARD REPORT FORMAT FOR JKR PROJECTS

1.0 Definition of EMP

An EMP is basically a documentation of administrative environmental management and coordination procedures for on-site management in order to ensure that all development activities comply with the EIA approval conditions as stipulated by DOE. It must show the commitment of the project proponent in terms of accountability and availability of resources. An EMP should be improved and adapted throughout the life of the project to reflect changing conditions. It must also be subjected to periodic review to ensure its continued relevance and validity.

2.0 Objectives of EMP

The main objectives of the Environmental Management Plan (EMP) is to set out a comprehensive programme which will form the basis for implementing environmental mitigation measures, environmental monitoring and environmental auditing of the construction works by the Contractor as listed below:

- a) to set out various environmental protection / conservation measures that conform with the environmental conditions stipulated in the Specifications, EIA report and by other relevant authorities (e.g. the Department of Environment (DOE);
- b) to ensure that the Contractor comply with all applicable environmental standards and guidelines, legislative requirements and other relevant conditions related to the environment;
- c) to specify a detailed environmental monitoring and auditing programme to ensure that the Contractor and all his Sub-contractors comply with all stipulated requirements throughout the duration of the project; and
- d) to streamline the different functions of various sections and authorities related to the environmental matters during the construction.

3.0 GENERAL INFORMATION ABOUT THE PROJECT

The following details are needed to help commence the preparation of the EMP:-

1. Project Contractor
2. Project Title
3. Condition of contract
4. Project cost
5. Duration of Contract

4.0 INFORMATION ON EMP

1.0 The type of EMP that is being prepared can be divided into :-

1. Compliance to EQA 1974
2. Compliance to JKR MS ISO14001

5.0 COVER PAGE INFORMATION

1.0 The cover has to include the following information

1. Project & document title
2. JKR Logo
3. Contractor's Logo
4. Consultant's Registration
5. DoE Approval reference (if applicable)

6.0 EXECUTIVE SUMMARY

1.0 The Executive Summary must manage to summarize the key elements of the project

1. Site Features
2. Project Description
3. Identified Impacts
4. Proposed Mitigation
5. Conclusion

7.0 CHAPTER 1 : INTRODUCTION

1 Key information needed to be detailed in Chapter 1 are :-

1. Project title
2. Details of Project Proponent
3. Site Description
 - Topography
 - Drainage
 - Flora
 - Fauna
 - Landuse
 - Geology & soils
 - Socio Economy
4. Project Description
 - Concept
 - Components
 - Activities
 - Scheduling

8.0 CHAPTER 2 : NEED STATEMENT

1 This chapter has to outline the need for the EMP and has to detail the following :-

1. Listing of all Environmental Requirements including any approval obtained for the ESCP; MSMA' disposal site etc
2. EIA approval Conditions (if applicable)

9.0 CHAPTER 3 : ENVIRONMENTAL POLICY

1.0 Chapter 3 has to state the Policy in relation to Environment of the Project Proponent and elaborate on the Objectives of the EMP

1. Objectives of the EMP
2. Environmental Policy of the PP

10.0 CHAPTER 4 : ORGANISATION CHART AND BUDGET

1.0 Chapter 4 has to detail the aspects related to the Environmental Management Unit (EMU) and the allocations provided for Environmental Protection

1. Org Chart of EMU
2. Contact details of EMU
3. Job Description of EMU
4. Training Proposed
5. Budget for EMP Implementation

11.0 CHAPTER 5 : MONITORING PROGRAM

Detailing of the environmental monitoring proposal for the project

1. Baseline information
 - Monitoring locations and justification of locations
 - Validity of data
 - Verification of data
 - Frequency of monitoring
 - Sampling methodology and Accreditation of Laboratory
2. Proposed monitoring Programme
 - Monitoring locations and justification of locations
 - Frequency of monitoring
 - Accreditation of Laboratory to be used for sampling
 - Report to be submitted

12.0 CHAPTER 6 : AUDITING PROGRAMME

This chapter has to detail the auditing programme for the project

1. Audit elements
2. Frequency of audit
3. Reports to be submitted
4. Types of forms used
5. Registration Details of Auditor
6. Follow up action on audit

13.0 CHAPTER 7 : IDENTIFICATION OF ASPECT, IMPACT AND RECOMMENDED MITIGATION MEASURES

1. This chapter has to detail the identified significant aspects, impacts and their corresponding site specific mitigation measures :-

1. Site Clearing and Biomass Management
2. Wildlife Protection Plan
3. Social Acceptance Plan
4. Earthworks description
5. ESCP Description
 - Elements
 - Staging
 - Plans
 - Implementation Schedule
6. Stockpile Management
7. Slope Protection
8. Drainage
9. Logistics
10. Site Facilities
11. Solid Waste Management
12. Scheduled Wastes management
 - Type of waste generated
 - Estimated volume
 - Storage, Collection and disposal Plan
13. Safety
14. Traffic Control
15. Site Abandonment/Closing Plan

14.0 CHAPTER 8 : ENVIRONMENTAL CONTINGENCY PLAN

This chapter has to detail the contingencies related to the project

1. Issues identified
 - Flooding
 - Landslide
 - Fire
 - Medical Emergencies
 - Spillages
2. Action Plan and line of communication
3. Contact numbers of relevant Agencies

15.0 CHAPTER 9 : PERFORMANCE EVALUATION AND PROJECT REVIEW

This chapter has to detail the analyses used to determine performance of the environmental Protection Measures and the recommendations for improvement

1. Description of Analytical Methodology Used
2. Forms used
3. Recommendations for Improvement

16.0 CHAPTER 10 : CONCLUSION

This chapter has to conclude the findings of the EMP

1. Concluding Statements on site related issues and their corresponding mitigation measures

17.0 APPENDICES

Items to included in the appendix are :-

1. Data sources
2. Consultations held
3. Approvals obtained
4. References
5. Calculations
6. Plans

18.0 FIGURES

The following figures are mandatory to be included in the EMP

1. Location plan
2. Layout of site and facilities
3. Org chart of EMU
4. Location of water, air and noise monitoring stations (baseline)
5. Location of water, air and noise monitoring stations (proposed)
6. ESCP
 - Earth drain network
 - Diversion channels
 - Silt traps/sediment basins locations
 - Final discharge outlets
 - Silt fence
 - Gabions
 - Check dams
7. Overall Mitigation plan
 - Location of solid waste storage
 - Location of scheduled wastes storage
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- 2.4 Discussion on water quality results
- 2.5 Conclusion of findings on water quality
- 2.6 Photos

3.0 SILT TRAP/SEDIMENT BASIN MONITORING

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- 3.2 Results
- 3.3 Comparison with previous results
- 3.4 Discussion on results
- 3.5 Conclusion of findings on discharge quality
- 3.6 Photos

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PROJECT PHOTOGRAPHS

ENVIRONMENTAL PROTECTION AND ENHANCEMENT MONITORING CHECKLIST DURING CONSTRUCTION : Ref : ER/4.5.1/1/3

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