

MINE EXPANSION AT ASSMANG
BLACK ROCK MINE OPERATIONS,
HOTAZEL, NORTHERN CAPE

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**NCHWANING II AND III
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ENVIRONMENTAL COMPLIANCE AUDIT REPORT

COMPLIANCE AUDIT: MINE EXPANSION PROJECT AT ASSMANG BLACK ROCK MINE OPERATIONS, HOTAZEL, NORTHERN CAPE

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ABBREVIATIONS

'The Mine'	Includes Black Rock, Gloria and Nchwaning operations, unless stated otherwise
DMR	Department of Mineral Resources
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
EMPr	Environmental Management Programme Report
EMS	Environmental Management System
EO	Environmental Officer
HDPE	High Density Polyethylene
IAPs	Interested and Affected Parties
NCDENC	Northern Cape Department of Environment and Nature Conservation
NEMWA	National Environmental Management Waste Act, Act No. 59 of 2008
NEMA	National Environmental Management Act, Act No. 107 of 1998
NEMA	National Environmental Management Act, Act No. 107 of 1998
NEMAQA	National Environment Management Air Quality Act, Act No. 39 of 2004
NWA	National Water Act, Act No. 36 of 1998
PSM	Project / Site Manager
RDL	Red Data Listed
TSF	Tailings Storage Facility

1 INTRODUCTION

EScience Associates (Pty) Ltd. (herein referred to as 'ESA') were appointed as the independent Environmental Control Officer (ECO), by the Assmang Black Rock Mine Operations (hereinafter referred to as 'BRMO'), to monitor compliance with the conditions of environmental authorisations, licences and permits, relating to the structural and infrastructural establishment associated with the proposed mine expansion at the BRMO, during the construction phase. The aforementioned 'authorisations' for the BRMO Expansion Project (BREP) being as follows:

1. Environmental Authorisation - DMR Ref: NC 30/5/1/2/3/2/1/ (203) EM, issued 13 February 2018;

The audit was undertaken in accordance with the schedule supplied by the auditee.

The aim of this independent quarterly audit is to review existing construction activities' compliance relating to the implementation of the above referenced project, as well as to document the potential areas of non-compliance and determine potential improvements that can be made to ensure compliance with the relevant provisions of the EMPR and environmental legislation.

1.1 SCOPE OF AUDIT

The audit covers BREP construction activities as set out in the audit schedule received from BRMO. These consist in the main of the following:

- Contractor Laydown areas
- Construction work underway at various locations above ground and underground as applicable.

1.2 ASSESSMENT METHODOLOGY

The proponent's compliance with the conditions of the EMPR relevant to the current development phase, as well as with the conditions of licencing, permitting and authorisation is audited using the simple nominal scale described in Table 1 below.

Table 1: Compliance scoring system used in audit report	
ID	Compliance Rating
NA	Not relevant, or not audited/auditable
C	Compliant
NC	Non-compliant
UC	Compliance status could not be established

The results of the audit, together with auditor's comments as necessary, are provided in the ensuing sections.

EScience assumes the data and information obtained to be accurate and representative in the context that it has been used. It is important to note that the audit process relies on a sampling methodology in respect of documents and records reviewed, as it is not practical, in many instances, to review all the information available

for an extended period of time over an extended area. Additionally, it is assumed that activities and circumstances on the day of the audit are representative of typical construction activities at the site for the period audited.

2 SUMMARY OF FINDINGS

A summary of findings is presented in the ensuing sub-sections. A complete review is contained in Section 3 of this report. Findings have been summarised by site as this was agreed to be a practical report layout for the auditees.

2.1 TDS LAYDOWN NCHWANING II

Records management requires attention. At the time of the audit various records were not being maintained in the green file. While it is clear that old records are filed away separately, some current records were kept in boxes and other locations in the office. As a result records were not readily available. This presents a risk in respect of maintaining the records as well as a future risk should there be a handover to new personnel not familiar with the ad hoc records management system.

It is recommended that records be maintained in a more systematic manner, preferably in the Green File.

Proof of training for the EMPr was not available. It could therefore not be confirmed that the training has been undertaken. It is recommended that all relevant staff and contractors be trained and records thereof maintained.

Several observations of concern were made at the TDS laydown as noted below.

	<p>The laydown area only has facilities for accumulation of general waste. General waste is disposed to the BRMO landfill which is not permitted or designed to accept hazardous waste.</p>
	<p>Hazardous waste was observed in the general waste bins. Fluorescent light tubes contain mercury and other potentially hazardous substances. These tubes must be handled and disposed as hazardous waste.</p>
	<p>Provision for hazardous waste storage and disposal must be put in place.</p>
<p>Waste bins must also be individually labelled to ensure that it is clear what type of waste belongs in each bin.</p>	
<p>Figure 2-1: TDS - Nchwaning II Laydown – Hazardous Waste Management</p>	

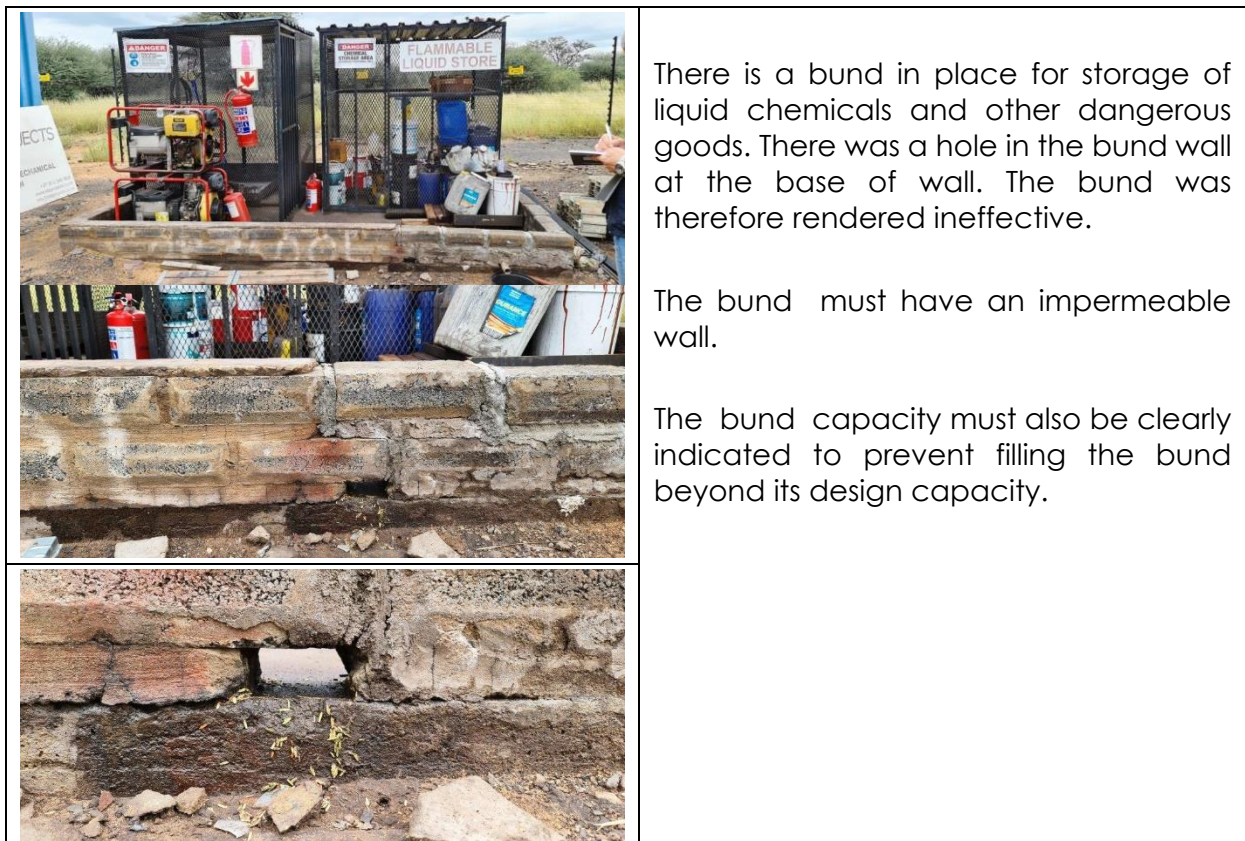


Waste is accumulated behind shipping containers on the site. It could not be established how long the material had been there.

All waste must be stored in appropriately designated waste areas, and suitable receptacles.

Waste must be disposed of in a timely manner.

Figure 2-2: TDS - Nchwaning II Laydown – Waste Management



There is a bund in place for storage of liquid chemicals and other dangerous goods. There was a hole in the bund wall at the base of wall. The bund was therefore rendered ineffective.

The bund must have an impermeable wall.

The bund capacity must also be clearly indicated to prevent filling the bund beyond its design capacity.

Figure 2-3: TDS - Nchwaning II Laydown – Bund Facility


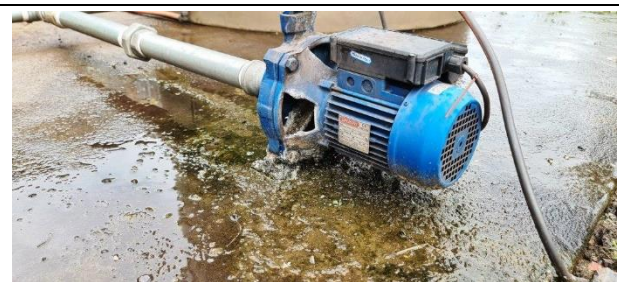
	<p>Potable water is stored in plastic tanks on the site. It was observed that the system is leaking. Algal growth is clear around the pump, implying that the leak has been on-going for a significant period of time.</p>
	<p>Water conservation is of significant concern in this water scarce environment.</p> <p>Water leaks must be repaired, and wastage of water must be prevented.</p>

Figure 2-4: TDS - Nchwaning II Laydown – Bund Facility

2.2 BURGER & CO. LAYDOWN NCHWANING II

The current environmental Green File was not available during the audit. Therefore records could not be reviewed.

It is also notable that there were no spill kits on the site. This is especially significant in consideration of the findings below.



It was clear that the bund at the laydown area has overflowed significantly.

It is likely that contaminated water has not been drained timeously from the bund.



It is recommended that the bund is drained of contaminated water on time to prevent this from recurring.

It is recommended that spills in the bund are cleaned up timeously to minimise the potential for contaminating rain water.



The bund is sloped toward a central sump. If the volume the bund is insufficient for typical downpours experienced at the site then the height of the bund wall should be increased accordingly.

Figure 2-5: Burger & Co - Nchwaning II Laydown – Bund Management



The scrap metal container is over flowing. Scrap metal has reportedly not been removed since December 2020.

Waste must be removed from site timeously.



Figure 2-6: Burger & Co - Nchwaning II Laydown – Scrap Metal



A forklift was parked in the yard for maintenance, with no drip trays to catch engine and hydraulic leaks.

Drip trays must be placed under vehicles that are leaking to prevent soil contamination.

Figure 2-7: Burger & Co - Nchwaning II Laydown – Drip Trays

2.3 FRASCO LAYDOWN NCHWANING II

A new green file, for a new project contract, was being prepared at the time of the audit.




General waste (packaging, old heat exchangers etc) were observed on the ground around the waste bins at the site. It appears that the waste storage capacity at the site is not sufficient for the amount of material produced.

The site must have adequate waste management capacity.

Figure 2-8: Frasco - Nchwaning II Laydown – General Waste

No other issues noted at the site.



2.4 OLIVIER LAYDOWN NCHWANING II

	<p>The bund draining valve was found open during the audit. This has been a recurring issue. Leaving the outlet valve open eliminates most of the storage capacity of the bund, and the bund is thus ineffectual for a large spill.</p> <p>The draining valve must always be closed and locked unless the bund is being drained.</p>
<p>Figure 2-9: Olivier - Nchwaning II Laydown – Bund drain valve open</p>	

No other issues noted at the site.

2.5 TAU DIPHOKA LAYDOWN NCHWANING II

A new green file, for a new project contract, was being prepared at the time of the previous audit. During this audit the new green file was reviewed and it was noted that the Integrated Environmental Authorisation was not present in the file. The file must be updated accordingly with the Integrated Environmental Authorisation, dated 29 November 2018, issued for the BRP project.

	<p>The management of spills and leaks at this site is a concern. Spills and soil contamination on the site have been noted during several audits. Although there is often an improvement after an audit, there is often a revert to observing contamination at subsequent audits.</p>
	<p>The contractor must ensure that adequate measures are in place to prevent and contain spills and leaks and that these are enforced at the site.</p>
<p>Figure 2-10: Tau Diphoka - Nchwaning II Laydown</p>	

	<p>Containers of cement accelerator were observed on the concrete storage platform at the site during the previous audit. It was noted at the time that the accelerator was being transferred from small containers into a larger container (IBC) for disposal. This was required as the containers and/or contents had degraded in the sun during the lockdown.</p>
	<p>During this audit it was noted that there were still numerous containers at the site and a significant spill has occurred adjacent to the concrete platform.</p>
<p>Previous audit</p>	<p>Although the accelerator may be non-hazardous, this is nevertheless contamination of the soil on the site.</p>
	<p>The accelerator must be stored in a bunded facility to prevent spills contaminating the site.</p>
<p>Previous audit</p>	<p>The existing contaminated soil must be removed and disposed of appropriately as it is not expected that the affected soil can be rehabilitated.</p>
	
<p>Current audit</p>	
<p>Figure 2-11: Tau Diphoka - Nchwaning II Laydown</p>	

Waste disposal logs were not reviewed as the person responsible was had already finished their shift at the time of the audit.

3 COMPLIANCE WITH CONDITIONS OF AMENDED ENVIRONMENTAL AUTHORISATION

Table 2: Tabular Summary of Compliance with Conditions of the Environmental Authorisation (DMR Reference: Ref: NC30/5/1/2/3/2/1/203mr)					
No.	Condition/Requirement	Status	Finding	Auditor Comment	Proponent Response
1. The approval is subject to the following conditions:					
a.	It is noted that the Black Rock Koppie is a potential heritage site in terms of the National Heritage Resources Act 25 of 1999. A heritage resources assessment must be undertaken and subsequent approval from the South African Heritage Resources Agency must be sought prior to any further development, or mining, of the Black Rock Koppie.	NA	No further development of the Black Rock Koppie has been undertaken. A Heritage Impact Assessment has been undertaken and a heritage management plan developed.	-	-
b.	The management actions stipulated in the EMPr and supporting specialist studies must be implemented and adhered to.	NC	There are instances of non-compliance as noted in the findings of the EMPr audit.	-	-
c.	All registered interested and affected parties must be informed of the approved amendment within 14 days of the date of the decision to the fact that an appeal may be lodged against the decision in terms of the National Appeals Regulations, if such appeal is available in the circumstances of the decision.	C	Registered IAPs were informed on the 27 February 2018. The notification included the required reference to the appeal procedure.	-	-
d.	An annual environmental audit must be undertaken in accordance with regulation 34 of the Environmental Impact Assessment Regulations, 2014, as amended.	C	The annual audit has been undertaken.	-	-
e.	The EMPr must be included in all contract documentation for all phases of implementation.	C	All contractors audited had the EMPr on file.	-	-
f.	A copy of this approval and the EMPr must be kept at the facility where the activities will be undertaken. These must be produced to any authorised official of the Department who requests to see them and must be made available for inspection by any employee or agent of the holder of the authorisation who works or undertakes work at the facility.	NC	Tau Diphoka did not have the current Integrated Environmental Authorisation on file. All other contractors audited had the IEA and EMPr on file.	Contractor green files to be updated with relevant environmental management documents.	-
g.	The applicant shall remain responsible for the facility, and/or any of its impacts on the environment.	C	Acknowledged by BRMO Environmental Specialist.	-	-

Table 2: Tabular Summary of Compliance with Conditions of the Environmental Authorisation (DMR Reference: Ref: NC30/5/1/2/3/2/1/203mr)					
No.	Condition/Requirement	Status	Finding	Auditor Comment	Proponent Response
h.	The Department reserves the right to audit or inspect the Facility without prior notification at any time and frequency as may be determined by the Department.	C	Acknowledged by BRMO Environmental Specialist. No inspection was reported for the auditing period.	-	-
i.	The applicant must make any relevant records or documentation available to the Department upon request.	C	Acknowledged by BRMO Environmental Specialist. No documents or records have been requested by the department.	It is recommended that a central database be used and kept up to date to facilitate access to relevant environmental management documents and records.	-
j.	The License Holder must keep records of all monitoring results, nuisances and complaints regarding the authorised activities.	C	A procedure is in place for registering complaints via reception at the main entrance and via telephone. It is reported that there have been no complaints received.	It is recommended that a central database be used and kept up to date to facilitate access to relevant environmental management documents and records.	-

4 COMPLIANCE WITH ENVIRONMENTAL MANAGEMENT PLAN (EMPR) – PRE-CONSTRUCTION, PLANNING AND DESIGNING

Table 3: Tabular Summary of Compliance with Conditions of the EMPR – Pre-construction, Planning and Design					
No.	Condition/Requirement	Status	Finding	Auditor Comment	Proponent Response
PRE-CONSTRUCTION, PLANNING AND DESIGN					
1	The EMPr must be reviewed after completion of detailed design. If necessary, the EMPr must be updated to ensure that it is relevant to the detailed design of all applicable site structures, supporting infrastructure and activities.	C	It is understood that no further updates are required as no significant changes to the intended designs and layouts have been undertaken.	-	-
2	The competent authority must be informed of any significant changes to the project description or the EMPr	N/A	No significant changes have been reported or observed within the scope audited.	-	-
3	The EMPr must be updated to ensure that the conditions of relevant approvals, licences and authorisations issued for this project are not in conflict with the EMPr.	C	No updates have been required as no conflict with approvals, licences and authorisations has been noted.	-	-
4	The project proponent must appoint an independent Environmental Control Officer who must audit compliance with the EMPr during the construction phase for mine expansion and the sinter plant complex.	C	The applicant has appointed EScience Associates (Pty) Ltd (ESA) to conduct compliance audits of construction phase activities.	-	-
5	The EMPr must be made binding to contractors and should be included in tender documentation for the contract.	C	It is the ECO's understanding that the EA, and indeed the EMPr Addendum, formed part of the contractor's conditions of contract.	-	-
6	The EMPr must be made readily available to the contractors, staff, as well as other relevant role-players associated with the project.	C	All contractors audited had the EMPr on file at the laydown areas.	-	-
7	Contractors and staff must be properly trained in all environmental aspects relating to their role in the project's construction and operation, as per requirements of the associated environmental awareness plan.	NC	<p>Tau Diphoka did not have the correct Integrated Environmental Authorisation thus could not have conducted the required training. TDS did not have proof of EMPr training on file.</p> <p>All other contractors that were audited produced evidence of training in respect of the related BRMO procedures and awareness plans.</p>	It is recommended that Tau Diphoka and TDS undertake the required training and maintain accurate records thereof.	-

Table 3: Tabular Summary of Compliance with Conditions of the EMPR – Pre-construction, Planning and Design					
No.	Condition/Requirement	Status	Finding	Auditor Comment	Proponent Response
8	Obtain environmental authorisation, in terms of the National Environmental Management Act (107 of 1998), where activities listed in terms of Chapter 5 of the Act are triggered and not otherwise authorised.	N/A	No new listed activities have been reported or observed within the scope audited.	-	-
9	Obtain a Waste Management Licence in terms of the National Environmental Management: Waste Act (59 of 2008) where activities listed in terms of S19 of the act are triggered and not otherwise authorised.	N/A	BRMO applied for the EA to be amended to an IEA. It is therefore understood that a standalone WML is not required.	-	-
10	Obtain an Atmospheric Emission Licence (AEL), in terms of the National Environment Management: Air Quality Act (39 Of 2004), from NCDENC for the operation of the sinter plant	N/A	The required AEL (provisional licence) was issued to the proponent in March 2013 but has since been retracted pending a decision from Assmang on whether the Sinter plant will be built.	-	-
11	Permits applicable to the removal, relocation or destruction of protected plants must be obtained prior to undertaking any such activity.	C	BRMO obtained the required permits prior to the removal, relocation or destruction of protected plants. No clearing of land was underway during this audit.	-	-
12	Identify the need for any other environmental permits and obtain these as required.	C	BRMO has applied for a Water Use Licence for relevant NWA listed activities.	-	-
13	Facilities for the storage and hazardous waste must be incorporated into the project design to ensure that all hazardous waste will be handled and stored in compliance with the NEMWA National Norms and Standards for the Storage of Waste GN 926: 2013, or superseding equivalent.	C	Facilities for the storage of hazardous waste have been constructed at the BRMO Waste Management Facility. The facility was not within the scope of this audit.	-	-
14	Design engineers and contractors must be informed of the required minimum standards as may be stipulated in permits relevant to the processes and activities they are designing such that these can be incorporated in the design.	C	It is reported that the design briefs take into consideration environmental legal requirements.	-	-

5 COMPLIANCE WITH ENVIRONMENTAL MANAGEMENT PLAN (EMP) – CONSTRUCTION PHASE

Table 4: Tabular Summary of Compliance with Conditions of the EMPR Addendum – Construction Phase					
No.	Condition/Requirement	Status	Finding	ECO Comment	Proponent Response
1. CONSTRUCTION CAMP ESTABLISHMENT					
1	A dust palliative with at least 80% dust reduction efficiency must be applied to unpaved roads (See Appendix 5 for alternative palliative options). Roads paved with low grade ore or aggregate shall be considered as being paved.	C	<p>The soil surfaces in the laydown areas are generally covered with crushed stone or low-grade ore where vehicles and frequent traffic are expected. No visible entrained dust observed on these sites.</p> <p>Unpaved roads with significant traffic have a dust palliative applied. It is reported that the palliative is at least 90% efficient.</p>	Notably it could be ascertained whether vehicles are abiding by the 40 km/h speed limit. It is recommended that the speed limit is enforced to assist with minimisation of dust entrainment.	-
2	Waste shall not be burnt unless in a waste management facility, or other facility, licenced for that purpose. Evidence of lawful disposal all wastes streams generated must be maintained.	C	<p>No evidence of waste burning observed during the audit.</p> <p>General waste generated at construction areas is collected by the contractors and removed for disposal to the licenced BRMO general landfill site. All contractors keep a waste logbook as proof of this.</p>	It is recommended that all contractors also keep the landfill weighbridge records as further proof of compliance with this condition.	-

Table 4: Tabular Summary of Compliance with Conditions of the EMPR Addendum – Construction Phase					
No.	Condition/Requirement	Status	Finding	ECO Comment	Proponent Response
3	<p>Contractor/s must provide appropriate (capacity/effective containment of grey and black water), ablution/sanitary arrangements for employees, and maintain/service such for the duration of their site's activities in accordance with the MHSA as a minimum.</p> <p>Mobile facilities must be inspected on a daily basis for leaks and cleanliness, and emptied at frequency adequate to prevent overflow.</p> <p>Septic tank must be emptied at a frequency sufficient to prevent overflow. Caution must be taken to prevent leaks or spills during emptying of septic tanks. In the event of spill residue must be removed and the affected area must be treated with lime.</p>	C	<p>All sites have available above ground ablution/sanitary arrangement for employees. Portable toilets are provided. These are drained by Sanitech and Kharki and this waste is deposited at the Khatu sewage treatment works. Sanitech has a letter from the municipality authorising disposal there.</p> <p>Contractors are to keep a copy of the safe disposal certificates from Sanitech in their green files.</p>	-	-
4	Concrete preparation (i.e. including mixing) and batching must take place on durable, impermeable, bunded surfaces	C	Concrete preparation at the TDS underground construction site (Nchwaniing III) was observed to be taking place on an impermeable surface.	-	-
5	Run-off from preparation (i.e. including mixing) activities must be effectively contained and prevented from entering the natural environment (i.e. soils, surface water, and groundwater).	C	No run-off from concrete preparation was observed during the audit.	-	-
6	No underground (i.e. buried) fuel tanks may be established as part of the construction activities sites or anywhere else on site during construction, or operation.	C	No underground fuel tanks observed.	-	-

Table 4: Tabular Summary of Compliance with Conditions of the EMPR Addendum – Construction Phase					
No.	Condition/Requirement	Status	Finding	ECO Comment	Proponent Response
7	Bunded facilities must be compliant with specifications of the BRMO Spill Management and Specifications for Bund Walls procedure, as appended	NC	The bunds at Burger & Co and TDS were clearly inadequate as illustrated in Figure 2-5.	<p>It is recommended that the bund is drained of contaminated water on time to prevent this from recurring.</p> <p>It is recommended that spills in the bund are cleaned up timeously to minimise the potential for contaminating rain water.</p> <p>The bund is sloped toward a central sump. If the volume the bund is insufficient for typical downpours experienced at the site then the height of the bund wall should be increased accordingly.</p>	-
8	Above ground fuel, or oil storage tanks, must be located within appropriately sized, impermeable, bunding that is constructed in accordance with BRMO's spill management procedure. Decanting must be undertaken within the bunded area or on an impermeable surface for this purpose.	C	No storage tanks on site. Although there are drums and small bowsers. These were observed to be 1 bunds.	-	-
9	Appropriate spill management kits must be kept and maintained on site wherever liquid hazardous materials are stored, and where refuelling and/or servicing of plant, vehicles and machinery takes place, in order to manage potential spillages effectively.	NC	No spill kits on the site at the Burger & Co site.	Spill kits must be kept on site as required.	-
10	Training, in the use and maintenance of the abovementioned kits, as well as any contaminated waste products, must be provided to ALL staff either directly or indirectly involved in any of the activities identified above.	C	<p>Staff are reported to have been trained in the use of the kits. Staff signatures on the BRMO spill management procedures are reported as evidence of training.</p> <p>BRMO reported that the spill management procedure has been revised, however contractors have not been provided with the revised version.</p>	-	-

Table 4: Tabular Summary of Compliance with Conditions of the EMPR Addendum – Construction Phase					
No.	Condition/Requirement	Status	Finding	ECO Comment	Proponent Response
11	Hazardous chemical containers must be stored within appropriately constructed bunds. Inspection of containers' integrity must be undertaken regularly, and compromised containers must be replaced.	NC	The bunds at Burger & Co and TDS were clearly inadequate as illustrated in Figure 2-3 and Figure 2-5.	TDS are to ensure that all hazardous chemicals, containers holding hazardous chemicals, are kept within the dedicated bunded area when not in use.	-
12	Sorbents and contaminated soil must be immediately collected and placed within a water-tight, skip/container for subsequent disposal or treatment at an appropriately licensed hazardous waste management facility.	NC	Evidence of soil contamination was observed at the Tai Diphoka laydown area.	All spills are to be managed as per this condition, and using the spill kits available on site as soon as the spill is identified.	-
13	All servicing of plant and vehicles is to take place strictly within dedicated workshops within construction site/s, or otherwise off-site at appropriate maintenance facilities.	C	No vehicles observed being serviced outside service bays.	-	-
14	Furthermore, servicing and maintenance of plant and vehicles must take place on impermeable surfaces with appropriate measures in place to contain contaminated run-off. Impermeable surfaces must be maintained.	C	No servicing of vehicles observed outside of impermeable areas.	-	-
15	Where emergency/unplanned repairs are required during construction activities, or oil leaks are identified, suitable drip trays must be used to prevent contamination of soil and water.	NC	There were no drip trays, or inadequate drip trays, under vehicles at Tau Diphoka and Burger & Co.	-	-
16	Uncontaminated storm water run-off within the sites must be prevented from flowing through workshops and wash bays or any other contaminated areas.	C	Contaminated areas are generally raised or bunded.	-	-
17	Potentially contaminated water must be effectively diverted, contained and managed, such that no contaminants are ever in contact with site soils	NC	The bunds at Burger & Co and TDS were clearly inadequate as illustrated in Figure 2-3 and Figure 2-5.	-	-
18	Waste oil generated from vehicle workshops/drip trays must be immediately stored in sealable, water-tight, steel drums or containers within a bunded facility for subsequent removal from site for either recovery, or disposal thereof	N/A	No waste oil observed; however, bunded facilities are in place.	-	-
19	Waste oil storage areas may only be placed within relevant construction/contractor's sites, and BRMO workshop areas, before being moved to the BRMO hazardous waste storage area or direct removal by an appropriate waste removal or recycling company.	N/A	No waste oil observed; however, bunded facilities are in place	-	-
20	Sufficient, water-tight, skips/containers on site for the separate storage of general (including steel, rubble and other non-contaminated waste) and hazardous waste.	NC	Waste facilities at TDs were not available for hazardous waste and inadequate for scrap steel.	-	-

Table 4: Tabular Summary of Compliance with Conditions of the EMPR Addendum – Construction Phase					
No.	Condition/Requirement	Status	Finding	ECO Comment	Proponent Response
21	Under no circumstances must waste be stored on site anywhere but in the appropriate skips/containers provided for such.	NC	Waste was observed stored outside at TDS and Frasco, refer to Figure 2-2 Figure 2-8.	-	-
22	Waste skips/containers must be cleared when full, such that waste doesn't over-flow onto adjacent ground	C	No observations to the contrary.	-	-
23	Records of safe disposal must be obtained, and kept on file, for all waste removed from site; where the waste management facility/contractor used for such purposes must be appropriately licensed/permited for such.	C	All sites had waste logs in place. General waste generated at construction areas is collected by the contractors and removed for disposal to the licenced BRMO general landfill site.	-	-
24	The area supervisor is responsible for ensuring that wind-blown litter is collected from the sites on a daily basis.	C	No significant wind-blown litter observed.	-	-
25	Waste must not be temporarily stored on bare soil surfaces; Except where: <ul style="list-style-type: none"> The waste is regarded as being 'inert' (e.g. waste bricks, un-contaminated steel scrap, etc.), in terms of the definition provided for in the National Environmental Management: Waste Act (59 of 2008); The waste will be removed from site within 30 days of the generation thereof; and No component of the waste is susceptible to dispersal by wind 	NC	Although there are no records for waste observed stored outside at TDS, it appeared from the general rusted state of the waste that it had been there for a significant period.	-	-
26	Skips/containers must, therefore, be clearly marked for purpose	NC	Waste bins at TDS no labelled. Otherwise waste bins at other contractors generally have stick-on labels indicating the type of waste to be disposed therein.	-	-
27	Safe disposal/management certificates must be obtained for all waste removed from site	C	Safe disposal certificates were on file at the contractors audited.	-	-

Table 4: Tabular Summary of Compliance with Conditions of the EMPR Addendum – Construction Phase					
No.	Condition/Requirement	Status	Finding	ECO Comment	Proponent Response
28	Waste may only be taken to appropriately licensed/permitted waste management facilities.	NC	<p>Given that TDS had no hazardous waste bins, and that hazardous waste was observed in the general waste bins, it must be inferred that hazardous waste may have been disposed to the BRMO general landfill.</p> <p>General waste generated at construction areas is collected by the contractors and removed for disposal to the licenced BRMO general landfill site. All contractors keep a waste logbook as proof of this.</p> <p>Portable toilets are drained by Sanitech or Kharki and this waste is deposited at the Khatu sewage treatment works. Sanitech has a letter from the municipality authorising disposal there.</p>	-	-
29	Waste skip/container collection and replenishment schedules must be developed and managed pro-actively by the supervisors, in order to ensure that no skips/containers are left full and/or over-flowing for any extended period of time and that there is always appropriate temporary waste storage capacity on site	C	No observations to the contrary.	-	-
30	Contractors will be required to provide a method statement specific to waste minimisation, reuse, recovery and recycling, as well as temporary storage and disposal; where such plans would need to be signed off by competent site environmental personnel/environmental control officer (Environmental Control Officer) prior to the start of construction activities.	C	Contractor Method Statements observed in green files.	-	-
31	Surface storm water run-off must not be able to flow through any waste storage areas. Nor should skips/containers, or waste storage areas, be positioned where surface water may pond or flow preferentially during rainfall events	C	In general, waste skips or bins are either kept in bunded, impermeable areas in the laydown areas or on surfaces paved with low-grade ore. No surface flow was observed to be likely through the storage facilities.	-	-

Table 4: Tabular Summary of Compliance with Conditions of the EMPR Addendum – Construction Phase					
No.	Condition/Requirement	Status	Finding	ECO Comment	Proponent Response
32	Construction sites may only be established within the anticipated development footprints of the proposed project. E.g. proposed product stockpile floors.	C	No stockpiles are located outside of project development footprints.	-	-
33	Construction camps may only be established within the anticipated development footprints of the proposed project elements (Excl. Gamagara Railway Bridge crossing). E.g. proposed product stockpile floors within the greater sinter plant complex.	C	No establishment of contractor camps outside of development footprints.	-	-
34	The poaching, or killing, of indigenous site fauna is prohibited.	C	Employees and contractors are made aware of this condition through toolbox talks. No evidence observed of non-compliant activities and none reported.	-	-
35	Under no circumstances are wood, or medicinal plants, to be 'harvested' without an appropriate permit or licence.	C	Employees and contractors are made aware of this condition through toolbox talks. No evidence observed of non-compliant activities and none reported.	-	-
36	Under no circumstances are wood, or medicinal plants, to be 'harvested' by the contractor, or his/her employees	C	Employees and contractors are made aware of this condition through toolbox talks. No evidence observed of non-compliant activities and none reported.	-	-

Table 4: Tabular Summary of Compliance with Conditions of the EMPR Addendum – Construction Phase					
No.	Condition/Requirement	Status	Finding	ECO Comment	Proponent Response
37	<p>If open fires (i.e. not contained in a brazier or equipment designed for that purpose), for the purposes of cooking, are to be tolerated within the construction site/s, the following conditions are to apply:</p> <ul style="list-style-type: none"> • Must be well removed from fuel and hazardous material storage areas, in line with appropriate BRMO safety standards; • Must be well removed from indigenous vegetation (at least 15m); • Fire-extinguisher must be readily available; • Must be screened from wind with non-flammable material/s; and • Non-smouldering ash residues must be disposed of in general waste skip/s, or containers, on site. 	C	<p>No fires were observed during the audit. Fires are prohibited.</p> <p>Staff are provided with food brought to the site.</p>	-	-
38	Contractors must ensure that alien invasive species within the bounds of their sites are managed in accordance with relevant provisions of the BRMO alien invasive species management plan	C	No significant observations of alien invasive species in the contractors' areas.	-	-
39.	All relevant personnel and contractors to receive training in regard to the above requirements.	C	Evidence of training on the EMPr was observed in their green files audited.	-	-
40	Access by the contractor and his/her employees to adjacent farms (i.e. other than those falling within the ambit of the project) is strictly forbidden; unless otherwise agreed upon, in writing, by the relevant landowner/s.	C	No complaints to this effect to date have been received.	-	-

Table 4: Tabular Summary of Compliance with Conditions of the EMPR Addendum – Construction Phase					
No.	Condition/Requirement	Status	Finding	ECO Comment	Proponent Response
41	The enhancement of benefits associated with the effects on employment lie in the potential to increase the employment opportunities for local communities in the JT Gaetsewe DM and supporting more jobs through the procurement of local goods than imported materials and inputs where feasible. In this context, the following should be considered, where possible: <ul style="list-style-type: none"> • Employ labour-intensive methods in construction, where economically feasible; • Employ local residents and communities, where possible; • Sub-contract to local construction companies (in the JT Gaetsewe DM), where feasible; and utilise local suppliers, where feasible. 	C	It is reported that these recommendations have been considered by the project team. Notably, there has been a significant reduction in project scope which has reduced opportunities correspondingly.	-	-
42	The negative impact on housing and service delivery provision pressures could be reduced by sourcing the majority of construction workers from local communities, thus reducing the need to bring new people into the local area.	UC	Not audited. It has been reported that employees are sourced locally to the extent practical.	-	-
43	No slopes with gradient > 33° (i.e. 3H:1V) should be established on site; unless otherwise protected from erosion by appropriate storm water management measures, or slope stabilisation/re-vegetation	C	No such slopes were observed during the audit.	-	-
44	Vegetation and topsoil stripping to only be undertaken between 7:00am and 5:00pm.	N/A	No vegetation stripping occurring during the audit. No complaints received in this respect to date. Vegetation clearing is reported to be complete.	-	-

Table 4: Tabular Summary of Compliance with Conditions of the EMPR Addendum – Construction Phase					
No.	Condition/Requirement	Status	Finding	ECO Comment	Proponent Response
45	In terms of noise impact for various increases over the ambient, the National Noise Regulations define an increase of 7 dBA as “disturbing”. Noise levels during construction must, therefore, be kept within 7 dBA of the baseline data at sensitive receptors.	C	No noise assessments have been undertaken thus this could not be confirmed. It is the auditor’s unsubstantiated view that noise generated by the activities audited would not be substantial enough to cause a 7dBA increase. Furthermore, it is reported that no complaints have been received.	Noise from the construction activities was not audible.	-
46	Should noise complaints be received then the source of the noise causing the disturbance must be investigated and measures to reduce the noise level must be considered and implemented. Subsequent follow-up with the complainant must be undertaken to confirm elimination of the problem.	N/A	No complaints received.	-	-
47	Ground level vibrations resulting from blasting activities should not exceed 10 m/s beyond the mine boundary	N/A	No significant blasting related to the audited activities during the period of interest. Furthermore, it is reported that no complaints have been received.	-	-
48	Air over pressure from blasting activities should not exceed 134 dB at the mine boundary	N/A	No significant blasting related to the audited activities during the period of interest. Furthermore, it is reported that no complaints have been received.	-	-
49	No surface blasting to take place during windy conditions	N/A	No surface blasting related to the audited activities during the period of interest.	-	-
50	Ground level vibrations resulting from blasting activities should not exceed 10 m/s beyond the mine boundary	N/A	No significant blasting related to the audited activities during the period of interest. Furthermore, it is reported that no complaints have been received.	-	-
2. VEGETATION CLEARANCE					

Table 4: Tabular Summary of Compliance with Conditions of the EMPR Addendum – Construction Phase					
No.	Condition/Requirement	Status	Finding	ECO Comment	Proponent Response
1	Vegetation clearance must be limited to the smallest area practical to enable construction activities and the establishment of structures and infrastructure. These areas need to be clearly marked out (e.g. taped off) under the supervision/assistance of the Internal Environmental Officer as vegetation clearance proceeds on site. Required to ensure that all vegetation clearance is restricted to designated areas to the greatest extent practical.	N/A	No clearance undertaken.	-	-
2	No protected species may be removed, relocated or destroyed without the necessary permits for such having been obtained from the relevant competent authority	N/A	No removal undertaken.	-	-
3	The removal, relocation or destruction of protected plant and tree species must be undertaken in compliance with all conditions stipulated in the above-mentioned permits, as well as supporting biodiversity off-set implementation plan.	N/A	No removal undertaken.	-	-
4	Any <i>Ammocaris coranica</i> , <i>Harpogophytum procumbens</i> , <i>Babiana hypogaea</i> and <i>Boophane disticha</i> , or any other red data listed (RDL) species identified on site, need to be rescued and relocated under the guidance of a competent ecologist, or by parties trained to undertake such by a competent ecologist, as part of species specific rescue and relocation plans formulated by a competent ecologist, where possible.	C	It is reported that rescued plants from the new TSF area were replanted accordingly.	-	-
5	All contractors and employees involved in vegetation clearance must be trained to identify the species above.	C	Contractors' staff are trained on the biodiversity management procedure. Proof of training was provided by the contractors. Notably there is no vegetation clearance underway.	-	-
6.	All areas stripped of indigenous vegetation cover and topsoil need to be regularly inspected for the potential establishment of alien invasive species, and appropriate control measures applied where these species are observed to have established (i.e. in accordance with the provisions of the BRMO 'alien invasive species management plan').	C	Alien vegetation within BRMO is managed as per the Biodiversity Action Plan. External contractors are appointed to eradicate alien invasive vegetation.	It was reported by BRMO that management procedures/plans have been revised. Contractors are to be provided with BRMO manuals and procedures as soon as they are revised.	-

Table 4: Tabular Summary of Compliance with Conditions of the EMPR Addendum – Construction Phase					
No.	Condition/Requirement	Status	Finding	ECO Comment	Proponent Response
7	A copy of the BRMO alien invasive species management plan, inclusive of quick 'weed identification' flash-card sets, to be supplied to the relevant employees and contractor/s involved in vegetation stripping.	C	Copies available within contractors' green files.	Contractors are to be provided with BRMO manuals and procedures as soon as they are revised.	-
8	The degree of 'topsoil' lost to vegetation stripping needs to be kept to an absolute minimum by the relevant contractor/s.	UC	Not audited.	-	-
9	Any runnels, or erosion channels, which develop shall be back-filled and the area restored to the acceptable condition. The contractor shall not allow erosion to develop on a large scale before effecting repairs and all erosion damage shall be repaired as soon as possible (Topsoil washed away shall be replaced).	C	No evidence to the contrary was observed.	-	-
10	Appropriate training to be issued to BRMO Internal Environmental Officer and other relevant staff by a suitably qualified specialist.	C	Staff are reported to be competent from experience although no formal record of training was available.	-	-
11	Basic training needs to be provided to the relevant contractor/s, as well as their relevant vehicle/grader operator/s, for the identification of possibly encountered elements of cultural and heritage significance (e.g. archaeological sites, graves, etc.)	C	Reported to have been trained although no formal record of training was available.	-	-
12	If archaeological sites are exposed during vegetation or topsoil stripping and borrowing activities, these should immediately be reported to the Local and National Branches of the South African Heritage Resources Agency (SAHRA)	C	No reports of such findings.	-	-
13	Under no circumstances shall archaeological artefacts discovered on site during construction or operational activities be removed, destroyed or interfered with.	C	No reports of such findings.	-	-
14	The wood from trees stripped during this phase of construction must be supplied to local community/ies as firewood; unless otherwise directed in the respective 'protected tree removal/destruction permit/s'.	C	The trees are allowed to be disposed. No stripping reported.	-	-
3. TOPSOIL STRIPPING					
1	Topsoil to be stripped to a depth of at least 30 cm from all development footprints and stockpiled for reuse in rehabilitation actions at mine closure.	UC	Not audited.	-	-
2	Vegetation stripping should not be conducted more than two weeks (14 calendar days) prior to topsoil stripping, in preparation of development, or mining.	C	Reported to have been undertaken as required.	-	-

Table 4: Tabular Summary of Compliance with Conditions of the EMPR Addendum – Construction Phase					
No.	Condition/Requirement	Status	Finding	ECO Comment	Proponent Response
3	Topsoil and subsoil must only be utilised as required for rehabilitation within the mining area, and according to the topsoil management plan.	UC	Not audited.	Previous audits found that topsoil has not been stockpiled in compliance with the BRMO topsoil stockpiling procedure.	-
4	Stockpiles must be monitored for alien vegetation any existing alien vegetation must be removed and destroyed in accordance biodiversity management plan	UC	Not audited. The stockpiles are reportedly monitored on an informal basis.	It is recommended that the stockpiles be included in the broader mine alien vegetation management plan.	-
5	A 'topsoil balance calculation' will be held by the BRMO, showing reasonable estimates of the topsoil volumes available in stockpiles against the volumes required for rehabilitation of affected development footprints for the project.	C	Topsoil plan developed.	Previous audit found that topsoil balance was not updated.	-
6	In view of the overall deficiency of topsoil for rehabilitation, and the absence of alternative sources of topsoil, rehabilitation trials must be undertaken. Trials must be undertaken to assess the propensity for modification of subsoil to be effectively used in lieu of topsoil.	C	Trials undertaken and subsoil found to be suitable for use in rehabilitation with appropriate fertilisers.	-	-
4. CIVIL- AND EARTHWORKS					
1	No slopes with gradient > 3:1 should be established on site; unless otherwise protected from erosion by appropriate storm water management measures, or slope stabilisation / re-vegetation	C	No evidence of slope exceeding 3:1 gradient.	-	-
2	Provision must be for the diversion of 'clean' storm water run-off away from or around potentially contaminated working surfaces	C	Contaminated areas are generally raised and bunded with collection sumps.	-	-
3	Provision must be made for the diversion, and appropriate containment of 'dirty' storm water run-off generated within potentially contaminated mine works areas.	C	Due to the aridity of the area, and permeable soils, there has been no stormwater runoff of significance since the project commencement.	-	-
4	All 'dirty' storm water containment dams must be lined with a durable, impermeable, liner system as required in the BRMO IWWMP (e.g. HDPE liner), such that 'dirty/potentially contaminated' storm water is effectively contained for ultimate return to the process water circuit.	C	Dams at the stacker area are lined as required.	-	-

Table 4: Tabular Summary of Compliance with Conditions of the EMPr Addendum – Construction Phase					
No.	Condition/Requirement	Status	Finding	ECO Comment	Proponent Response
5	All civil- and earth work must ensure that no surface ponding of storm water ultimately occurs at the operational mine works areas	C	No evidence of ponding observed.	-	-
6	All 'dirty' storm water containment dams must be lined with a durable, impermeable, liner system (e.g. HDPE liner), such that 'dirty / potentially contaminated' storm water is effectively contained for ultimate return to the process water circuit	C	The pollution control dam at the stacker-reclaimer area is HDPE lined.	-	-
7	All civil- and earth work must ensure that no surface ponding of storm water ultimately occurs at the operational mine works areas.	C	No evidence of ponding observed.	-	-
8	Civil- and earth works may only proceed where vegetation- and topsoil stripping have been effected in compliance with the provisions of the EMPr	C	It is reported that no civil or earth works have proceeded without vegetation or topsoil stripping.	-	-
5. SHAFT SINKING					
1	All waste rock generated through shaft sinking is to be temporarily stockpiled at surface within the greater surface shaft complex development footprint/s, and subsequently used as fill / founding aggregate in the construction of structural, or infrastructural, foundations and / or establishment of operational working floors (or any other environmentally acceptable use within the greater BRMO)	N/A	Shaft sinking complete.	Previous audit found no evidence of waste rock being stockpiled on the surface.	-
2	No storm water run-off at surface should enter underground workings through vertical shaft/s openings at surface	C	No evidence of run-off into underground workings observed.	-	-
3	Civil and earth works to only be undertaken between 7:00am and 5:00pm	N/A	Shaft sinking complete.	-	-
4	Ground level vibrations resulting from blasting activities should not exceed 10m/s beyond the mine boundary	N/A	Shaft sinking complete.	-	-
5	Air over pressure from blasting activities should not exceed 134dB at the mine boundary	NA	Shaft sinking complete.	-	-
6	No surface blasting to take place during windy conditions	N/A	Shaft sinking complete.	-	-
7	All immediately adjacent landowners should be provided with a weekly blasting schedule for the duration of blasting activities required for vertical shaft sinking.	N/A	Shaft sinking complete.	-	-

Table 4: Tabular Summary of Compliance with Conditions of the EMPR Addendum – Construction Phase					
No.	Condition/Requirement	Status	Finding	ECO Comment	Proponent Response
8	The services of a competent noise and vibration specialist are to be commissioned to routinely monitor blast impacts; where any complaints are received from IAPs in relation to noise and vibration from shaft sinking.	N/A	Shaft sinking complete. No complaints have been received	-	-
6. BORROW PIT ESTABLISHMENT					
1	Borrow pit dimensions must be optimised by the Proponent, such that final shaping and rehabilitation measures at closure are able to return the disturbed footprint/s to a state commensurate with end-land use objectives for the site	N/A	No borrow pits established.	-	-
2	Borrow pits may not be established within 32m of any prominent drainage lines on site. Borrow pits may not be established within the buffer zone and delineated wetland / riparian zone of the Gamagara River , or 100m from the edge of the Gamagara river	N/A	No borrow pits established.	-	-
3	Where borrow pits are established outside of dam /TSF footprint/s, the borrow pits must be appropriately rehabilitated within 6 months of the last borrowing from the respective pit/s	N/A	No borrow pits established.	-	-
5	Appropriate storm water diversions must be installed on the up-slope/s of borrow pits, such that storm water ingress therein is minimised to the greatest extent possible (Borrow pit access on down-slope thereof)	N/A	No borrow pits established.	-	-
6	Borrow pits must be established within the proposed development footprints of project dams and the TSF to the greatest extent that is practical (i.e. based on the suitability for purpose of the underlying material)	N/A	No borrow pits established.	-	-
7. HAUL/ACCESS ROADS					
1	Dust palliation with an effectiveness of at least 80% must be applied to all un-surfaced/gravel access and haul roads for the duration of the construction period.	C	Lignophosphate/sulphate palliative in use which is reportedly capable of achieving 80% palliation.	-	-
2	Palliatives must be applied and re-applied as necessary as per the manufacturer/supplier's recommendations	C	Reportedly applied as required.	-	-

Table 4: Tabular Summary of Compliance with Conditions of the EMPR Addendum – Construction Phase					
No.	Condition/Requirement	Status	Finding	ECO Comment	Proponent Response
3	Vehicle speeds must be limited to 60 km/h on access roads unless these have bound paving, in which case speed regulations as per the relevant traffic regulations must apply. Vehicle speeds must be limited to 40 km/h on any exposed surfaces where palliatives or paving have not been applied.	C	Speed limit signs are in place.	-	-
4	Access and haul roads may only be established, immediately adjacent to (within 20m), or directly between, the anticipated development footprints of the various project components. All access and haul roads to be depicted on plan, subject to approval by ECO and BRMO environmental manager	C	Design plans outlined within scope of area and responsibilities.	-	-
5	The hauling of materials and vehicle access to and from development sites must be strictly maintained to designated access/haul roads on site	C	No haulage or access observed outside the roads.	-	-
8. RAW / CONSTRUCTION MATERIAL STOCKPILE AND STORAGE					
1	Raw / construction material storage areas and stockpiles may not be established within 32m of any prominent drainage lines on site. Nor within the buffer zone and delineated wetland / riparian zone of the Gamagara River, or within 100m of the Gamagara river	C	No significant material storage observed.	-	-
2	Raw / construction material storage may only take place within the development footprints of project structures and infrastructure, or designated construction camp/s	C	No storage undertaken outside of development footprints.	-	-
3	Where daily quotas / stocks of hazardous materials are to be stored outside of the construction camp/s, the materials must be stored such that there is no contact between the material and site soils	N/A	It is understood that no storage is undertaken outside of construction camps.	-	-
9. GAMAGARA RIVER RAILWAY BRIDGE CONSTRUCTION					
1	The engineering design for the railway bridge must be such that it does not result in the ponding of potential flood waters behind the bridge structure, or associated supporting columns and railway alignments	N/A	Bridge not constructed	-	-

Table 4: Tabular Summary of Compliance with Conditions of the EMPR Addendum – Construction Phase					
No.	Condition/Requirement	Status	Finding	ECO Comment	Proponent Response
2	In the event that a new bridge will be constructed, the redundant bridge columns north of the 'existing' railway bridge must either – a) be used in the construction of the new bridge (i.e. where this is technically feasible and safe), or b) removed from the riverbed and either disposed of, or safely recovered for use as aggregate elsewhere on the project	N/A	Bridge not constructed	-	-
3	The alignment of the 'old'/redundant bridge, and what was once its associated railway track, should be used as the alignment for the 'new' bridge crossing over the Gamagara River; unless otherwise deemed technically flawed, in writing, by a competent engineer	N/A	Bridge not constructed	-	-
4	The construction of the railway bridge, as well as the associated track alignments either side thereof, must take place within a 30 m construction corridor	N/A	Bridge not constructed	-	-
5	Care should be taken by the contractor/s during any development activities, that if any archaeological and/or historical sites, features or artefacts are accidentally discovered, a qualified archaeologist be called in to investigate.	N/A	Bridge not constructed	-	-
6	Phase II heritage mitigation measures, as required by SAHRA, should be undertaken before the bridge development commences. This will need to entail the following: a) (Mapping of the most significant sites (highest density of material) in the area. Sites 6 and 12, as identified by Dr. A. Pelsler, are recommended. With Site 6 located outside the area earmarked for development activities, Site 12 will therefore be mapped; and b) Controlled sampling of material in order to obtain a representative sample of the Stone Age material in the area. This will be in the form of blocks on the site, which will be mapped and material in these blocks will then be sampled.	N/A	Bridge not constructed	-	-

6 COMPLIANCE WITH SPECIALISTS RECOMMENDATIONS – CONSTRUCTION PHASE

6.1 AIR QUALITY

Note that the postponement of the Sinter Plant complex has significantly reduced the anticipated emissions from the mine expansion and the relevance of the AQMP as it is largely aimed at addressing sinter plant emissions whereas the EMPr deals with general particulate emissions from the expansion project.

Table 5: Tabular Summary of Compliance with the Recommendations of the AQMP – Implementation Phase

No.	Condition/Requirement	Status	Finding	ECO Comment	Proponent Response
1. PRE-CONSTRUCTION, PLANNING AND DESIGN					
1	Appoint an Internal Environmental Control Officer (ECO) who will be required to monitor the site with a direct hands-on approach and ensure compliance and co-operation of all personnel.	C	BRMO's environmental specialist is assigned the responsibility of ensuring compliance.	-	-
2	This AQMP must be updated to ensure that it is relevant to the detailed design and layout of proposed activities.	N/A	The postponement of the sinter plant obviates the need to update the AQMP	-	-
3	This AQMP must be updated to ensure that all conditions of the Authorisation issued for this development have been incorporated into the AQMP.	N/A	Updates not required.	-	-
4	This AQMP must be updated to ensure that all conditions of the any instrument of environmental legislation (e.g. permits, licenses etc.) issued for this project have been incorporated into the AQMP.	N/A	The Atmospheric Emissions Licence issued was retracted due to the postponement of the Sinter Plant.	-	-
5	The mine must appoint an independent Environmental Control Officer (ECO) who must monitor the contractor's compliance with the AQMP.	C	An ECO was appointed through Worley Parsons to monitor compliance and enforce procedures. The remaining construction activities have dwindled as the project progresses to completion. The ECO contract was concluded. It is understood that the BRMO Environmental Specialist act as the ECO. EScience has been appointed to audit the construction phase of the expansion project.	-	-

Table 5: Tabular Summary of Compliance with the Recommendations of the AQMP – Implementation Phase					
No.	Condition/Requirement	Status	Finding	ECO Comment	Proponent Response
6	The priority of the ECO is to maintain the integrity of the development conditions outlined in the AQMP.	C	Noted	-	-
7	The contractor must ensure that the construction crew attend an environmental briefing and training session presented by the ECO prior to commencing of site activities.	C	Evidence of training maintained in the green files.		-
8	The AQMP must be made binding to the main contractor as well as individual contractors and should be included in tender documentation for the construction contract.	C	It is reported that this is part of a contractors' pack issued to all contractors, contractually binding them.	-	-
9	AQMP must be made available to the main contractor as well as individual contractors, as well as other relevant role-players.	C	The provisions of the AQMP are integrated into the EMPr	-	-
10	Contractors and staff must be properly trained in all environmental aspects relating to their role in the project's construction and operation.	C	Evidence of training maintained in the green files.	-	-

6.2 SOIL

Table 6: Tabular Summary of Compliance with the Recommendations of the Soil Specialist – Implementation Phase					
No.	Condition/Requirement	Status	Finding	ECO Comment	Proponent Response
1. PRE-CONSTRUCTION, PLANNING AND DESIGN					
1	Stripping depth - Because the A horizon is relatively thin (20 cm) with a very low organic content, no specific recommendation on how deep the topsoil should be excavated to prepare the area is necessary. The excavation could be deeper than 20 cm. The normal practice is to excavate to 30 cm before the surface is prepared for construction is acceptable.	UC	Not audited.	Previous audit found that stripping during the construction phase was carried out to 30cm depth. It is reported that the same was undertaken for the new TSF.	-
2	Handling of stockpiled soil - Because of the texture of the soil and the size distribution of the different sand fraction of the soil, the soil will not tend to compact and become cemented while it is stockpiled. No special arrangements are necessary for stockpiling.	N/A	No special arrangements are necessary for stockpiling.	-	-

Table 6: Tabular Summary of Compliance with the Recommendations of the Soil Specialist – Implementation Phase					
No.	Condition/Requirement	Status	Finding	ECO Comment	Proponent Response
3	Soil preparation for remediation - Although the soil is not very fertile, the stockpiled soils can be used as such to reclaim the disturbed area at mine closure. No fertilizer program is recommended because it is assumed that the disturbed areas will be re-vegetated with natural grasses which are adapted to the local environment.	N/A	No preparation required.	-	-

6.3 NOISE

Table 7: Tabular Summary of Compliance with the Recommendations of the Noise Specialist – Implementation Phase					
No.	Condition/Requirement	Status	Finding	ECO Comment	Proponent Response
1. PRE-CONSTRUCTION, PLANNING AND DESIGN					
1	Haul Roads - Machinery with low noise levels to be used and construction work to take place during daytime periods.	C	Construction work is restricted to daytime. It could be confirmed that the machinery has 'low noise levels' however no noise complaints have been received.	-	-
2	Preparation of the footprint area - Machinery with low noise levels to be used and construction work to take place during daytime periods.	C	Construction work is restricted to daytime. It could be confirmed that the machinery has 'low noise levels' however no noise complaints have been received.	-	-
3	Drilling surface shaft complex - Drilling of holes for blasting to take place during the daytime.	C	Drilling and blasting is reported to be taken during construction dayshift hours when required.	-	-
4	Localised blasting surface shaft complex	N/A	No blasting underway during the period audit.	-	-
5	Provision of services - Any power generation plant to be acoustically screened off and compliance certificate to be provided; All construction work to take place during normal working hours; Machinery with low noise levels to be used.	C	Construction work is restricted to daytime. It could be confirmed that the machinery has 'low noise levels' however no noise complaints have been received.	-	-

Table 7: Tabular Summary of Compliance with the Recommendations of the Noise Specialist – Implementation Phase					
No.	Condition/Requirement	Status	Finding	ECO Comment	Proponent Response
6	Assembling of equipment/machinery - Machinery with low noise levels to be used and construction work to take place during daytime periods.	C	Construction work is restricted to daytime. It could be confirmed that the machinery has 'low noise levels' however no noise complaints have been received.	-	-

6.4 BIODIVERSITY

The Biodiversity Action Plan was formulated for the Black Rock Mine surface rights area as well as decommissioned Perth and Devon Mines. The requirements do not specifically indicate whether they target the construction phase and thus some of the requirements are beyond the scope of this audit.

Table 8: Tabular Summary of Compliance with Recommendations of the Biodiversity Specialist – Implementation Phase					
No.	Condition/Requirement	Status	Finding	ECO Comment	Proponent Response
1. PRE-CONSTRUCTION, PLANNING AND DESIGN					
1	Design a training program which informs staff about the relevance and importance of biodiversity management	C	Training in respect of RDL species and invasive species is undertaken through toolbox talks. Training has also been conducted in respect of the BRMO conservation of biodiversity management procedure by each contractor. Proof of training is kept in the form of a register of attendance with signatures.	It was reported by BRMO that the biodiversity management procedure has been revised. Contractors are to be provided with BRMO manuals and procedures as soon as they are revised.	-
2	Identification and counting of RDL species within areas earmarked for development	C	It is reported that all protected species have been counted for and areas assessed prior to obtaining related permits and commencement of clearing for the new TSF.	-	-

Table 8: Tabular Summary of Compliance with Recommendations of the Biodiversity Specialist – Implementation Phase					
No.	Condition/Requirement	Status	Finding	ECO Comment	Proponent Response
3	Community and mine specific actions to promote the conservation of RDL and protected floral species within the region.	NC	<p>Previous audit reports reflect that BRMO will promote conservation of RDL species by implementing the following items, however these have not been implemented as of yet :</p> <ul style="list-style-type: none"> • Establishment of a nursery wherein protected and RDL floral species are propagated for the use in future rehabilitation; • The use of RDL and protected floral species in the greening of facility grounds; • Providing local schools with RDL and protected floral species on environmental days celebrated in South Africa such as National Arbour Week; • Supporting research projects within the Northern Cape specifically directed towards RDL and protected species within the province; and • Implementation of a replacement program for indigenous trees instead of alien/invasives with special mention of the Black Rock village 	<p>It must be noted that the reduction in area and related agreement with the authorities that an offset is not required obviated the need for a nursery.</p> <p>A tree planting and tree replacement and programme is in place.</p> <p>Provisions for local schools and research projects are however not in place.</p>	-
4	Implementation of a biodiversity offset initiative	NC	It was agreed with DAFF that this would only be required if the clearing of land exceeds 80 Ha with the new TSF and soil stockpiles therefrom. The land cleared is understood to have exceeded 80 Ha however a biodiversity offset initiative is not yet in place.	It is recommended that the biodiversity offset plan be initiated and implemented.	-
5	Detailed invertebrate study of the area which will form the baseline information for future invertebrate monitoring	NC	An invertebrate study has not been undertaken. Invertebrate monitoring is not in place.	It is not clear whether this relates directly to the construction phase of the expansion project.	-

Table 8: Tabular Summary of Compliance with Recommendations of the Biodiversity Specialist – Implementation Phase					
No.	Condition/Requirement	Status	Finding	ECO Comment	Proponent Response
6	Community specific actions in order to eradicate and manage exotic/weed floral species	NC	<p>Previous audit reports reflect that BRMO will promote conservation of RDL species by implementing the following items, however these have not been implemented as of yet :</p> <ul style="list-style-type: none"> • Implementation of a replacement program for indigenous trees instead of alien/invasives with special mention of the Black Rock village and Hostel complex with surroundings; • Inform community about dominant alien vegetation species within the Black Rock Mine village and Hostel complex with surroundings; • Implement alien vegetation control plan specific for the exotic/weed species identified within the Black Rock Mine village and Hostel complex with surroundings. 	<p>An alien vegetation removal programme is in place.</p> <p>Community awareness campaigns are not in place.</p>	-
7	Compile a library of faunal and floral literature applicable to the area. Specific emphasis must be placed on RDL species, invasive species and their control methods, endemic species and their conservation	NC	A formal library is not in place.	-Compile formal library of fauna and flora specific to the area, with emphasis on RDL Species.	-
8	Erosion control and rehabilitation	C	No erosion observed during the period of the audit.	-	-
9	Hazardous materials control, erosion control, water quality control	C	-	-	
10	Sustainable use of groundwater	C	A water quality monitoring programme is in place as per the site's WUL.	-	-
11	Dust control	C	Palliatives and water are applied to prevent dust generation as per the EMPr. The contractor laydown areas are also covered in crushed stone and low-grade ore.	-	-

Table 8: Tabular Summary of Compliance with Recommendations of the Biodiversity Specialist – Implementation Phase					
No.	Condition/Requirement	Status	Finding	ECO Comment	Proponent Response
12	Noise control	UC	No complaints have been received. Environmental noise measurements have not been undertaken to confirm that the SANS 10103 standard is met, however thus the potential impact on biota cannot be ascertained.	-	-
13	Soil pollution control	NC	Possible soil contamination was observed at the TDS laydown area. This was not addressed at the time of the audit.	All spills are to be managed as soon as the spill is identified using the spill kits available on the site.	-

Table 8: Tabular Summary of Compliance with Recommendations of the Biodiversity Specialist – Implementation Phase					
No.	Condition/Requirement	Status	Finding	ECO Comment	Proponent Response
14	Removal of alien and invasive species	C	<p>Develop a comprehensive alien vegetation monitoring program which should include:</p> <ul style="list-style-type: none"> ○ Identification of priority areas ○ Liaison with surrounding stakeholders, and the local municipality to control upstream and surrounding nodes of seed production ○ Identify priority species to control in consultation with relevant stakeholders ○ Develop protocols for the removal of all alien species ○ Removal of species: <ul style="list-style-type: none"> • Re-assessment and monitoring of the area to determine success of the action and any follow-up measures required; • Identify areas to be greened; • Identify floral species to be utilised; • Identify suitable maintenance methods (water, fertilizer, etc.); • As far as possible, employ local community members; • Source plants from established nursery; • Design and implement landscape development plans; and • Continuously monitor efficacy of landscaping. 	<p>An alien vegetation monitoring and replacement programme is in place. The management of alien vegetation and replacement is outsourced on a periodic basis to a specialist contractor.</p>	-
15	Establish a nursery focusing on RDL/ Protected/ Endemic/ Medicinal plants to be utilised during operations and rehabilitation greening activities	N/A	Following the removal of the requirement for a biodiversity offset, the nursery has not been implemented.	-	-

Table 8: Tabular Summary of Compliance with Recommendations of the Biodiversity Specialist – Implementation Phase					
No.	Condition/Requirement	Status	Finding	ECO Comment	Proponent Response
16	Removal of litter and solid waste	C	It is reported that the following has been undertaken to prevent litter and solid waste build up <ul style="list-style-type: none"> • Liaison with stakeholders and surrounding landowners to ensure that surrounding sources of litter are addressed; • Identify a suitable area for disposal of collected solid waste; • Removal of litter and solid waste 	-	-
17	Access control	C	Fences are in place. Access to the mine and Belgravia farm is controlled.	-	-
18	Veld fire management	C	It is reported that fire breaks are maintained <ul style="list-style-type: none"> • Construct and maintain fire breaks on the property in compliance with legislated requirements. • Train relevant staff members in the philosophy, construction and maintenance of fire breaks 	Fire breaks are in place and employees are reported to have been trained. Training records were not reviewed during the audit.	-
19	Establish a No-Go biodiversity reserve within the riparian area and associated 32 meter buffer	C	No activities are allowed in or adjacent to the Gamagara delineation.	-	-
20	Compare plans of surface activities regularly to the areas of mapped sensitivity	C	Aerial photographs are undertaken annually and reviewed. No encroachments have been identified.	-	-
21	Employ specialist consultants to assist in developing the detailed rehabilitation and closure plans Ensure that monitoring takes place during the after care and maintenance period to ensure that any latent impacts are identified	C	Rehabilitation plans have been developed in accordance with the Mine Closure Provisions Regulations GN.R 1147 of 2015.	-	-
22	Ensure that all proposed expansion and closure plans take biodiversity management aspects into consideration as part of the planning and design phase of a proposed development or closure plan	C	Potting trials have been undertaken and the area adjacent to the Gamagara river at Gloria mine has been successfully rehabilitated.	-	-

Table 8: Tabular Summary of Compliance with Recommendations of the Biodiversity Specialist – Implementation Phase					
No.	Condition/Requirement	Status	Finding	ECO Comment	Proponent Response
23	<p>Employ specialist consultants to assist in developing the detailed rehabilitation and closure plans to ensure that the plan will allow sufficient recovery of the area to take place to be sustainable</p> <p>Ensure that sufficient after care and maintenance takes place and that sufficient budget for these activities is made available to ensure that rehabilitation measures become established and self-sustaining</p>	C	<p>Rehabilitation plans have been developed in accordance with the Mine Closure Provisions Regulations GN.R 1147 of 2015.</p> <p>The required financial guarantees have been provided to the DMR.</p>	-	-

6.5 HYDROGEOLOGY

Table 9: Tabular Summary of Compliance with the Recommendations of the Soil Specialist – Implementation Phase					
No.	Condition/Requirement	Status	Finding	ECO Comment	Proponent Response
1. PRE-CONSTRUCTION, PLANNING AND DESIGN					
1	The development of a groundwater monitoring network is recommended. It is recommended that the frequency of monitoring be bi-annual.	C	Monitoring network in place, sampling is undertaken quarterly.	-	-
2	The monitoring network should be implemented as soon as possible to get background data before the project commences.	C	Implemented 2013	-	-
3	Further recommendations can be made after the implementation of the monitoring network.	C	A consolidated GW assessment for the entire existing operation was undertaken in 2016. It was concluded that no further network improvements are required.	-	-
4	Temporal and spatial trend analysis of the groundwater quality should be conducted biannually to determine whether the priority areas are being managed as well as to identify new areas of concern. The monitoring system should then be adapted accordingly.	C	Quarterly monitoring reports trend historical data accordingly.	-	-

