3rd Floor Maerua Mall Office Towers, Jan Jonker Road, Windhoek, Namibia
PO Box 81808, Windhoek, Namibia
Tel: (+264) 61 435 8228 **Fax:** (+264) 61 435 8201 **Web:** www.gcs-na.biz

Environmental Management Plan for the Environmental Clearance Certificate for the Scoping Assessment of additional mining claims 71547, 71548, 71549 and 71550 adjacent to the Existing Mining Operations on Mining Claims 65425 and 65426

Report

Version 1 – Final

07 July 2020

Fame Stone Distributors CC

GCS Project Number: 19-1353

Client Reference: Mining claims 71547 to 71550

Environmental Management Plan for the Environmental Clearance Certificate for the Scoping Assessment of additional mining claims 71547, 71548, 71549 and 71550 adjacent to the Existing Mining Operations on Mining Claims 65425 and 65426

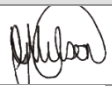
Report

Version 1 - Final

07 July 2020

Fame Stone Distributors CC
19-1353

DOCUMENT ISSUE STATUS

Report Issue	Version 1 - Final		
GCS Reference Number	GCS Ref – 19-1353		
Client Reference	Mining claims 71547 to 71550		
Title	Environmental Management Plan for the Environmental Clearance Certificate for the Scoping Assessment of additional mining claims 71547, 71548, 71549 and 71550 adjacent to the Existing Mining Operations on Mining Claims 65425 and 65426		
	Name	**Signature**	**Date**
Author 1	Georgina Wilson		April 2020
Author 2	Stephanie Strauss		July 2020
Document Reviewer	Gerda Bothma		July 2020

CONTENTS PAGE

LIST OF FIGURES

LIST OF TABLES

LIST OF APPENDICES

1 INTRODUCTION

1.1 Project Background

An Environmental Clearance Certificate (ECC) was granted to Okatji Marble Mine in 2017 for the existing mining activities taking place on mining claims 65425 and 65426. Operations on the existing mining claims are being stopped due to market conditions. As such the proponent has applied to obtain additional mining claims 71547, 71548, 71549 and 71550 under the name Fame Stone Distributors CC (the Proponent) to expand the operation. The Proponent proposes to apply for an ECC for the additional mining claims 71547, 71548, 71549 and 71550. The mining claims are located approximately 12 km southeast of Karibib in the Erongo Region of Namibia (see **Figure 1-1** and **Figure 1-2**). In order to apply for the additional mining claims, Fame Stone Distributors requires an ECC from the Ministry of Environment and Tourism.

GCS Water and Environmental Engineering Namibia (Pty) Ltd (GCS Namibia) has been appointed as independent environmental consultants to apply for the required ECC, which includes the undertaking of an Environmental Assessment (EA).

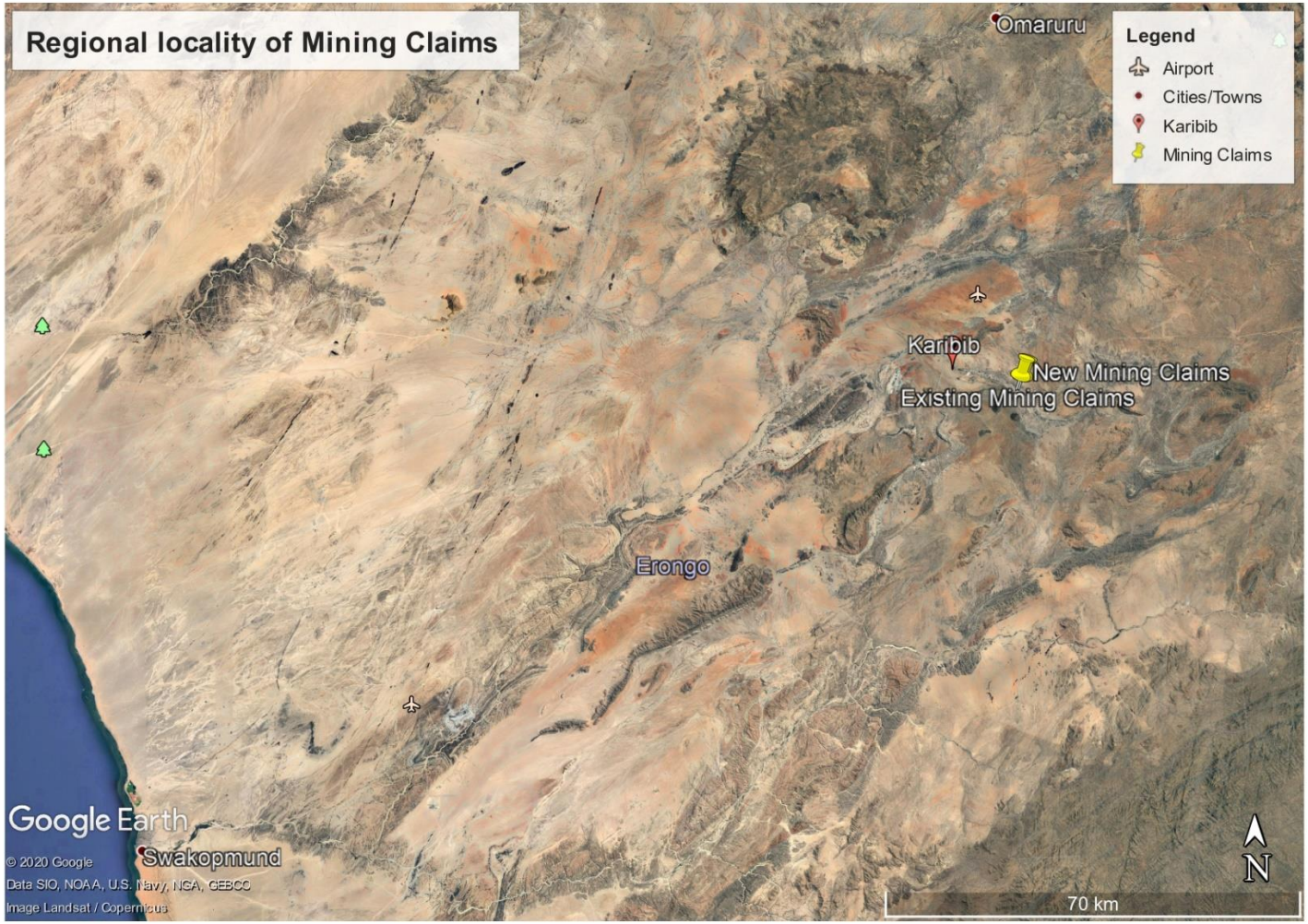


Figure 1-1: Map indicating regional setting of relevant Mining Claims.

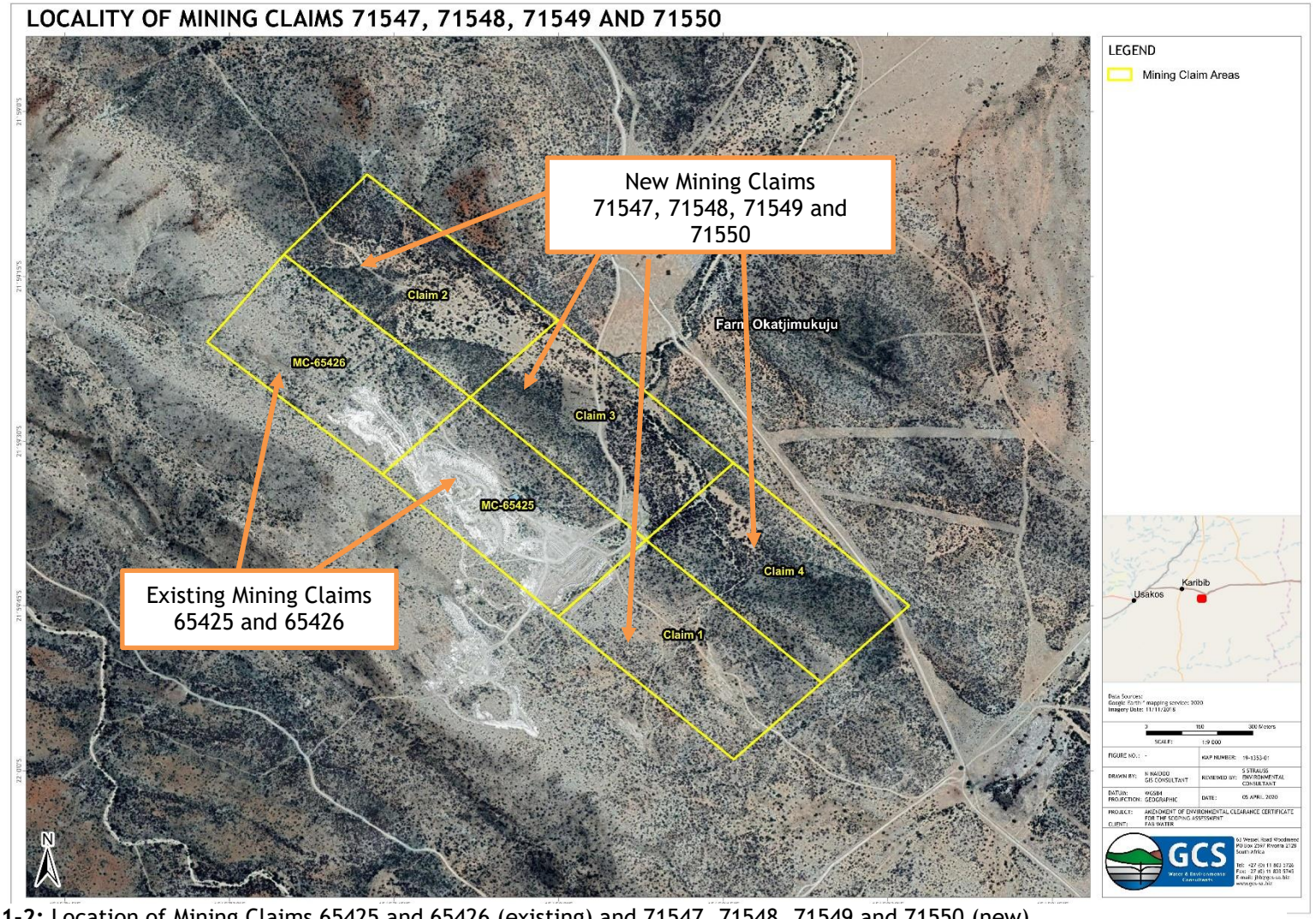


Figure 1-2: Location of Mining Claims 65425 and 65426 (existing) and 71547, 71548, 71549 and 71550 (new)

1.2 Purpose of the EMP

Regulation 8 of the Environmental Management Act's (EMA) (Act 7 of 2007) Environmental Impact Assessment Regulations (2012) requires that a draft Environmental Management Plan (EMP) should accompany a scoping report, which is submitted to the Department of Environmental Affairs (DEA) as part of an application for an ECC. A 'management plan' is defined as:

"*…a plan that describes how activities that may have significant effects on the environment are to be mitigated, controlled and monitored*."

An EMP is one of the most important outputs of the EA process as it outlines all of the proposed mitigation and monitoring actions laid out in the Scoping Report, set to a timeline and with specific assigned responsibilities. It provides a link between the impacts identified in the EIA Process and the required environmental management on the ground during project implementation and operation. It is important to note that an EMP is a legally binding document and any person who contravenes the provisions of this EMP may face imprisonment and/or a fine. This EMP is a live document and should be amended to address project changes, changing environmental conditions and feedback from compliance monitoring over time.

The purpose of this document is therefore to guide environmental management throughout the various life-cycle stages of the proposed development. This EMP details the mitigation and monitoring actions to be implemented during the operational and decommissioning phases of the proposed activity, as the project assessed is already in the operational phase. This EMP should be read in unison with the scoping report.

1.3 Environmental Assessment Practitioner (EAP)

GCS Namibia hereafter have been appointed as independent environmental consultants to conduct the required Environmental Assessment (EA). This includes the compilation of an EMP for the proposed development. The EMP is to be submitted with the Scoping EA Report to apply for an Environmental Clearance Certificate (ECC). The application will be submitted to the Environmental Commissioner at the Department of Environmental Affairs (DEA) of the Ministry of Environment and Tourism (MET). The EMP will also be used by the mining team to guide activities during operation and decommissioning of the mine, to ensure that impacts on the environment are limited or avoided altogether.

1.4 Assumptions and Limitations

This EMP has been drafted with the acknowledgment of the following assumptions and limitations:

- This EMP has been drafted based on the scoping-level Environmental Assessment (EA) which included a Desktop Archaeological Study conducted for the proposed expansion of mining activities.
- The mitigation measures recommended in this EMP document are based on the risks/impacts in the Scoping Report. These impacts were identified based on the provided project description and anticipated project impacts. Should the scope of the project change, the risks will have to be reassessed and mitigation measures provided accordingly.

1.5 Report Structure

This EMP lays out the management actions for the proposed expansion of marble mining activities near Karibib in the Erongo Region. The EMP addresses the following phases:

- Operation and maintenance phase - the period during which mining is undertaken and maintenance is conducted as deemed necessary; and
- Decommissioning phase: the period during which the mine is decommissioned and closed.

2 ROLES AND RESPONSIBILITIES

The Proponent (Fame Stone Distributors CC) is ultimately responsible for the implementation of the EMP. The Proponent may delegate this responsibility at any time, as they deem necessary, throughout the project lifecycle. 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 included in **Table 2.1** below.

Table 2.1Table 2.1: Responsibilities of the Proponent's Representative.

RESPONSIBILITY	PROJECT PHASE
Making sure that the necessary approvals and permissions laid out in **Table 3.1** are obtained/adhered to.	Throughout the lifetime of the mine

RESPONSIBILITY	PROJECT PHASE
Monitoring the implementation of the EMP weekly.	Throughout the lifetime of the mine
Conducting daily site inspections of all individuals and/or equipment in operation areas and infrastructure/equipment maintenance areas with respect to the implementation of/compliance to this EMP on-site.	Throughout the lifetime of the mine
Removing of individuals and/or equipment not complying with the provisions of this EMP from site.	Throughout the lifetime of the mine
Issuing fines for contravening EMP provisions.	Throughout the lifetime of the mine

2.1 ENVIRONMENTAL CONTROL OFFICER

The proponent should assign the responsibility of overseeing the implementation of the whole EMP on the ground during the construction and operation and maintenance phases to an independent external consultant, referred to in this EMP as the Environmental Control Officer (ECO). The proponent may decide to assign this role to one person for both phases, or may assign a different ECO for each phase. The ECO will have the following responsibilities during the construction and operation and maintenance phases of these developments:

- Management and facilitation of communication between the Proponent, PR, the contractors, and Interested and Affected Parties (I&APs) with regard to this EMP;
- Conducting bi-annual site inspections and audits of all operational areas with respect to the implementation of this EMP (audit the implementation of the EMP);
- Submit bi-annual external audit reports to MET for review;
- Assisting the Contractor in finding solutions with respect to matters pertaining to the implementation of this EMP;
- Advising the PR on the removal of person(s) and/or equipment not complying with the provisions of this EMP;
- Making recommendations to the PR with respect to the issuing of fines for contraventions of the EMP; and
- Undertaking an annual review and bi-annual audit of the EMP and recommending additions and/or changes to this document.

3 ENVIRONMENTAL MANAGEMENT PLAN ACTIONS

The aim of the management actions of the EMP is to avoid potential impacts where possible. Where impacts cannot be avoided, measures are provided to reduce the significance of these impacts. The following tables provide the mitigation measures recommended to manage the potential impacts identified in the scoping report for the proposed activity. These mitigation measures have been arranged in the EMP as follows:

- Applicable legislation (**Table 3.1**);
- Environmental management actions (**Table 3.2**); and
- Groundwater monitoring requirements (**Table 3.3**).

The responsible persons at the mine should assess these commitments in detail and should acknowledge their obligation to the specific management actions detailed in the tables of the next sub-chapters.

3.1 Applicable Legislation

Legal provisions that have relevance to various licenses, permits or authorisations required for the mining activity are listed in **Table 3.1** below. The legal instrument, applicable and corresponding provisions and contact details or additional comments are provided in the table below.

Table 3.1: Legal provisions relevant to the proposed mining activity.

LEGISLATION/ GUIDELINE/ POLICY	RELEVANT PROVISIONS	CONTACT PERSON/COMMENTS
Environmental Management Act (Act 7 of 2007) and 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
Forestry Act (Act 27 of 20040 and Forest Regulations (2015)	• Provision for the protection of various plant species. • Permits required for removal of protected plant species (A period of three months should be allowed for obtaining this permit. Species and numbers/quantities involved will need to be specified.)	Permit application forms can be obtained from the Forestry office in Okahandja Mr Licius Tjaveondja Tel: 062 501 925

LEGISLATION/ GUIDELINE/ POLICY	RELEVANT PROVISIONS	CONTACT PERSON/COMMENTS
Water Act (Act 54 of 1956)	• Groundwater may not be abstracted for commercial purposes without an abstraction permit. • Any new boreholes the proponent intends to drill are subject to authorisation from the MAWF – a drilling application form needs to be submitted to the Department of Water Affairs and Forestry.	MAWF: Department of Water Affairs Directorate Water Resources Management Policy & Water Law Administration Permit Administration Mr James Mouton Tel: 061 - 2087183
Petroleum Products and Energy Act (Act 13 of 1990) and Regulations (2001)	• Any facility intending to store fuel in bulk requires a Consumer Installation Certificate. • S 4.12 prescribes the South African National Standards (SANS) as the criteria to which fuel installations must be constructed, operated and decommissioned. • S 2 (1) requires a permit for the obtaining and use of up to 20 000 litres of used mineral oil per annum. • Regulation 47 describes fire precautions. • Regulation 46(2) requires the annual submission of Form PP/10 for all Consumer Installation certificate holders.	The mine must ensure that Northern Fuel complies with all provisions of the Petroleum Products and Energy Act and its Regulations (2001). Exigrade should have a valid Used Mineral Oil Permit in order to continue legally removing used oil from site.

3.2 Environmental Management Plan Actions

The management actions included in **Table 3.2** below apply to the mining activity.

Table 3.2: Environmental management actions.

ENVIRONMENTAL FEATURE	IMPACT	MANAGEMENT ACTIONS	APPLICABLE PHASE
Training	Lack of EMP awareness and the implications thereof	• All employees appointed during the operation and maintenance phase should attend an initial training session (induction) which should include all health, safety and environmental considerations applicable to their respective work. • Refresher health, safety and environment training sessions should be given at least on a quarterly basis (every three months).	Operations and Maintenance
Monitoring	EMP non-compliance	• The PR or Proponent should monitor the implementation of this EMP on a weekly basis. • Bi-annual external audit should be conducted by an independent, suitably qualified and experienced ECO.	Operations and Maintenance
Waste management	• Inappropriate waste management • Surface water, groundwater and soil contamination	<u>General</u> • A waste management plan should be implemented on site and all employees trained on its contents. • Reduction, reuse and recycling before disposal of waste must be encouraged on site. • Workers should be trained in good housekeeping techniques. • No waste may be buried or burned on site or anywhere else. • A sufficient number of appropriate, separated (hazardous and general/recyclable) and labelled waste bins must be provided at strategic locations. • Waste bins and skips must be monitored.	Operations and Maintenance Closure

ENVIRONMENTAL FEATURE	IMPACT	MANAGEMENT ACTIONS	APPLICABLE PHASE
		• Waste removal services must be provided by an appropriately licenced contractor. • Regular inspections of the state of housekeeping on site should take place. <u>Hydrocarbons</u> • Employees must be trained on the correct hydrocarbon storage and handling techniques. • The mine should enlist the services of a waste hydrocarbons company with a valid Used Mineral Oil Permit to remove their waste hydrocarbons from site. • A wash-bay/workshop area should be constructed where vehicles and equipment should be maintained, and the surface of this area should be impermeable and should drain into an oil-water separator. • A sufficient number of drip trays should be available on site at all times. These should be utilized when vehicles are stationary and switched off but not in a bunded area, in the event of oil leaks from mining vehicles or other equipment on site and when servicing equipment. Drip trays should be emptied daily. • Ensure that any leaks or broken parts on mining equipment or vehicles remain on site and do not leave the site until they are repaired. If they cannot be repaired on site, care should be taken while they transported elsewhere for repair. • 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.	

ENVIRONMENTAL FEATURE	IMPACT	MANAGEMENT ACTIONS	APPLICABLE PHASE
		• All contaminants (e.g. hydrocarbons) which might potentially be carried in run-off should be contained on-site in the appropriate manner (e.g. temporary storage in designated containers, installation of oil-water separators etc.) and disposed of as hazardous waste, so that they do not contaminate soil or groundwater. • All waste hydrocarbons should be stored in the appropriate containers as hazardous waste. • All waste hydrocarbons should be collected annually by a company that is certified to collect and process used mineral oil. • Spill control preventative measures should be put in place to manage soil contamination. • Employees must be trained in spill management. • The consumer installation should comply with the requirements stipulated in the Consumer Installation Certificate and the Petroleum Products and Energy Act (No. 13 of 1990) Regulations. Adherence to these Regulations by the owner of the fuel tank should be monitored by the mine manager/ management team. • The fuel tank should be appropriately stored and bunded. <u>Wastewater</u> • Wastewater/effluent should be contained and treated before being released into the environment. Wastewater should be treated to the applicable national wastewater discharge standards. • Septic tank inspections should be conducted in accordance with the conditions laid out in the wastewater discharge permit to ensure that there is no leakage.	

ENVIRONMENTAL FEATURE	IMPACT	MANAGEMENT ACTIONS	APPLICABLE PHASE
		• Sludge from the septic tanks should be removed in accordance with the conditions laid out in the wastewater discharge permit to ensure that the tanks work efficiently and do not overflow. • Long-term maintenance of the septic tank system should be conducted in accordance with the conditions laid out in the wastewater discharge permit to ensure that there is no leakage.	
Traffic	Road accidents	• No trucks may park within the road reserve or in the road. • Appropriate signage should be posted to warn drivers of heavy vehicle movement. • All truck drivers must have the required driver's license.	Operations and Maintenance Closure
Fuel depot and fire safety	• Injury or loss of life • Damage to infrastructure • Damage to surrounding environment	• The mine must have a fire emergency plan available on site, which should address as a minimum the provisions included in the Consumer Installation Guideline Document. Some of the provisions to be addressed are summarised here: o Detailed fire emergency procedure (i.e. exact steps to be followed in the event of a fire emergency). o Display of appropriate warning signage. o Training of employees. o Appropriate fire safety signage should be clearly visible around the fuel depot. • Fire-extinguishing equipment should be compliant with the applicable SANS (or as required by the conditions attached to the Consumer Installation Certificate). • All personnel utilising the fuel depot should receive the appropriate training in accordance with their respective roles and responsibilities. This training should include as a minimum the following:	Operations and Maintenance Closure

ENVIRONMENTAL FEATURE	IMPACT	MANAGEMENT ACTIONS	APPLICABLE PHASE
		○ Location and proper use of firefighting equipment. ○ Proper conduct generally when handling hydrocarbons within the facility (no smoking, prohibited use of cell phones etc.). ○ Emergency procedures (fire drills, spill control etc.).	
General Health and Safety	Health impacts, injury or loss of life	• All hazardous materials should be properly contained, bunded and labelled to limit health, safety and environmental risks. • All employees should be provided with the necessary Personal Protective Equipment, including but not limited to ear muffs/plugs (when operating noisy equipment/working in noisy environments), dust masks (when working in dusty conditions), safety boots, gloves, hard hats and overalls (where applicable). • Unsafe work areas (i.e. those with steep slopes) should be identified and marked as such. • Regular health and safety training should be carried out to remind workers of the risks and the need to be vigilant.	Operations and Maintenance Closure
Air quality	• Respiratory health impacts • Air pollution/ fallout dust nuisance	• Dust suppression measures should be used, exploring options that minimise the need for excessive water use. • Dust screens should be employed if working near the road. • Workers should be sent for an annual respiratory health check-up. • Employees must be provided with appropriate standard dust masks.	Operations and Maintenance Closure

ENVIRONMENTAL FEATURE	IMPACT	MANAGEMENT ACTIONS	APPLICABLE PHASE
Rehabilitation and aesthetics	Visual impact	• The mine should compile a Rehabilitation Plan which should include concurrent rehabilitation actions to reduce visual and other impacts, as well as a final rehabilitation plan to coincide with closure and decommissioning. • Implement a continuous rehabilitation programme, which involves a combination of using discard blocks for access roads or backfill and covering these blocks with stockpiled overburden. • The Rehabilitation Plan should include as a minimum the following: o Topsoil (top 500 mm of the overburden), which is also known as the "seed bank" should be stockpiled and used to rehabilitate abandoned/ exhausted/mined-out mine areas o Progressively camouflage the excavated areas that contrast with the surrounding landscape and are visible from the B2 with the use of artificial surface cover that does not pose a contamination threat to groundwater such as Permeon1. o Make use of mine waste rock (e.g. discard blocks) for the construction of access roads. o All waste rock material shall be shaped to blend with the contours of the surrounding areas upon mine decommissioning. o Excavated areas should be reshaped to fit in with the landscape as well as provide suitable landforms for natural establishment of plants. o Rounded concave slope (with a convex crest and a shallow concave base) of no more than 18% angle are preferred to reduce the risk of erosion.	Operations and Maintenance

ENVIRONMENTAL FEATURE	IMPACT	MANAGEMENT ACTIONS	APPLICABLE PHASE
		○ Straight lines and uniform shapes should be avoided as far as possible from a visual point as well as from an ecosystem perspective. ○ Heavily compacted areas should be to be ripped or graded to loosen soil compaction. Creating straight furrows should be avoided as far as possible as these tend to persist arid environments. ○ Seeds from protected species removed should be collected and kept until formal rehabilitation measures are initiated. ○ Collected seeds should be planted and nurtured until sapling phase in a controlled environment and then planted in areas to be rehabilitated and nurtured until established. • All mine areas should be rehabilitated and returned as close as possible to their original state before the start of the mining activity. • Camouflage the excavated areas that are visible from the B2 (e.g. by use of artificial surface cover).	
Biodiversity	Loss of biodiversity	• A vegetation survey is to be conducted on the subject site prior to any mining activities taking place to identify the species present on site and which may not be removed. • Workers must be trained on the importance of biodiversity. • No poaching, snaring, hunting or plant collection in the mine area is permitted. • Vegetation should be cleared only where absolutely necessary. Numbers of protected, endemic and near endemic species removed should be documented. • Mining activities must not extend past the agreed upon boundaries into the natural environment.	Operations and Maintenance Closure

ENVIRONMENTAL FEATURE	IMPACT	MANAGEMENT ACTIONS	APPLICABLE PHASE
		• If practicable, protected, endemic and near endemic plant species removed should be transplanted and donated to the Namibian National Botanical Garden or Namib Trees. • Permits for clearing protected species such as the *Sterculia* should be obtained from the nearest Forestry office. • Seeds from protected species removed should be collected and kept until formal rehabilitation measure are initiated, when they should be planted and sustained until established. • Colonisation of invasive species must be discouraged through effective and timely removal of any invasive species noted on site. • A continuous rehabilitation programme must be implemented, to encourage the return of vegetation and faunal species to mined out areas and minimise bare areas. • An assessment of rehabilitation success must take place after all areas have been rehabilitated.	
Groundwater	Lack of awareness of impact on groundwater levels	• Groundwater levels should be monitored according to the groundwater water monitoring programme ensure awareness of the pressure on groundwater resources, which changes over time. • Groundwater levels to be monitored internally monthly. • Groundwater levels to be reported to the MAWF on a quarterly basis for monitoring.	Operations and Maintenance
Archaeology and heritage	Damage to or loss of archaeological or heritage artefacts if such artefacts are located close to the planned mining area	• Areas to be mined must be surveyed for graves or heritage infrastructure before mining begins;	Operations and Maintenance

ENVIRONMENTAL FEATURE	IMPACT	MANAGEMENT ACTIONS	APPLICABLE PHASE
		• Should a heritage artefact be discovered on site, it should not be disturbed. The Chance Find procedure (**Appendix A**) should be applied. A qualified and experienced heritage professional must be contacted to examine and remove the artifact; • Contractors working on the site should be made aware that under the National Heritage Act any items protected under the definition of heritage found in the course of development should be reported to the National Heritage Council; and • Detailed field survey should be carried out if the licence holder intends to expand operations to previously undisturbed ground.	
Mine Closure	• Visual and biodiversity impacts • Job losses	• Compile a Mine Closure Plan to address end-of-life rehabilitation and restoration of the mine site post closure. • Implement the Rehabilitation Plan. • An assessment of rehabilitation success must take place after all areas have been rehabilitated. • Develop a visual rehabilitation plan to address the visual impact. • Develop and implement a social closure plan, including the following measures: o Develop workers level of skill to a recognised industry standard to enable maximum employability post-decommissioning. o Communicate intentions to decommission well in advance (6 months) to enable workers to seek alternate employment in the event that they seek to avoid formal retrenchment.	Closure

3.3 Groundwater Monitoring

The physical (water level) and chemical (water quality) groundwater properties should be monitored in line with the conditions outlined in the wastewater discharge and groundwater abstraction permits. Groundwater quality monitoring should be conducted downstream within 500 m of the potential sources of pollution i.e. fuel and septic tanks. Groundwater monitoring is conducted to assess the following:

- The impact of mine pumping on the surrounding aquifers; achieved through monitoring of groundwater levels in the monitoring borehole(s). Private boreholes identified within the zone of impact on groundwater levels will be included in the monitoring programme; and
- Groundwater quality trends; tracked by sampling of groundwater in the boreholes at the prescribed frequency.

The groundwater monitoring program is presented in **Table 3.3** below.

Table 3.3: Groundwater monitoring programme for Okadji Marble Mine and Fame Stone Distributors expansion.

MONITORING POSITION	SAMPLING INTERVAL	ANALYSIS	WATER QUALITY STANDARDS	RESPONSBLE PERSON(S)	TIMEFRAMES
All monitoring boreholes	Monthly: groundwater levels	NA	NA	PR or ECO	Ongoing
Selected monitoring boreholes	Bi-annual: sampling for water quality analysis	Full analysis in April and October.	World Health Organisation Drinking Water Standards, Namibia Water Quality Guidelines.	ECO	Ongoing

A groundwater monitoring database should be established and updated on a monthly basis, as information becomes available. The database should be used to analyse the information and evaluate trends. Annual compliance reports should be prepared and submitted to the Department of Water Affairs at the Ministry of Agriculture, Water and Forestry for auditing and evaluation. The mine should develop a groundwater monitoring response protocol. This protocol will describe procedures in the event that groundwater monitoring information indicates that action is required.

4 CONCLUSION

The actions included in this report will assist in the management, mitigation or avoidance of negative impacts on the environment as a result of the proposed activities. It is important that the Proponent thoroughly understands the commitments made in this report and that they are prepared to implement the actions discussed above on site.

Should the measures recommended in this EMP be implemented and monitored, GCS is confident that the risks identified in the Scoping Report can be reduced to acceptable levels.