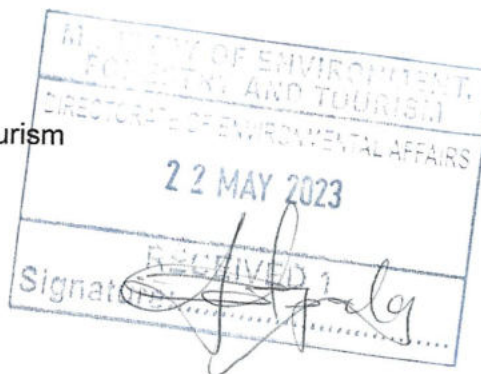


22 May 2023

The Environmental Commissioner
Ministry of Environment, Forestry and Tourism
Directorate Environmental Affairs
Private Bag 13346
Windhoek
Namibia



Attention: Mr T. Mufeti

RE: APP-1460 - APPLICATION FOR RENEWAL OF AN ENVIRONMENTAL CLEARANCE CERTIFICATE FOR THE FORMALIZATION OF DRC INFORMAL SETTLEMENT, TOWNSHIP ESTABLISHMENT ON ERF 184 AND MILE 4 PROPER AS WELL AS PORTION 90 OF THE REMAINDER OF PORTION B OF SWAKOPMUND TOWN AND TOWNLANDS, SWAKOPMUND, ERONGO REGION

Urban Green cc (the Environmental Assessment Practitioner (EAP)) has been appointed by Lithon Project Consultants on behalf of the Municipality of Swakopmund (the Proponent) to apply for the renewal of an Environmental Clearance Certificate for the Formalisation of the DRC informal settlement and Township Establishment on Erf 184 and Mile 4 Proper as well as Portion 90 of the Remainder of Portion B of Swakopmund Town and Townlands, Swakopmund, Erongo Region.

The screening notice on the eia portal (**APP-1460**) indicated the submission of an updated EMP to effect amendment.

Given the above, find attached hereto the updated Construction Environmental Management Plan dated CS/RP/SM-012/2022, for review.

Should your office require any further information and/or assistance, please contact us.

Yours faithfully,


Brand van Zyl



SWAKOPMUND MUNICIPALITY

CONTRACT NO: CS/RP/SM-012/2022

VOLUME 1

CONSTRUCTION OF MUNICIPAL SERVICES (SEWER, WATER, SEMI-PURIFIED WATER, ROADS AND ELECTRICAL INFRASTRUCTURE) FOR EXTENSION 32, KRAMERSDORF, SWAKOPMUND (PORTION 90 OF THE REMAINDER OF PORTION B OF SWAKOPMUND TOWN AND TOWNLANDS)

CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN (CEMP)

ISSUED BY

**THE CHIEF EXECUTIVE OFFICER
MUNICIPALITY SWAKOPMUND**

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PREPARED BY

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SWAKOPMUND MUNICIPALITY

CONTRACT NO: CS/RP/SM-012/2022

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NOTE :

Bidders are instructed to study this CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN (CEMP – Volume 1) in detail. The appointed Contractor will be expected to conform to the requirements as set out in the CEMP. Any cost involved in conforming to the CEMP during construction shall be deemed to be included in bid rates.

PROJECT INFORMATION

Project Title: **THE CONSTRUCTION OF SERVICES (WATER, SEWER AND ROADS) FOR EXTENSION 32, KRAMERSDORF, SWAKOPMUND**

Project Location: **SWAKOPMUND (ERONGO REGION)**

Competent Authority: **MINISTRY OF ENVIRONMENT, FORESTRY AND TOURISM
PRIVATE BAG 13346
WINDHOEK
NAMIBIA**

Proponent: **MUNICIPALITY SWAKOPMUND
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Abbreviations

BID	Background Information Document
°C	degrees Celsius
DEA	Directorate of Environmental Affairs
DSR	Draft Scoping Report
EAP	Environmental Assessment Practitioner
ECC	Environmental Clearance Certificate
ECO	Environmental Control Officer
i.e.	Example
EA	Environmental Assessment
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EMA	Environmental Management Act
EMP	Environmental Management Plan
EPL	Exploration Licence
etc.	Etcetera
FSR	Final Scoping Report
Ha	Hectare
I&AP	Interested and Affected Parties
MAWLR	Ministry of Agriculture, Water and Land Reform
MET	Ministry of Environment and Tourism
MEFT	Ministry of Environment, Forestry and Tourism
ML	Mining Licence
MME	Ministry of Mines and Energy
MSWK	Municipality Swakopmund
No	Number
ToR	Terms of Reference

Figures

1.1-1 Locality Map (Local)

1.1-2 Township Layout

Appendices

APPENDIX A - PRO-FORMA: ENVIRONMENTAL METHOD STATEMENT

APPENDIX B - PRO-FORMA: ENVIRONMENTAL MONITORING REPORT

APPENDIX C - LIST OF PENALTIES

GLOSSARY

The definitions given below are for explanatory purposes only.

Activity	The physical work that a Proponent proposes to construct, operate, modify, decommission, or abandon or an activity that a Proponent proposes to undertake.
Alien Species	It refers to a non-indigenous plant, animal or micro-organism; or an indigenous plant, animal or micro-organism, translocated or intended to be translocated to a place outside its natural range of nature, that does not normally interbreed with individuals of another kind, including any subspecies cultivar, variety, geographic race, strain, hybrid or geographically separate population.
Alternatives	A possible course of action, in place of another, that would meet the same purpose and need but which would avoid or minimize negative impacts or enhance project benefits. These can include alternative locations/sites, routes, layouts, processes, designs, schedules and/or inputs. The “no-go” alternative constitutes the ‘without project’ option and provides a benchmark against which to evaluate changes; development should result in net benefit to society and should avoid undesirable negative impacts.
Assessment	The process of identifying, predicting, and evaluating the significant effects of activities on the environment; and the risks and consequences of activities and their alternatives and options for mitigation with a view to minimise the effects of activities on the environment.
Audit	Regular inspection and verification of construction activities for implementation of the EMP.
Batch Plant	Machinery used on site for the mixing and production of concrete and associated equipment and materials.
Bulk Supply	The wholesale supply of i.e. water on a business-orientated basis, in large quantities, whether in treated or untreated form, for any utilisation purpose to a customer for own use or for subsequent supply by the customer to consumers.
Bund	An enclosure designed to hold at least 120% of the contents of a liquid storage vessel, tank, or drums to contain any spillage.

Competent Authority	A body or person empowered under the local authorities act or Environmental Management Act to enforce the rule of law.
Construction Activity:	A construction activity is any action taken by the Contractor, his subcontractors, suppliers, or personnel during the construction process.
Construction Camp	Refers to all storage stockpiles sites, site offices, container sites, other areas required to undertake construction and rest areas for construction staff or management.
Contaminated Water	Water contaminated by the Contractor's activities, e.g. concrete water, and runoff from plant/personnel wash areas.
Contractor	The principal person or company, including all subcontractors, undertaking the construction of the development as appointed by the Proponent.
Critically Endangered (IUCN)	A taxon is Critically Endangered when the best available evidence indicates that it meets any of the criteria A to E for Critically Endangered (see Section V of the IUCN Red List Categories and Criteria ¹), and it is therefore considered to be facing an extremely high risk of extinction in the wild.
Cumulative Impacts	In relation to an activity, means the impact of an activity that in itself may not be significant but may become significant when added to the existing and potential impacts eventuating from similar or diverse activities or undertakings in the area.
Emergency Situation	<p>An incident, which potentially can significantly impact on the environment, and which, could cause irreparable damage to sensitive environmental features. Typical situations entail amongst others the:</p> <ul style="list-style-type: none"> • Spill of petroleum products and lubricants into the aquatic system. • Potential damage, erosion and slumping of unstable river embankments or drainage channels. • Potential event of impeding the continuous flow of water to downstream water user's dependant on the flow; and <p>Dangerous situation where livestock and children can be injured by any activity emanating from the construction or rehabilitation of the project implementation.</p>

¹ Available at http://s3.amazonaws.com/iucnredlist-newcms/staging/public/attachments/3097/redlist_cats_crit_en.pdf

Endangered (IUCN)	A taxon is Endangered when the best available evidence indicates that it meets any of the criteria A to E for Endangered (see Section V of the IUCN Red List Categories and Criteria ²), and it is therefore considered to be facing a very high risk of extinction in the wild.
Environment	As defined in the Environmental Assessment Policy and Environmental Management Act - "land, water and air; all organic and inorganic matter and living organisms as well as biological diversity; the interacting natural systems that include components referred to in sub-paragraphs, the human environment insofar as it represents archaeological, aesthetic, cultural, historic, economic, paleontological or social values".
Environmental Impact Assessment (EIA)	The process of examining the environmental effects of a development as prescribed by the Environmental Impact Assessment Regulations (GN. No. 30 of 2012) for activities listed as List of Activities which may not be undertaken without an Environmental Clearance Certificate from the Environmental Commissioner (GN. No. 29 of 2012).
Environmental Management Plan (EMP)	A working document on environmental and socioeconomic mitigation measures, which must be implemented by several responsible parties during all the phases of the proposed project.
Environmental Site Manager (ESM)	It is a suitably qualified environmental officer appointed by the Contractor who oversees the on-site daily environmental responsibilities of the Contractor.
Evaluation	The process of ascertaining the relative importance/significance of information, in light of people's values, preference and judgements in order to make a decision.
Hazardous Substance	A substance that, in the reasonable opinion of the Engineer and/or ECO, can have a harmful effect on the environment.
Independent Environmental Officer (IEO)	A suitably qualified professional independent from the Proponent and Contractor who oversees the construction phase and ensure that all environmental specifications and EMP obligations are met during the phase. The IEO will be responsible for the monitoring, reviewing, and verifying of compliance with the EMP by the Contractor.
Interested and Affected Party (I&AP)	Any person, group of persons or organisation interested in, or affected by an activity; and any organ of state that may have jurisdiction over any aspect of the activity.

² Available at http://s3.amazonaws.com/iucnredlist-newcms/staging/public/attachments/3097/redlist_cats_crit_en.pdf

Listed Activity	An activity listed in terms of section 27(2) of the Environmental Management Act and the List of Activities which may not be undertaken without an Environmental Clearance Certificate from the Environmental Commissioner (GN. No. 29 of 2012).
Mitigate	The implementation of practical measures to reduce adverse impacts.
Monitoring	Regular inspection and verification of construction activities for degree of compliance to the EMP.
No-Go Areas	Areas identified as being environmentally sensitive in some manner and demarcated on plan, and on the Site with pegs or fencing and which are out of bounds to unauthorised persons. Authorisation must be obtained prior to entry.
Project Engineer	The person(s) who represents the Proponent and are responsible for the technical and contractual implementation of the works to be undertaken by the appointed contractors.
Proponent:	Any person who has submitted or intends to submit an application for an authorisation, as legislated by the Environmental Management Act no. 7 of 2007, to undertake an activity or activities identified as a listed activity or listed activities; or in any other notice published by the Minister or Ministry of Environment, Forestry & Tourism.
Public	Citizens who have diverse cultural, educational, political and socio-economic characteristics. The public is not a homogeneous and unified group of people with a set of agreed common interests and aims. There is no single public. There are a number of publics, some of whom may emerge at any time during the process depending on their particular concerns and the issues involved.
Resident Engineer (RE)	A person who represents the Project Engineer on Site and is responsible for the technical and contractual implementation of the works to be undertaken.
Scoping Process	Process of identifying: issues that will be relevant for consideration of the application; the potential environmental impacts of the proposed activity; and alternatives to the proposed activity that are feasible and reasonable.

Search and Rescue	The location and removal of specified plant species, without unnecessary damage, and their transfer to a specified location (on-site nursery).
Significant Effect/Impact	Means an impact that by its magnitude, duration, or probability of occurrence may have a notable effect on one or more aspects of the environment.
Solid Waste	All solid waste, including construction debris, chemical waste, excess cement/concrete, wrapping materials, timber, tins and cans, drums, wire, nails, food, and domestic waste.
Species of Special Concern	Those species listed in the Endangered, Threatened, Rare, Indeterminate, or Monitoring categories of the South African Red Data Books, and/or species listed in Globally Near Threatened, Nationally Threatened or Nationally Near Threatened categories (Barnes, 1998).
Specification	A technical description of the standards of materials and workmanship that the Contractor is to use in the works to be executed, the performance of the works when completed and the way payment is to be made.
Topsoil	The top 150 mm of soil (topsoil) and root material of cleared vegetation.
Works	The construction operations and all related and incidental works, such as search and rescue, fencing and rehabilitation, in connection with the execution and carrying to completion of the project.

1 BACKGROUND INFORMATION

This chapter of the EMP provides the necessary background information to the construction of municipal services (sewer, water, semi-purified water, roads and electrical infrastructure) for Extension 32, Kramersdorf, Swakopmund (hereafter referred to as the Project) and the receiving environment.

1.1 PROJECT OVERVIEW

Lithon Project Consultants was appointed by the Municipality of Swakopmund to do consultancy services for design and construction supervision of Municipal Services (sewer, water, semi-purified water, roads and electrical infrastructure) for Extension 32 Kramersdorf, Swakopmund.

The scope of this project includes the following:

- Design and supervision of the construction of services;
- Development of drawings to include sewer, water, roads and electrical reticulation layout designs, telecommunication infrastructure (underground sleeves/conduits) as well as the provision of semi-purified water services;
- Development of construction and project management documents;
- Development of Bid documents; and
- On-site construction supervision.

The services to be constructed are as follows –

- Sewer reticulation network;
- Water reticulation network;
- Semi-purified water reticulation network;
- Roads; and
- Electrical reticulation network.

Details to the above infrastructures' design specifications are presented within the Engineering Detail Design Report (April 2023), available from the Project Consultants.

Extension 32, Kramersdorf will be an extension to the existing township of Kramersdorf and for this the existing bulk infrastructure will be expanded to accommodate the additional extension. No new bulk infrastructure developments are thus envisaged for this Project, but only extensions of existing infrastructure.

1.1.1 Project Site Locality

The proposed Project site, Portion 90 of the Remainder of Portion B of Swakopmund Town and Townlands, is located to the south-eastern parts of the larger Swakopmund, within the township of Kramersdorf (Figure 1.1-1).



Figure 1.1-1 – Locality Map

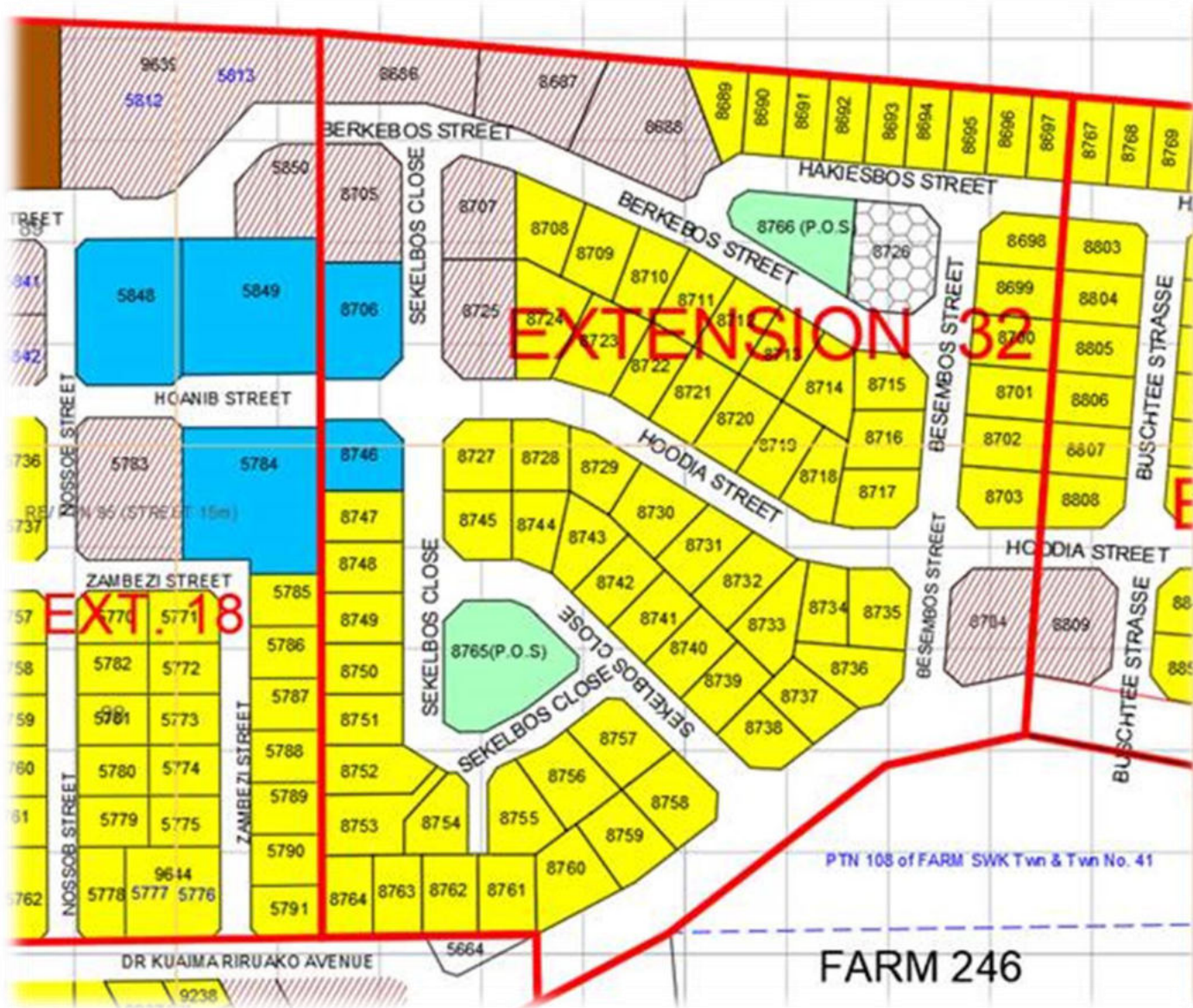


Figure 1.1-2 – Township Layout of Extension 31, Kramersdorf

1.1.2 Township Layout

Township Extension 32, Kramersdorf (see Figure 1.1-2) consists of following erven:

- 69 x single residential erven;
- 6 x general residential 2 erven;
- 1 x general residential 1 erf;
- 1 x institutional erf; and
- 2 x public open space erven.

1.2 CONSTRUCTION PHASE

Construction of the municipal services is expected to take ± 12 months, which includes the following activities:

- Setting-up of a temporary –
 - construction yard;
 - site office and parking area;
 - workshop and stores;
 - batching area;
 - ablution facilities;
 - solid waste disposal facility;
 - stockpile area; and
 - area for the handling of hazardous substances, wash bays, bulk storage and dispensing of fuel.
- Clearance of vegetation, stockpiling and removal from site;
- Transportation of construction and building material to site and storage;
- Removal of topsoil and storage;
- Digging of trenches and preparation works for roads, electricity, water, semi-purified water and sewer;
- Dumping of large quantities of unsuitable material at dump site;
- Access to and from the site by construction and delivery vehicles;
- Daily commuting of labour force to and from the site;
- Construction of roads, electricity, water, semi-purified water and sewer infrastructure;
- Generation of construction waste, temporary storage and removal from site;

- Usage of water for daily construction activities and generation of wastewater; and
- Rehabilitation of the disturbed areas.

1.3 THE RECEIVING ENVIRONMENT

1.3.1 The Planned Environment

In accordance with the Swakopmund Structure Plan, the Project site forms part of the future urban expansion for predominantly residential activities of mixed densities and some business/office/institutional activities and public open spaces.

The proposed township development and land uses are thereof in line with the Swakopmund Structure Plan (October 2022).

1.3.2 The Physical Environment

The Project site is situated to the eastern end of Kramersdorf Extension 18 (see Figures 1.1-1 and 1.1.-2), an existing build-up township characterised by buildings and infrastructure of different character and heights, defining the landscape (see Photo 1.3-1).



Photo 1.3-1 – Westerly view of the existing urban area of Kramersdorf Township (Ext. 18) in the background, and open area in front of Extension 32, the Project Site.

The northern boundary of the Project site is defined by the railway line and high voltage overhead transmission lines (see Photo 1.3-2), while the southern boundary is defined by the Swakop River. The eastern boundary is defined by open undetermined land, earmarked for urban expansion (i.e., Kramersdorf Ext. 31).



Photo 1.3-2 – Northerly view of the railway line and OHTL, defining the northern boundary of the Project Site.

Other infrastructure worth taking note of is the bulk water reservoir (see Photo 1.3-3) located south and outside of the Project Site.



Photo 1.3-3 – South-easterly view of the bulk water reservoir located to the south-eastern side, outside of Extension 32 Township.

The proposed Project, being a township development, will by its nature be a continuation of the existing urban area located to the west and have very little impact on the urban character of the adjacent township.

1.3.3 The Natural Environment

The Project site forms part of the central zone of the Damara Sequence, which is underlain by schist, quartzites, meta-greywackes, marbles and calc-silicates. The Project Site is characterised by undulating gravel plans, with rock outcrops protruding through the surface, having a natural drainage in a south-westerly direction. To the south of the Project Site, the Swakop River is found, draining from east to west towards the Atlantic Ocean.

The biodiversity is typical of the Namib Desert Biome dominated by grassland and dwarf shrub, with sparse plant cover. Although associated with the larger Namib Biome, the *Welwitschia mirabilis*, *Nara* and *Aloe* species do not appear at the Project Site. The Swakop River are home to a number of common riparian vegetation, which includes endemics and protected species.

The lack of rain has led to adaptations by plants and animals, which facilitate use of fog as an alternative water source. Due to the low rainfall, there is also limited amount of vegetation and as a consequence many animals use detritus, which is composed of wind-blown dried bits of vegetation as a food source. The central Namib Desert is fairly rich in arachnids, birds and lichens, while considered low in overall terrestrial biodiversity. Large herbivorous mammals are scarce, while bird diversity is viewed as medium. The Project Site is not a breeding area of the important Damara Tern.

The Project Site bears evidence of disturbance in the form of vehicle tracks, building material and bulk infrastructure, with very little remaining vegetation. The Project Site is not considered as sensitive, hence the allocation of the Project Site for purpose of urban expansion eastwards.

1.3.4 The Socio-economic Environment

The Erongo Region has an estimated population of 150 400, according to the preliminary results of the 2011 Namibia Population and Housing Census (NPC 2011). In 2001, this number was 107 663 with a density of 1.7 persons/ km² and a population growth rate of 1.3% (NPC 2002). The increasing population of the Erongo Region (i.e. Swakopmund and Walvis Bay) can be attributed to the inward migration from other regions due to the various prospective economic opportunities in the region. In 2011, the population of Swakopmund was estimated at 44 700, with a density of 228.0 persons/ km² (in an area of 196 km²). In 2001, the total population was 26 310 (NPC 2002).

67.0% of the Swakopmund population is within the ages of 15 to 59 (NPC 2002). The unemployment rate of the population is 30%. Salaries and wages being the main source of income for the employed, followed by business activities (non-farming), pension allowance, cash remittance and farming and other (NPC 2002). The main economic activities are the productive fishing, mining (in specific the uranium exploration and mining), retail, construction and the tourism industry.

Kramersdorf Township, of which Extension 31 forms part off is a well-established middle to high-income neighbourhood of the larger Swakopmund. Kramersdorf is fully serviced and has access to all types of municipal services of high standards. Residents of Kramersdorf have access to various shopping centres, institutional and medical facilities.

1.3.5 The Cultural, Archaeological and Heritage Environment

The coastal town of Swakopmund was founded in 1892 by Curt von Francois as the main harbour for the then German colony of South-West Africa. Swakopmund got its name from the German and means 'mouth of the Swakop River', describing the town's location north of where the Swakop River enters the Atlantic Ocean.

Swakopmund has a rich architectural history with historical buildings dating back to the period 1884 to 1915, which include the 'Woerman Haus' and tower (1906), the 'Altes Gefängnis' (1909) prison and various other buildings and churches. Swakopmund is a beach resort, a popular holiday destination for locals and tourist. Tourism attractions include the 'Martin Luther' locomotive built in 1896, the sand dunes at Dune 7, desert and marine cruises, adventure tourism, skydiving and recreational fishing.

The Project Site does not bear any evidence of any cultural and/or archaeological value.

2 THE CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN (CEMP)

2.1 PURPOSE OF THE CEMP

The purpose of the CEMP is to provide specifications for "good environmental practice" in a sensitive social environment for application during construction and to monitor compliance to the specifications.

As such, the CEMP provides specifications that the Proponent and his nominated Contractor/s must adhere to minimise adverse environmental impacts (i.e., social and natural environments) associated with the construction activities. The Proponent to which authorisation was granted, is ultimately responsible for overall environmental performance.

The guidelines for the execution of an CEMP include the following:

- Responsibilities for the environmental performance of the Project are delegated to the construction staff;
- Communications channels to report on environmental performance, problems and priorities;
- Monitoring schedules are established to identify potential negative environmental impacts associated with the construction of the Project;
- Mitigation measures are implemented to avoid or minimise the identified negative environmental impacts (soil pollution, noise; dust; water pollution, littering and visual impact) as well as to enhance the positive impact on the environment (employment; support of local businesses); and
- Monitoring programme is developed to track the plans that have been implemented to ensure the effectiveness of the plan.

2.2 SCOPE OF THE CEMP

In order to ensure a holistic approach to the management of environmental and social impacts during the construction works, this CEMP sets out the methods by which proper environmental controls are to be implemented by the Contractor/s and all other parties involved, and monitored by the Independent Environmental Officer (IEO) and Resident Engineer (RE).

This CEMP intends to guide and manage the construction activities and surrounding areas as they relate to the natural and social environments. It describes mitigation measures and is prescriptive in identifying specific people or organisations to undertake specific tasks. This document must further be open-ended, requiring regular review and updating via the correct channels for it to effectively guide environmental management of this Project.

The provisions of this CEMP are binding on the Proponent until the end of project life. Any third party appointed by the Proponent in terms of the design, construction and operation of the Project must comply with the conditions of this CEMP.

This CEMP has been designed to suite the construction activities' needs of the Project and incorporates the following:

- General civil construction mitigation measures;
- Specific project mitigation measures;
- Construction activities that could impact on the environment;
- Specifications with which the Contractor shall comply to protect the environment from the identified impacts; and
- Actions that shall be taken in the event of non-compliance.

The CEMP is a dynamic document subject to similar influences and changes as are created by variations to the provisions of the Project specification. Any substantial changes shall require the approval from the Independent Environmental Officer (IEO) and Resident Engineer (RE).

2.3 FORMAT OF THE EMP

The EMP consists of four parts:

- **Chapter 1** gives **Background Information** on the proposed Project and the receiving environment;
- **Chapter 2** contains a brief description of the EMP, i.e. purpose, scope, format and amendments;
- **Chapter 3** deals with **Compliance Monitoring** stipulating the general requirements, responsibilities of the different role players, financing of environmental control, dispute resolution, and requirements for monitoring; and
- **Chapter 4** details with the **Environmental Specifications** that set out the environmental objectives and targets with which the Contractor/s shall comply.

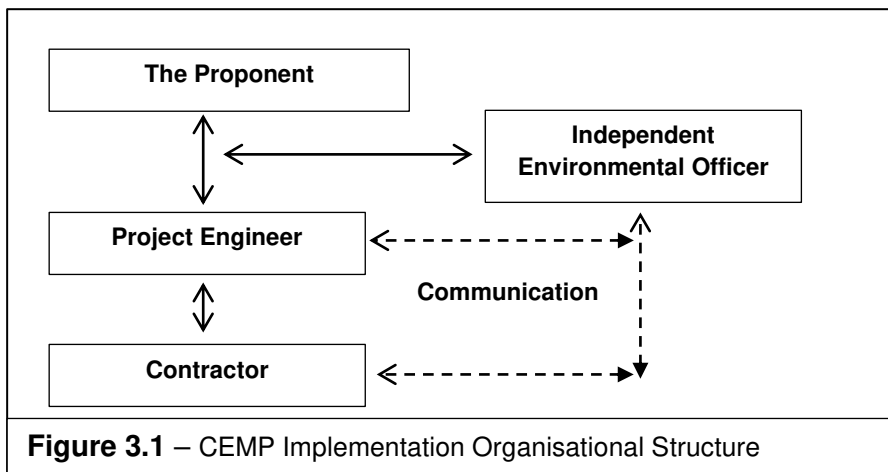
2.4 AMENDMENTS TO THE EMP

Any party involved with the Project can suggest changes to the CEMP via the IEO and RE. Approved changes will be recorded and drafted into this existing CEMP in the form of an appendix or amendments. This should be clearly stipulated in the CEMP to avoid confusion.

3 ADMINISTRATION AND REGULATION OF ENVIRONMENTAL OBLIGATIONS (COMPLIANCE MONITORING)

3.1 MANAGEMENT STRUCTURE

Details of the management structure are presented below. All official communication and reporting lines including instructions, directives and information shall be channelled according to the organisational structure presented below.



3.2 ROLES AND RESPONSIBILITIES

The implementation of this CEMP requires the involvement of several stakeholders, each fulfilling a different but vital role to ensure sound environmental management during the construction phase.

3.2.1 Proponent (Municipality of Swakopmund)

The Proponent is ultimately responsible for the implementation of the CEMP and the financial cost of all environmental control measures. The Proponent must ensure that any person acting on their behalf complies with the conditions/specifications contained in this CEMP. The Proponent is also responsible for the appointment of a Project Engineer, Contractor and Independent Environmental Officer (IEO) to the Project.

The Proponent shall address any site problems pertaining to the environment at the request of the Project Engineer and/or the IEO.

3.2.2 Project Engineer (Namibia Consulting Engineers & Project Managers (Pty) Ltd)

The Project Engineer is responsible for the engineering design of the various municipal engineering services and management of the on-site construction activities from the side of the Proponent.

The Project Engineer shall as part of his duties address any site problems pertaining to the environment at the request of the Proponent and/or the IEO. The Project Engineer shall have the

responsibility to ensure that the Proponent's responsibilities are executed in compliance with the CEMP and/or any other documentation proposed from the Proponent and/or IEO. Any on-site decisions with the appointed contractor/s having relevance to environmental matters are ultimately the responsibility of the Project Engineer. The Project Engineer shall assist the IEO where necessary and shall have the following responsibilities in terms of the implementation of this CEMP:

- The Engineer, along with the IEO and RE, must obtain, examine and approve Method Statements.
- Promptly issuing instructions requested by the IEO and Project Engineer to the Contractor/s.
- Deduct environmental penalties from certificate payments as agreed and instructed by the IEO.
- Assisting the IEO in making decisions and finding solutions to environmental problems that may arise during the construction phase.
- Oversee the responsibilities of the Project Engineer and Contractor/s, and assist in all required matters.
- Monitor and verify that the CEMP are adhered to at all times and take action if specifications are not followed.
- Order the removal of person(s) and/or equipment not complying with the CEMP specifications.
- Provide input into the IEO's on-going internal review of the CEMP.
- Communicate environmental issues to the IEO.

3.2.3 Independent Environmental Officer (Urban Green cc)

The Independent Environmental Officer (IEO) is acting on behalf of the Proponent and shall communicate directly with the Project Engineer and/or Proponent. The IEO shall be responsible for monitoring, reviewing and verifying the Contractor's/ Contractors' compliance with the CEMP during the construction phase. The IEO shall have the right to investigate the site at any time during the project phases and unexpected visits will be allowed.

The IEO duties shall include, *inter alia*, the following:

- The IEO shall make recommendations independent of the Project Engineer; take immediate action on Site when (i) prescriptive conditions are violated, or in danger of being violated, and to inform the Project Engineer, Resident Engineer/s and Contractor/s immediately of the occurrence and to take action, e.g. issuing of penalties; and (ii) where clearly defined and agreed 'no go' areas are violated, or in danger of being violated, and to inform the Project Engineer, Resident Engineer/s and Contractor/s of the occurrence and action taken.

- Advise the Contractor and/or the Project Engineer on environmental issues within the defined construction areas.
- Undertake regular site visits to ensure compliance with the CEMP and verify that environmental impacts are kept to a minimum throughout the construction phase (i.e. construction monitoring).
- Keep a photographic record of progress on site from an environmental perspective.
- Assist the Contractor and/or the Project Engineer in finding environmentally acceptable solutions to construction problems as and if any arise.
- Recommend additional environmental protection measures should this become necessary.
- Keep a register of complaints and dealing with any community issues or comments.
- Report any incidents to the Proponent and Engineer that may or have caused damage to the environment or which is in breach of the CEMP.
- Prepare an environmental audit report at the conclusion of the construction phase.
- The IEO, along with the Engineer and RE, must obtain, examine and approve Method Statements.
- Ordering the removal of, or issuing penalties for person/s and/or equipment not complying with the specifications of the CEMP.
- Involve specialists to advise on environmental management issues as they emerge during the construction phase.

3.2.4 Contractor/Sub Contractor

The Contractors shall have the following responsibilities:

- Implement and monitoring that all provisions of the CEMP are adhered to at all times and taking action if specifications are not followed. If the Contractor encounters difficulties with the specifications, he/she must discuss alternative approaches with the IEO and/or the Project Engineer prior to proceeding.
- Monitor and verify that the environmental impacts are kept to a minimum and mitigations proposed are applied throughout the construction phase.
- Make and keep construction personnel aware of environmental issues and to ensure they show adequate consideration to the environmental sensitivities.
- Report any incidents of non-compliance with the CEMP to the Project Engineer and/or the IEO.
- Keep a register of complaints on-site and record community comments and issues, and the actions taken in response to these complaints.
- Rehabilitate any sensitive environments damaged due to his/her negligence. This shall be done in accordance with the IEO and Project Engineer's specifications and instructions.

- The Contractor shall ensure that no damage whatsoever is caused as a result of his operations or otherwise by his workmen in the areas adjacent to the construction sites.
- The Contractor shall ensure that his workmen are properly instructed and carry out the requirements of this CEMP
- The Contractor will be held liable for all unauthorised damage caused by him or any of his workmen or Sub-Contractors.

Failure to comply with the CEMP from the side of the contractor may result in penalties (Appendix C) and reported non-compliance may result in the suspension of work or termination of the contract by the Project Engineer on instruction from the Proponent.

3.3 DISPUTES AND DISAGREEMENTS

Any disputes or disagreements between role players on Site (with regard to environmental management) will be referred to the Directorate of Environmental Affairs (Ministry of Environment, Forestry and Tourism). If no resolution on the matter is possible it must be presented to an outside party agreed by all parties involved.

3.4 CEMP MONITORING RESPONSIBILITIES

The day-to-day monitoring and verification that the CEMP is being adhered to shall be undertaken by the appointed Contractor's Environmental Site Officer.

The Environmental Site Officer will carry the responsibility of monitoring the implementation of the CEMP on-site on a daily basis. In this regard, the Environmental Site Officer will keep record and submit a monthly report to the IEO until after all rehabilitation work has been completed.

The IEO shall visit and inspect the site at least once a month to ensure that correct operational procedures are being implemented and that the Contractor/s is complying with the environmental specifications of the CEMP. Additional site inspections by the IEO may be required during the initial and final stages of the construction phase. The IEO shall address any queries to the Project Engineer. If the queries cannot be resolved at this level, they shall be referred to the Proponent, if necessary.

The IEO will carry the responsibility of monitoring the implementation of the CEMP on Site, assisted by the Project Engineer and appointed Contractor's Environmental Site Officer. In this regard, the IEO will submit a monthly monitoring report to the DEA until after all rehabilitation work has been completed. A pro-forma monitoring report is contained in Appendix B.

Regular meetings will be held between the Project Engineer, Environmental Site Officer and the IEO. The purposes of the meetings shall be:

- To establish the suitability of the Contractor's methods and machinery in an effort to lower the risk involved for the environment.
- To discuss possible non-conformance to CEMP guidelines or environmental legislation.

- To assess the general state of the environment on site and discuss any environmental problems which may have materialised.
- To accommodate the local community in the decision-making process regarding social and environmental issues on site.

The monthly report should include:

- A description of exceptional conditions on site whether they be meteorological, personnel related, machinery related, or otherwise stipulated;
- A description of any environmental accident or developments which could potentially develop into a non-conformance event by the Contractor; and
- Minutes from the meetings.

Any non-compliance with the agreed procedures of the CEMP is a transgression of the various statutes and laws that define the manner by which the environment is managed. Non-conformance identified during monitoring must be recorded. Non-conformance reports will describe, in detail, the cause, nature and effects of any environmental non-conformance by the Contractor and could stand as evidence should legal action be required. If possible, photographs should also be included as evidence to substantiate the report. This report will also suggest mitigation measures to correct the non-conformance (if necessary) and contemplate revisions to any of the strategies used in the construction phase, whether they pertain to monitoring or to construction methods used on site. The non-conformance shall be documented and reported as part of the Monthly Monitoring Report.

3.5 POST-CONSTRUCTION ENVIRONMENTAL AUDIT

A post-construction environmental audit must be carried out in order to fulfil conditions of this CEMP.

3.6 NON COMPLIANCE AND PENALTIES

The IEO shall issue the Contractor/s a notice of non-compliance whenever transgressions are observed. The contractor/s shall act immediately when such notice of non-compliance is received and correct whatever is the cause for the issuing of the notice. Complaints received regarding activities on the construction site pertaining to the environment shall be recorded in a dedicated register and the response noted with the date and action taken.

The Contractor is deemed not to have complied with the CEMP if, inter alia:

- There is evidence of contravention of the CEMP specifications within the boundaries of the construction site, site extensions and roads;
- There is contravention of the CEMP specifications which relate to activities outside the boundaries of the construction site;

- Environmental damage arises due to negligence;
- Construction activities take place outside the defined boundaries of the site; and/or
- The Contractor/s fails to comply with corrective or other instructions issued by the IEO and/or Engineer within a specific time period.
- The Contractor/s fails to respond adequately to complaints from the public.

It is recommended that the Project Engineer introduce penalties for the following less serious violations and any others determined during the course of work as detailed below:

- Littering on site.
- Lighting of illegal fires on site.
- Persistent or un-repaired fuel and oil leaks.
- Any persons, vehicles or equipment related to the Contractor's operations found within the designated "no-go" areas.
- Excess dust or excess noise emanating from site.
- Possession or use of intoxicating substances on site.
- Any vehicles being driven in excess of designated speed limits.
- Removal and/or damage to fauna, flora or cultural or heritage objects on site.
- Urination and defecation anywhere except at designated facilities.
- Where environmental damage is caused or a pollution incident, and/or failure to comply with any of the environmental specifications contained in the CEMP, the Contractor shall be liable.

The following violations, and any others determined during the course of work, should be penalised:

- Hazardous chemical/oil spill and/or dumping in non-approved sites.
- Damage to sensitive environments.
- Damage to cultural and historical sites.
- Unauthorised removal/damage to indigenous trees and other vegetation, particularly in identified sensitive areas.
- Uncontrolled/unmanaged erosion.
- Unauthorised blasting activities (if applicable).
- Pollution of water sources.
- Unnecessary removal or damage to trees.

- Excessive dust and noise pollution.

A system of penalties shall be implemented to ensure compliance with the CEMP (see Appendix C). Where the Contractor/s inflicts irreparable damage upon the environment or fails to comply with any of the environmental specifications of the CEMP (within 10 days) this would constitute a breach of contract for which the Contractor/s may be liable to pay a penalty. The Contractor/s is deemed not to have complied with the CEMP if:

The system of penalties shall be implemented in the following way:

- Penalties shall be issued per incident and individual at the discretion of the IEO;
- Penalties shall be issued in addition to any remedial costs incurred as a result of non-compliance with the environmental specifications;
- The IEO shall not collect the penalties from individuals, but shall inform the Project Engineer and Contractor of the contravention, the individual's identity and the amount of the penalties; and
- Penalties, including but not limited to those activities presented in Appendix C, shall be imposed by the Project Engineer on the Contractor, his staff and/or the subcontractors' staff for contravention of the environmental specifications. Where there are ranges, the amount shall depend on the severity and extent of the damage done to the environment.

Failure by any employee of the Contractor or their sub-contractors to show adequate consideration to the environmental aspects of the contract shall be considered sufficient cause for the Project Engineer to have that employee removed from the site. The IEO may, through the Project Engineer, also order the removal of equipment that is causing continual environmental damage.

3.7 ENVIRONMENTAL COMPLETION STATEMENT

An Environmental Completion Statement will be prepared by the IEO for submission to the Department of Environmental Affairs indicating completion of the project and compliance with the CEMP and conditions. This statement will be prepared after the final audit after the rehabilitation phase.

3.8 EMERGENCY PREPAREDNESS

The Contractor shall compile and maintain environmental emergency procedures to ensure that there will be an appropriate response to unexpected or accidental actions or incidents that will cause environmental impacts, throughout the construction period. Such activities may include, inter alia:

- Accidental discharges to water and land.
- Accidental exposure of employees to hazardous substances.
- Accidental fires.

- Accidental spillage of hazardous substances.
- Accidental toxic emissions into the air.
- Specific environmental and ecosystem effects from accidental releases or incidents.

These plans shall include:

- Emergency organisation (manpower) and responsibilities, accountability and liability.
- A list of key personnel and contact details.
- Details of emergency services available (e.g. the fire department, spill clean-up services, etc.).
- Actions to be taken in the event of different types of emergencies.
- Incident recording, progress reporting and remediation measures required to be implemented.
- Information on hazardous materials, including the potential impact associated with each, and measures to be taken in the event of accidental release.

3.9 ENVIRONMENTAL AWARENESS TRAINING

The Contractor/s shall ensure that its employees and any third party who carries out all or part of the Contractor's obligations are adequately trained with regard to the implementation of the CEMP, as well as regarding environmental legal requirements and obligations. Training shall be conducted by the Contractor's Environmental Site Manager.

The purpose of this environmental training is to provide a general explanation of sustainable environmental practises, but also to explain the content of the CEMP, the relevance thereof and how it will be implemented through monitoring. The environmental specifications as per Part 3 of this CEMP should clearly be explained to all the Contractors and their site staff, as well as non-compliance to it and related penalties.

Environment and health awareness training programmes should be targeted at three distinct levels of employment, i.e. the executive, middle management and labour. The Contractor/s shall ensure that adequate environmental training takes place. All employees must be given an induction presentation on environmental awareness and the content of the CEMP. The presentation needs to be conducted in the language of the employees to ensure it is understood.

The environmental training shall, as a minimum, include the following:

- The mitigation measures required to be implemented when carrying out their work activities.
- Environmental legal requirements and obligations.
- Details regarding floral/faunal species of special concern and protected species, and the

procedures to be followed should these be encountered during the construction activities.

- The importance of not littering.
- The importance of using supplied toilet facilities.
- The need to use water sparingly.
- Details of and encouragement to minimise the production of waste and re-use, recover and recycle waste where possible.
- Details regarding archaeological and/or historical sites which may be unearthed during construction and the procedures to be followed should these be encountered.

3.10 INFORMATION BOARD(S)

The Contractor/s shall be responsible for erecting information boards and should be agreed by the Project Engineer and IEO.

Information boards should be placed at conspicuous locations at the different sites and along the material transportation routes. The contents of the information board shall be provided by the Project Engineer and will essentially be to advise the public of the construction operation and the prohibition on entering certain areas. The information board shall apart from the details of the Contractor also provide the name and contact number of the Project Engineer and the IEO to ensure that the public has access to both the Project Engineer and IEO to ask for information and/or to lodge any complaints.

3.11 METHOD STATEMENTS

Method statements from the Contractor/s will be required for specific sensitive actions on request of the authorities or IEO. A method statement forms the baseline information on which sensitive area work takes place and is thus considered a “live document” in that modifications can be negotiated between the Contractor/s and IEO if or as required. The Contractor (and, where relevant, any subcontractors) must also sign the Method Statement, thereby indicating that the works will be carried out according to the approved methodology. Changes in the methodology must be reflected by amendments to the original approved Method Statement. Amendments must be signed by both the IEO and Project Engineer, denoting that the change is environmentally acceptable. The Contractor/s must also sign the amended Method Statement.

All method statements will form part of the CEMP documentation and are subject to all terms and conditions contained within the CEMP main document. The Method Statement (see Appendix A) shall cover applicable details with regard to:

- Construction procedures;
- Materials and equipment to be used;
- How and where materials will be stored;

- The containment of accidental leaks or spills;
- Timing and location of activities; and
- Any other information deemed necessary by the IEO.

A method statement describes the scope of the intended work in a step-by-step description in order for the IEO or Project Engineer to understand the Contractor's intentions. This will enable them to assist in devising any mitigation measures, which would minimise environmental impact during these tasks. The method statement should also clearly stipulate mitigation methods of the intended works, against which the contractor's performance will be measured. For each instance wherein it is requested that the Contractor/s submit a method statement to the satisfaction of the IEO and Project Engineer, the format should clearly indicate the following:-

- What - a concise, description of the task/work to be undertaken;
- How - a detailed description of the process of work, methods, materials and mitigation strategies;
- Where - a description/sketch map of the locality of work (if applicable); and
- When - the sequencing of actions with due commencement dates and completion date estimates.

The Contractor must submit the method statement two weeks before any particular construction activity is due to start, especially with respect to impacts on sensitive ecosystems. Work may not commence until the method statement has been accepted by the IEO and Project Engineer, and clearly communicated to the workforce. The Contractor/s shall, except in the case of emergency activities, allow 14 days for consideration and approval of the Method Statement. The Project Engineer or IEO may require changes to a Method Statement if the proposal does not comply with the specifications or if, in the reasonable opinion of the Project Engineer or IEO, the proposal may result in damage to the environment in excess of that permitted by the specifications. Approved Method Statements shall be communicated to all relevant personnel.

All Method Statements listed below, shall be provided by the Contractor/s before the activity commences:

- Bunding
 - Method of bunding for static plant and bulk fuel storage.
 - Camp establishment and fencing
- Location and layout of the Contractor's Camp.
 - Method of installing fences required for working areas and Contractor's Camp.
- Concrete batching
 - Location, layout and preparation of concrete batching facilities, including the methods employed for mixing of concrete including the management of runoff water

from such areas.

- Bulk earthworks
 - Location, layout, silt/sediment management and the management of runoff from bulk earthworks areas.
- Demolition
 - Proposed method of demolition, including handling and disposal of materials.
- Dust
 - Dust control protocol.
- Fire and hazardous substances
 - Handling and storage of hazardous wastes.
 - Emergency spillage procedures and compounds to be used
 - Emergency procedures for accidental fire.
 - Methods for the disposal of hazardous materials.
 - Fuels and fuel spills.
 - Methods of refuelling vehicles.
 - Details of methods for fuel spills and clean-up operations.
- Protection of archaeological resources
 - Methods for dealing with archaeological resources in the event that any are found.
- Protection of environmentally sensitive resources (fauna and flora)
 - Methods for dealing with conservation areas or areas identified as environmentally sensitive requiring protection.
 - Locality and preparation of onsite nursery to house vegetation relocated from construction areas or propagated locally for replanting purposes.
 - Details of methods dealing with the identification, transportation and transplanting of flora species of conservation value.
 - Details of methods dealing with the identification, capture and relocation of fauna species of conservation value.
- Rehabilitation
 - Rehabilitation of disturbed areas after construction is complete.
 - Settlement ponds and sumps.
 - Layout and preparation of settlement ponds and sumps.
- Solid waste management

- Solid waste control and removal of waste from Site.
- Sources of materials
- Details of materials imported to the Site (where applicable).
- Topsoil handling and stockpiling
 - Details on stripping, handling and stockpiling of topsoil.
- Wash areas
 - Location, layout, preparation and operation of all wash areas.
- Storm water management
 - Details of how storm water is to be handled on Site.

See Appendix A for more information on the Method Statement and Pro-forma Method Statement.

3.12 RECORD KEEPING

All records related to the implementation of this management plan (e.g. site instruction book, daily diary, induction records, method statements) must be kept together in an office where it is safe and can be retrieved easily. All relevant records should be kept for a minimum of two years after construction and should at any time be available for scrutiny by any relevant authority or stakeholder.

It is recommended that photographs (fixed point photographs for better comparisons before/during/after) are taken of the site prior to, during and immediately after construction as a visual reference. These photographs should be stored with related documents and other records related to this EMP.

A list of other reports to be kept on site is -

- Final design documents and diagrams issued to and by the Contractor/s.
- All communications detailing changes of design/scope that may have environmental implications.
- Occupational Health and Safety reports.
- Complaints register.
- Incident and accident reports.
- Emergency preparedness and response plans.
- Crisis communication manual.
- Monthly site meeting minutes during construction.
- All relevant permits.

- All method statements from the Contractor.

4. ENVIRONMENTAL SPECIFICATIONS

4.1 SCOPE

These specifications cover the requirements for controlling the impact of construction activities on the natural and social environment.

4.2 CONSTRUCTION

4.2.1 Site Division

The IEO and Project Engineer shall be advised of the area that the Contractor/s intends using for his site establishment. The Contractor's Camp shall occupy as small an area as possible, and no site establishment shall be allowed within 200m of any watercourse unless otherwise approved by the IEO.

The Contractor shall restrict all his activities, materials, equipment and personnel to within the specified area. A Method Statement detailing the location, layout and method of establishment of the Contractor's Camp (including all buildings, offices, lay down yards, plant wash areas, fuel storage areas, batching areas and other infrastructure required for the running of the project) shall be provided.

Contractor/s Camp

The Contractor shall submit a Method Statement, indicating the layout and preparation of the Contractor's Camp (this shall include the positioning of any fuels/hazardous materials stores). The extent and location of the Contractor's Camp shall be indicated on the site plans to be approved by the Engineer and IEO.

Should it be planned that construction occur at all three sites simultaneously, it is recommended that the main construction camp be established at the area having the least sensitive character (i.e. already disturbed). Construction teams can from here move out to their areas of work. These work areas should be maintained and managed as to ensure that no negative environmental impacts occur as a result of their works.

The following should apply in this regard:

- The Project Engineer and Contractor shall be responsible for making the necessary arrangements with the Municipality of Swakopmund, in consultation with the IEO for establishing the contractor's camp.
- The construction camp shall be located at an easily accessible point and within an area of low environmental sensitivity.

Vehicle Parking Area

All vehicles will be allocated a dedicated parking area in the contractor/s camp. The position of which will be agreed by the Project Engineer and IEO. No storage of vehicles will be allowed

outside of the designated areas.

4.2.2 Aesthetics

The Contractor shall take reasonable measures to ensure that construction activities do not have an unreasonable impact on the aesthetics of the area.

4.2.3 Cement and Concrete Batching

Location

- It is recommended that bulk cement storage be kept at the main construction camp and not at each construction site.
- The concrete batching activity shall be located in dedicated areas of low environmental sensitivity to be identified and approved by the Project Engineer and IEO.
- The permitted location of a batching plant (including the location of cement stores and sand and aggregate stockpiles) shall be indicated on the Site layout plan and approved by the Project Engineer and IEO. A Method Statement indicating the layout and preparation of this facility is required in this regard.

Maintenance

- Cement should be covered entirely by impervious sheeting or placed in a contained and closed off area. It is recommended that bulk cement storage be kept at the main construction camp.
- All wastewater resulting from batching of concrete shall be disposed of via the wastewater management system to be implemented by the Contractor.
- The concrete batching works shall be kept neat and clean at all times. No batching activities shall occur on unprotected substratum of any kind.
- All runoff from batching areas shall be strictly controlled, and cement-contaminated water shall be collected, stored and disposed of at a site approved by the Project Engineer and IEO. Dagma boards, mixing trays and impermeable sumps shall be used at all mixing and supply points.
- Contaminated water storage facilities shall not be allowed to overflow and appropriate protection from rain and flooding shall be implemented.
- Contaminated water treatment on site shall require a Method Statement.
- Unused cement bags are to be stored so as not to be affected by rain or runoff events.
- Used cement bags shall be stored in weatherproof containers to prevent windblown cement dust and water contamination. Used bags shall be disposed of on a regular basis via the solid waste management system, and shall not be used for any other purpose.
- Cleaning of equipment and flushing of mixers shall not result in pollution of the surrounding

environment: Care shall be taken to collect contaminated wash water from cleaning activities and dispose of it in a manner approved by the Project Engineer and IEO.

- Suitable screening and containment shall be in place to prevent wind-blown contamination associated with bulk cement silos, loading and batching.
- With respect to exposed aggregate finishes, the Contractor/s shall collect all contaminated water and fine material, and store it in sumps for disposal at an approved waste-disposal site.
- All visible remains of excess concrete shall be removed on completion of the plaster or concrete pour work and disposed of. All excess aggregate shall also be removed.

4.2.4 Earthworks

All earthworks shall be undertaken in such a manner so as to minimise the extent of any impacts caused by such activities. The Contractor/s shall take all reasonable measures to limit dust generation as a result of earthworks. Earthworks are to be phased so that no areas are left exposed for longer than is necessary. This is especially important during the rainy season where runoff causes siltation downstream & overall erosion and loss of topsoil, etc.

Trenching

- Trenching for services shall be undertaken in accordance with the engineering specifications with the following environmental amplifications, where applicable:
 - Soil shall be excavated and used for refilling trenches i.e. soil from the first trench shall be excavated and stockpiled, thereafter soil from the second excavated trench length shall be used to backfill the trench behind it once the services have been laid. The last trench shall be filled using the soil stockpiled from the first trench.
 - Trench lengths shall be kept as short as practically possible before backfilling and compacting.
 - Trenches shall be re-filled to the same level as (or slightly higher to allow for settlement) the surrounding land surface to minimise erosion.

Drilling and Jackhammering

The Contractor/s shall ensure that no pollution results from drilling operations, either as a result of oil and fuel drips, or from drilling fluid. The Contractor/s shall take all reasonable measures to limit dust generation and noise as a result of drilling operations.

Any areas or structures damaged by the drilling and associated activities shall be rehabilitated by the Contractor/s to the satisfaction of the IEO and Project Engineer.

The Contractor shall submit a Method Statement detailing his proposals to prevent pollution during drilling operations.

4.2.5 Fencing

It is important that works are conducted within a limited area to facilitate control and to minimise impacts on the surrounding environment. The purpose of the fenced areas is to control construction and personnel activity within the designated areas, and limit unauthorised access.

Where deemed necessary by the IEO or Project Engineer, sensitive areas shall be fenced off by the Contractor. Fencing shall be enclosed with hessian or natural colour netting of at least 2m high, as to blend in with the surroundings.

Fences will be constructed around heritage resources (should these be present) to prevent access into such areas during construction.

No unauthorised pedestrian or vehicular access shall be allowed into fenced, off-limit areas.

If fencing is removed temporarily for the execution of work, the Contractor/s shall reinstate it as soon as practicable. Until re-instatement, the contractor shall demarcate the working area by surrounding it with danger-tape marking.

Breaches in the fencing must be repaired immediately.

The Contractor to the satisfaction of the Project Engineer and IEO shall erect and maintain all fencing. Such fences shall be erected before the start of any construction works.

4.2.6 Access Routes

The movement of plant and workmen shall be restricted to the construction areas and essential access routes. The choice of access routes, which shall need the approval of the IEO, Project Engineer and the Municipality of Swakopmund, shall where possible, be existing routes. The Contractor/s shall control the movement of all vehicles and plant machinery so that they remain on designated/demarcated routes.

Only if absolutely necessary will new routes (temporary or permanent) be allowed, but should be planned in consultation with the IEO, Project Engineer and the Municipality of Swakopmund, constructed and maintained in such manner not to cause any harm or damage to the natural environment or be of any nuisance to the affected community. Temporary roads should be rehabilitated soon after their purpose has expired and should be done in a manner as approved by the IEO.

Special care should be taken to prevent spillages on the roads. Vehicles should be equipped with drip trays to prevent oil and fuel spillages. In the event of spillages, it should be reported to the Environmental Site Manager and IEO immediately and cleaned immediately as per the applicable Method Statement.

The travelling public (i.e. vehicles and pedestrians) shall have the right of way on public roads and streets and the contractor/s shall make use of approved methods to control the movement of his equipment and vehicles so as not to constitute a hazard on the road.

Failure to maintain road signs, warning signs or flicker lights, etc., in a good condition shall constitute ample reason for the Project Engineer to suspend the work until the road signs, etc., have been remedied to his satisfaction.

The speed limit for light vehicles is 40 km/h and for heavy vehicles 20 km/h. No vehicles are to leave or reverse off designated access roads unless at areas previously agreed to with the Project Engineer or IEO.

Notices should be placed on visible locations in the vicinity of the construction site to warn public of construction activities and indicating that heavy vehicles may be using the road.

During construction of roads the Contractor/s shall protect all areas susceptible to erosion by installing all necessary temporary and permanent drainage works as soon as possible.

Where applicable, the contractor may not commence construction activities before adequate provision has been made to accommodate traffic in accordance with the requirements of the Contract Documents, the Road Traffic Signs Policy of the Roads Authority (May 1997) and the South African Road Traffic Signs Manual, Volume 2, Chapter 13, Roadworks Signage.

4.2.7 Clearing and Grubbing for Construction Purpose

Clearing should first be discussed with the IEO and Project Engineer before commencement. Within the sites the Contractor/s shall take steps to protect all property, landscaping, vegetation and soil not directly affected by the construction activities and shall ensure that no avoidable damage or disturbance is caused, and that no erosion is allowed to occur. The IEO shall identify certain areas within the vicinity that are to be protected.

Plant Location and Rescue

The location and rescue of endemic plants, and their transfer to a specified location shall be conducted by a suitably qualified ecologist prior to the onset of any site clearing operations.

Vegetation Clearance

Before any area is cleared of vegetation a Method Statement shall be provided.

All cleared areas shall be stabilised as soon as possible. Areas that are, in the opinion of the Project Engineer, less stable, shall be stabilised immediately following vegetation clearance. It is recommended that the Method Statement contains a phased vegetation clearance plan and strategy, accompanied with a map.

All alien vegetation species situated within the footprint of the proposed project should be removed. Vegetation not to be removed (i.e. indigenous and protected species) shall be identified and marked by the Environmental Site Manager.

Vegetation should preferably be cleared manually making use of labourers. Care shall be taken to minimise the disturbance to topsoil during this process. The use of herbicides is prohibited unless approved by the IEO.

The Contractor/s shall ensure that the clearance of vegetation is restricted to that required to

facilitate the execution of the construction works. The disposal of vegetation by burying or burning is prohibited. Stockpiling of cut vegetation shall only be permitted in areas indicated by the Project Engineer and/or the IEO.

The Contractor shall stabilise soil in unstable areas in order to control wind-blown dust and erosion.

Conservation of Topsoil

Where necessary topsoil (an approximately 300 mm layer) shall be removed from areas to be disturbed during construction and stockpiled for rehabilitation purposes. Topsoil stockpiles shall be convex and no more than 2m high. Stockpiles shall be located in areas agreed to by the Project Engineer and IEO.

The Contractor shall at all times carefully consider what machinery is appropriate for the task while minimising the extent of environmental damage.

Topsoil is to be handled twice only – once during clearing and stockpiling & once during rehabilitation.

Topsoil stockpiles shall not be subject to compaction greater than 1500 kg/m² and shall not be pushed by a bulldozer for more than 50m. Stockpiles shall be monitored regularly to identify any alien plants, which shall be removed when they germinate to prevent contamination of the seed bank.

Appropriate measures, as agreed with the Project Engineer, shall be taken to protect topsoil stockpiles from erosion by wind or water by providing suitable storm water and cut off drains, containment using hessian or similar material and/or by establishing suitable temporary vegetation. Stockpiles shall not be covered with materials such as plastic that may cause it to compost or would kill the seed bank.

Stockpiles shall not be left compacted for more than eight months before being used for rehabilitation, resulting in poor rehabilitation success.

No vehicles shall be allowed access onto the stockpiles after they have been placed.

The Contractor shall be held responsible for the replacement, at his/her own cost, for any unnecessary loss of topsoil due to his failure to work according to the requirements of this CEMP.

4.2.8 Stockpiling

The Project Engineer and/or IEO will identify suitable sites for stockpiling.

Stockpiles shall be convex in shape, shall be no higher than 2m and shall be located so as to cause minimal disturbance. Stockpiles shall be so placed to occupy minimum width compatible with the natural angle of repose of material, and measures shall be taken to prevent the material from being spread over too wide a surface. Where required, appropriate precautions shall be taken to prevent the erosion and limit the compaction of the stockpiles. The Contractor/s shall ensure that all stockpiles do not cause the damming of water or run off, or is itself washed away.

Top material stockpiles shall not be covered with any material (e.g. plastic) that may kill seeds or cause it to compost. If the stockpiles start to erode significantly or cause dust problems, they shall be covered with hessian. Where practical, top material shall not be left for longer than eight months before being used for rehabilitation. If stored for longer than eight months, the top material shall be analysed and, if necessary, upgraded before placement.

4.2.9 No-Go Areas

All areas outside the demarcated working areas and construction camps as well as areas on the site identified as sensitive by the IEO, are 'no go' areas.

No unauthorised entry, stockpiling, dumping or storage of equipment or material shall be allowed outside the demarcated work areas and contractor's camp.

4.2.10 Protection of Natural Features

The Contractor shall not deface, paint, damage or mark any natural features situated in or around the sites for survey or other purposes unless agreed beforehand with the IEO /Ecologist. Any features affected by the Contractor in contravention of this clause shall be restored/rehabilitated to the satisfaction of the IEO.

4.2.11 Protection of Indigenous Fauna and Flora

Flora shall not be removed, damaged or disturbed nor shall any vegetation be planted without authorisation. Disturbance and protection of fauna and flora within the boundaries of the Site must be done in accordance with the Method Statement.

Disturbance and protection of fauna and flora within the boundaries of the Site must be approved by the IEO/Ecologist.

No herbicides, pesticides and other poisonous substances are allowed to be used and/or stored on-site.

The Contractor/s shall ensure that no hunting, trapping, shooting, poisoning or otherwise disturbance of any fauna takes place. The feeding of any wild animals is prohibited. Collecting of wood and/or killing trees in the area for the purpose of fire wood is prohibited. No removing of birds' nests or eggs allowed. No collection of fruit or seeds allowed. The protected species of trees situated around the sites and within and along the river bank (within 100m from river) shall also be deemed as off limits for all staff.

4.2.12 Erosion and Sedimentation Control

During construction works the Contractor/s shall protect all areas susceptible to erosion and siltation by installing the necessary drainage or retaining works and by taking other measures necessary to prevent the surface water from being concentrated in streams and from scouring the stream banks and depositing silt outside the demarcated work areas.

Any runnels or erosion channels developed during construction or during the defect's liability period shall be backfilled and compacted, and the areas restored. Stabilisation of cleared areas to prevent and control erosion shall be actively managed. Traffic and movement over stabilised areas shall be restricted and controlled, and damage to stabilised areas shall be repaired and maintained to the satisfaction of the Project Engineer.

Anti-erosion compounds shall consist of an organic or inorganic material to bind soil particles together and shall be a proven product able to suppress dust and erosion. The method of stabilisation shall be determined in consultation with the Project Engineer. Consideration shall be made to make use of mechanical covers or packing structures, e.g. gabions and mattresses, geofabric, hessian cover, armourflex, log/pole fencing and retaining walls.

4.2.13 Landscaping and Rehabilitation

On completion of the construction phase, the Contractor/s shall ensure that all structures, equipment, materials, waste, rubble, notice boards and temporary fences used during the construction operation are removed with minimum damage to the immediate and surrounding area. The Contractor shall clean and clear the site to the satisfaction of the IEO.

Any areas that the IEO believes may have been impacted upon or disturbed shall be rehabilitated to his/her satisfaction, which includes all areas where top material has been stripped. The area/s to be rehabilitated shall first be landscaped to match the topography of the surrounding area as it was prior to construction. The composition of vegetation to be used for any rehabilitation shall be as per the specifications from the IEO/Ecologist.

All rehabilitated areas shall be considered "no go" areas and the Contractor/s shall ensure that none of his staff or equipment enters these areas. The Contractor/s shall undertake to remove all alien vegetation re-establishing on the area and shall implement the necessary temporary or permanent measures to combat soil erosion.

For all rehabilitation work only plants approved by the IEO/Ecologist may be used. No declared invasive alien species may be used.

4.2.14 Protection of Archaeological and Paleontological Remains

Archaeological sites are protected by the National Heritage Act No 27 of 2004. Generally, it is an offence to disturb, destroy or remove from its original site any archaeological material, or excavate any such site without permission.

The Contractor/s shall take reasonable precautions to prevent any person from removing or damaging any fossils, coins, articles of value or antiquity and structures and other remains of archaeological interest discovered on the Site, immediately upon discovery thereof and before removal.

If an archaeological site or remains (i.e. fossils, coins, articles of value or antiquity) is discovered during any construction activity, the work is to be halted and the Project Engineer and IEO notified

immediately, who shall contact the Namibian Heritage Council. Only after the site has been inspected will the Contractor/s be allowed to continue.

The Contractor/s will be required to abide by the specifications as set out by the Namibian Heritage Council or the heritage specialist appointed to investigate the find. The Contractor/s may not, without a permit issued by the relevant heritage resources authority, destroy damage, excavate, alter, deface or otherwise disturb archaeological material.

The Project Engineer and IEO are to be kept informed of all developments in the event where modifications are made to the clearing or earthworks schedule.

4.2.15 Safety

Relevant occupational Health and Safety requirements shall be adhered to. Telephone numbers of emergency services, including the fire safety officer, shall be displayed conspicuously in the Contractor's office near a telephone. No firearms are permitted.

Staff must be made aware of their responsibilities to ensure that impacts such as fire, safety and pollution are taken care of. This must form part of the Environmental Education. The movement of construction workers must be controlled and access to adjacent properties must be prohibited.

The contractor's personnel must be adequately trained and informed in the tasks that they are expected to perform. This is required for their own safety as well as the safety of colleagues and other interested and/or affected parties.

All excavated areas and/or holes should be clearly demarcated.

4.2.16 Fire Control

No fires may be lit except if approved by the Project Engineer and in properly prepared facilities approved by the Project Engineer. Fires shall be kept small and appropriate to their function. The Contractor/s shall ensure that the fire risk on and near the site is reduced to a minimum and shall take immediate and effective steps to extinguish any fire that may break out. All costs relating to damage by fire caused by the Contractor/s will be for the Contractor's cost. No collection of firewood allowed.

Smoking is only permitted in designated smoking areas. .Appropriate signage shall be erected in these areas. A container filled with sand and a dedicated fire extinguisher must be available at the smoking area.

In terms of the Atmospheric Pollution Prevention Act (No. 45 of 1965), burning is not permitted as a disposal method.

The Contractor/s shall take all reasonable steps to prevent the accidental occurrence or spread of fire. The Contractor/s shall appoint a fire officer who shall be responsible for ensuring immediate and appropriate action in the event of a fire. The Contractor/s shall ensure that all site personnel are aware of the procedure to be followed in the event of a fire. The appointed fire officer shall

notify the Project Engineer in the event of a fire and shall not delay doing so until such time as the fire is beyond his/her control.

The Contractor/s shall ensure that there is basic fire-fighting equipment on site at all times. This equipment shall include fire buckets, fire extinguishers and fire beaters.

4.2.17 Emergency Procedures

The Contractor's procedures for the following emergencies shall include:

Fire

The Contractor/s shall inform all relevant parties of a fire as soon as one starts and shall not wait until it can no longer be controlled.

The Contractor/s shall ensure that his employees are aware of the procedure to be followed in the event of a fire.

Accidental Leaks and Spillages

The Contractor/s shall ensure that his employees are aware of the procedure to be followed for dealing with spills and leaks, which shall include notifying the IEO and Project Engineer.

The Contractor/s shall ensure that the necessary materials (e.g. chemcap, spill-sorb, drizzat pads, enretch and peat moss) and equipment for dealing with spills and leaks are available on-site at all times.

The source of the spillage shall be isolated. The Contractor/s shall contain the spillage using sand berms, sandbags, pre-made booms, saw dust or absorbent materials. Treatment and remediation of the spill areas shall be undertaken to the reasonable satisfaction of the IEO and Project Engineer.

4.2.18 Community Relations

The Contractor/s shall erect and maintain information boards in the position, quantity, design and dimensions specified. Such boards shall include contact details for complaints by members of the public in accordance with details provided by the Engineer. The Contractor shall also keep a "Complaints Register" on Site. The Register shall contain all contact details of the person who made the complaint, and information regarding the complaint itself.

4.2.19 Construction Personnel Information Posters

The Contractor/s shall erect and maintain information posters for the information of his employees depicting actions to be taken to ensure compliance with aspects of the specifications. Such posters shall be erected at the eating areas, 'no go' areas and any other locations specified by the Project Engineer and/or IEO.

4.2.20 Temporary Site Closure

If any of the sites are closed for a period exceeding one week, the following checklist procedure shall be carried out by the Contractor/s in consultation with the IEO and Project Engineer. Contractor's Safety Officers (in terms of the relevant Occupational Health and Safety Act) and Environmental Site Manager to check the Site and report.

Fuels/flammables/hazardous materials stores

- Ensure fuel stores as low in volume as possible.
- No leaks.
- Outlet secure/locked.
- Bund empty (where applicable).
- Fire extinguishers serviced and accessible.
- Secure area from accidental damage, e.g. plant collision.
- Emergency and contact numbers to be available and displayed.
- Adequate ventilation.

Safety

- All trenches and manholes secured.
- Fencing and barriers in place as per the relevant Occupational Health and Safety Act.
- Notice boards applicable and secured.
- Emergency and management contact details displayed.
- Security persons briefed and had facility for contact.
- Fire hazards identified.
- Scaffolds secure.
- Inspection schedule and log by security staff.

Erosion and Siltation

- Wind and dust mitigation in place.
- Stockpiles at stable angle.
- Erosion protection measures in place.

Water Contamination and Pollution

- Fuels hazardous stores secure.
- Cement and materials stores secured.
- Toilets empty and secured.
- Refuse bins empty and secured (lids).
- Bunding clean and treated.
- Drip trays empty and secure (where possible).
- Structures vulnerable to high winds secure.

4.3 MATERIALS

4.3.1 Hazardous Substances

Petroleum, chemicals, harmful and hazardous waste shall be stored in an enclosed and banded area at the main contractor's camp. This area shall be subject to the approval of the Project Engineer. The waste shall be disposed of at a hazardous waste disposal site as approved by the IEO.

4.3.2 Handling, Use and Storage of Construction Materials

The Contractor/s shall ensure that delivery personnel are informed of all procedures and restrictions (including 'no go' areas) required to comply with the specifications. The Contractor/s shall ensure that delivery personnel are supervised during offloading by someone with an adequate understanding of the requirements of the specifications.

Materials shall be appropriately secured to ensure safe passage between destinations. Loads including, but not limited to sand, stone chip, cement and refuse, shall have appropriate cover to prevent them spilling during transit. The Contractor/s shall be responsible for any clean-up resulting from the failure by his employees or suppliers to properly secure transported materials.

All manufactured and/or imported material shall be stored within the contractor's camps, and, if so required, out of the rain. All lay down areas outside of the contractor's camps shall be subject to the IEO's approval, which shall not unreasonably be withheld.

Importation of Fill/Soil/Sand Materials

- Imported materials shall be free of weeds, seeds, litter and contaminants.
- Sources of imported material shall be listed and approved by the IEO and Project Engineer.
- Stockpile areas will be identified by the Project Engineer and agreed upon by the IEO before any stockpiling commences.

Topsoil

- The top 300mm of topsoil must be stripped before any grading or bulk earthworks begin and stockpiled separately for use in rehabilitation. Topsoil may not be compacted or covered in any way during stockpiling.
- Topsoil shall be stockpiled in the area where it was removed and should be used again in the vicinity where it was removed.

Spoil Material

- The location of spoil stockpiles shall be identified by the Project Engineer and agreed upon by the IEO prior to any stockpiling.
- No spoil material shall be dumped outside the defined site unless it is being removed from the site, as approved by the IEO and Project Engineer.

- Spoil stockpiles shall be convex and should not exceed 2m in height. The Contractor/s shall ensure that the spoil material does not blow or wash away. If it is in danger of being washed or blown away, the Contractor/s shall cover it with a suitable material, such as hessian or plastic.

4.3.3 Plant Material

For all landscaping and rehabilitation work only plants approved by an Ecologist may be used. No declared invasive alien species may be used.

Avoid the removal of the protected species. Incorporate the protected species in the overall landscaping of the area and mark these as No-go areas.

4.4 CONSTRUCTION PLANT

4.4.1 Fuel and Oil

If so required, fuel should be stored at the main contractor's camp in a depot complying with the requirements listed below. Where reasonably practical, construction vehicles and equipment shall be refuelled at the depot or at the workshop as applicable. The surface under the refuelling area shall be protected (bunded) against pollution to the satisfaction of the Project Engineer and IEO prior to any refuelling activities.

The Contractor/s shall ensure that there is always a supply of absorbent material (e.g. chemcap, spill-sorb, drizzat pads, enretech and peat moss) readily available to neutralise and where possible be designed to encapsulate minor spillage. The quantity of such materials shall be able to handle a minimum of 200L of liquid spill.

Fuel Storage Areas

- The IEO and Project Engineer shall be advised of the area that the Contractor/s intends using for the storage of fuel. Fuels shall be stored at a suitable location inside the main contractor's camp.
- Fuel shall be stored in steel tank/s supplied and maintained by the fuel suppliers. Tank/s shall be adequately bunded capable of holding 120% of the volume of the tank/s and sloped towards a sump to contain any spillages of substances. The floor and wall of the bund area shall be impervious concrete to prevent infiltration of any spilled and/or leaked fuel, oil or hazardous substance into the soil.
- The bund shall be inspected and emptied daily, and serviced when necessary. The bund shall be closely monitored during rain events to ensure that it does not overflow.
- The fuel storage area must not be located near (i.e. less than 250m) any water resource, including a river, stream or surface water body, or borehole.
- The Contractor/s shall keep fuel under lock and key at all times. No smoking shall be allowed in the vicinity of fuel tanks.

- The Contractor/s shall educate workers on the appropriate methods for workshop maintenance and fuel points to prevent fuel and oil being washed out of containment areas.
- Only empty and externally clean tanks may be stored on the bare ground. All empty and externally dirty tanks shall be sealed and stored on an area where the ground has been protected. In addition, if fuel is dispensed from 200L drums, the proper dispensing equipment shall be used, and the drum shall not be tipped in order to dispense fuel. The dispensing mechanism of the fuel storage tank shall be stored in a waterproof container when not in use.
- Symbolic safety signs depicting “No Smoking”, “No Naked Lights” and “Danger” are to be provided, and are to conform to the requirement of SABS 1186.
- The product contained within the tank shall be clearly identified; using the emergency information system detailed in SABS 0232 part 1.
- Any electrical or petrol-driven pump shall be equipped and positioned, so as not to cause any danger of ignition of the product.
- Areas for storage of fuels and other flammable materials shall comply with standard fire safety regulations and may require the approval of the fire safety officer.
- The Contractor/s shall ensure that there is adequate fire-fighting equipment at the fuel stores and that staff are adequately trained to use this equipment.

Fuel Storage Tanks

Temporary above ground storage tanks may be permitted at the discretion of the IEO and Project Engineer based on the merit of the situation, provided that the following requirements are met:

- All such tanks are to be designed and constructed in accordance with a recognised Act and code (Petroleum Product and Energy Act, No. 13 of 1990, as amended).
- The rated capacity of such a tank shall provide sufficient capacity to permit expansion of the product contained therein by the rise in temperature during storage.
- The tank shall be erected at least 3.5m from buildings, boundaries and any other combustible or flammable materials.
- Adequate precautions shall be provided to prevent spillage during the filling of any tank.
- Soil contaminated by oil, fuel or chemicals shall be removed and disposed of at a registered Hazardous Waste Disposal Site or rehabilitated in-situ.
- If larger capacity tanks are required then an acceptable rational design based on a relevant national or international code or standard shall be submitted to the Directorate Energy, Petroleum and Downstream (Ministry of Mines and Energy).

4.4.2 Ablution and Washing Facilities

Washing, whether of the person or of personal effects and acts of excretion and urination are strictly

prohibited other than at the designated facilities provided. The Contractor/s shall provide suitable sanitary arrangements within the boundaries of the contractor's camps as well as within a walking distance ($\pm 200\text{m}$) from where construction activities are taking place.

The exact location of the facilities shall be approved by the IEO and Project Engineer prior to establishment. All temporary portable toilets shall be secured to the ground to prevent them toppling due to wind or any other cause.

Toilets supplied by the Contractor/s for the workers shall occur at a maximum ratio of 1 toilet per 30 workers (preferred 1:15) and be within walking distance of the staff. These facilities shall be maintained in a hygienic state and serviced regularly. Toilet paper shall be provided. The Contractor/s shall ensure that toilets are emptied regularly, as well as before the builders' holidays. The Contractor/s shall ensure that no spillage occurs when the toilets are cleaned or emptied and that the contents are removed from Site. Discharge of waste from toilets into the environment is prohibited.

4.4.3 Eating Area

Eating areas should be within the boundaries of the contractor's camp as agreed with by the IEO. Temporary eating areas would require very strict requirements and control and would only be allowed once approved by the IEO.

The Contractor/s shall provide adequate refuse bins at the eating area (i.e. permanent or temporary eating areas) to the satisfaction of the IEO and shall ensure that all eating areas are cleaned on a daily basis. Collected waste shall be stored in a central waste area at the main contractor's camp and disposed of at the local solid waste site on a regular basis. Waste receipts in this regards should be kept on site.

Waste bins at the eating areas should have scavenger proof lids and not left overnight, but removed to the main contractor's camp on a daily basis.

Cooking of food shall be done using gas cookers only. Cooking with wood is strictly prohibited. No fires may be lit except if approved by the Project Engineer and in properly prepared facilities approved by the Project Engineer.

4.4.4 Accommodation Facilities

No accommodation facilities are allowed within the boundaries of the contractor's camp, apart from an overnight station for the security guard, as agreed with by the IEO.

The Contractor/s shall provide for a place and facility for day time cooking, which shall be clean on a daily basis and well maintained. Cooking outside this allocated area is strongly prohibited.

4.4.5 Solid Waste Management

No burying or dumping of any waste materials, rubble, vegetation or refuse shall occur on Site. The Contractor/s shall set up a solid waste control and removal system at the main contractor's

camp, and waste shall be disposed of at the local solid waste site on a regular basis. Waste receipts in this regards should be kept on site.

Waste bins at the construction sites should not be left overnight, but removed to the main contractor's camp on a daily basis.

The accumulation of construction waste materials must be avoided as far as possible. The system shall comply with the following detailed requirements:

Dumping

- Receipts for hazardous waste disposal shall be copied to the IEO and Project Engineer.
- Refuse shall be disposed of into scavenger and weather-proof bins. Waste bins should not be left overnight, but removed to the main contractor's camp on a daily basis.
- Refuse must be disposed of at an authorised municipal landfill site.
- The Contractor/s shall make provision for workers to clean up the camps and working areas on a daily basis.

Recycling

- Wherever possible, materials used or generated by construction shall be recycled.
- Containers for glass, paper, metals and plastics (a four bin recycling system) shall be provided at the main contractor's camp.
- Where possible and practical, such as at stores and offices, waste shall be sorted for recycling purposes.

4.4.6 Waste Water Management

The Contractor/s shall set up a contaminated water management system, which shall include collection facilities to be used to prevent pollution, as well as suitable methods of disposal of contaminated water to fit into the larger waste water management system. The Contractor/s shall prevent the discharge of water contaminated with any pollutants, such as soaps, detergent, cements, concrete, lime, chemicals, glues, solvents, paints and fuels, into the environment. The Contractor/s shall notify the IEO and Project Engineer immediately of any pollution incidents on Site.

Water from kitchens, showers, sinks, etc. shall be discharged into a conservancy tank for removal from Site. Runoff from fuel depots/workshops/truck washing areas and concrete swills shall be directed into a conservancy tank and disposed of at an approved municipal hazardous waste site.

Wash areas shall be placed and constructed in such a manner so as to ensure that the surrounding areas are not polluted. This includes, but is not limited to; concrete batching areas, vehicle washing, workshop wash bays, paint wash and cleaning. Wash areas for domestic use at the main contractor's camp shall ensure that the disposal of contaminated water is sanctioned by the IEO.

4.4.7 Workshop, Equipment Maintenance and Storage

Where practical, all maintenance of plant and equipment on-site shall be performed in the workshop situated at the main contractor's camp. If it is necessary to do maintenance outside of the workshop area, the Contractor/s shall obtain the approval of the IEO prior to commencing activities.

All plant and equipment shall be kept in good working order and serviced regularly. Equipment shall be removed immediately from the Site and repaired. When the Contractor/s carries out emergency plant maintenance it is essential that there is no pollution to the environment. This will be overseen by the Environmental Site Manager.

The workshop shall have a smooth impermeable concrete floor, which is bunded and sloped towards an oil trap to contain any spillages. When servicing equipment, drip trays shall be used to collect the waste oil and other lubricants. The floor shall be bunded and sloped towards an oil trap or sump to contain any spillages of substances (e.g. oil). Drip trays shall also be provided in construction areas for stationary plant (such as compressors and generators) and for "parked" plant (such as scrapers, loaders, vehicles). Drip trays shall be inspected and emptied daily. Drip trays shall be closely monitored during rain events to ensure that they do not overflow. Where practical, the Contractor/s shall ensure that equipment is covered so that rainwater is excluded from the drip trays.

All washing shall be restricted to a minimum. If essential, washing must be undertaken in the workshop or maintenance areas. The use of detergents for washing shall be restricted to low phosphate and nitrate containing and biodegradable-type detergents. Runoff should be collected, contained and disposed of at an approved municipal hazardous waste site.

Drip Trays and Bunding

- All plant or machinery, which includes but is not limited to generators, pumps, compressors, drill rigs, static plant, shall have drip trays strategically placed to catch incidental spills.
- Drip trays shall be inspected and emptied daily, and serviced when necessary. Drip trays shall be closely monitored during rain events to ensure that they do not overflow.
- All repairs done on machinery using hydrocarbons as fuels or lubricants shall have a drip tray placed strategically to avoid incidental spillage.
- All static plant (stationary >6 months) shall be located within a bunded area.

4.4.8 Noise

Construction activities can cause environmental noise pollution. A disturbing noise is one that exceeds the zone sound level or the ambient sound level by 7 dB or more. A noise nuisance is defined as meaning "any sound that disturbs or impairs or may disturb or impair the convenience or peace of persons". This includes the use of power tools, movement of vehicles, etc.

The Contractor/s shall limit noise levels (e.g. install and maintain silencers on machinery). Appropriate directional and intensity settings are to be maintained on all hooters and sirens. No

amplified music shall be allowed on Site. The use of radios, tape recorders, compact disc players and television sets shall not be permitted unless the volume is kept sufficiently low.

Where excess noise generation is unavoidable, the Contractor/s shall, by means of barriers, effectively isolate the source of any such noise in order to comply with the said regulations.

The Contractor/s shall not use sound amplification equipment on-site unless in emergency situations.

Limit construction times to the following hours:

- 07:00 to 18:00 during the week (Monday to Friday);
- 08:00 to 17:00 on Saturdays, and
- No noisy activities on a Sunday.

Should blasting be required during the construction phase, the necessary permits must be obtained from the local authority and any other relevant authority.

The Contractor/s must comply with all applicable occupational health and safety requirements.

Blasting times must be limited to the hours from 08:00 to 17:00 during weekdays only.

Screen construction activities from residential, social and business entities with soil berms to limit noise.

4.4.9 Dust

The Contractor/s shall take all reasonable measures to minimise the generation of dust as a result of construction activities to the satisfaction of the Project Engineer and IEO.

The Contractor's dust management planning shall, as a minimum, take cognisance of the following:

- Speed limits for vehicles on unpaved roads and minimisation of haul distances. The speed limit for light vehicles is 40 km/h and for heavy vehicles 20 km/h.
- Measures to ensure that material loads are properly covered during transportation.
- Minimisation of the areas disturbed at any one time and protection of exposed soil against wind erosion.
- Location and treatment of material stockpiles taking into consideration prevailing wind directions and location of sensitive receptors.
- Controlled blasting techniques to minimise dust and fly rock during blasting.
- Reporting mechanism and action plan in case of excessive wind and dust conditions.
- Removal of any vegetation shall be avoided as far as possible, while handling and transport of erodible materials shall be avoided under high wind conditions.
- During high wind conditions, the Environmental Site Manager and Project Engineer will evaluate the situation and make recommendations as to whether dust-damping measures

are adequate, or whether working will cease altogether until the wind speed drops to an acceptable level. Where possible, stockpiles shall be located in sheltered areas. Where erosion of stockpiles becomes a problem, erosion control measures shall be implemented at the discretion of the IEO and Project Engineer.

- Appropriate dust suppression measures shall be used when dust generation is unavoidable.

4.4.10 Lights

The Contractor/s shall ensure that any lighting installed on the site for his activities does not interfere with road traffic or cause a reasonably avoidable disturbance to the surrounding community or other users of the area.

4.4.11 Site Structures

All site establishment components (as well as equipment) shall be positioned to limit visual intrusion on users of the area and the size of area disturbed. The type and colour of roofing and cladding materials to the Contractor's temporary structures shall be selected to reduce reflection.

4.5 POST CONSTRUCTION

4.5.1 Ripping of Compacted Soil

All areas where soil has been compacted due to construction activities must be ripped in two perpendicular directions to a depth of 0.15m.

4.5.2 Site Rehabilitation

The site must be cleared of all construction equipment, waste and associated materials by the end of the construction phase of the project.

Areas that were cleared for construction purposes such as the contractor's camp should be restored to its original condition.

Stockpiled topsoil and indigenous vegetation should be used for all rehabilitation purposes. The rehabilitation plan must ensure that erosion by runoff water does not occur.

4.6 MEASUREMENT AND PAYMENT

No separate measurement and payment will be made to cover the costs of complying with the CEMP and such costs shall be deemed to be covered by the rates tendered for the items in the Schedule of Quantities completed by the Contractor/s when submitting his BID.

4.7 MITIGATION MEASURES AND PROPOSED MANAGEMENT PROGRAMME

The table below outlines those specific mitigation measures required in order to fulfil the recommendations. These measures must be implemented during the construction phase. The

responsibility for these measures is included in Column IV.

This forms a general code of conduct for all contractors operating on the sites. While responsibilities have been assigned to various other parties, it must be borne in mind that ultimately the applicant and his/her successor are held responsible for any damage to the environment as a result of the development and that non-compliance with the CEMP will be regarded as non-compliance in terms of the Environmental Clearance Certificate.

(I) Issue	(II) Objective	(III) Mitigation Measure	(IV) Responsibility	(V) Compliance Notes
PLANNING & DESIGN				
Contractor Requirements	Ensure that the Contractor is aware of his/her responsibility.	Provide the contractor with the CEMP.	Project Engineer	
Independent Environmental Officer	Ensure that activities on site are compliant with the requirements of the EMP.	Appoint an IEO to oversee environmental aspects of the development.	Proponent	
Visuals & Aesthetics	Ensure that the visual aspects of construction are taken into consideration to lessen impacts on neighbouring activities.	Screen construction areas with hessian or other suitable material from adjacent properties.	Contractor	
Waste Management	Ensure the effective and efficient separation, storage and removal of waste from the site.	Develop a Waste Management Plan for the construction phase which will detail: <ul style="list-style-type: none"> - Schedules for collection - Responsible parties for collection - Details regarding waste separation (hazardous vs. general) - Provision of facilities for the separation and storage of waste - Details regarding the disposal of the waste (hazardous and general) - Assigns responsibilities for these activities 	Engineer	
Loss of habitat/eco-systems	Conserve indigenous trees.	Indigenous trees should be preserved to recreate and improve some important habitats.	Contractor	
SITE ESTABLISHMENT				
Construction activities	Ensure that there is no unnecessary disturbance to areas on the site and that construction activities take environmental considerations into account.	A layout plan for construction activities needs to be developed and approved by the Engineer and IEO.	Engineer Contractor	

(I) Issue	(II) Objective	(III) Mitigation Measure	(IV) Responsibility	(V) Compliance Notes
			IEO	
Contractor's Camp	Ensure that the contractor's camp does not pollute the environment and is not located on a sensitive site.	Staff facilities, ablutions and chemical toilets, potable water must be provided for the staff.	Contractor	
Soil	Ensure preservation of the top soil.	Top soil stockpiles must be established in disturbed zones.	Contractor	
Soil	Ensure that erosion impacts and siltation is kept under control.	Areas scheduled for construction should be cleared only 1 week prior to construction.	Contractor	
Training	Improve the awareness of all construction personnel with regard to environmental matters.	Develop and implement a training programme to address environmental issues and responsibilities.	Contractor	
CONSTRUCTION				
Archaeological Evidence	Ensure the protection of archaeological sites.	Construction must be stopped and a professional archaeologist consulted should any archaeological remains be uncovered.	Contractor IEO Archaeologist	
Blasting	Ensure blasting does not pose a danger to workers or staff, or neighbouring activities.	Authorisation to undertake blasting activities must be obtained from the relevant authority. All conditions relating to blasting and the Occupational Health & Safety Act must be complied to.	Contractor	
Cleaning of equipment	Ensure that spillages are minimised and that where these occur, that they are appropriately managed.	Proper cleaning trays should be used for the cleaning of cement mixing and handling equipment.	Contractor	
Communication	Ensure that interested and affected parties are provided with a medium through which to lay complaints with regard to activities on site.	A complaints register should be kept in the site office.	Contractor	
Contaminated Soil	Ensure that soils that are contaminated do not pollute the environment.	All soils that have been contaminated by fuel spills, paints spills, etc. must be appropriately removed from the site.	Contractor	
Contractor's camp	Ensure that the contractor's camp is secure.	All materials and equipment that can be moved must be stored overnight in the contractor's camp.	Contractor	
Dust	Ensure dust does not cause nuisance to neighbouring activities.	Ensure adequate dust suppression at all times.	Contractor	

(I) Issue	(II) Objective	(III) Mitigation Measure	(IV) Responsibility	(V) Compliance Notes
IEO and Project Engineer	Ensure that there is compliance with the CEMP on site.	An IEO may inspect the site at any time during the construction phase.	IEO	
Effect of the CEMP	Ensure that the CEMP is enforced on all contractors.	Each contractor and subcontractor must be notified on the content of this CEMP.	Engineer & IEO	
Effect of the CEMP	Ensure that the CEMP is enforced on all contractors	All contractors and subcontractors must be bound by the content and requirements in this CEMP.	Engineer & IEO	
Ground Water	Prevent the contamination of groundwater resources.	Vehicles must be equipped with drip trays to prevent spillages of oils and fuels.	Contractor	
Loss of surrounding habitat and sensitive species	Prevent the destruction of protected, medicinal or sensitive plant species.	Protected, medicinal and/or sensitive plants that are likely to be destroyed or affected by construction activities should be relocated to more suitable areas.	Contractor	
Installation of Services	Ensure that all points for water provision are regularly inspected for erosion impacts.	Implement adequate mitigating measures to curtail any erosion impacts.	Contractor	
Installation of Services	Ensure that water used to wash machinery and any other "grey" water does not pollute the site.	Provide a wash bay with an impermeable floor to contain such water.	Contractor	
Litter	Ensure that the site remains clean and clear of litter.	All litter must be collected into rubbish bins located on the site. These bins must be regularly (i.e. daily) collected and disposed of at the main contractor's camp waste disposal area, for collection and transportation to a registered waste disposal facility (i.e. weekly).	Contractor	
Noise	Ensure that nuisance noise from construction activities does not disrupt the surrounding landowners.	Limit construction time to the following hours: 08:00 to 17:00 during the week (Monday to Friday); 08:00 to 17:00 on Saturdays, and No activities on a Sunday.	Contractor	
Noise	Ensure that noise nuisance does not disrupt the surrounding land users.	Jack hammering and blasting, if required, must take place between the hours of 08:00 and 17:00 during the week only.	Contractor	
Noise	Ensure that nuisance noise from construction vehicles does not disrupt the land users.	No heavy vehicles may be permitted to move on site on Sundays.	Contractor	

(I) Issue	(II) Objective	(III) Mitigation Measure	(IV) Responsibility	(V) Compliance Notes
Road Works and Traffic	Ensure that soil does not erode from culverts or similar structures.	All culverts or similar structures must be stabilised with gabions and/or indigenous grasses.	Contractor	
Road Works and Traffic	Ensure that local users are not inconvenienced by the movement of construction vehicles off-site.	The movement of heavy vehicles from the site must occur outside of peak traffic hours.	Contractor	
Road Works and Traffic	Ensure that local users are not inconvenienced by the movement of construction vehicles off-site.	Spillages on the roads should be avoided. When these occur, they should be cleaned immediately.	Contractor	
Road Works and Traffic	Ensure that local users are not inconvenienced by the movement of construction vehicles off-site.	Notice boards should be placed at conspicuous locations at the different sites and along the delivery routes during the construction period indicating that heavy vehicles are using the road.	Contractor	
Safety & Security	Ensure the safety and security of staff and the public.	All local authority by-laws must be adhered to.	Contractor	
Safety & Security	Ensure the safety and security of staff and the public.	All contractors must take cognisance of and abide by the Occupational Health and Safety Act.	Contractor	
Safety & Security	Ensure the safety and security of staff and the public.	Trenches to a depth greater than 1.5 m must be supported or appropriate warning must be provided.	Contractor	
Safety & Security	Ensure the safety and security of staff and the public.	Provided fencing needs to be checked and maintained.	Contractor	
Safety & Security	Ensure the safety and security of staff and the public.	The movement of construction workers through the neighbouring area should be restricted wherever possible.	Contractor	
Soil	Ensure that storm water cannot erode the top soil stockpile.	Construct and maintain a berm around top soil stockpiles.	Contractor	
Storage Facilities	Ensure that hazardous materials are stored according to legislative requirements.	Specifically designed storage facilities need to be provided and used for hazardous materials.	Contractor	
Storage Facilities	Ensure that fuel stored on site does not pose a pollution and fire hazard.	Fuels stored on site shall be bunded to 120% of the capacity of the largest container.	Contractor	
Storage Facilities	Ensure that fuel stored on site does not pose a pollution hazard.	The fuel storage area must not be located less than 100m from any water resource.	Contractor	
Storm Water	Ensure that run-off does not contribute to erosion & siltation.	Construct and maintain berms on the site to contain storm water run-off or establish riffle beds or retention ponds, as	Contractor	

(I) Issue	(II) Objective	(III) Mitigation Measure	(IV) Responsibility	(V) Compliance Notes
Run-off		appropriate.		
Vehicle repairs	Ensure that spillages are minimised and that where these occur, that they are appropriately managed.	Minor vehicle repairs on an appropriate work surface may only take place within the provided area in the main contractor's camp.	Contractor	
Waste	Ensure the adequate removal of solid waste.	All wastes (hazardous or general) must be collected at the main contractor's camp and disposed of at an appropriate registered facility.	Contractor	
Waste	Ensure the adequate management of waste	Refuse shall be disposed of into scavenger and weather-proof bins. These bins must be regularly (i.e. daily) collected and disposed of at the main contractor's waste disposal area, for collection and transportation to a registered waste disposal facility (i.e. weekly). Refuse must be disposed of at an authorised landfill acceptable to the DEA.	Contractor	
Waste	Ensure the adequate management of waste.	No waste should be burnt on site.	Contractor	
POST CONSTRUCTION				
Site Rehabilitation	Ensure the site is left clean, orderly and free of rubble after construction activities.	Remove all rubble, rubbish, litter, unused building equipment, contaminated soils or any other relevant articles from the site following the end of the construction phase.	Contractor	
Soil	Promote the rehabilitation of the site back to its original condition as far as possible.	Soil that has been compacted during construction activities must be ripped in two perpendicular directions.	Contractor	
Soil	Ensure the re-use of top soil for rehabilitation.	Top soil that is stockpiled on site must be used to rehabilitate the disturbed areas.	Contractor	
MONITORING				
Audit Reports	Ensure adequate reporting of progress with the development	Regular reports, monthly and construction end are proposed, and should be forwarded to the DEA.	IEO	
Monitoring	Ensure compliance with the requirements of the CEMP.	Undertake monitoring activities on a monthly basis.	IEO	

APPENDIX A ENVIRONMENTAL METHOD STATEMENT

METHOD STATEMENT

CONTRACT: DATE:

WHAT WORK IS TO BE UNDERTAKEN? (give a brief description of the works)

WHERE ARE THE WORKS TO BE UNDERTAKEN? (where possible, provide an annotated plan and a full description of the extent of works)

START AND END DATE OF WORKS FOR WHICH THE METHOD STATEMENT IS REQUIRED

Start Date:

End Date:

HOW ARE THE WORKS TO BE UNDERTAKEN? (provide as much detail as possible, including annotated sketches and plans where possible) *Note: please attach extra pages if more space is required.

APPENDIX B PRO-FORMA: ENVIRONMENTAL MONITORING REPORT

IEO ENVIRONMENTAL MONITORING REPORT

Report No:.....

Date:.....

Method Statements	Contractor:	Date received:

Environmental Education	Contractor:	Date undertaken:

Issue	Observation	Remedial action	Compliance
1 Construction			
1.1 All plant, personnel, etc. restricted to works area?			
1.2 Contractor's Camp located in area of low environmental sensitivity as indicated by the Engineer?			

	Observation	Remedial action	Compliance
1.3	Where needed, sensitive areas adequately fenced off?		
1.4	Fencing well maintained?		
1.5	No unauthorised entry, stockpiling, etc. outside work areas?		
1.6	All vehicles and plant remain on designated routes?		
1.7	Information posters put up and maintained where needed?		
1.8	No smoking in hazardous areas?		
1.9	Basic fire fighting equipment available on Site?		

	Observation	Remedial action	Compliance
1.10	No burning of wastes as a means of disposal?		
1.11	Staff aware of procedures in the event of spills/leaks?		
1.12	Materials for dealing with spills/leaks available?		
1.13	Emergency contact numbers displayed at Contractor's office?		
1.14	Complaints Register up to date?		
1.15	Archaeological material found on Site mitigated?		
1.16	No animals trapped or harmed?		
1.17	No flora removed or damaged outside work		

areas?			
	Observation	Remedial action	Compliance
1.18 Adequate drainage and retaining works in place to control erosion/siltation?			
1.19 Restricted traffic over stabilised areas?			
1.20 No concrete mixing on bare ground?			
1.21 Concrete batching restricted to area of low environmental sensitivity?			
1.22 All wastewater from concrete mixing area disposed of via wastewater management system?			
1.23 Concrete mixing area kept neat and clean?			
1.24 Suitable screening and containment of cement			

silos?			
	Observation	Remedial action	Compliance
1.25 All visible remains of excess concrete removed on completion of concrete work?			
1.26 No pollution from drilling operations?			
1.27 Location and rescue of plants undertaken by suitably qualified contractor?			
1.28 Rescued plants moved to nursery if direct transplantation not possible?			
1.29 After vegetation clearance, all unstable areas are properly stabilised?			
1.30 Cleared vegetation properly disposed of?			

	Observation	Remedial action	Compliance
1.31 All wastes removed from cleared area and disposed of?			
1.32 Mulched vegetation stored in bags?			
1.33 Fertilisers containing phosphates not used?			
1.34 No planting undertaken where construction works have not yet been finished?			
1.35 No unauthorised traffic on revegetated areas?			
2 Materials			
2.1 Construction materials adequately secured to ensure safe deliveries?			
2.2 All materials being stored inside Contractor's			

Camp?			
	Observation	Remedial action	Compliance
2.3 All imported materials free of weeds, litter, etc.?			
2.4 Stockpile areas approved?			
2.5 Topsoil stripped and stockpiled at a suitable site prior to earthworks?			
2.6 No spoil stockpiled outside agreed areas?			
2.7 Spoil stockpiles correctly shaped and protected?			
2.8 All plants used for landscaping/rehabilitation listed in the approved plant list?			
2.9 Plants adequately protected during transit and			

at storage facilities?			
	Observation	Remedial action	Compliance
2.10 Plants healthy and free from diseases and pests?			
3 Plant			
3.1 Fuel/oil storage facilities adequately secured and protected against leakage?			
3.2 Safety signage provided at fuel storage areas?			
3.3 All electrical/petrol pumps suitably equipped and placed not cause any danger of ignition?			
3.4 Fuel storage areas comply with fire safety regulations?			
3.5 Necessary authorisations obtained for temporary above ground			

fuel tanks?			
	Observation	Remedial action	Compliance
3.6 Capacity of a fuel tank does not exceed 9000 ℓ?			
3.7 Fuel tanks erected at least 3.5 m away from buildings, boundaries or other flammable materials?			
3.8 Adequate toilet facilities provided for staff (min. 1 toilet per 30 workers)?			
3.9 Toilets adequately maintained?			
3.10 All workers use toilets?			
3.11 Scavenger-proof bins with lids provided at eating areas?			
3.12 Waste temporarily stored inside Contractor's Camp in weather- and			

scavenger-proof bins?			
	Observation	Remedial action	Compliance
3.13 No burying or dumping of wastes on site?			
3.14 Waste management system in place?			
3.15 Refuse disposed of at licensed landfill?			
3.16 Adequate waste-water management system in place?			
3.17 Approval for discharge of contaminated water into municipal sewer system?			
3.18 Runoff from workshops, fuel depots, etc. directed into conservancy tanks for disposal at approved site?			

	Observation	Remedial action	Compliance
3.19 Wash areas placed and built in such a way that does not cause any pollution?			
3.20 All maintenance of plant and equipment takes place in workshop?			
3.21 All plant is well maintained (no leaking)?			
3.22 Workshop has a bunded, impermeable floor sloping towards oil trap?			
3.23 Contractor's Camp tidy?			
3.24 All plant and machinery have drip trays, which are checked and emptied daily?			

	Observation	Remedial action	Compliance
3.25	All repairs on machinery using fuels or lubricants done over a drip tray?		
3.26	Static plant located within a bunded area?		
3.27	Measures in place to minimise dust generation?		
3.28	No handling/transport of erodible materials under high wind conditions?		

APPENDIX C LIST OF PENALTIES

SCHEDULE OF PENALTIES FOR ENVIRONMENTAL DAMAGE OR CEMP TRANSGRESSIONS		
Note: The maximum penalty for any environmental damage will never be less than the cost of applicable environmental rehabilitation.		
CEMP TRANSGRESSION OR RESULTANT ENVIRONMENTAL DAMAGE	MIN (N\$)	MAX (N\$)
Failure to report environmental damage or CEMP transgressions to the IEO or Engineer.	500.00	2,000.00
Failure to carry out instructions of the IEO or Engineer regarding the environment or the CEMP.	500.00	1,000.00
Failure to comply with prescriptions for securing of loads to ensure safe passage of delivery vehicles.	500.00	1,000.00
Failure to comply with prescriptions for the storage of imported materials within a designated contractor's yard.	500.00	1,000.00
Failure to comply with prescribed administration, storage or handling of hazardous substances.	500.00	1,000.00
Failure to comply with fuel storage, refuelling, or clean-up prescriptions.	500.00	1,000.00
Failure to comply with prescriptions for the use of ablution facilities.	500.00	1,000.00
Failure to comply with prescriptions for the use of designated eating areas, heating source for cooking or presence of fire extinguishers	500.00	1,000.00
Failure to comply with prescriptions regarding water provision.	500.00	1,000.00
Failure to comply with prescriptions regarding fire control.	500.00	5,000.00
Failure to comply with prescriptions for waste management (incl. paint chips, cement and concrete).	500.00	5,000.00
Failure to comply with prescriptions to prevent water pollution.	500.00	5,000.00
Failure to comply with prescriptions regarding workshop equipment maintenance and storage.	500.00	1,000.00

CEMP TRANSGRESSION OR RESULTANT ENVIRONMENTAL DAMAGE	MIN (N\$)	MAX (N\$)
Failure to comply with prescriptions regarding noise levels of construction activities.	500.00	1,000.00
Failure to comply with prescriptions regarding working hours.	500.00	5,000.00
Failure to comply with prescriptions regarding lighting and aesthetics.	500.00	1,000.00
Failure to comply with prescriptions regarding silt, debris and other obstruction removal.	500.00	5,000.00
Failure to comply with prescriptions regarding water diversion and drainage.	500.00	5,000.00
Failure to comply with prescriptions regarding erosion and scour protection.	500.00	5,000.00
Failure to comply with prescriptions regarding traffic accommodation.	500.00	5,000.00
Failure to comply with prescriptions regarding tree and vegetation removal/damage.	5,000.00	20,000.00
Failure to comply with prescriptions regarding site demarcation and erection of fences.	500.00	5,000.00
Failure to comply with prescriptions regarding demarcation and enforcement of 'no go' areas.	500.00	5,000.00
Failure to comply with prescriptions regarding control of vehicles and plant on access routes.	500.00	1,000.00
Failure to comply with prescriptions regarding information posters	500.00	1,000.00
Failure to comply with prescriptions regarding procedures for emergencies.	1,000.00	5,000.00
Failure to comply with prescriptions regarding information boards or a complaints register.	500.00	1,000.00

Failure to comply with prescriptions regarding protection of natural features.	500.00	5,000.00
CEMP TRANSGRESSION OR RESULTANT ENVIRONMENTAL DAMAGE	MIN (N\$)	MAX (N\$)
Failure to comply with prescriptions regarding erosion and sedimentation control.	500.00	5,000.00
Failure to comply with prescriptions regarding protected areas.	2,500.00	10,000.00

For each subsequent similar offence committed by the Contractor, the penalty shall be doubled in value to a maximum value of N\$ 50,000.00