

# **OPERATIONAL ENVIRONMENTAL MANAGEMENT PLAN**

## **SAND MINING WITHIN THE OKAHANDJA RIVER ADJACENT TO PORTION 331, OF THE FARM OKAHANDJA TOWN AND TOWNLANDS NO. 57 OTJOZONDJUPA REGION**

**FEBRUARY 2021**



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## GLOSSARY

The definitions given below are for explanatory purposes only and are applicable to the operation of this project.

**Environment:** The biosphere in which people and other organisms live. It consists of renewable and non-renewable natural resources, natural or modified ecosystems and habitats, and places of cultural significance.

**Environmental impact:** An impact or environmental impact is the change to the environment, whether desirable or undesirable, that will result from the effect of a project operation activity between the limits that define the project site. An impact may be the direct or indirect consequence of a project operation activity.

**Environmental Management Plan (EMP):** A detailed plan of action prepared to ensure that recommendations for enhancing positive impacts and/or limiting or preventing negative environmental impacts are implemented during the life-cycle of a project.

**Hazardous substance:** A substance that can have a harmful effect on the environment.

**Monitoring:** The regular inspection and verification of the extent of compliance of operational activities with the EMP.

**Site** The boundary and extent of the existing activity, including any areas off the main site on which works are to be carried out in order to allow the operation to proceed successfully.

## LIST OF ACRONYMS

EIA	Environmental Impact Assessment
EMA	Environmental Management Act
EMP	Environmental Management Plan
km	kilometre
m	meter
mm	millimetres
m <sup>2</sup>	square meters
m <sup>3</sup>	cubic meters
OEMP	Operational Environmental Management Plan

## **1 INTRODUCTION**

This document represents the Operational Environmental Management Plan (OEMP) for the operational phase of the existing sand mining operation within the Okahandja River adjacent to Portion 331 of the Farm Okahandja Town and Townlands No. 57, within the Otjozondjupa Region (see Figure 1).

The OEMP intends to guide and manage the operational activities on the site and surrounding areas as they relate to both the biophysical and social environment. It describes mitigation, management and monitoring measures in detail to which the Proponent is committed, and is prescriptive, identifying specific people or organisations to undertake specific tasks, in order to ensure that impacts as identified during the Environmental Assessment (EA) are either avoided or minimised to acceptable levels in accordance with the applicable legislation. The Proponent to which authorisation is granted, is ultimately responsible for overall environmental performance.

This OEMP is a continuation of the EA process and will become a standalone document for the purpose of operations and monitoring of the sand mining operation.

### **1.1 BACKGROUND AND BRIEF PROJECT DESCRIPTION**

Makalani Bricks & Sand cc (the Proponent) is an important contributor in terms of the supply of sand and stone for construction activity in Okahandja.

The sand mining activities are located both within the Okahandja River and along the banks of the river, located adjacent to Portion 331 of the Farm Okahandja Town and Townlands No. 57 between the B1 road reserve (northern boundary) and the railway reserve (southern boundary), situated approximately 2.5 km south-west of Okahandja central business district within the Otjozondjupa Region (see Figure 1). The operation involves the following activities:

1. Overburden is removed from the riverbed and stored at the quarry facility adjacent to the river on Portion 331.
2. The riverbed material is excavated up to a maximum depth of 2m from the riverbed surface with a frontend loader. The 2m depth restriction has been put in place to ensure minimal disturbance of the river course as well as to prevent intersecting the groundwater table.
3. The frontend loader transports the riverbed material to a mechanical screen located at the quarry facility on Portion 331.
4. The riverbed material is passed through the screen to separate the sand (finer grained material) from the stones (coarser grained material).
5. Once the maximum depth of 2m has been reached in a given section of the river, sand mining moves on to the next section.

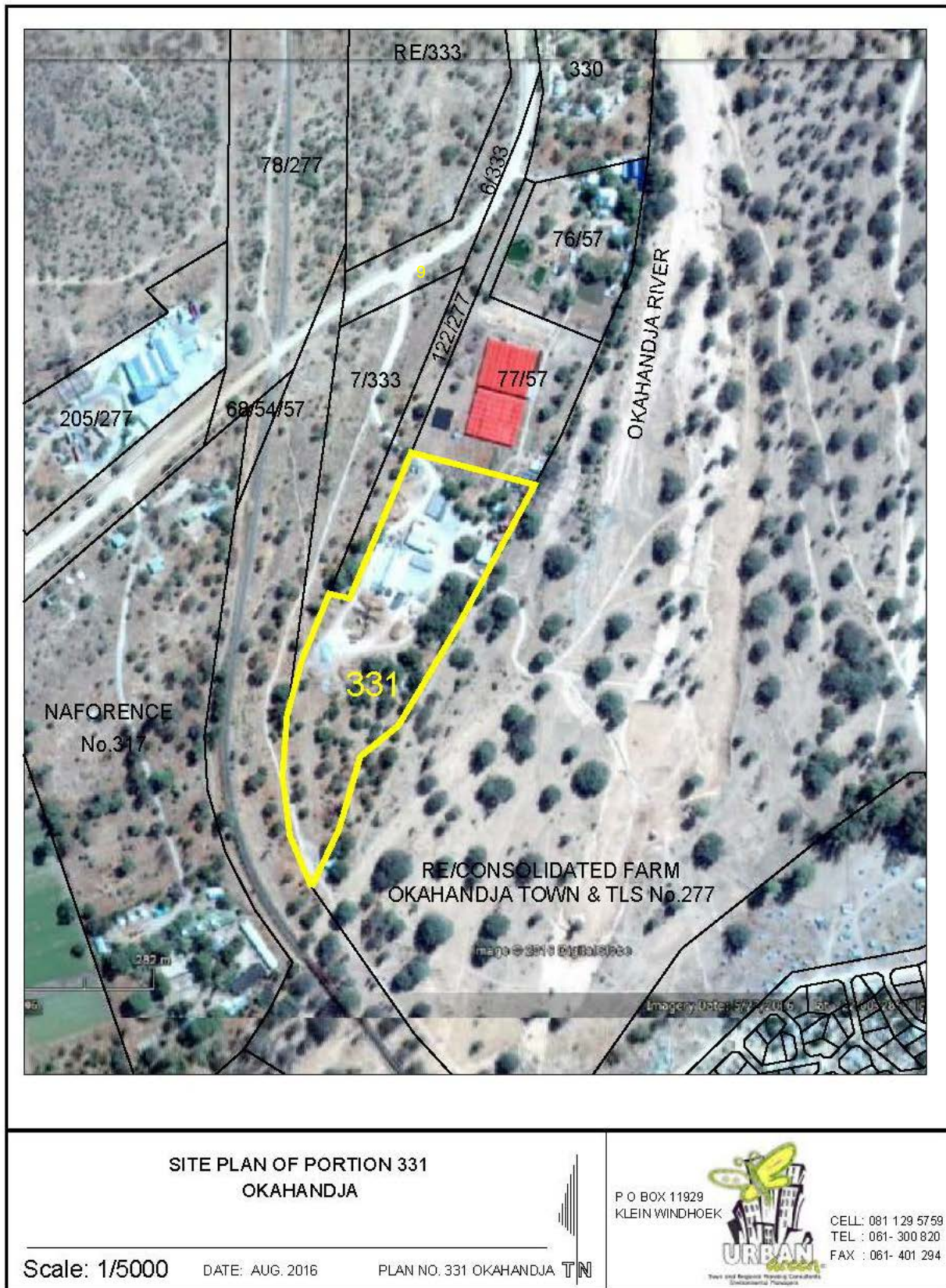


Figure 1: Locality of the sand mining operation

## **1.2 AIMS OF THE OEMP**

The purpose of this OEMP is to ensure that impacts associated with the operational phase of the project are kept to a minimum. In this regard, the OEMP describes mitigation measures for operational impacts which should be implemented by the Proponent. This document forms the basis for the environmental specifications that the Proponent is obliged to adhere to during the operational phase.

## **1.3 CONTENTS OF THE OEMP**

The OEMP comprises the following sections:

Chapter 1: Introduction: this chapter includes the project background, aims of this OEMP and describes the contents of this OEMP.

Chapter 2: Roles and responsibilities: this chapter lays out the role and responsibilities key individuals. .

Chapter 3: Environmental management plan actions: this chapter presents all the mitigation measures relating to the operational phase of the sand mining operation.

## **2 ROLES AND RESPONSIBILITIES**

The Proponent is ultimately responsible for the implementation of the OEMP. The Proponent may delegate this responsibility at any time, as they deem necessary, throughout the remainder of the project lifecycle (i.e. operation and decommissioning phases). The delegated responsibility for the effective implementation of this EMP is laid out in the rest of this chapter.

### **2.1 PROPONENT'S REPRESENTATIVE**

If the proponent does not personally manage all aspects of the operation and decommissioning phase activities referred to in this EMP they should assign this responsibility to the Proponent's Representative (PR). The PR will be on-site every day, overseeing the day-to-day aspects of operation. The Proponent may decide to assign this role to one person for the operational and decommissioning phases. The PR's responsibilities are as follows:

### **2.2 RESPONSIBILITIES OF THE PROPONENT'S REPRESENTATIVE**

The Proponent's Representative will be assume the responsibilities:

- Managing the implementation of this OEMP and updating and maintaining it when necessary.
- Conducting daily site inspections of all individuals and/or equipment in operation areas and infrastructure/equipment maintenance areas with respect to the implementation of this EMP on-site in terms of compliance with this OEMP

- Removing of individuals and/or equipment not complying with the provisions of this EMP from site.
- Issuing fines for contravening OEMP provisions
- Management and facilitation of communication between the Proponent and Interested and Affected Parties (I&APs) with regard to this OEMP.
- Undertaking an annual review of the OEMP and amending the document when necessary.

### 3 OPERATIONAL ENVIRONMENTAL MANAGEMENT PLAN ACTIONS

The following tables provide the mitigation measures recommended to manage the potential impacts identified in the scoping report for the existing activity. These mitigation measures have been arranged in the OEMP as follows:

- Applicable legislation (Table 1);
- Operation phase mitigation measures (Table 2);

#### 3.1 APPLICABLE LEGISLATION

Legal provisions that have relevance to various aspects of the sand mining operation are listed in Table 1 below. The legal instrument, applicable and corresponding provisions and contact details or additional comments are provided in the table below.

**Table 1: Relevant legal requirements**

LEGISLATION/POLICY/ GUIDELINE	RELEVANT PROVISIONS	CONTACT PERSON/ COMMENTS
Environmental Management Act 2007 Environmental Impact Assessment (EIA) Regulations (EIAR) (GG No. 4878)	Activities listed in Government Notice (GN) No. 29 of GG No. 4878 require an Environmental Clearance Certificate (ECC).  The amendment, transfer or renewal of the ECC (EMA S39-42; EIAR Regs19 & 20).  Amendments to this EMP will require an amendment of the ECC for these developments.  The ECC needs to be renewed every 3 years.	Mr Damian Nchindo Tel: 061 284 2701
Labour Act 11 of 2007 Health and Safety Regulations (HSR) GN	Adhere to all applicable provisions of the Labour Act and the Health and Safety regulations.	

LEGISLATION/POLICY/ GUIDELINE	RELEVANT PROVISIONS	CONTACT PERSON/ COMMENTS
156/1997 (GG 1617).		
Road Traffic and Transport Act 52 of 1999 and its 2001 Regulations	Provides for the control of traffic on public roads and the regulations pertaining to road transport, including the licensing of vehicles and drivers.  Part 5 of the 2001 Regulations lays out detailed provisions pertaining to vehicle loads – i.e. types of loads and the appropriate manner in which loads for different vehicle classes should be carried	
Petroleum Products and Energy Act (No. 13 of 1990) Regulations (2001)	Regulation 3(2)(a) states that “No person shall possess [sic] or store any fuel except under authority of a licence or a certificate, excluding a person who possesses or stores such fuel in a quantity of 200 litres or less in any container kept at a place within a local authority area”	Immanuel Nghishoongele (Ministry of Mines and Energy: Acting Director – Petroleum Affairs  Tel.: (061) 284 8222

### 3.2 OPERATION PHASE

The mitigation measures included in Table 2 below apply during the operation phase of the sand mining operation.

**Table 2: Operation phase mitigation measures**

ENVIRONMENTAL FEATURE	IMPACT	MITIGATION MEASURES
Training	Lack of EMP awareness and the implications thereof	<ul style="list-style-type: none"> <li>All employees appointed during the operation phase should attend an initial training session (induction) which should include all health, safety and environmental considerations applicable to their respective work.</li> <li>Refresher health, safety and environment training sessions should be given at least on a quarterly basis (three-monthly).</li> </ul>
Monitoring	EMP non-compliance	The PR or the Proponent should monitor the implementation of this EMP on a regular basis utilising the monitoring checklist provided in Appendix A.
Waste management	Surface, groundwater and soil	<ul style="list-style-type: none"> <li>The Proponent should enlist the services of a waste hydrocarbons company, with a valid Used Mineral Oil Permit to remove their waste hydrocarbons from site.</li> </ul>



ENVIRONMENTAL FEATURE	IMPACT	MITIGATION MEASURES
	contamination	<ul style="list-style-type: none"> <li>• Vehicles and equipment should only be maintained within the wash-bay/workshop area.</li> <li>• The surface of this area should be impermeable to prevent contamination of soil or water resources.</li> <li>• A sufficient number of drip trays should be available on-site at all times. These should be utilised in the event of oil leaks from vehicles or other equipment on-site and when servicing equipment. Drip trays should be emptied daily.</li> <li>• Ensure that any leaks or broken parts on sand mining equipment or vehicles should remain on site and shall not leave the site until they are repaired. If they cannot be repaired on site, care should be transported elsewhere for repair.</li> <li>• Contaminated soils on site that may have resulted from leakage/spillage equipment or vehicles in the mine premises should be removed to a depth dependent on the size of the spill and replaced with clean soil.</li> <li>• All waste hydrocarbons should be stored in the appropriate containers as hazardous waste.</li> <li>• All waste hydrocarbons should be collected annually by a company that is certified to collect and process used mineral oil.</li> </ul>
Traffic	Road accidents	<ul style="list-style-type: none"> <li>• All heavy vehicle drivers should have the required driver's license (see Table 1).</li> <li>• All sand and stone transported/delivered to customers should be done in accordance with the Road Traffic and Transport Act Regulations (2001) (i.e. loads should adhere to weight requirements and should be properly secured/covered).</li> </ul>
Fuel storage and fire safety	Injury or loss of life	<ul style="list-style-type: none"> <li>• No open fires should be allowed anywhere on-site.</li> <li>• Fire-extinguishing equipment should be located near the fuel storage tank and should be compliant with the applicable South African National Standards (SANS).</li> <li>• All personnel operating the fuel storage tank should be appropriately trained in accordance with their respective roles and responsibilities. This training should address as a minimum the following: <ul style="list-style-type: none"> <li>○ Awareness of the proper location and proper use of firefighting equipment;</li> <li>○ Proper conduct generally when handling hydrocarbons</li> </ul> </li> </ul>

ENVIRONMENTAL FEATURE	IMPACT	MITIGATION MEASURES
		<p>within the facility (no smoking, prohibited use of cell phones etc.); and</p> <ul style="list-style-type: none"> <li>○ Emergency procedures (fire drills, spill control etc.).</li> </ul>
General Health and Safety	Health impacts, injury or loss of life	<ul style="list-style-type: none"> <li>● Adhere to all relevant provisions of the Labour Act as well as the health and safety regulations (see Table 1).</li> <li>● All hazardous materials should be properly contained to limit health, safety and environmental risks.</li> <li>● All employees should be provided with the necessary Personal Protective Equipment, including but not limited to:                             <ul style="list-style-type: none"> <li>○ Ear muffs/plugs (when operating noisy equipment)</li> <li>○ Dust masks (when working in dusty conditions)</li> <li>○ Safety boots, gloves and hard hats.</li> </ul> </li> </ul>
Air quality	Nuisance impacts	Dust suppression measures should be used, exploring options that minimise the need for excessive water use.
Rehabilitation	Habitat restoration opportunity cost	<p>All mine areas should be rehabilitated and returned as close as possible to their original state before the start of the sand mining activity. Rehabilitation measures should include as a minimum the following:</p> <ul style="list-style-type: none"> <li>● Topsoil (top 300 mm of the overburden), which is also known as the “seed bank” should be stockpiled and used to rehabilitate abandoned/exhausted mine areas</li> <li>● Progressively rehabilitate excavated areas, i.e. rehabilitate exhausted areas before moving on to excavate new areas.</li> <li>● Excavated areas should be reshaped to fit in with the surrounding landscape.</li> </ul>
Biodiversity	Loss of biodiversity	<ul style="list-style-type: none"> <li>● Excavations should not take place close to river banks. No vegetation along the banks of the river may be cleared/removed.</li> <li>● Trees located within the river, should not be removed. A minimum buffer distance of 5m from the base of such trees should be maintained during operations to ensure roots are not exposed or damaged. If in doubt with respect to the damage of roots assistance should be sought from an ecologist.</li> <li>● Erosion damage caused along the access road and near the banks of the river should be prevented especially during the rainy season (November to March), in order to</li> </ul>

ENVIRONMENTAL FEATURE	IMPACT	MITIGATION MEASURES
		prevent excessive erosion in these erosion prone areas.
Noise	Nuisance impacts and loss of hearing among heavy vehicle operators	<ul style="list-style-type: none"> <li>• The World Health Organization (WHO) guideline on maximum noise levels (guidelines for Community Noise, 1999) to prevent hearing impairment can be followed during operations. This limits noise levels to an average of 70 db over a 24 hour period with maximum noise levels not exceeding 110db during the period. It is recommended that a survey of the noise levels be carried out if required and any complaints are registered.</li> <li>• All heavy vehicles should be kept in a good working condition and fitted with noise reduction devices where practicable.</li> <li>• Personnel working in noisy environments must be supplied with hearing protectors.</li> <li>• In the event that operations need to take place outside the stipulated operational or on weekends and/or public holidays, permission must first be obtained from the adjacent property owners.</li> </ul>
Employment	Provision of employment	Namibian's should be employed preferentially to foreigners where possible.
Heritage resources	Damage to heritage resources	<ul style="list-style-type: none"> <li>• Should a heritage site or archaeological site be uncovered or discovered during the construction phase of the project, a "chance find" procedure should be applied in the order they appear below:               <ul style="list-style-type: none"> <li>○ If operating machinery or equipment stop work;</li> <li>○ Demarcate the site with danger tape;</li> <li>○ Determine GPS position if possible;</li> <li>○ Report findings to the construction foreman;</li> <li>○ Report findings, site location and actions taken to superintendent;</li> <li>○ Cease any works in immediate vicinity;</li> <li>○ Visit site and determine whether work can proceed without damage to findings;</li> <li>○ Determine and demarcate exclusion boundary;</li> <li>○ Site location and details to be added to the project's Geographic Information System (GIS) for field confirmation by archaeologist;</li> <li>○ Inspect site and confirm addition to project GIS;</li> </ul> </li> </ul>

ENVIRONMENTAL FEATURE	IMPACT	MITIGATION MEASURES
		<ul style="list-style-type: none"> <li>○ Advise the National Heritage Council (NHC) and request written permission to remove findings from work area; and</li> <li>○ Recovery, packaging and labelling of findings for transfer to National Museum.</li> <li>● Should human remains be found, the following actions will be required:             <ul style="list-style-type: none"> <li>○ Apply the chance find procedure as described above;</li> <li>○ Schedule a field inspection with an archaeologist to confirm that remains are human;</li> <li>○ Advise and liaise with the NHC and Police; and</li> </ul> </li> <li>● Remains will be recovered and removed either to the National Museum or the National Forensic Laboratory.</li> </ul>

**APPENDIX A – GUIDELINE ENVIRONMENTAL MONITORING REPORT**

**Report No:**.....

**Date:**.....

ISSUE	OBSERVATION	REMEDIAL ACTION	COMPLIANCE
<b>Operations - Training</b>			
Have all employees undergone EMP training?			
Have all employees undergone 3-monthly refresher EMP training?			
<b>Operations – Waste Management</b>			
Does the appointed waste hydrocarbons management company have a valid Used Mineral Oil Permit?			
Is the washbay/workshop lined with an impermeable surface?			
Is the washbay/workshop bunded and leakproof?			
All maintenance of plant and equipment takes place			

ISSUE	OBSERVATION	REMEDIAL ACTION	COMPLIANCE
in workshop?			
All plant equipment and vehicles are well maintained (no leaks)?			
All plant and machinery have drip trays, which are checked and emptied daily?			
All repairs on machinery using fuels or lubricants done over a drip tray?			
Contaminated soil removed to an appropriate depth and stored as hazardous waste?			
Have all waste hydrocarbons been removed from the site (annual requirement)?			
Workforce aware of procedures in the event of spills/leaks?			
<b>Operations – Traffic</b>			
All drivers have appropriate licenses?			

ISSUE	OBSERVATION	REMEDIAL ACTION	COMPLIANCE
Are the loads of sand/stone on the trucks properly/safely secured and covered?			
<b>Operations –Fuel Storage and Fire Safety</b>			
Have any open fires been made on-site?			
Have the workforce undergone fire safety training? Are the workforce aware of procedures in the event of a fire?			
Is fire extinguishing equipment available at the fuel storage area and compliant with the applicable SANS?			
<b>Operations – General Health and Safety</b>			
Are all hazardous materials (used and unused hydrocarbons, corrosive materials etc.) contained within designated containers?			
Sufficient stock of personal protective equipment (ear muffs, dust masks, safety boots, gloves, hard hats etc.)?			

ISSUE	OBSERVATION	REMEDIAL ACTION	COMPLIANCE
<b>Operations – Air Quality</b>			
Are dust suppressant measures (use of water on saws and ground) utilised around active work areas?			
<b>Operations – Rehabilitation and Aesthetics</b>			
Topsoil (top 300 mm of overburden) stripped and stockpiled at a suitable site prior to sand mine operations?			
Are exhausted excavated areas rehabilitated progressively – i.e. before moving on to new areas?			
Have the contours of abandoned/exhausted mine areas been blended with the surrounding landscape?			
<b>Operations - Biodiversity</b>			
Do excavations take place close to the river banks?			
Have any plant species along the river banks been cleared/removed?			



ISSUE	OBSERVATION	REMEDIAL ACTION	COMPLIANCE
Have trees located within the river been preserved and a minimum buffer distance of 5m from the base of these trees been maintained?			
Has erosion damage been caused along the service road, or along the banks of the river?			
<b>Operations – Noise</b>			
Are heavy vehicles kept in good working order and fitted with noise reduction devices?			
Are personnel working in noisy environments must be supplied with hearing protectors?			
<b>Operations – Employment</b>			
Are Namibian's employed preferentially to foreigners where possible.			
<b>Operations – Heritage Resources</b>			
Have any heritage resources (human remains etc.) been discovered?			