ENVIRONMENTAL MANAGEMENT PLAN

**ENVIRONMENTAL MANAGEMENT PROGRAMME**

**UPGRADE/REFURBISHMENT OF NAMAKGALE STADIUM WITHIN BA-PHALABORWA LOCAL MUNICIPALITY, MOPANI DISTRICT, LIMPOPO PROVINCE**

EMPR FOR NAMAKGALE-A STADIUM

|  |  |
| --- | --- |
| **Report Name:** | **Ugrade/ Refurbishment of Namakgale Stadium within Ba- Phalaborwa Local Municipality, Mopani District, Limpopo**  **Province.** |
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| **Report compiled by:** | Frank Mhandu |
| **Report Date:** | September 2019 |
| **Status:** | **Final Report** |
| This document presents the final Environmental Management Programme for the refurbishment of Namakgale Stadium. The information and recommendations presented is based on the information supplied by the ‘developer’, Ba-Phalaborwa Local Municipality and observations made during the site  visits conducted by the EAP. | |

**DISCLAIMER**

TSMAK Project Managers has prepared this report in fulfillment of Section 24 (5) of NEMA and its associated Regulations, showing reasonable skill and care, for the intended purposes as stated in the agreement under which this work was completed. The report may not be relied upon by any other party without the express agreement of the client, Ba-Phalaborwa Local Municipality. No other warranty, expressed or implied is made as to the professional advice included in this report. Where any data supplied by the client or from other sources have been used it has been assumed that the information is correct. No responsibility can be accepted by TSMAK for inaccuracies in the data supplied by any other party. The conclusions and recommendations in this report are based on the assumption that all relevant information has been supplied by those bodies from whom it was requested. Where field investigations have been carried out these have been restricted to a level of detail required to achieve the stated objectives of the work. This report has been compiled in accordance with Appendix 4 of the EIA Regulations, GNR326 of 7 April 2017 (as amended).

# DOCUMENT CONTROL

**Report No:** **1**

**Report title**: Environmental Management Programme for the Refurbishment of Namakgale Stadium

**Prepared by:** TSMAK Project Managers

**Applicant:** Ba-Phalaborwa Local Municipality

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Name** | **Signature** | **Date** |
| **Prepared By** | Frank Mhandu |  | 10/09/2019 |
| **Reviewed and Approved By** | Benard Madziwa |  | 24/09/2019 |
| **Report Status** | Final |  | |

# EXECUTIVE SUMMARY

One of the strategic objectives of National Sports, Recreation Plan (NSRP) is to ensure that South African sports and recreation is supported by adequate and well maintained facilities. It is acknowledged that the provision and maintenance of facilities forms the foundation for the entire sports and recreation system. If the facilities are neglected, it will have serious consequences for the development of young people. The stadium in Namakgale-A is not in a good condition and therefore there is no value addition to tourism and the development of young people in the area. The Municipality has to increase both the quantity and quality of sports infrastructure in order to attract national and international events to the area and benefit local tourism. As such the Ba-Phalaborwa Local Municipality intends to refurbish Namakgale-A stadium.

The works associated with the refurbishment of the stadium are not listed in Government Notice, R327 of April 2017 as amended. As such an Environmental Authorisation is not required. However a project specific Environmental Management Programme (EMPr) is required to address the anticipated negative and positive impacts anticipated during the development life cycle. This Environmental Management Programme therefore details the principles, practices and procedures to be implemented by the contractor and BPLM to manage, remedy and mitigate potential adverse environmental effects anticipated during the development life cycle. As such, the scope of this document is to give guidelines to the contractor and BPLM regarding the effective management of the environment during the refurbishment of the stadium.

**THE MANAGEMENT PROGRAMME HAS LONG-TERM OBJECTIVES TO ENSURE THAT**:

* Environmental Management considerations are implemented from the start of the project and throughout the operational life-time of the sports complex;
* Precautions against damage and claims arising from damage are taken well in advance;
* The completion date of the contract is not delayed due to problems with the affected communities arising during the course of construction; and
* Regulatory requirements are adhered to.

This document (hereafter referred to as the EMPr) sets the institutional framework for responsibilities and reporting of all environmental issues during the refurbishment of the stadium. It is important that the contractors’ team and engineers be fully acquainted with the contents of this EMPr, to ensure that the potential negative impacts are avoided or identified in advance during construction and the specified mitigation measures detailed in this report are implemented, therein instilling a more proactive and less reactive work ethic throughout the construction process.

Should these recommended measures and corrective actions be adopted during the construction and operation/ maintenance phases of the proposed activity, TSMAK finds that the predicted impacts of the proposed activities are within acceptable limits. Of note is that environmental management is dynamic and

as such, the EMPr must be flexible in order to accommodate changing circumstances and requirements. On-going environmental monitoring and maintenance of the stadium should be carried out throughout its life cycle, and BPLM and a dedicated Environmental Practitioner should identify and address new issues as they arise, and update or amend the management plan accordingly

# REPORT STRUCTURE

***Section 1*** of this EMPr details the purpose and scope of the EMPr and also identifies the key legislative requirements applicable to the environmental aspects of the Project. It details the EMPr roles and responsibilities and the related training requirements for the construction phase of the Project.

**Section 2** presents the project description and the social and environmental management context of the Project.

**Section 3** details the anticipated impacts, standard and site specific mitigation measures to be implemented on-site. Environmental management standards and specifications for managing the significant environmental aspects of the construction and operation are discussed.

#### TABLE OF CONTENTS

[DOCUMENT CONTROL 85](#_TOC_250039)

[EXECUTIVE SUMMARY 86](#_TOC_250038)

[REPORT STRUCTURE 87](#_TOC_250037)

[SECTION 1: INTRODUCTION 94](#_TOC_250036)

* 1. [EAP’s Experience 94](#_TOC_250035)
  2. [The Purpose of the EMPr 95](#_TOC_250034)
  3. [Assumptions 96](#_TOC_250033)
  4. [EMPR Layout and Structure 96](#_TOC_250032)
     1. [Method of Compiling EMPr 96](#_TOC_250031)
  5. [Legislation and Other Requirements 96](#_TOC_250030)
     1. [National and Provincial Legislation, Regulations and Strategies 96](#_TOC_250029)
  6. [Administration Management 97](#_TOC_250028)
  7. [Training and Awareness 97](#_TOC_250027)
  8. [Responsibilities 98](#_TOC_250026)
     1. [Ba-Phalaborwa Local Municipality 98](#_TOC_250025)
     2. [Ba-Phalaborwa Local Municipality: Project Manager 99](#_TOC_250024)
     3. [The Contractor 99](#_TOC_250023)
     4. [Environmental Control Officer 99](#_TOC_250022)
  9. [Implementation 100](#_TOC_250021)
     1. [Construction Method Statements (CMS) 100](#_TOC_250020)
     2. [Work Instructions (WIs) 100](#_TOC_250019)
     3. [Checking and corrective action 101](#_TOC_250018)
        1. Monitoring and reporting 101
     4. [Environmental inspections, audits and registers 101](#_TOC_250017)
     5. [Compliance and non-conformance 101](#_TOC_250016)
  10. [Documentation 101](#_TOC_250015)
      1. [Environmental Incidents Register 102](#_TOC_250014)
      2. [Public Complaints Register 102](#_TOC_250013)

SECTION 2: PROPOSED PROJECT DESCRIPTION 104

* 1. [Need and Desirability 104](#_TOC_250012)
  2. [Project Location and Receiving Environment 104](#_TOC_250011)
     1. [Location 104](#_TOC_250010)
     2. [The Receiving Environment 104](#_TOC_250009)
  3. [Project Description 106](#_TOC_250008)
     1. [Construction Phase 106](#_TOC_250007)
     2. [Operation Phase 106](#_TOC_250006)
     3. [Decommissioning 106](#_TOC_250005)
  4. [Basic Services and Infrastructure 106](#_TOC_250004)

[SECTION 3: IMPACTS AND MITIGATION MEASURES 108](#_TOC_250003)

* 1. [Anticipated Impacts 108](#_TOC_250002)
  2. [Mitigations 110](#_TOC_250001)
     1. Pre-Construction and Construction Phase 111
        1. Tendering 111
        2. Site Establishment 113
        3. Material Handling and Storage 115
        4. Vegetation Clearance 117
        5. Soil 118
        6. Archaeology 120
        7. Air Quality 121
        8. Noise 122
        9. Visual 123
        10. Health and Safety 124
        11. Waste Management 126
        12. Infrastructure 128
        13. Traffic Management 129
        14. Fire Management 130
        15. Social Issues 131
     2. Operation Phase 132
        1. Vegetation 132
        2. Waste Management 133
        3. Fire Management 134
        4. Basic Services 135
     3. [Rehabilitation 137](#_TOC_250000)
        1. Monitoring Programme 137

1. CONCLUSION 138

C3.89

1. REFERENCES 139

**ACRONYMS AND ABBREVIATIONS**

|  |  |
| --- | --- |
| BPLM | Ba-Phalaborwa Local Municipality |
| CARA | Conservation of Agricultural Resources Act |
| CEMPr | Construction Environmental Management Programme  Community Liaison Officer |
| CLO |
| CMS | Construction Method Statement |
| DWS | Department of Water and Sanitation  Department of Minerals and Energy |
| DME |
| EAP | Environmental Assessment Practitioner |
| ECA | Environment Conservation Act  Environmental Compliance Officer |
| ECO |
| EIA | Environmental Impact Assessment  Environmental Officer |
| EO |
| GA | General Authorization  Hectares |
| HA |
| HSO | Health and Safety Officer  Integrated Environmental Management |
| IEM |
| MSDS | Material Safety Data Sheet |
| ‘Municipality’ | Ba-Phalaborwa Local Municipality |
| NEMA | National Environmental Management Act  National Heritage Resources Act |
| NHRA |
| SAHRA | South African Heritage and Resources Agency |
| SANS | South African National Standards  Safety, Health, Environmental and Quality |
| SHEQ |
| WI | Work Instruction  Water Use License |
| WUL |

EMPR FOR NAMAKGALE-A STADIUM

#### DEFINITIONS

|  |  |
| --- | --- |
| Alien Vegetation | Alien vegetation is defined as undesirable plant growth, which shall include, but not be limited to; all declared category 1, 2 and 3 listed invader species as set out in the Conservation of Agricultural Resources Act (CARA) regulations. Other vegetation deemed alien shall be those plant species that show the potential to occupy in number, any area within the defined construction area and which are  declared undesirable. |
| Berm | A barrier designed to divert surface water flow. Berms will primarily be used along roads/tracks to prevent concentrated flow of water over particular areas, thereby reducing erosion of roads.  An impervious material, which forms the perimeter and floor of a compound and provides a barrier to retain liquid. Bunds are designed to contain spillages and leaks of liquids used, stored or processed  above ground and to facilitate clean-up operations. |
| Bund |
| Batch Plant | Site for the mixing and production of concrete or plaster, and associated equipment and materials.  is the area designated for key construction infrastructure and services, including but not limited to offices, overnight vehicle parking areas, stores, the workshop, stockpile and lay down areas, hazardous storage areas (including fuels), ablution facilities, waste and  wastewater management. |
| Construction Camp |
| Contractor | Construction companies as well as their sub-consultants and suppliers appointed to undertake the construction activities on behalf of Ba-Phalaborwa Local Municipality.  Action to eliminate the cause of a detected nonconformity. |
| Corrective action |
| Developer | Developer of the project, Ba-Phalaborwa Local Municipality.  the natural distribution of an organism (plant or animal) restricted to the local environmental conditions within an area. |
| Endemic |
| Environment | The aggregate of surrounding objects, conditions and influences that  influence the life and habits of man or any other organism or collection of organisms. |
| Environmental Control Officer | An external environmental consultant appointed by BPLM to periodically monitor the level of implementation of the EMPr and suitable environmental management practices on site during the construction phase of the project.  A positive or negative change to the environment that results from the  construction and operation of the activity. The impact can be direct or indirect result of the activities. |
| Environmental Impact |
| Environmental Management Programme (EMPr) | A programme that seeks to achieve a required environmental end state and describes how activities, that could have a negative impact on the environment, will be managed and monitored and impacted  areas rehabilitated. |

|  |  |
| --- | --- |
| Environmental Management System (EMS) | Part of an organisation’s management system used to develop and  implement its environmental policy and manage its environmental aspects. |
| Environmental Policy | Overall intentions and directions of an organisation related to its environmental performance as formally expressed by top management.  The process by which material, such as rock or soil, is worn away or  removed by wind or water. |
| Erosion |
| General Waste | Domestic, commercial, non-hazardous waste and builders’ rubble. |
| Hazardous Substance | Any substance that is of risk to health and safety, property or the environment. Hazardous substances have been classified under the SANS 10228-B The identification and Classification of Dangerous Goods and Substances’.  A site that contains either archaeological artefacts, graves, buildings  older than 60 years, meteorological or geological fossils, etc. |
| Heritage Site |
| Method Statement | They indicate how compliance with the Environmental Specification will be achieved. The Contractor shall submit a written Method Statement to the ECO for approval, covering those activities which are identified in this document and/ or by the ECO as being potentially harmful to the environment.  Areas identified as being environmentally sensitive, delineated on plan, demarcated on the site with pegs or fencing and which are out of bounds to unauthorised persons. Authorisation must be obtained  prior to entry. |
| "No-go" Areas |
| Non-conformity | Non-fulfilment of a requirement. A “non-conformance” is interpreted to include legal non-compliance, deviations from policy, objectives and targets not met, accidents, ineffective procedures, and deviations from specified conditions and from other requirements of the environmental management system.  Action to eliminate the cause of a potential non-conformity |
| Preventive action |
| Pollution | The direct and indirect alteration of the physical, chemical or biological properties of a resource which results in it being less fit for any beneficial purpose for which it may reasonably be expected to be used.  Person representing Ba-Phalaborwa Local Municipality who is responsible for technical and contractual implementation of the works  to be undertaken. |
| Project Manager |
| Risk | The probability of an event occurring multiplied by the consequences of that event.  South African Heritage Resource Agency - the statutory body  responsible for heritage resource management. |
| SAHRA |
| Site | Areas that will be utilised by the contractor for the duration of the  duration of the contract. This shall include the sports fields, access |

|  |  |
| --- | --- |
|  | roads to be used, construction lay-down areas, materials storage and delivery requirements, contractors’ offices, operational demarcation. Means the inclination of a surface expressed as one unit of rise or fall  for so many horizontal units. |
| Slope |
| Storm-water | Water resulting from natural precipitation and/or accumulation and includes rainwater.  The upper outermost layer of soil (300mm) which has the highest  concentration of organic matter. |
| Topsoil |
| Water body | Means a body containing water and includes dams and wetlands, whether ephemeral or permanent.  Means any river, stream and natural drainage channel whether  carrying water or not. |
| Watercourse |
| Works | The construction operations and all related and incidental works, such as site works, earthworks, installation of services, rehabilitation etc, carrying to completion of the development.  Means the land and any other place on, under, over, in or through which the Works are to be executed or carried out, and any other land or place made available by the Employer in connection with the Works. The Working Area shall include the site office, construction camp, stockpile and laydown areas, assembly areas, batching areas, the construction corridor, all access routes and any additional areas  to which the Project Manager permits access. |
| Working area |

# SECTION 1: INTRODUCTION

The condition of existing sports facilities within the Ba-Phalaborwa Local Municipality jurisdiction is not satisfactory and therefore there is no value addition to tourism in the area. The Municipality has to increase both the quantity and quality of sports infrastructure in order to attract national and international events to the area and benefit local tourism. As such the municipality intends to refurbish Namakgale-A stadium and the works associated with the refurbishment of the stadium are not listed in Government Notice, R327 of April 2017 as amended. As such an Environmental Authorisation is not required. However, to ensure that detrimental impacts are avoided/minimised and positive impacts are enhanced, an EMPr is required to be implemented during the development life cycle. Ba-Phalaborwa Local Municipality through Infra Projects Africa, has therefore appointed TSMAK Project Managers (herein after referred to as TSMAK) to compile an EMPr for the proposed refurbishment as per Appendix 4 of the EIA regulations as amended.

The EMPr sets out the intended methods of effectively managing potential environmental impacts arising from the construction and operation of the stadium. The responsibility for implementation of this document lies with the Contractor and shall be controlled by municipality’s Project Manager who shall work in conjunction with the Environmental Control Officer (ECO) to ensure it is implemented.

### EAP’s Experience

As per the requirements of the National Environmental Management Act: NEMA, 1998 (Act No. 107 of 1998), as amended and Government Notice R326, Environmental Impact Assessment Regulations of 2017 as amended, the details of the person(s) who prepared the Environmental Management Programme and the expertise of that person(s) to prepare an environmental management programme are provided below:

**Table 1-1:** EAP Experience

|  |  |
| --- | --- |
| **Company** | **TSMAK Project Managers** |
| **EAP** | Frank Mhandu |
| **Postal Address** | P.O. Box 7068, Midrand 1685 |
| **Telephone No.** | 084 492 1665 |
| **E-mail** |  |
| **Expertise** | Qualification(s)  BSc (Hons) Environmental Science, Professional Diploma GIS. Professional Registration  SACNASP: Professional Natural Scientist |

|  |  |
| --- | --- |
|  | Experience  A dedicated and passionate Environmentalist with valuable theoretical and experiential acumen in the areas of environmental conservation and administration. I have 12 years’ experience gained through direct involvement in a number of conservation initiatives. Currently a Principal Environmental Consultant of TSMAK responsible for leading, administrating and completing assessments on Environmental Impact Assessments, as well as overseeing studies, interpreting technical reports and appendices regarding the same.  I leverage academic skills gained through an honours level degree in Environmental Science & Health and Post Graduate Certificates in Integral Water Management and Geo-informatics; alongside the proficient ability to actively and valuably participate in the development, design and implementation of environmental / conservation management policies and consultation initiatives; thereby supporting the highest standards of Environmental Management and Sustainable Development, in all  undertakings. |

In terms of the National Environmental Management Act (Act 107 of 1998, NEMA) as amended and its EIA Regulation, it is necessary to undertake environmental investigations as an integral part of project planning. This EMPr identifies the project management structure, roles and responsibilities concerning managing and reporting on the environmental impacts of the construction and operation phase.

### The Purpose of the EMPr

The purpose of this EMPr is therefore to describe the environmental management and monitoring procedures to be implemented during the Project’s life span. The EMPr will enable the project team to refurbish the stadium with the least adverse environmental effects. Overall implementation of this EMPr will ensure:

* Compliance with the conditions of resource consents and designations;
* Compliance with environmental legislation;
* Adherence to BPLM’s environmental objectives; and
* Ensuring Environmental risks associated with the Project are properly managed.

This document will therefore define details of who, what, where and when environmental management and mitigation measures are to be implemented. It will also cover all anticipated construction and operation elements and present a framework of principles, environmental policy, objectives and performance standards as well as processes for implementing good environmental management.

### Assumptions

The EMPr is based on the assumptions described below.

* The main works to be carried out will be limited to activities typically defined as refurbishment and maintenance of the stadium;
* The works will be carried out within the existing stadium footprint and will not involve relocation outside the project area;
* It is assumed that the Applicant has provided adequate details with regards to the activities to be carried out and the processes to be followed during the construction and operation phase; and
* Information used to inform the assessment was limited to data and GIS coverage which is available at a local, regional and national level. It is assumed that this data encompasses the site conditions.

### EMPR Layout and Structure

Figure 2 in Section 2 indicates the location of the stadium and the relevant environmental management strategies to minimise negative impacts in these areas are dealt with in Section 3.

###### Method of Compiling EMPr

To identify specific areas within the project area, the team reviewed literature, topographical maps and aerial photographs.

### Legislation and Other Requirements

This document has been compiled in accordance with the Integrated Environmental Management (IEM) philosophy (DEAT, 2004a) and Appendix 4 of the EIA Regulations R326 of 2017 as amended. This philosophy aims to achieve a desirable balance between conservation and development (DEAT, 1992). NEMA promotes the integrated environmental management of activities that may have a significant effect on the environment, while IEM prescribes a code of practice for ensuring that environmental management principles are fully integrated into all stages of the development process. It advocates the use of several environmental and management tools that are appropriate for the various levels of decision-making. One such tool is an Environmental Management Programme.

###### National and Provincial Legislation, Regulations and Strategies

Construction and operation of the project must comply with a range of international, national, provincial and local legislation, regulations, strategies and policies in order to provide for the management of environmental effects. Key documents, national environmental legislation and regulations relevant to the Project are outlined in the table below:

**Table 1-3:** Relevant Legislation, Regulations and Standards

|  |  |
| --- | --- |
| **TITLE OF LEGISLATION, POLICY OR GUIDELINE** | **APPLICABILITY TO THE PROJECT** |
| The South African Constitution Act (Act 108  of 1996) | *Human rights on the environment.* |
| National Environmental Management Act  (Act 107 of 1998) | *Environmental Policy, in terms of environmental management.* |
| Environment Conservation Act of 1989 (Act  No. 73 of 1989) | *Provides for effective protection, control and utilization of the*  *environment.* |
| National Water Act 1998 (Act 36 of 1998) | *Ensure that water resources are protected, used, developed,*  *conserved, managed and controlled.* |
| The National Heritage Resources Act (Act  No. 25 of 1999) | *Protection of historical structures, graves and archaeological*  *objects* |
| National Environmental Management: Air  Quality Act (Act No. 39 of 2004) | *Controls and manages air pollution (replaced the Atmospheric*  *pollution prevention act)* |
| Conservation of Agricultural Resources Act  (Act No. 43 of 1983) | *Control of weeds and invader plants as well as the control of*  *the utilization and protection of wetlands and soil conservation.* |
| National Road Traffic Act (Act No. 83 of  1996) | *Movement of dangerous goods.* |
| National Environmental Management:  Waste Act (Act No. 59 of 2008) | *Control of storage, transfer, treatment and disposal of waste*  *on land.* |
| National Sport and Recreation Act (Act No.  110 of 1998) | *Promotion and development of sport and recreation.* |
| Occupational Health and Safety Act (Act No.  85 of 1993) | *Exposure of workers and waste products.* |
| National Mineral and Petroleum Resources  Development Act, 2002 (Act No. 28of 2002) | *Controls land use and infrastructure on mining and prospecting*  *areas.* |
| SANS 10103 | *The measurement and rating of environmental noise with*  *respect to annoyance and to speech communication.* |

### Administration Management

This EMPr should be used as a working document and it should be available on the construction site. The stipulations and provisions of this report should be conveyed to and familiarized by the contractor’s senior personnel and workers responsible for construction. The mitigation section should be issued as a stand- alone document to all parties involved with the planning, implementation and operation of the proposed project. The contractor and all sub-contractors working on the project shall be required to sign acknowledgement and acceptance to the terms and conditions of this EMPr and any revised versions.

### Training and Awareness

The Environmental Control Officer (ECO) in conjunction with the contractor shall be responsible for

compiling and conducting the Environmental Awareness Training Programme. This programme will aim at explaining the impacts anticipated during the project cycle and mitigation measures described in this report. The Programme will also be used to improve awareness of all employees on a continuous basis. General environmental awareness will be fostered among the project's workforce to encourage the implementation of environmentally sound practices throughout the project’s duration. This will ensure that environmental accidents are minimized and environmental compliance maximized. Based on this:

* The contractor shall arrange for the site induction on the Environmental Awareness issues before commencement of the project;
* The contractor shall ensure that adequate environmental awareness training of all the personnel working on the site familiarise with the contents of the environmental site control measures, which are outlined in this document.
* The contractor shall also make this training and awareness programme be conveyed to the personnel on site to the satisfaction of the Environmental Control Officer (ECO), either in written format or verbal, in the employees’ language of choice.
* The contractor should keep environmental training sessions, including names, dates and the information presented records of all.

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

* The importance of conformance with all environmental policies;
* The environmental impacts, actual or potential, of their work activities;
* The environmental benefits of improved personal performance;
* The potential consequences of departure from specified operating procedures; and
* The mitigation measures required to be implemented when carrying out their work activities.

### Responsibilities

The proposed activities require the commitment of the people assigned responsibilities to undertake their duties to avoid negative impacts on the environment.

###### Ba-Phalaborwa Local Municipality

BPLM is ultimately responsible for compliance with all conditions of approval of the development or any aspect thereof by any authority. BPLM is to:

* Ensure that all relevant approvals and permits have been obtained prior to the start of construction activities on site. Permits that may be needed include the following:
  1. General Authorization/ Registration of utilizing a water resource (anticipated groundwater use).
* Ensure that the requirements as set out in this EMPr and any other conditions of approvals by the relevant Authorities are adhered to and implemented by all involved in the project;
* Appoint a suitably qualified or experienced independent Environmental Control Officer to undertake environmental compliance audits per the requirements of this EMPr;
* Provide all principal contractors working on the project with a copy of this EMPr as part of tender contract documentation to allow the contractors to cost for its requirements within their respective construction contracts.

###### Ba-Phalaborwa Local Municipality: Project Manager

This designation refers to the representative of BPLM who is responsible for the technical and contractual implementation of the works/part of the works to be undertaken.

###### The Contractor

“The Contractor” refers to any directly/indirectly appointed company or individual undertaking the implementation of the works.

The Contractor is to:

* Ensure implementation of all applicable Environmental Management Specifications in this EMPr as well as all additional requirements related to approve method statements, during all works on site, failing which penalties the Project Manager may impose. The contractor should submit the following method statements:

1. *Site camp establishment*
2. *Vegetation clearing (if any)*
3. *Erosion and Storm-water control*
4. Fuel storage and use
5. Traffic accommodation
6. *Waste management*
7. *Hazardous substances*
8. *Cement and concrete batching*
9. *Emergency procedures*
10. *Dust Control*
11. *Site Disestablishment and Rehabilitation.*

###### Environmental Control Officer

The Environmental Control Officer (ECO) will be appointed by BPLM to ensure the day-to-day implementation of the EMPr and suitable environmental management practices on site for the duration of

the construction phase of the project. The ECO’s duties, inter alia, must be to facilitate compliance with the

EMPr on an on-going basis during the construction phase through monitoring, proactive, and open communication channels with the project/site management.

The ECO’s responsibilities include the following:

* Monitoring and verifying that the EMPr is adhered to by inspecting the site and surrounding areas regularly during the construction start-up period and periods of active construction with regard to compliance with the EMPr and notifying the Project Manager if the specifications are not followed;
* Assist the contractor with the Environmental Awareness Training;
* Manage and implement Non-conformance procedures (NCR’s, Defect notifications, punch lists) and site instructions;
* Give site instruction as to environmental issues;
* Monitor the contractor’s implementation of project specific environmental requirements;
* Conduct Environmental surveillance inspections and internal audits. Conducting a site inspection and auditing compliance of the EMPr;
* Reviewing and approving construction method statements together with the Project Manager;
* Assisting the Project Manager in finding environmentally responsible solutions to problems; and
* Give final release form to affected landowners to be managed.

### Implementation

During construction, the ECO will undertake ongoing inspections of the works to identify non-compliance with the provisions of the EMPr. The following parameters shall be utilised:

###### Construction Method Statements (CMS)

The EMPr provides the overall project strategy for management of environmental issues; however, a Construction Method Statement (CMS) will address environmental management issues at a site level. The contractor will be required to provide Method Statements prior to work commencing on aspects of the project deemed or identified to be of greater risk to the environment and/or which may not be covered in sufficient detail in the EMPr, when called upon to do so by the Project Manager and or ECO. Changes in the way the works are to be carried out must be reflected by amendments to the original approved Method Statement.

###### Work Instructions (WIs)

The Environmental Control Officer shall advise the site/project manager on issuing of detailed Environmental Work Instructions (WIs) in the form of environmental controls that provide “hands on” directions for on-site staff. These WIs should provide clear and concise instruction to site personnel in dealing with situations such as:

* environmental incidents;
* adverse weather conditions;
* complaints;
* controls and commitments detailed in the EMPr and CMS’s;
* a trigger point contained in the environmental inspection checklist or log; and
* General good site practice.

###### Checking and corrective action

* + - 1. Monitoring and reporting

The ECO & BPLM should develop monitoring and reporting procedures at the outset in order to:

* + - * + identify any negative impacts from construction activities;
        + assess the effectiveness of control measures;
        + demonstrate compliance with regulatory conditions and objectives and targets set in the EMPr; and
        + Identify if further controls/corrective action is required.

###### Environmental inspections, audits and registers

In addition to the routine monitoring conducted by the ECO, a schedule of regular inspections, audits and reporting will be required by the contractor. These inspections should provide a record of site conditions and activities and provide a mechanism by which the contractor, ECO and BPLM can establish the effectiveness of this EMPr.

###### Compliance and non-conformance

If criteria within this EMPr are not fulfilled and the contractor does not take, appropriate and corrective action a non-conformance may be raised by the ECO. It is the responsibility of the contractor to immediately initiate corrective actions and, once completed, provide details of the actions undertaken on the non- conformance/corrective action report and return it signed to the municipality’s project manager within 30 days.

### Documentation

The Contractor for the development will establish a dedicated file to contain all documentation pertaining to environmental management of the works. The records below will form an integral part of the contractor’s records:

* Environmental incidents involving Contractor employees and/or the public;
* Environmental complaints and correspondence received from the public to the Project Manager or the Environmental Control Officer;
* Record and report incidents that cause harm or may cause harm to the environment to the Environmental Control Officer;
* Record of all hazardous materials used on site;
* A record of all Hazardous Waste Disposal Manifests detailing the nature of the hazardous waste disposed of, the hazardous waste classification and the location of the site to which such waste was disposed.

###### Environmental Incidents Register

The ECO should put in place an Environmental Register and must ensure that the following information is recorded for all environmental incidents:

* Nature of incident;
* Causes of incident;
* Party/parties responsible for causing incident;
* Immediate actions undertaken to stop/reduce/contain the causes of the incident;
* Additional corrective or remedial action taken and/or to be taken to address and to prevent reoccurrence of the incident; and
* Timeframes and the parties responsible for the implementation of the corrective or remedial actions; and Copies of all correspondence received regarding incidents.

###### Public Complaints Register

The ECO shall further maintain the Public complaints register that will:

* Contain environmental complaints and correspondence received from the public to the Contractor or the ECO.
* Nature of complaint and where possible an image of the issue;
* Cause of complaint;
* Party/parties in responsible for complaint;
* Immediate actions undertaken to stop/reduce/contain the causes of the complaint including an image of the resolved action; and
* Additional corrective or remedial action taken and/or to be taken to address and to prevent reoccurrence of the complaint.

**SECTION 2: PROPOSED PROJECT DESCRIPTION**

### Need and Desirability

Sport and recreation infrastructure contributes to:

* Local economic development
* Career and human resource capacity development;
* Enhancement of social fiber and eradication of social ills;
* Prevention of undesirable sexual behavior; and
* Sport and Recreation contributes towards Total Well-being, Quality of Life and Good Health.

To ensure that the above is achieved there is need to refurbish/upgrade the existing stadiums that are in a state of disrepair. Ba-Phalaborwa Local Municipality therefore intends to refurbish Namakgale-A stadium.

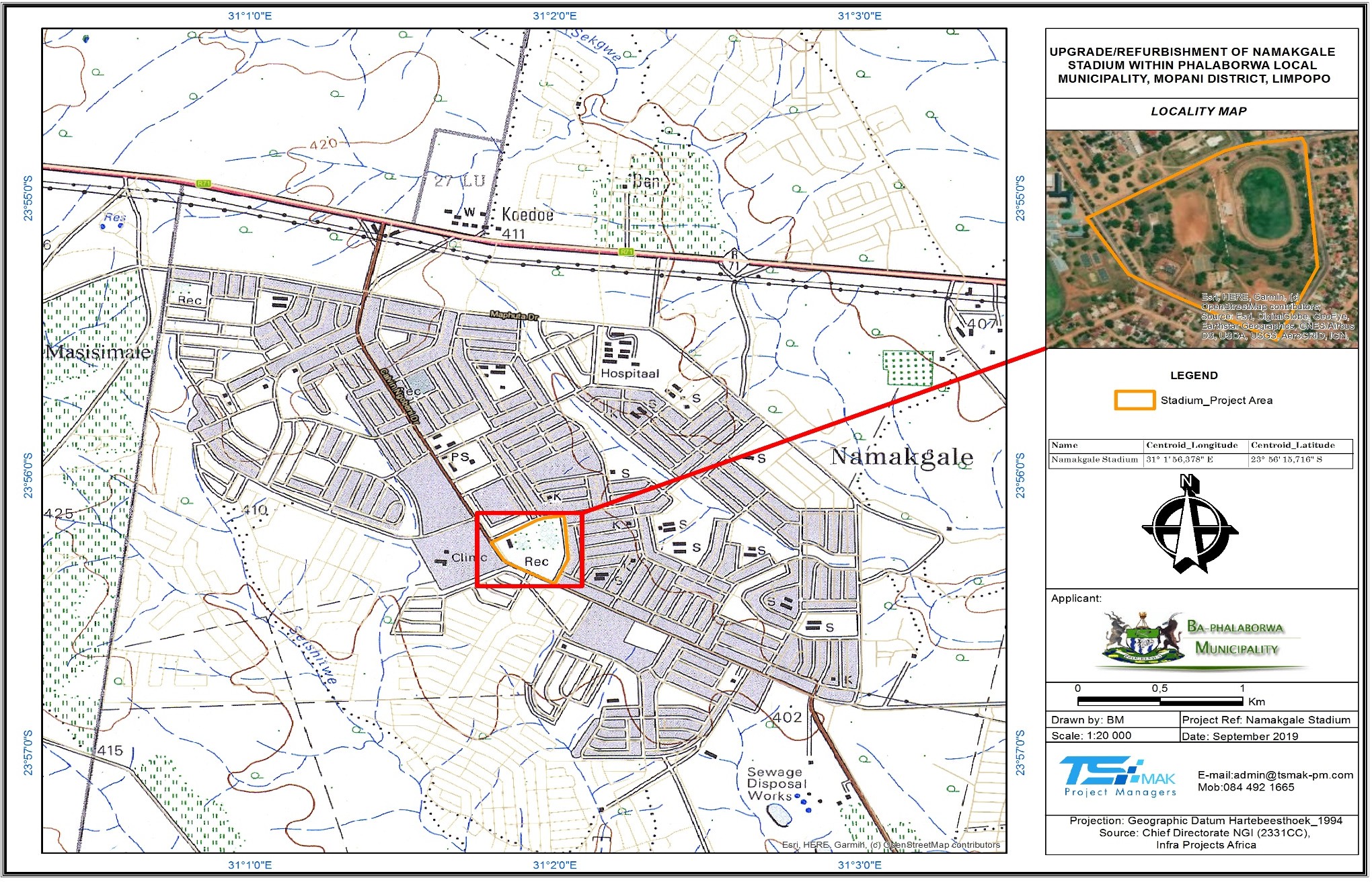
### Project Location and Receiving Environment

###### Location

The proposed project is within Mopani District Municipality located in the north-eastern part of the Limpopo Province and bordered by Ehlanzeni District Municipality in the south, Greater Sekhukhune District Municipality in the south west, and Capricon District in the west and Vhembe District in the north-west. The existing Namakgale Stadium is located on Erf 1815 in Namakgale-A village. It is approximately 10km west of Phalaborwa and can be accessed via Calvin Ngobeni road which branches off from R71. The footprint is approximately 12.4ha and is characterized of existing buildings, soccer field, swimming pool, multi- purpose courts and ablution facilities. Geographic centre co-ordinates of the site are **23°56’13.74”S, 31°01’59.05”E**. Reference is made to the Locality Map overleaf and Appendix A:

###### The Receiving Environment

The proposed works will be undertaken in an area that is already degraded and is categorized as ‘No natural area remaining’ in the Limpopo Conservation Plan. The area is generally void of vegetation with the exception of trees surrounding the soccer field which act as a visual buffer. The surrounding land-use is residential.



**Figure 1: Locality Map**

### Project Description

###### Construction Phase

The proposed works will entail the following:

* + - 1. The demolition and reconstruction of a structurally sound spectator grandstand next to the sports field;
      2. Upgrading of the change rooms and ablution facilities;
      3. Upgrading of the soccer field by planting turf and installing an irrigation system. The field will also be fitted to operate as a rugby field;
      4. Construction of a surfaced athletics track around the main soccer field;
      5. Construction of multipurpose courts for volleyball and basketball as well as tennis and netball;
      6. Construction of a parking lot including access to the parking as well as related controls and storm- water management infrastructure;
      7. Fencing around the sports complex and the refurbishment of fencing enclosing the soccer field;
      8. Construction of vending stalls;
      9. Upgrade of electrical works and mechanical Installations that include area lighting; and
      10. Upgrading of the swimming pool

###### Operation Phase

The operational phase described for the purposes of this EMPr consist of the following activities:

* Recreational and social related activities (facilitated usage of the community hall and sports field); and
* Irrigation and maintenance of sports field.

###### Decommissioning

The proposed project will be a permanent development and it is highly unlikely that a decommissioning phase will occur. Should the development, however, be demolished, associated activities will include the decommissioning of buildings and removal of grass layer on the sports field.

### Basic Services and Infrastructure

For the refurbishment to be successful, there is need for the municipality to ensure that there is adequate provision of the basic services such as water, sanitation, electricity, refuse collection and access roads. The Municipality must ensure that they provide the adequate capacity of required services to ensure that this amenity does not pose any harm to the environment and its inhabitants.

* **Water**

This report has not quantified an expected volume of water required for the construction and operation phase of this project. It is anticipated that a borehole will be constructed to cater for the water supply during the operation phase. Consideration should also be given for fire water supply. Hydrants should be provided for fire water supply. The number and positioning of hydrants should be as given in the *Guidelines for Human Settlement Planning and Design, Volume 2* provision of water for fire-fighting. For design purposes, a maximum of 1600litres is assumed for each hydrant. Confirmation that the existing municipal supply will be able to supply this additional demand is required from the responsible water supply authority during the detailed design stage.

Should this be undertaken, then a formal application for a water use license/ registration is required in terms of Section 21a of NWA (Act no. 36 of 1998).

* **Sewerage**

Sewerage generation is anticipated during the construction and operation phase due to the presence of the workforce contracted for the project and utilisation of the stadium. Consequently, the use of portable chemical toilets is suggested during the construction phase. However during the operation phase, a septic tank will be provided. However, such a mechanism requires adequate maintenance to prevent leakages.

* **Storm water**

Due to the sloped terrain of the area erosion could be a major impact especially during the construction phase. Erosion can be controlled through implementation of adequate storm-water management measures.

* **Solid waste**

It is anticipated that some quantity of solid waste will be produced during the construction and operational phase such as litter, packaging materials such as plastics, carton boxes, paper, beverages and stockpiles. This type of waste will not pose a significant threat to the proposed project and will not require a Waste Management License.

# SECTION 3: IMPACTS AND MITIGATION MEASURES

### Anticipated Impacts

This section of the report evaluates the possible negative and positive impacts, which may occur as a result of going ahead with the proposed project. Potential environmental impacts have been identified based on the following:

* + - A review of the proposed activity;
    - The nature of the receiving environment; and
    - Risks and key issues were identified through an internal process based on similar developments and site assessment.

The table below briefly describes the impacts that are anticipated during the refurbishment works. It should be noted that the significance of these impacts is generally low as the land-use is recreational and the stadium is already existing. In addition, the impacts for biodiversity have not been included since their significance is very low.

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| **IMPACTS** | **STATUS** | **DESCRIPTION** | **SIGNIFICANCE** |
| Soil/Land Impacts | Negative | During construction of roads and structures, unstable soils, any form of vegetation clearing and excavations presents a  risk of a negative impact. | Low |
| Waste | Negative | Any construction work generates solid waste, which can spread through the environment. Solid waste generation at the site will include metal scraps and wooden packing material. Hazardous waste is the oil waste, transformer oil  and sewerage. | Low |
| Air quality | Negative | Air pollution resulting from:  Combustion emissions from the construction equipment ; and  Fugitive dust emissions from the site grading or excavation activities, construction of plant, roads and vehicles using  gravel/unpaved roads. | Low |
| Archaeological Impacts | Negative | Construction activities could directly impact cultural resources by damaging and displacing artefacts,  diminishing site integrity and altering the characteristics that | Low |

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|  |  | make the resources significant. |  |
| Visual | Negative | Visual intrusion is highly dependent on the type of infrastructure planned and the surroundings of the development. The construction site camp can result in a  negative aesthetic impact. | Low |
| Noise | Negative | Heavy machinery is often required for construction works. This machinery contributes to tremendous amount of sustained noise. Such noise elevations affect the environment by:   * Sonically vibrating structures; and * Presenting a danger to human welfare. | Low |
| Infrastructure Framework: Transportation | Negative | The use of the road network will play a large role in delivering materials and resources to the construction camp during construction. An increase in traffic volumes is expected to be minimal and short term, during the construction period. The roads that will be used for access  include the R71 | Low |
| Socio-cultural processes | Negative | Unacceptable social behaviour- the presence of incoming workers and or the influx of jobseekers can lead to deviant  social behaviour in the communities they are based. | Low |
| Negative | Physical quality of the living environment relate to the exposure to dust, noise, risk, odour, vibration and artificial light. During the construction and operation phase the activities carried out on site have a potential to create  pollution | Low |
| Negative | Personal safety and hazard exposure/crime and violence- personal safety and risk exposure due to the construction site and related infrastructure and due to the influx of  strangers entering the local communities | Medium |
| Institutional and legal processes | Positive | Capacity building and skills transfer- the project is expected to have a positive impact in capacity building in the communities as opportunities exist to develop the skills of the local residents. | Medium |

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| Economic Processes | Positive | Waged labour/ employment creation and decrease in unemployment- development directly influences changes in employment and income opportunities in communities. | Medium |

### Mitigations

The standard mitigations contained in the table overleaf are for the core standard mitigation measures/statements for the pre-construction, construction and operation phase of this project. Following extensive environmental assessment of the study area. BPLM and the contractors are required to ensure that all the mitigation methods contained in the statements listed below are implemented at all times.

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| *3.2.1 Pre-Construction and Construction Phase* | | | |
| * + - 1. Tendering   **Management Objectives**   * + - * + To improve the socio-economic status of the surrounding communities;         + To create employment for the local community;         + To train and capacitate the local communities.   **Targets**   * + - * + No complaints from the community;         + Equal opportunities for men and women;         + Training certificates;         + Gender equality strategy.   **Monitoring Responsibility and Frequency**   * Tender committee to monitor the tender adjudication; * BPLM to continuously monitor the appointment of sub-contractors and the training programmes throughout the project duration. | | | |
| **Activity** | **Impacts** | **Mitigation Measures** | **Responsible Person** |
| Awarding of contract | Job Creation | * Representatives from the local municipality can assist in determining local sub-contractors and labourers that should be considered for possible employment. * The tender document should specify the use of local labourers or enterprises (where possible). It should be stipulated in the tender documentation that contractors use local labourers for manual and low skilled activities such as fencing. Where possible, on-site training should be undertaken to ensure long term benefits to the members of the community. * BPLM’s own internal policies and procedures should be used to ensure a fair and transparent recruitment process. * Stakeholders should be mutually accountable for | BPLM |

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|  |  | increased opportunities regarding skills and competency development (general education and technical training). This training should be concentrated on skills that can be readily transferred to other employment opportunities in the local area, and only suitable qualified candidates  in project management activities should be used. |  |

* + - 1. Site Establishment



**Management Objectives**

* + - * + To plan construction methods that result in the least possible negative environmental impact and document these as Environmental Method Statements.
        + To minimize unnecessary damage to vegetation by determining the degree of clearing required and demarcate ‘No-Go areas’ before clearing begins;
        + To minimize damage to natural features;
        + To protect the public and ensure their safety from the works;
        + To prevent pollution of the environment;
        + To increase the level of compliance with the environmental specifications contained in the EMPr by raising awareness of the requirements in environmental awareness training courses at all staff levels;
        + To minimize environmental impact by siting the site camp/lay down area elements in areas where they have the least possible negative environmental impact whilst still being practical to the works.

**Target**

* + - * + No visible erosion scars once construction in an area is complete;
        + All damaged areas are successfully rehabilitated one year after rehabilitation;
        + All environmental method statements are provided by the Contractor prior to commencing with the activities governed by such method statements and are kept on file on site.
        + Environmental awareness training registers are on file on site;
        + The site camp and lay-down area is located in the approved position and its footprint minimized and demarcated, with no undue avoidable environmental impact e.g. storm water drainage, visual impact etc;
        + Site is secure and there is no unauthorized entry;
        + Adequate numbers of conveniently located site toilets are available on all work sites at all times in quantities related to the number of users; 1 toilet per 15 users.

**Monitoring Responsibility and Frequency**

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| * The Contractor shall monitor the site daily with respect to compliance with the specifications. * The Environmental Control Officer shall monitor minimum monthly that the specifications are complied with and provide the Contractor and Project Manager with an inspection report of any specifications not adequately complied with and how to rectify this. * The Environmental Control Officer shall provide summary reports of compliance to the project team. | | | |
| **Activity That Causes**  **Environment Impact** | **Environmental Impacts** | **Mitigation Measures** | **Responsible Person** |
| Establishment of construction camp | Removal of indigenous tree species | * The construction camp, office and storage areas for material and equipment must be fenced in to prevent impacts and human interference to spread further than the site. * During the construction phase, workers must be limited   to areas under construction. | Contractor and Construction workers, ECO, BPLM. |
|  | Impact on the visual environment | * All temporary stockpile areas, litter and rubble must be removed on completion of construction. All dumped material must be taken to an approved landfill in the area. * The careful position of soil piles and runoff control   during all phases of development will limit the extent of erosion occurring on the site. |  |

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|  | * + - 1. Material Handling and Storage   **Management Objectives**   * + - * + To ensure environmental best practice in terms of the storage and handling construction materials and equipment; and         + To ensure that storage and handling of chemicals and hydrocarbons on-site do not cause pollution to the environment or harm to people.   **Target**   * + - * + Storage facilities including approved location, ventilation, bunding and signage.         + All spillages are adequately treated.         + Required drip trays in place.   **Monitoring Responsibility and Frequency**   * + - * + The ECO to undertake monthly inspection of hazardous material storage areas to check for leakage;         + The contractor to undertake daily on-site vehicle checks for fluid leaks;         + Regular inspection of the oil catchment area around the transformers by the contractor and ECO; and         + The ECO to compile monthly audit reports on incident reports. | | | |
| **Activity That Causes**  **Environment Impact** | **Environmental Impacts** | **Mitigation Measures** | **Responsible Person** |
| Storage and Handling of hazardous substances including fuel and gas | Potential fuel/hazardous substance spillage | * All the necessary handling and safety equipment required for the safe use of petrochemicals and oils shall be provided by the contractor to, and used or worn by the staff whose duty it is to manage and maintain the supplier’s plant, machinery and equipment. * Petrochemicals, oils, asphalt and identified hazardous substances shall only be stored under controlled conditions. * All hazardous materials will be stored in a secured, appointed area that is fenced and has restricted entry. * The contractor shall provide proof that relevant | Contractor, ECO |

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|  |  | authorisation to store such substances has been obtained from the relevant authority.   * In addition, hazard signs indicating the nature of the stored materials shall be clearly displayed on the storage facility or containment structure. * Before containment or storage facilities can be erected, the contractor shall furnish the Engineer/ Project Manager with details of the preventative measures which are proposed to be installed in order to mitigate against pollution of the surrounding environment from leaks or spillage. * The preferred method shall be a concrete floor that is bunded. * The proposals shall also indicate the emergency procedures to be implemented in the event of misuse or spillage of substances that will negatively impact on an individual or the environment. * In the event of a spillage, the contractor is to appoint   someone to clean up immediately. |  |

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| * + - 1. Vegetation Clearance   **Management Objectives**   * + - * + To minimize damage to existing trees;         + To minimize possibility of erosion due to removal of trees/grass;         + To ensure alien plants do not become dominant in the project area and surrounding areas;         + To control alien and invasive species dispersal and encroachment.   **Targets**   * + - * + Record of clearing activities.   **Monitoring Responsibility and Frequency:**   * + - * + Control of alien vegetation must be done monthly by the ECO; and         + Alien plant distribution and clearing measure should be recorded after every three months by the ECO. | | | |
| **Activity That Causes**  **Environment Impact** | **Environmental Impacts** | **Mitigation Measures** | **Responsible Person** |
| Clearing of site for construction. | Removal of indigenous trees | * The municipality and ECO must identify and demarcate the exact clearing for the contractor to ensure that minimum de-bushing takes place. * All landscaping in common areas and road scaping should use indigenous plants only, with preference given   to local indigenous species where possible. | Contractor, ECO, BPLM |
| Introduction of alien species | * Must clear alien vegetation on a regular basis. | Contractor, ECO |

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| * + - 1. Soil   **Management Objectives**   * + - * + To minimise erosion on site and along gravel access roads during construction; and         + To provide permanent erosion and sediment control measures, where required.   **Targets**   * + - * + No erosion scars.   **Monitoring Responsibility and Frequency:**   * + - * + The ECO and contractor should undertake on-going monitoring of areas with soil susceptible to erosion to ensure that formation of gullies is avoided;         + The ECO and contractor should undertake on-going monitoring of erosion and sediment control measures to determine their effectiveness;         + Daily visual inspection of sediment control devices should be done by the contractor; and         + Sediment controls will be reviewed during site inspections and/or after significant rainfall (more than 10mm in 24hrs resulting in site runoff) by the ECO. | | | |
| **Activity That Causes**  **Environment Impact** | **Environmental Impacts** | **Mitigation Measures** | **Responsible Person** |
| Vegetation clearance (if any) | Erosion of topsoil by runoff waters and winds | * Topsoil must be stockpiled separately during trenching and refilled immediately after. * As much vegetation growth should be encouraged to protect soils. | Contractor, ECO |
| Removal of topsoil. | Soil erosion | * Topsoil must be stripped aside and be used for rehabilitation of trenches. * Monitor all areas traversed by the development for erosion and incision, during site clearing in the preconstruction phase and throughout the construction phase. * All areas susceptible to erosion must be installed with   temporary and permanent diversion channels and berms to prevent concentration of surface water thereby |

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|  |  | countering erosion.   * The contractor shall be responsible for the safe siting, operation, maintenance and closure of any spoil site used during the contract period. This shall include existing spoil sites that are being re-entered. * Before spoil sites may be used, proposals for their   locality, intended method of operation, maintenance and rehabilitation shall be given to the Engineer for approval. |  |
| Maintenance and movement of construction vehicles | Potential spills of hazardous substances | * Construction vehicles must be well maintained and serviced to minimise leaks and spills. * Drip pans can also be used during the servicing of construction vehicles. Used parts like filters should be contained and disposed of at a site licensed for   disposing of these waste products. |
| Improper installation and management of storm water drainage system | Topsoil removal and soil erosion | * Adequate storm water drainage system must be   designed and maintained to adequately control the volume, speed, location of runoff, to avoid soil erosion. | Contractor, ECO, Site Engineer |

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| * + - 1. Archaeology   **Management Objectives**   * + - * + Protection of archaeological sites and land considered to be of cultural value; and         + The preservation and appropriate management of new archaeological finds should these be discovered during construction.   **Target**   * + - * + No destruction of or damage to known archaeological sites;         + No litigation due to destruction of sites; and         + Management of existing sites and new discoveries in accordance with the recommendations of the Archaeologist.   **Monitoring Responsibility and Frequency**   * + - * + Visual monitoring should be undertaken by the site manager and the ECO during excavation activities. | | | | |
| **Activity That**  **Environment Impact** | **Causes** | **Environmental Impacts** | **Mitigation Measures** | **Responsible Person** |
| Digging and trenching | | Discovering of archaeological attribute | * Familiarise all staff and contractors with procedures for dealing with heritage objects/sites; * Care should be taken to conserve exposed archaeological objects in trenches; * No destruction of any site shall be allowed. Should it be necessary to remove any archaeological objects, the necessary procedures shall be followed and permits obtained; * Artefacts shall not be removed under any circumstances. Any destruction of a site can only be allowed once a permit is obtained. * Discovered attributes of archaeological or historical | Contractor, ECO |
|  | |  | importance must be reported to the Limpopo Heritage |  |
|  | |  | Resources Agency (LIHRA) and work must cease in that |  |
|  | |  | particular area until the necessary permits have been |  |
|  | |  | issued by LIHRA. |  |

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|  |  | * Should any undisturbed subsurface archaeological material be exposed during the construction activities, the archaeologist must activate all necessary mitigation   measures to salvage such exposed heritage remains. |  |
| * + - 1. Air Quality   **Management Objectives**   * + - * + To minimize the generation of dust on the project site; and         + To minimize all potential odour issues relating to contaminated soil and water.   **Targets**   * + - * + No visible dust within the project site;         + No visible loose material from trucks; and         + No complaints from the public.   **Monitoring Responsibility and Frequency**   * + - * + The Project Manager should carry out a weekly inspection during site preparation;         + Daily inspection by the Contractor to monitor activities for dust generation and moisture content of exposed areas;         + Continuous monitoring by the ECO and the Contractor with regards to fires caused by burning of waste; and         + Pre-construction inspection and maintenance as required for construction vehicles. | | | |
| **Activity That Causes**  **Environment Impact** | **Environmental Impacts** | **Mitigation Measures** | **Responsible Person** |
| Clearing of site | Air pollution by dust particles | Cleared areas and roads must be suppressed with water to  avoid dispersal of dust particles into the atmosphere. | Contractor |
| Burning of waste | Air pollution | Burning of waste must not be allowed on site. All waste must be  stored adequately and disposed of at an authorised facility. | Contractor |
| Excessive burning of fossil fuel | Excessive hazardous smoke  into the atmosphere | Burning of fossil fuels must not be allowed on site. | Contractor |
| Emissions from vehicles and dust from gravel roads | Air pollution | Vehicles should be well serviced to avoid excessive emissions. | Contractor |

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| * + - 1. Noise   **Management Objectives**   * + - * + To minimize the generation of noise from construction activities.   **Target**   * + - * + No complaints received from the public.   **Monitoring Responsibility and Frequency**   * + - * + Routine inspections of plant and equipment must be carried out by the contractor; and         + Any noise complaints received from the public should be recorded, reported and monitored. | | | |
| **Activity That Causes**  **Environment Impact** | **Environmental Impacts** | **Mitigation Measures** | **Responsible Person** |
| The use of construction machines and laborers on site create noise. | Noise pollution | * Construction must be limited to normal working hours. * All machinery, including earthmoving vehicles needs regular maintenance to reduce noise intensity. * Installation of sound vibration detectors on plant machinery is recommended. * Construction vehicles must use designated entry and exit routes so that noise impacts can be largely confined to specific access routes. * All construction activities must abide to national noise   laws and municipality by-laws. | Contractor and ECO |

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| 3.2.1.9 Visual  **Management Object**   * To retain the visual status quo.   **Target**   * The site camp and lay-down area is located in the approved position and its footprint minimized and demarcated, with no undue avoidable environmental impact e.g. visual impact etc; | | | |
| **Activity That Causes**  **Environment Impact** | **Environmental Impacts** | **Mitigation Measures** | **Responsible Person** |
| Access routes | Aesthetic pollution | * Access for construction traffic will be required and   maintained to all sites during the construction phase; | Contractor, ECO |
| Site Camp Establishment |  | * If practically possible, locate construction camps in areas that are already disturbed or where it is not necessary to remove established vegetation like for example, naturally bare areas; * Keep the construction sites and camps neat, clean and organised in order to portray a tidy appearance; and * Screen the construction camp and lay-down yards by   enclosing the entire area with a dark green or black shade cloth of no less than 2 m height. | Contractor, ECO |

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|  | 3.2.1.10 Health and Safety  **Management Objectives**   * To promote good health; and * To ensure security of workers and community.   **Target**   * No complaints from community; * No litigation; * No crimes recorded; and * Good health.   **Monitoring Responsibility and Frequency**   * The Contractor's H&S officer shall monitor the site regularly with respect to compliance with the specifications. This shall be verified by the Contractor's external H&S Agent's monthly report. * The ECO shall report to the Contractor's H&S Officer any safety concerns that were observed during his/her site inspections. | | | |
| **Activity That Causes**  **Environment Impact** | **Environmental Impacts** | **Mitigation Measures** | **Responsible Person** |
| Construction activities | Possible injuries to labourers | * The specifications included under this section do no exempt the Contractor from complying with all the Regulations as included in the Occupational Health and Safety Act (Act 85 Of 1993). The contractor is further referred to this Act and all its regulations; * Contractor to submit a Health and Safety Plan, prepared in accordance with the Health and Safety Specification, for approval prior to the commencement of work; * All construction personal must be clearly identifiable. All employees must also be issued with employee cards for identification purposes. The safety of all construction and operational personnel, as well as any members of the public on the site is the responsibility of the   Contractor; | Contractor and SHE Officer |

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|  |  | * Emergency contact numbers for all Emergency services, the Local Municipality and any other relevant persons must be displayed in a common area (administrative or meeting area) on site. * The site manager shall ensure that employees are issued with and make use of the necessary safety equipment when working in dusty, noisy and / or dangerous situations. Such equipment may include, but is not necessarily limited to hardhats, goggles, masks, earplugs, gloves, safety footwear and safety ropes as required; * Opened trenches and pits must be rehabilitated immediately to avoid injuries to pedestrians; * Ensure general good site management and health and safety awareness are employed; * Ensure the site is appropriately signed to warn of the potential dangers; * Access onto and off the site should be controlled by means of a register system. This includes visitors; * The contractor and Health and Safety Officer (HSO) should ensure that first aid / emergency facilities / procedures are in place; and * The HSO should ensure that all personnel are trained in basic site safety procedures. |  |

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| 3.2.1.11 Waste Management  **Management Objectives**   * To comply with waste management guidelines; * To minimize production of waste; * To keep the site clean and neat; * To store and dispose waste in the specified manner; and * To minimize the community’s complaints.   **Target**   * The waste system is in place prior to any waste generation works; * No waste/ rubble on site; * Safe disposal certificates; * Labelled bins; and * All waste disposed of appropriately.   **Monitoring Responsibility and Frequency**   * The contractor should monitor waste pathways to ensure correct application of reuse and recycling; * The Contractor shall monitor the site daily with respect to compliance with the specifications; * The ECO shall monitor minimum monthly that the specifications are complied with and provide the Contractor and Project Manager with an incident reporting system which will be used to report non-conformance to the EMPr; * A complaints register will be maintained in which any complaints from the community will be logged. Complaints will be investigated and if appropriate acted upon. | | | |
| **Activity That Causes**  **Environment Impact** | **Environmental Impacts** | **Mitigation Measures** | **Responsible Person** |
| Construction activities | Generation of solid waste and asbestos waste. | * All waste streams to be generated must be managed in accordance with the hierarchy of waste management   principles (Prevention, Reuse, Recycle, Recovery and | Contractor, ECO |

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|  |  | Disposal) and disposal at an authorised landfill must be the last option. Proof of disposal must be kept on site;   * The contractor’s intended methods for waste management and waste minimization must be implemented at the outset of the contract, and approved by the ECO; * All personnel shall be instructed to dispose of all waste in the specified bins; * Solid waste shall be stored in a designated area covered, tip proof metal drums for collection and disposal; * Signs will be located on each bin indicating type of bin and what waste may be placed in that bin. * No waste shall be burned at the site offices, or anywhere else on the site * Measures shall be taken to reduce the potential for litter and negligent behaviour with regard to the disposal of all refuse. * Oil collected by a mobile servicing unit should be stored in the service unit’s sludge tank and discharged into the safe holding tank for collection by the specialist oil recycling company. * All used filter materials should be stored in a secure bin   for disposal off site. |  |

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| 3.2.1.12 Infrastructure  **Management Objectives**   * Minimise damage to existing infrastructure- power lines, telephone lines and pipe lines;   **Targets**   * No damaged infrastructure.   **Monitoring Responsibility and Frequency**   * The site manager will monitor all excavations (as and when they are undertaken). | | | |
| **Activity That Causes**  **Environment Impact** | **Environmental Impacts** | **Mitigation Measures** | **Responsible Person** |
| Construction activities: digging, trenching. | Destruction of infrastructure | * The relevant servitude owners within the project area should be notified prior to construction; and * No power lines/pipe lines/public and private infrastructure shall be damaged during the construction   phase. | Contractor, Construction workers, BPLM, ECO |

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| 3.2.1.13 Traffic Management  **Management Objectives**   * To address traffic issues arising from the refurbishment works; * To reduce the number of accidents between construction vehicles and the public.   **Target**   * A decrease or zero number of accidents recorded; * Minimal disturbance of normal traffic flow; and * A low record of complaints received.   **Monitoring Responsibility and Frequency**   * The site manager and ECO will undertake general surveillance of access tracks and roads and surrounding areas for damage of access roads and impact on other road users; * Routes and signage should be inspected daily to allow safe access; and * Weekly reports to the Healthy and Safety Officer, including the number of the accidents, fatalities and the causes of the accidents. | | | | | | |
| **Activity That**  **Environment Impact** | **Causes** | **Environmental Impacts** | | | **Mitigation Measures** | **Responsible Person** |
| Access to and from site ( bringing in material and workers) | | Traffic Congestion roads | on | public | * Signposting, warning signs, barriers and traffic diversions: site will be clearly visible and the public warned of all potential hazards * Traffic management system and staff training should be implemented, especially for site access and near-site heavy traffic; * The contractor should ensure provision of safe passages and crossings for pedestrians where construction traffic interferes. * Restrictions on the movement of vehicles may be placed so as to avoid any anticipated peak levels, as well as phasing of traffic movements to and from the site so as to avoid potential convoys which could cause local scale congestion. * All trucks should not be over laden, and should be | Contractor, ECO, HSO, BPLM |
| Movement of plant on site during site clearance and trenching. | | Accidents |  |  |  |

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|  |  | regularly serviced.   * Good driving practices will be required from all delivery drivers. |  |
| 3.2.1.14 Fire Management  **Management Objectives**   * Minimize risk of fires.   **Target**   * A fire management plan is in place before construction; * No fires started by the Contractor’s work force; and * No litigation.   **Monitoring Responsibility and Frequency**   * The Contractor shall ensure that all inductions and training is carried out to facilitate fire response and evacuation and shall ensure that all fire- fighting equipment is available and inspection registers are up to date. | | | |
| **Activity That Causes**  **Environment Impact** | **Environmental Impacts** | **Mitigation Measures** | **Responsible Person** |
|  | Destruction of infrastructure and biodiversity | A fire management plan must be identified, implemented and maintained, commencing prior to construction. The following additional measures must be included:   * No fires may be made for the burning of vegetation and waste. * No open fires are to be made on site; cooking facilities must be provided. * Fire-fighting equipment must be readily available on site   during all times. | BPLM, Contractor, ECO |

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| 3.2.1.15 Social Issues  **Management Objectives**   * Ensure equal opportunities for all; * Create short-term employment; * Training and skills development is implemented.   **Target**   * Gender equity strategy is in place prior to construction; * Training and skills development guideline is included in the tender document.   **Monitoring Responsibility and Frequency**   * Contractor to record the number of community members/ local businesses employed and trained monthly. | | | |
| **Activity That Causes**  **Environment Impact** | **Environmental Impacts** | **Mitigation Measures** | **Responsible Person** |
| Construction Activities | Gendered division of labour | * BPLM own internal policies and procedures should be used to ensure a fair and transparent recruitment process; * Salaries of women should be equal to that of men when undertaking the same work; * Training and skills development should take place for women; and * Institute a well-designed gender equality strategy, if not   available. | BPLM, Contractor |
| Capacity building and skills transfer | * BPLM and the contractor should be mutually accountable for increased opportunities regarding skills and competency development (general education and technical training). This training should be concentrated   on skills that can be readily transferred to other | BPLM, Contractor |

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|  |  | employment opportunities in the local area, and only suitable qualified candidates in project management  activities should be used. |  |
| Waged labour/ employment  creation and decrease in unemployment | * Local contractors and suppliers to be used during the construction phase as far as possible. | BPLM, Contractor |
| *3.2.2 Operation Phase* | | | |
| * + - 1. Vegetation   **Management Objectives**   * + - * + To minimize damage to vegetation;         + To minimize possibility of erosion due to removal of vegetation/grass;         + To ensure alien plants do not become dominant in the project area and surrounding areas.   **Targets**   * + - * + Rehabilitate areas.   **Monitoring Responsibility and Frequency:**   * + - * + Control of alien vegetation must be regularly done by BPLM. | | | |
| **Activity That Causes**  **Environment Impact** | **Environmental Impacts** | **Mitigation Measures** | **Responsible Person** |
| Debushing during maintenance | Removal of flora | * Selective bush clearing must take place, i.e. the entire stadium footprint should not be cleared. Indigenous vegetation which does not interfere with the safe operation of the internal access roads and sports fields   should be left undisturbed. | BPLM |

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|  | * + - 1. Waste Management   **Management Objectives**   * + - * + To comply with waste management guidelines;         + To minimize production of waste;         + To keep the stadium clean and neat;         + To store and dispose waste in the specified manner.   **Target**   * + - * + The waste system is in place;         + No wind-blown litter on site;         + Safe disposal certificates;         + Labelled bins; and         + All waste disposed of appropriately.   **Monitoring Responsibility and Frequency**   * + - * + BPLM should monitor waste pathways to ensure correct application of reuse and recycling; and         + A complaints register will be maintained in which any complaints from the community will be logged. Complaints will be investigated and if appropriate acted upon. | | | |
| **Activity That Causes**  **Environment Impact** | **Environmental Impacts** | **Mitigation Measures** | **Responsible Person** |
| Operation activities | Generation of solid waste. | * All waste streams to be generated must be managed in accordance with the hierarchy of waste management principles (Prevention, Reuse, Recycle, Recovery and Disposal) and disposal at an authorised landfill must be the last option. Proof of disposal must be kept on site; * All personnel shall be instructed to dispose of all waste in the specified bins; * Solid waste shall be stored in a designated area   covered, tip proof metal drums for collection and | BPLM |

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|  |  | disposal;   * Signs will be located on each bin indicating type of bin and what waste may be placed in that bin. * No waste shall be burned at the stadium, or anywhere else on the site * Measures shall be taken to reduce the potential for litter and negligent behaviour with regard to the disposal of all refuse. |  |
| * + - 1. Fire Management   **Management Objectives**   * + - * + Minimize risk of fires.   **Target**   * + - * + A fire management plan is in place;         + No fires started by the personnel; and         + No litigation.   **Monitoring Responsibility and Frequency**   * + - * + BPLM shall ensure that all inductions and training is carried out to facilitate fire response and evacuation and shall ensure that all fire- fighting equipment is available   and inspection registers are up to date. | | | |
| **Activity That Causes**  **Environment Impact** | **Environmental Impacts** | **Mitigation Measures** | **Responsible Person** |
| Operation activities | Destruction of infrastructure and biodiversity | A fire management plan must be identified, implemented and maintained throughout the operational phase. The following additional measures must be included:   * No fires may be made for the burning of vegetation and waste. * No open fires are to be made on site; cooking facilities | BPLM |

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|  |  | must be provided.   * Fire-fighting equipment must be readily available on site during all times. |  |
| * + - 1. Basic Services   **Management Objectives**   * + - * + Adequate provision of basic provisions.         + Resource use strategies are in place.   **Target**   * + - * + Resource use is recorded monthly.         + Continuous awareness programmes are undertaken.   **Monitoring Responsibility and Frequency**   * + - * + BPLM shall continuously undertake site inspections and review resource utilization to ensure efficiency use. | | | |
| **Activity That Causes**  **Environment Impact** | **Environmental Impacts** | **Mitigation Measures** | **Responsible Person** |
| Water consumption | Misuse of water | * Any water that is used which is not supplied by BPLM must be registered and authorised by the Department of Water & Sanitation prior to usage commencement. * Enforce water-use reduction strategies; * To reduce the demand or dependency on groundwater/ treated water consideration should be made to install rain water harvesting tanks; * Prevent spilling of water through proper procedures; * Promote efficient use of water through proper time- management. * Place notices on site informing the workers of the   importance of water saving; | BPLM |

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|  |  | * Environmental Awareness training; * Site inspections to Identify and report leaking taps and pipes. |  |
| Electricity consumption |  | * Enforce electricity reduction strategies; * All electrical services infrastructure must be approved by the relevant authority/department before implementation. * Use energy saving equipment like LED lights as required by SANS 10400. * All unused equipment must be switched off; * The importance of energy saving must be promoted. |

##### Rehabilitation

After completion of the construction works, all areas that were disturbed should be rehabilitated. The following measures are required to address the issues of the negatively impacted site.

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| **Management Objectives**   * Establishment of vegetation in areas previously disturbed by construction where feasible to stabilize the site and improve aesthetics; * Stabilization of soils; * Control of alien invasive plant species; * To ensure and encourage site rehabilitation of disturbed areas; and * To ensure that the site is appropriately rehabilitated following the execution of the works, such that residual environmental impacts are remediated or curtailed. |
| **Targets**   * Monitoring of all construction areas including construction equipment camps and working areas, cleared of equipment and temporary facilities; * Topsoil replaced on all areas and stabilized; * Disturbed areas rehabilitated and acceptable plant cover achieved on rehabilitated areas; and * Closed site free of erosion and alien invasive plants. |
| **Procedures**   * The Contractor must ensure that all temporary structures, materials, waste and facilities used for construction activities are removed upon completion of the project. Pre-construction imagery can be taken to determine the loss of natural landscape and later compared to the rehabilitated land to obtain an indication of overall success in re-vegetation and rehabilitation; * Compacted areas that are no longer needed post-construction (e.g. laydown areas and the crane) shall be ripped and scarified; * Necessary drainage works and anti-erosion measures shall be installed, where required, to minimise loss of topsoil and control erosion; * The contractor should replace stockpiled topsoil in disturbed areas where rehabilitation is to be undertaken as a layer of at least 10cm in thickness; and * The ECO should ensure that the contractor implements immediate surface restoration and re-sloping in order to prevent erosion, taking cognisance of local contours and landscaping. |
| **Monitoring Responsibility and Frequency**   * The Project Manager shall monitor all rehabilitation areas to ensure that they are establishing well and are free from alien invasive vegetation. * The ECO is to comment on the progress and success of re-vegetation efforts. |

* + - 1. Monitoring Programme

Upon completion of all work, the ECO shall survey all rehabilitated areas to ensure compliance with the construction phase specifications. Some impacts may need ongoing monitoring and/or management (e.g. maintenance activities such as erosion control). If deemed necessary, the monitoring programme may need to be established to ensure the long-term viability of the rehabilitated areas.

1. **CONCLUSION**

Should these recommended measures be adopted in the planning, construction, operation/ maintenance and decommissioning phases of the proposed activity, TSMAK finds that the predicted impacts of the proposed activities are within acceptable limits.

It should be noted however, that environmental management is dynamic and as such the EMP must be flexible in order to accommodate changing circumstances and requirements. Ongoing environmental monitoring of the stadium should be carried out throughout its life cycle, and such should be conducted by a dedicated ECO within BPLM, to identify and address new issues as they arise, and to update or amend the management plan accordingly.

**5. REFERENCES**

* + - * + DEAT (2002), Ecological Risk Assessment, Integrated Environmental Management, Information Series

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* + - * + DEAT (2004), Environmental Management Plans, Integrated Environmental Management, Information Series 12. DEAT. Pretoria;
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