MINING OF DOLERITE ON PORTION 5 OF FARM LATHAM 205, QUEENSTOWN, EASTERN CAPE PROVINCE

AMENDED DRAFT BASIC ASSESSMENT REPORT

JULY 2020

REFERENCE NUMBER: EC30/5/1/3/2/10342MP

PREPARED FOR:

Mr. David Hayes
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Queenstown
5320

PREPARED BY:

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EXECUTIVE SUMMARY

1. APPROVED WHITTLESEA MINING PERMIT

The Applicant Mr. David Hayes applied for a mining permit which was approved on the 17th of May 2017. The total mining area of approximately 4.89 ha, initially consisted of two sites known as Site 1 - 2.800134 ha; and Site 2 - 2.08 ha from which the applicant intended to win gravel for at least two years with possible three year extensions. During the EIA process the proposal was however amended to entail one mining footprint of 4.89 ha. The gravel to be removed from the mining area will be supplied to the road construction industry in the Whittlesea district. The proposed mining project will contribute to the upgrading/maintenance of road infrastructure in and around the Queenstown and Whittlesea areas. A generator will be used to power the infrastructure on site until an Eskom connection can be secured. Process water will be obtained from Mr. David Hayes (landowner) reservoir. The water will mainly be used for dust suppression purposes on the roads and mining area.

Approved Permit Area

Only one (1) viable site was identified for the proposed amendment of the mining activities. Site Alternative 1 (S1) was identified by the project team as the preferred option due to the following:

- The site offers the mineral sought after,
- The proposed footprint area was previously used for grazing with low agricultural potential and mining, therefore very little indigenous vegetation needs to be disturbed in order to establish the mining area.
- The mining area can be reached by an existing access road that formally connects to the R67. No new road infrastructure need to be constructed.
- The mining site is more than 14 km away from the Komani residential area and will not affect the community dust and noise wise.
- Due to the small size of the activity and the remote location of the mining area the potential impacts on the surrounding environment, associated with mining is deemed to be of low significance.

Public Participation Process

The stakeholders and I&AP's were informed of the project by means of I&AP comment/notification letters that were either delivered by hand or sent directly to the contact persons. A 30 days commenting period were allowed which extended from the 24th of August 2016 to 23rd September 2016. On-site notices were placed at the turn off from the R67 onto the farm Road Queenstown and the Chris Hani municipality clipboard. The project was also advertised in the representative on the 1st

of July 2016. Comment's that were received on the Draft Basic Assessment Report was added to the Final Basic Assessment Report and were submitted to DMR for final review.

Public Participation Process – Notification of Environmental Authorisation

The stakeholders and I&AP's were informed of the Environmental Authorisation by means of I&AP comment/notification letters that were either delivered by hand or sent directly to the contact persons. A 30 days commenting period were allowed which extended from the 24th of August 2016 to 23rd of September 2016.

Basic Assessment Report

The basic assessment report identified the potential positive and negative impacts that the proposed activity will have on the environment and the community as well as the aspects that may impact on the socio-economic conditions of directly affected persons, and proposes possible mitigation measure that could be applied to modify / remedy / control / stop the identified impacts.

The key finding of the environmental impact assessment entail the following:

Key findings:

- The project entails the excavation mining of aggregates in an area previously used for agricultural grazing and mining. Due to the small area used for grazing and mining, mining of aggregates in the area was identified as a more viable use. As a result of the agricultural activities no natural areas needs to be disturbed.
- The mining procedure will entail the excavation and transporting of the aggregates by means of a front-end loader upon which it will be loaded onto trucks and transported from the mining site to the stockpiling site. The clients will then acquire the aggregate from the stockpiling site. Minimal blasting (limited to one blast), no crushing will be necessary.
- The existing roads to the mine area can be used to gain access to the site. No new roads are needed.
- The off-site workshop of the applicant will be used for servicing of vehicles thereby reducing the risk of hazardous spills and contamination at the mining site.
- The proposed mining area will be visible from the R67 passing the property and will therefore have a visual impact on the immediate surrounding area.

Environmental Management Programme (EMPR)

The EMPR provides a description of the impact management outcomes and closure objectives. It presents the impacts to be mitigated in their respective phases as well as stipulates the mitigation measures to be applied on site.

The financial provision amount that will be necessary for the rehabilitation of damages caused by the operation, both sudden closures during the normal operation of the project and at final, planned closure gives a sum total of R 1 184 963.56.

2. SECTION 102 PROPOSAL

Mr David Hayes intends submitting a Section 102 ("S102") amendment application to amend the mining method by increasing the blasting frequency as well as including primary processing crushing and screening of aggregate to the mining activities over a portion of Portion 5 of the farm Latham 205, Queenstown, Eastern Cape Province (hereinafter referred to as "Whittlesea Quarry" ("WQ"). The S102 application necessitates an application for a Part 2 amendment of the mine's EMP in terms of GNR 326 Section 31. The proposed S102 application does not constitute a listed or specified activity in terms of the NEMA EIA Regulations, 2014 (as amended). This report, the amended Draft Basic Assessment Report, forms part of the departmental requirements, and presents the first report of the Part 2 (NEMA) amendment process.

Project Description

The DMR granted Mr. David Hayes a mining permit of 4.9 ha on 17 May 2017 for Aggregate mining on a portion of Portion 5 of farm Latham 205, Queenstown, Eastern Cape. It must be noted that although the holder has an approved permit no mining has commenced due to pending tenders. A tender was only recently awarded, and as part of the requirements as stipulated in the awarded tender the applicant identified the need to increase the blasting frequency, and add crushing and screening to the mining method. These amendments are addressed in the Section 102 application.

The amended mining method will make use of blasting by means of explosives in order to loosen the hard rock. Whereupon the mining method will entail excavation, and crushing, screening after which it will be loaded onto trucks and transported to the stockpiling site. The clients will then acquire the aggregate from the stockpiling site. All activities will be contained within the boundaries of the site. Blasting will occur once every six (6) to eight (8) weeks.

The authorised mining permit area is approximately 4.9 ha in extent and the applicant / permit holder intends to win aggregate from the area. The permit was issued 17 May 2017 and renewal was submitted in 2019 which leave two years' possible extension. The aggregate to be removed from the mining area will be supplied to the road construction industry in the Whittlesea district. The proposed mining project will contribute to the upgrading/maintenance of road infrastructure in and around the Queenstown and Whittlesea areas.

The following report is based on the proposed amendments to the current authorisation.

Should the Section 102 amendment be granted and the mining of aggregate be allowed with the amended mining process, Mr. David Hayes's project will comprise of activities that can be divided into three (3) key phases namely the:

Site establishment/construction phase the applicant have to fence the footprint area and clear the topsoil from the applied area.

Operational phase that entails the mining of aggregate from the earmarked footprint area via conventional open cast mining methods. The mining method will require crushing and screening. The mining methods will make use of blasting by means of explosives in order to loosen the hard rock. The material is then loaded and hauled out of the excavation to the crushing and screening plants. The aggregate will be screened to various sized stockpiled. The aggregate will be stockpiled and transported to clients via trucks and trailers. All activities will be contained within the boundaries of the site. Blasting will occur once every six (6) to eight (8) weeks.

Decommissioning phase which entails the rehabilitation of the affected environment prior to the submission of a closure application to the Department of Mineral Resources (DMR). The mining area to be made safe and the remainder of the site to be returned to agricultural use however it should be noted that the area was previously in a state of low agricultural potential. The perimeter of the site will be subject to top-dressed with topsoil and vegetated with an appropriate grass mix if vegetation does not naturally establish in the area within six months of the replacement of the topsoil. Site management will implement an alien invasive plant management plan during the 12 months' aftercare period to address germination of problem plants in the area.

<u>Public Participation Process – Notification of Section 102 Amendment Application</u>

The stakeholders and I&AP's will be informed of the Section 102 amendment application by means of I&AP comment/notification letters that will either be delivered by hand or send directly to the contact persons. A 30 days commenting period will be allowed which extended from the 10th of July 2020 to

12th of August 2020. Thereafter the report will be submitted with updated comments and response report to DMR Eastern Cape.

Basic Assessment Report

The basic assessment report identifies the potential positive and negative impacts that the proposed activity will have on the environment and the community as well as the aspects that may impact on the socio-economic conditions of directly affected persons, and proposes possible mitigation measure that could be applied to modify / remedy / control / stop the identified impacts.

The key finding of the environmental impact assessment entail the following: (Pertaining to blasting, crushing and screening).

Key findings:

- The mining procedure will include blasting by means of explosives in order to loosen the hard rock. The material is then excavated, loaded and hauled out of the excavation to the crushing and screening plants. The aggregate will be screened to various sized stockpiled.
- The aggregate will be stockpiled and transported to clients via trucks and trailers. All activities will be contained within the boundaries of the site.
- Blasting will occur once every six (6) to eight (8) weeks.

Environmental Management Programme (EMPR)

The EMPR provides a description of the impact management outcomes and closure objectives. It presents the impacts to be mitigated in their respective phases as well as stipulates the mitigation measures to be applied on site.

An exemption request for the financial provision update required in terms of section 24P of the National Environmental Management Amendment Act, 2014 (act no 25 of 2014) (as amended 2017) read with the regulations pertaining to the financial provision regulations, 2015 for the mining permit was submitted to the DMR on 26 April 2019. This request was approved on 28 May 2019.

ABBREVIATIONS

CARA	Conservation of Agricultural Recourses Act, 1983
DARDLA	Department of Agriculture, Rural Development and Land Administration
DEDET	Department of Economic Development, Environment and Tourism
DLCC	Department of Labour
DMR	Department of Mineral and Resources
DPWRT	Department of Public Works, Roads and Transport
DRDLR	Department of Rural Development and Land Reform
DWS	Department of Water and Sanitation
EA	Environmental Authorization
EAP	Environmental Assessment Practitioner
ECO	Environmental Control Officer
EMPr	Environmental Management Programme
FBAR	Final Basic Assessment Report
GVA	Gross Value Added
HIA	Heritage Impact Assessment
I&AP's	Interested and Affected Parties
IBS	Department of Infrastructure and Basic Services
LED	Local Economic Development
MPRDA	Minerals and Petroleum Resources Development Act, 2002
MR	Mining Right
MSDS	Material Safety Data Sheets
PCBs	Polychlorinated Biphenyls
PPE	Personal Protective equipment
S1	Site Alternative 1
S2	Site Alternative 2
SAHRA	South African Heritage Resources Agency
SAHRIS	South African Heritage Resources Information System
SAPS	South African Police Service
S102	Section 102
WMA	Water Management Area
WQ	Whittlesea Quarry

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mineral resources
Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

BASIC ASSESSMENT REPORT

And

ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

SUBMITTED FOR ENVIRONMENTAL AUTHORIZATION IN TERMS OF THE NATIONAL ENVIRONMENTAL ACT, 1998 AND THE NATIONAL ENVIRONMENTAL MANAGEMENT WASTE ACT, 2008 IN RESPECT OF LISTED ACTIVITIES THAT HAVE BEEN TRIGGERED BY APPLICATIONS IN TERMS OF THE MINERAL AND PETROLEUM RESOURCES DEVELOPMENT ACT, 2002 (MPRDA) (AS AMENDED).

NAME OF APPLICANT / PERMIT HOLDER:	Mr. David Hayes
TEL NO:	082 657 4704
POSTAL ADDRESS:	Cathcart's Gift P.O. Box 935 Queenstown
FILE REFERENCE NUMBER SAMRAD:	EC30/5/1/3/2/10342MP
PERMIT REFERENCE NUMBER:	

IMPORTANT NOTICE

In terms of the Mineral and Petroleum Resources Development Act (Act 29 of 2002) as amended), the Minister must grant a prospecting or mining right if among others the mining "will not result in unacceptable pollution, ecological degradation or damage to the environment".

Unless an Environmental Authorization can be granted following the evaluation of an Environmental Impact Assessment and an Environmental Management Programme report in terms of the National Environmental Management Act (Act 107 of 1998) (NEMA), it can be concluded that the said activities will not result in unacceptable pollution, ecological degradation or damage to the environment.

In terms of section 16(3)(b) of the EIA Regulations, 2014, any report submitted as part of an application must be prepared in a format that may be determined by the Competent Authority and in terms of section 17(1)(c) the competent Authority must check whether the application has taken into account any minimum requirements applicable or instructions or guidance provided by the competent authority to the submission of applications.

It is therefore an instruction that the prescribed reports required in respect of applications for an environmental authorization for listed activities triggered by an application for a right or a permit are submitted in the exact format of, and provide all the information required in terms of, this template. Furthermore, please be advised that failure to submit the information required in the format provided in this template will be regarded as a failure to meet the requirements of the Regulation and will lead to the Environmental Authorization being refused.

It is furthermore an instruction that the Environmental Assessment Practitioner must process and interpret his/her research and analysis and use the findings thereof to compile the information required herein. (Unprocessed supporting information may be attached as appendices). The EAP must ensure that the information required is placed correctly in the relevant sections of the Report, in the order, and under the provided headings as set out below, and ensure that the report is not cluttered with un-interpreted information and that it unambiguously represents the interpretation of the applicant.

OBJECTIVE OF THE BASIC ASSESSMENT PROCESS

The objective of the basic assessment process is to, through a consultative process–

(a) determine the policy and legislative context within which the proposed activity is located and how the activity complies with and responds to the policy and legislative context;

(b) identify the alternatives considered, including the activity, location, and technology alternatives;

(c) describe the need and desirability of the proposed alternatives,

(d) through the undertaking of an impact and risk assessment process inclusive of cumulative impacts which focused on determining the geographical, physical, biological, social, economic, heritage, and cultural sensitivity of the sites and locations within sites and the risk of impact of the proposed activity and technology alternatives on these aspects to determine:

  (i) the nature, signification, consequence, extent, duration, and probability of the impacts occurring to; and

  (ii) the degree to which these impacts –

    (aa) can be reversed;

    (bb) may cause irreplaceable loss of resources; and

    (cc) can be managed, avoided or mitigated;

(e) through a ranking of the site sensitivities and possible impacts the activity and technology alternatives will impose on the sites and location identified through the life of the activity to –

  (i) identify and motivate a preferred site, activity, and technology alternative;

  (ii) identify suitable measures to manage, avoid or mitigate identified impacts; and

  (iii) identify residual risks that need to be managed and monitored.

PART A

SCOPE OF ASSESSMENT AND BASIC ASSESSMENT REPORT

1. CONTACT PERSON AND CORRESPONDENCE ADDRESS

a) Details of Greenmined Environmental

In terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) the proponent must appoint an independent Environmental Assessment Practitioner (EAP) to undertake the environmental impact assessment (EIA) of any activities regulated in terms of the aforementioned Act. The permit holder appointed Greenmined Environmental to undertake the study needed. Greenmined Environmental has no vested interest in the permit holder or the proposed project and declares its independence as required by the Environmental Impact Assessment Regulations, 2014 (as amended April 2017) (EIA Regulations).

(i) Details of the EAP (Project Consultant)

Name of the Practitioner:	Greenmined Environmental
	Murchellin Saal
Tel No.:	021 851 2673
Fax No.:	086 546 0579
E-mail address:	Murchellin.s@greenmined.co.za

(ii) Reviewed by: EAP

Name of the Practitioner:	Ms. Christine Fouche (Senior Environmental Specialist)
Tel No:	021 851 2673
Fax No:	086 546 0579
E-mail address:	christine.f@greenmined.co.za

(iii) Expertise of the EAP

(1) The qualifications of the EAP
(with evidence).

Ms. Fouche has a Diploma in Nature Conservation and a BSc in Botany and Zoology. Full CV with proof of expertise is attached as Appendix I.

(2) Summary of the EAP's past experience.

(In carrying out the Environmental Impact Assessment Procedure)

Ms Fouche has fourteen years' experience in doing Environmental Impact Assessments and Mining Applications in South Africa. See a list of past project experience attached as Appendix I.

b) Location of the overall Activity

Table 1: Location of the proposed project.

Farm Name:	Portion 5 of the Farm Latham 205, Queenstown, Eastern Cape Province.
Application area (Ha)	4.9 ha
Magisterial district:	Queenstown
Distance and direction from the nearest town	Komani – 14 km North East
21 digit Surveyor General Code for each farm portion	C06200000000020500005

c) Locality map

(show nearest town, scale not smaller than 1:250000).

The requested map is attached as Appendix A1.

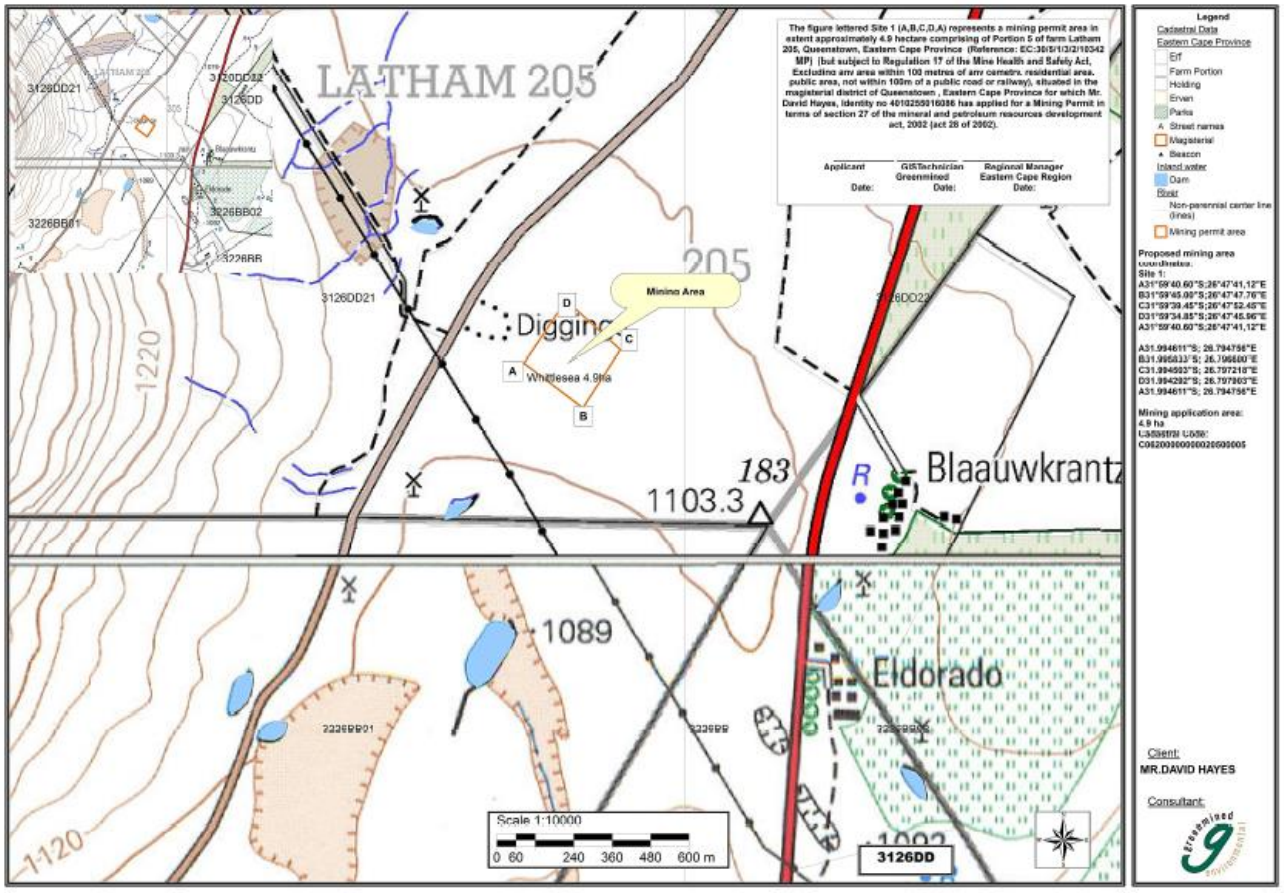

Figure 1: Regulation 4.4 map view of the approved mining permit area (red polygon) of Whittlesea Quarry.

d) Description of the scope of the proposed overall activity.

Provide a plan drawn to a scale acceptable to the competent authority but not less than 1:10 000 that shows the location, and area (hectares) of all aforesaid main and listed activities, and infrastructure to be placed on site.

1. APPROVED WHITTLESEA FBAR:

The Applicant and land owner Mr. David Hayes was granted a mining permit to mine a total of 4.9 ha on a portion of Portion 5 of farm Latham 205, Queenstown, Eastern Cape.

The applicant intents to mine the proposed area for gravel through mechanical excavation. The mining method will not require any crushing to be done. Blasting will be done if needed (limited to one blast). As the material to be mined is already in aggregate form, only excavation equipment is needed. Blasting will only be done to loosen oversized rocks. Upon stripping and stockpiling of the topsoil the gravel will be loaded by excavator onto trucks that will transport it from the site to the clients. All activities will be contained within the boundaries of the site.

The proposed mining areas combined is approximately 4.89ha and respectively Site 1 - 2.800134ha and Site 2 - 2.08ha in extent and the applicant intents to win gravel from the area for at least two years with a possibility of a three-year extension. The gravel to be removed from the mining area will be supplied to the road construction industry in the Whittlesea district. The proposed mining project will contribute to the upgrading/maintenance of road infrastructure in and around the Queenstown and Whittlesea areas.

A generator will be used to power the infrastructure on site until an Eskom connection can be secured. Process water will be obtained from Mr. David Hayes (landowner) reservoir. The water will mainly be used for dust suppression purposes on the roads and mining area.

Due to the outcome of the public participation process it was best thought to change Site alternative one to accommodate the surrounding landowners (thus the change from the DBAR to the FBAR). The original site of 4.89 ha split into two sites of 2.800134 ha and 2.08 ha respectively will change in terms of the location and size to one site of 4.9ha. The reasons for these changes are described in detail in section ii Details of the Public Participation Process Followed. It is now proposed that:

The Applicant Mr. David Hayes intents to apply for a mining permit to mine one section of 4.9 ha on a portion of Portion 5 of farm Latham 205, Queenstown, Eastern Cape. It must be noted that the applicant is the land owner.

See the requested map attached as Appendix B.

2. SECTION 102 PROPOSAL:

Mr David Hayes intends submitting a Section 102 (“S102”) amendment application to amend the mining method by increasing the blasting frequency as well as including primary processing crushing and screening of aggregate to the mining activities over a portion of Portion 5 of the farm Latham 205, Queenstown, Eastern Cape Province (hereinafter referred to as “Whittlesea Quarry” (“WQ”). The S102 application necessitates an application for a Part 2 amendment of the mine’s EMP in terms of GNR 326 Section 31. The proposed S102 application does not constitute a listed or specified activity in terms of the NEMA EIA Regulations, 2014 (as amended).

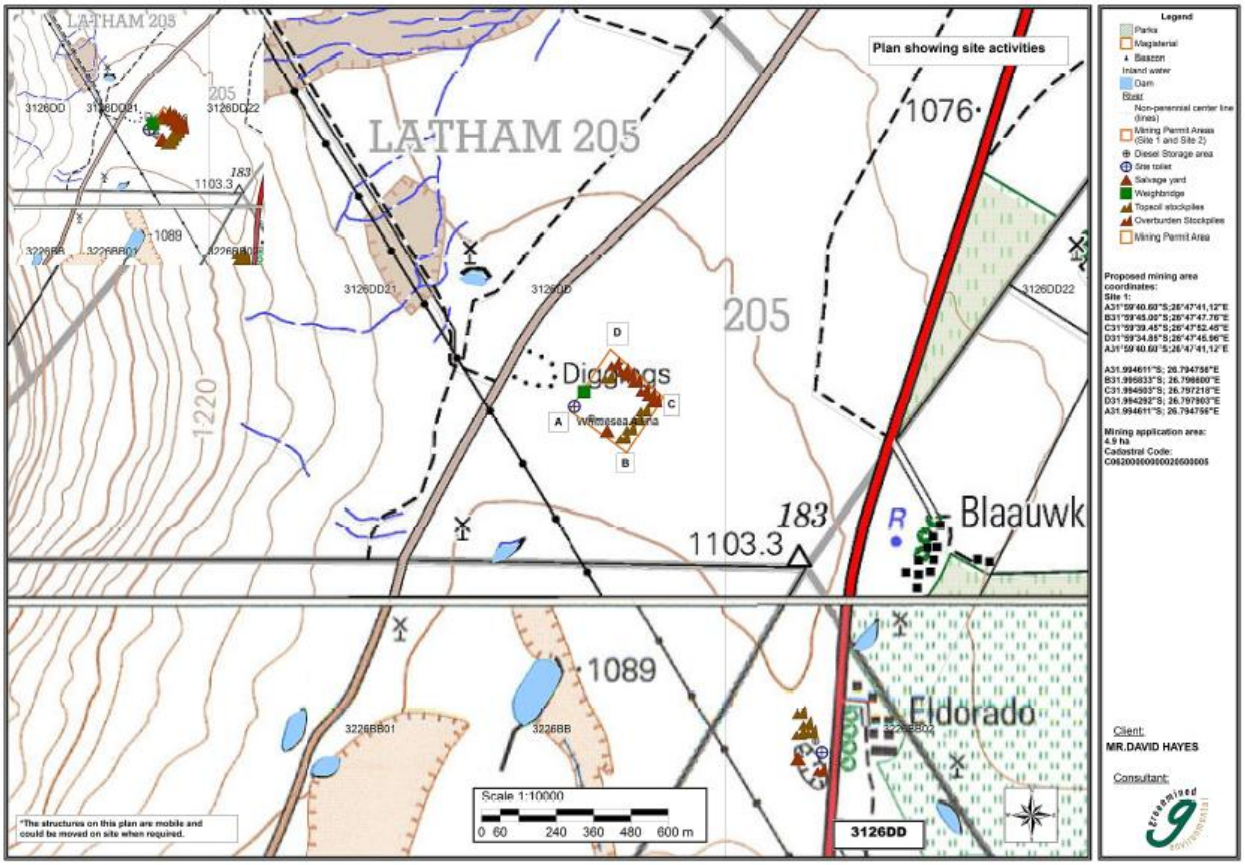

Figure 2: Regulation 2.2 map view of the authorised mining permit area (red polygon) of Whittlesea Quarry

(i) Listed and specified activities

1. APPROVED WHITTLESEA FBAR:

Table 2 : Listed and specified activities triggered by the associated mining activities

NAME OF ACTIVITY **(E.g. For prospecting –** drill site, site camp, ablution facilities, accommodation, equipment storage, sample storage, site office, access route etc...etc...etc **E.g. for mining –** excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.)	**Aerial extent of the activity** **Ha or m²**	**LISTED ACTIVITY** **Mark with an X where applicable or affected**	**APPLICABLE LISTING NOTICE** **(GNR 544, GNR 545 OR GNR 546)**
Open cast mining	4.9	X	NR 983 Environmental Impact Assessment Regulations

NAME OF ACTIVITY	Aerial extent of the activity	LISTED ACTIVITY	APPLICABLE LISTING NOTICE
			Listing Notice 1 of 2014 Activity 21 (Mining Permit area): Any activity including the operation of that activity which requires a mining permit in terms of section 27 of the Mineral and Petroleum Resources Development Act, 2002 (act No. 28 of 2002), including associated infrastructure, structures and earthworks directly related to the extraction of a mineral resource, including activities for which an exemption has been issued in terms of section 106 of the Mineral and Petroleum Resources Development Act, 2002 (Act No 28 of 2002).
Open cast mining	4.9	X	GNR 983 Listing Notice 1 Activity 22: The decommissioning of any activity requiring a closure certificate in terms of section 43 of the Mineral and Petroleum Resources Development Act, 2002 (Act No 28 of 2002)
Open cast mining	4.9	X	GNR 983 Environmental Impact Assessment Regulations Listing Notice 1 of 2014 Activity 27 (Mining Area): The clearance of an area of 1 hectare or more, but less than 20 hectares of indigenous vegetation.
Open cast mining and stockpile area	2 ha	X	GNR 983 Environmental Impact Assessment Regulations Listing Notice 1 of 2014 Activity 28 (Mining and Stockpile area): Residential, mixed, retail, commercial.
Open Cast mining and stockpile area	2 ha	X	GNR 983 Environmental Impact Assessment Regulations Listing Notice 1 of 2014 Activity 35 (Mining and Stockpile area): The expansion of commercial developments on land previously used for mining or

NAME OF ACTIVITY	Aerial extent of the activity	LISTED ACTIVITY	APPLICABLE LISTING NOTICE
			heavy industrial purposes, where the increased development footprint will exceed 1 000 square metres.

2. SECTION 102 PROPOSAL:

Table 3 : Listed and specified activities triggered by the associated mining activities – Section 102 Application.

NAME OF ACTIVITY **(E.g. For prospecting –** drill site, site camp, ablution facilities, accommodation, equipment storage, sample storage, site office, access route etc...etc...etc **E.g. for mining –** excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.)	Aerial extent of the activity **Ha or m²**	LISTED ACTIVITY Mark with an X where applicable or affected	APPLICABLE LISTING NOTICE (GNR 544, GNR 545 OR GNR 546)
Section 102 amendment application to amend the mining activities.	4.9 ha	X	GNR 326 Section 31 Amendments to be applied for in terms of Part 2: An environmental authorisation may be amended by following the process prescribed in this Part if the amendment will result in a change to the scope of a valid environmental authorization where such change will result in and increased level or change in the nature of impact where such level or change in nature of impact was not: a) assessed and included in the initial application for environmental authorization; or b) taken into consideration in the initial environmental authorization; and the change does not, on its own, constitute a listed or specified activity.

(ii) Description of the activities to be undertaken

(Describe Methodology or technology to be employed, including the type of commodity to the prospected/mined and for a linear activity, a description of the rout of the activity)

1. APPROVED WHITTLESEA FBAR:

Due to the outcome of the public participation process it was best thought to change the site alternative one to accommodate the surrounding landowners. The original site of 4.89 ha split into two sites of 2.800134 ha and 2.08 ha respectively will change in terms of the location and size to one site of 4.9 ha. The reasons for these changes are described in detail in section ii Details of the Public Participation Process Followed. It is now proposed that:

The area earmarked for the proposed development is situated on Portion 5 of farm Latham 205, Queenstown, Eastern Cape Province found on the R67 approximately 14 km South West of Komani. The GPS coordinates for the proposed site (Site alternative 1) are as listed below:

Table 4: Site alternative 1 - 4.9 ha in size (preferred alternative)

DEGREES, MINUTES, SECONDS (DD°MM'SS")			DECIMAL DEGREES (DD)	
	LATITUDE	**LONGITUDE**	**LATITUDE**	**LONGITUDE**
A	31°59'40.60"S	26°47'41.12"E	-31.994611°°S;	26.794756°E
B	31°59'45.00"S	26°47'47.76"E	-31.995833°S;	26.796600°E
C	31°59'39.45"S	26°47'52.45"E	-31.994292°S;	26.797903°E
D	31°59'34.85"S	26°47'45.96"E	-31.993014°S;	26.796100°E

An application for a mining permit in terms of Section 27 of the Mineral and Petroleum Resources Development Act, 2002 (Act No 28 of 2002) will be submitted to the Department of Mineral Resources. The proposed project triggers the following listed activities in terms of the National Environmental Management Act, 1998 (Act 107 of 1998) and the Environmental Impact Assessment Regulations as amended 2014 and therefore requires a basic assessment process to obtain environmental authorisation:

- GNR 983 Environmental Impact Assessment Regulations Listing Notice 1 of 2014 Activity 21:

  Any activity including the operation of that activity which requires a mining permit in terms of section 27 of the Mineral and Petroleum Resources Development Act, 2002 (act No. 28 of 2002), including associated infrastructure, structures and earthworks directly related to the extraction of a mineral resource, including activities for which an exemption has been issued in terms of section 106 of the Mineral and Petroleum Resources Development Act, 2002 (Act No 28 of 2002).
- GNR 983 Environmental Impact Assessment Regulations Listing Notice 1 of 2014 Activity 22:

  The decommissioning of any activity requiring a closure certificate in terms of section 43 of the Mineral and Petroleum Resources Development Act, 2002 (Act No 28 of 2002).

- GNR 983 Environmental Impact Assessment Regulations Listing Notice 1 of 2014 Activity 27:

  The clearance of an area of 1 hectare or more, but less than 20 hectares of indigenous vegetation.

- GNR 983 Environmental Impact Assessment Regulations Listing Notice 1 of 2014 Activity 28:

Commercial developments where such land was used for agriculture or afforestation on or after 01 April 1998 and where such development (ii) will occur outside an urban area, where the total land to be developed is bigger than 1 hectare.

- GNR 983 Environmental Impact Assessment Regulations Listing Notice 1 of 2014 Activity 35:

  The expansion of residential, retail, recreational, tourism, commercial or institutional developments on land previously used for mining or heavy industrial purposes, where the increased development footprint will exceed 1000 square meters;
- *Other legislation triggered by the proposed project:*

  An application for a Mining Permit in terms of Section 27 of the Mineral and Petroleum Resources Development Act, 2002 (Act No 28 of 2002) has been submitted to the Department of Mineral Resources.

Site Establishment / Construction phase:

During the site establishment phase the applicant have to fence the footprint area and clear the topsoil from the applied area.

Upon stripping, the topsoil will be stockpiled along the boundaries of the mining area to be used during the rehabilitation phase. Topsoil stripping will be restricted to the area to be used for aggregate stockpiling and mining. The complete A-horizon (topsoil – the top 100 – 200 mm of soil which is generally darker coloured due to high organic matter content) will be removed. If it is unclear where the topsoil layer ends the top 300 mm of soil has to be stripped. The topsoil will be stockpiled in the form of a berm alongside the boundary of the mining area where it will not be driven over, contaminated, flooded or moved during the operational phase. The topsoil berm will measure a maximum of 1.5 m high and should be planted with indigenous grass species if vegetation does not naturally establish within 6 months of stockpiling to prevent soil erosion and to discourage growth of weeds. The roots of the grass will also improve the viability of the soil for rehabilitation purposes.

The mining activities will consist of the following:

- Stripping and stockpiling of topsoil
- Blasting (Minimal, limited to one blast)
- Excavation of gravel
- Stockpiles
- Loading and transportation of mineral to clients
- Sloping and landscaping upon closure of the site
- Replacing the topsoil and vegetating the disturbed area

The mining site will contain the following:

- Excavation Equipment
- ADT trucks
- Chemical toilet to be used by employees
- Security control room
- Salvage yard demarcated but not fenced
- One above ground diesel tank 23000L
- 1 x 60-ton Weigh Bridge

Operational phase:

The applicant intents to mine the proposed area for gravel through mechanical excavation. The mining method will not require any crushing to be done. Blasting will be done if needed (limited to one Blast). As the material to be mined is already in aggregate form, only excavation equipment is needed. Blasting will only be done to loosen oversized rocks. Upon stripping and stockpiling of the topsoil the gravel will be loaded by excavator onto trucks that will transport it from the site to the clients. All activities will be contained within the boundaries of the site.

The proposed mining area is approximately 4.9ha in extent and the applicant intents to win gravel from the area for at least two years with a possibility of a three-year extension. The gravel to be removed from the mining area will be supplied to the road construction industry in the Whittlesea district. The proposed mining project will contribute to the upgrading/maintenance of road infrastructure in and around the Queenstown and Whittlesea areas.

The stockpiling process includes mechanical loading and transportation of the sought aggregate. As mentioned previously the aggregate will be loaded with a front end loader onto trucks upon which it will be weighed and transported to the client. No crushing or washing will be needed. The stockpiling activities will consist of the following:

- Loading of aggregate
- Weighing of aggregate
- Transportation of aggregate

No maintenance and servicing of machinery will be done at the mining area. Should a vehicle need maintenance it will be moved off-site to the applicants existing workshop. A chemical toilet will be established on site to be used by the employees. The existing farm and provincial roads currently used to gain access to the property will be used to transport the aggregate from the mining site to the

client. Haul trucks will travel along the existing farm road up to the provincial/public road. Turning right they will travel along the existing R67 road, as illustrated below.

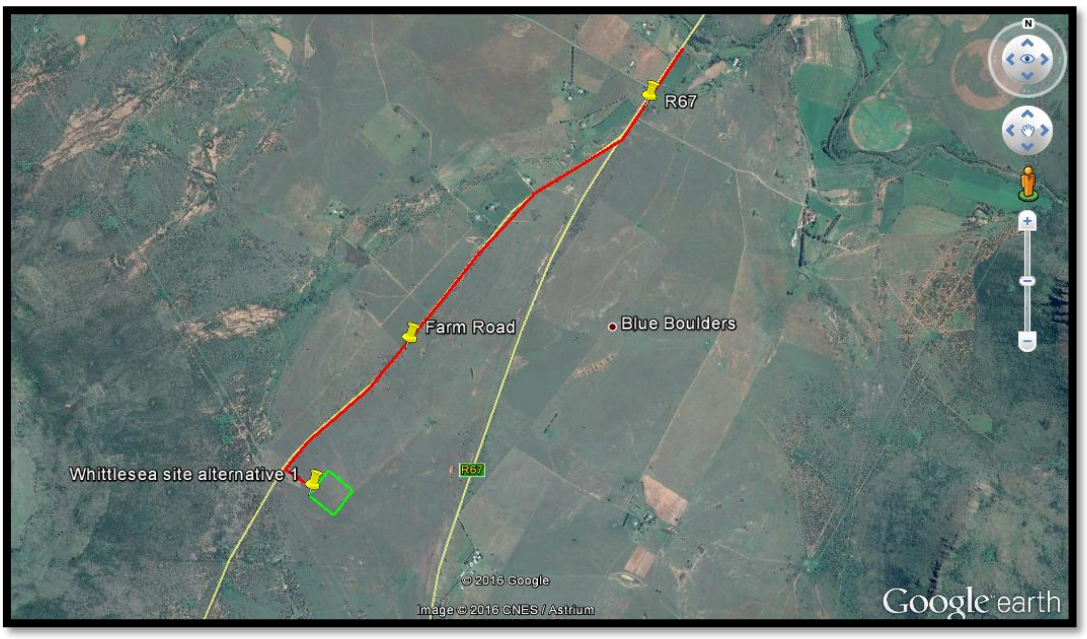

Figure 3: Satellite view indicating the proposed access road to the mining site.

Decommissioning phase:

The closure objectives are for the mining area to be made safe and the remainder of the site to be returned to agricultural use. The perimeter of the site will be subject to top-dressed with topsoil and vegetated with an appropriate grass mix if vegetation does not naturally establish in the area within six months of the replacement of the topsoil.

Control of weeds and alien invasive plant species is an important aspect after topsoil replacement and seeding (if applicable) has been done in an area. Site management will implement an alien invasive plant management plan during the 12 months' aftercare period to address germination of problem plants in the area.

The decommissioning activities will consist of the following:

- Landscaping during rehabilitation
- Replacing of topsoil
- Implementation of an alien invader plant management plan

2. SECTION 102 PROPOSAL:

Should the S102 amendment application be successful the it is expected that the project will entail the following.

The mining activities will consist of the following:

- Stripping and stockpiling of topsoil
- Blasting
- Excavating
- Crushing and screening
- Stockpiles
- Loading and transportation of mineral to clients
- Sloping and landscaping upon closure of the site; and
- Replacing the topsoil and vegetating the disturbed area

The mining site will contain the following:

- Excavation Equipment
- Loading Equipment
- Drilling Equipment
- Crushing and Screening plants
- ADT trucks
- Chemical toilet used by employees
- Security control room
- Salvage yard demarcated but not fenced
- One above ground diesel tank 23000L
- 1 x 60-ton Weigh Bridge
- Site Office / Control room; and
- Site Workshop area

Operational phase: The mining method will entail excavation, crushing, screening of aggregates after which it will be loaded onto trucks and transported form the mining site to the stockpiling site. The clients will then acquire the aggregate from the stockpiling site. All activities will be contained within the boundaries of the site. Blasting will occur once every six (6) to eight (8) weeks.

The permitted mining area is approximately 4.9 ha in extent and the applicant / permit holder intends to win aggregate from the area for at least two years the is remaining on the permit possible extensions. The aggregate removed from the mining area will be supplied to the road construction

industry in the Whittlesea district. The proposed mining project will contribute to the upgrading/maintenance of road infrastructure in and around the Queenstown and Whittlesea areas.

The stockpiling process includes mechanical loading and transportation of the sought aggregate. As mentioned previously the aggregate will be loaded with a front end loader onto trucks upon which it will be weighed and transported to the client.

The product stockpiling activities will consist of the following:

- Loading of aggregate
- Weighing of aggregate; and
- Transportation of aggregate

Minor maintenance and servicing of machinery will be done at the mining area. Should a vehicle need major maintenance it will be moved off-site to the applicant / permit holders existing workshop. A chemical toilet will be established on site to be used by the employees.

The existing farm and provincial roads currently used to gain access to the property will be used to transport the aggregate from the mining site to the client. Haul trucks will travel along the existing farm road up to the provincial/public road. Turning right they will travel along the existing R67 road, as illustrated below.

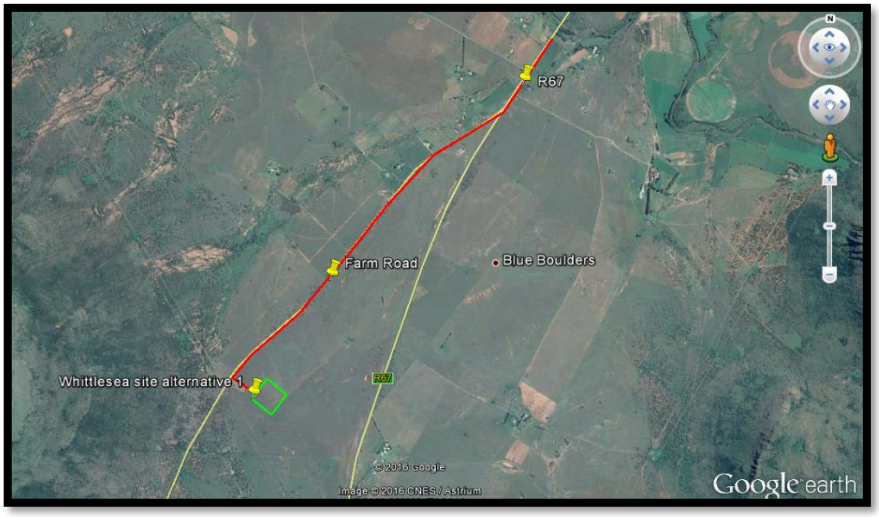

Figure 4: Satellite view indicating the approved access road to the mining site.

e) Policy and Legislative Context

1. APPROVED WHITTLESEA FBAR:

Table 5: Policy and Legislative Context.

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT (a description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process)	REFERENCE WHERE APPLIED	HOW DOES THIS DEVELOPMENT COMPLY AND RESPOND TO THE LEGISLATION AND POLICY CONTEXT. (E.g. in terms of the National Water Act a Water Use License has/has not been applied for)
Mineral and Petroleum Resources Development Act, 2002, (Act No. 28 of 2002) • Section 27	Application for a mining Permit Ref No: EC30/5/1/3/2/10342MP	Act No. 28 of 2002 Section 27
National Environmental Management Act,1998 (Act No. 107 of 1998) and the Environmental Impact Assessment Regulations, 2014	Application for environmental authorisation Ref No: EC30/5/1/3/2/10342MP	GNR 983 Listing Notice 1 Activity 21, 22, 27, 28 and 35
National Environmental Management Act: Biodiversity Act, 2004 (Act No. 10 of 2004) and amendments	Biophysical Environment	No aspects of the project could be identified that triggers the NEMA:BA
Mine Health and Safety Act, 1996 (Act No 29 of 1996)	The mitigation measures proposed for the site includes specifications of the MHSA	The operational phase of the Site will trigger the MHSA
National Heritage Resources Act No 25 of 1999	Cultural and Heritage Environment	No aspects of the project could be identified that triggers the NHRA.
Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983)	Biophysical Environment	All alien invader plants on site needs to be controlled in terms of CARA
Eastern Cape Nature Conservation Act, 1998 (Act 10 of 1998)	Biophysical Environment	No aspects on site could be identified that needs protection in terms of the NCA.

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT	REFERENCE WHERE APPLIED	HOW DOES THIS DEVELOPMENT COMPLY AND RESPOND TO THE LEGISLATION AND POLICY CONTEXT.
Eastern Cape Land Use Planning Act, 2014 (Act No. 3 of 2014)	Part A(iv)(1)(b) Description of the current land uses	The applicant will submit an application for temporary departure from the zoning provisions in terms of the Land Use Planning Act 3/2014 and the Lukhanji Local Municipal Land Use Bylaws 264/2015 prior to commencement of the proposed activities. The applicant will submit an application for temporary departure from the zoning provisions in terms of the Land Use Planning Act 3/2014 and the Lukhanji Local Municipal Land Use Bylaws 264/2015 prior to commencement of the proposed activities.
Lukhanji Local Municipality Local Municipality: Land Use Planning Bylaws, 2015 (No 264 of 2015) Lukhanji Local Municipality Local Municipality Spatial Development Framework	Part A(iv)(1)(b) Description of the current land uses	

2. SECTION 102 PROPOSAL:

Table 6 : Policy and Legislative Context – Section 102 Application.

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT	REFERENCE WHERE APPLIED	HOW DOES THIS DEVELOPMENT COMPLY AND RESPOND TO THE LEGISLATION AND POLICY CONTEXT.
Mineral and Petroleum Resources Development Act, 2002, (Act No. 28 of 2002) • Section 102 amendment application	Part A1(d) Description of the scope of the proposed overall activity.	Application for a Section 102 amendment application sumitted to DMR. Ref No: EC30/5/1/3/2/10342MP .
National Environmental Management Act,1998 (Act No. 107 of 1998) and the Environmental Impact Assessment Regulations, 2014 (as amended by GNR 326 effective 7 April 2017) GNR 326 Section 31 Amendments to be applied for in terms of Part 2.	Part A1(d)(i) Listing and specified activities.	Application for a Part 2 amendment of the EMPR submitted to DMR. Ref No: EC30/5/1/3/2/10342MP

National Environmental Management Act: Biodiversity Act, 2004 (Act No. 10 of 2004) and amendments	Part A(1)(h)(iv)(1)(a) Type of environment affected by the proposed activity - Physical Environment Part A(1)(h)(viii) The possible mitigation measures that could be applied on the level of risk – Management of invader plant species.	The mitigation measures proposed for the site includes specifications of the NEM:BA, 2004.
Mine Health and Safety Act, 1996 (Act No 29 of 1996)	Part A(1)(h)(viii) The possible mitigation measures that could be applied on the level of risk – Management of Health and Safety Risks.	The mitigation measures proposed for the site includes specifications of the MHSA, 1996
National Heritage Resources Act No 25 of 1999	Part A(1)(h)(iv)(1)(a) Type of environment affected by the proposed activity – Physical Environment	The mitigation measures proposed for the site includes specifications of the NHRA, 1999.
Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983)	Part A(1)(h)(iv)(1)(a) Type of environment affected by the proposed activity: Physical Environment – Geology and Soil.	The mitigation measures proposed for the site includes specifications of the CARA, 1983.
Eastern Cape Nature and Environmental Ordinance 19 of 1974 (as amended).	Part A(1)(h)(iv)(1)(c) Description of specific environmental features and infrastructure on the site – Site Specific Groundcover.	The mitigation measures proposed for the site includes specifications of the NEM:BA, 2004
Public Participation Guideline in terms of the NEMA EIA Regulations	Part A(1)(h)(ii) Details of the Public Participation Process Followed	Public participation was conducted in accordance with the guidelines published in terms of the NEMA EIA Regulations

f) Need and desirability of the proposed activities.

(Describe Methodology or technology to be employed, including the type of commodity to the prospected/mined and for a linear activity, a description of the rout of the activity)

1. APPROVED WITTLESEA FBAR:

The increase in building, construction and road maintenance projects in the vicinity of the property triggered the need of the applicant to trade with the available aggregate. The proposed mining will

also contribute to the diversification of activities on the property, extending it from agriculture to include small scale mining. It must be noted that the applicant is the land owner.

2. SECTION 102 PROPOSAL:

The increase in building, construction and road maintenance projects in the vicinity of the property triggered the need of the applicant / land owner to trade with the available aggregate, as per the approved mining permit and environmental authorisation, the mineral was already in aggregate form and would not have received processing, however it was recently discovered that the area also consist of a hard rock source which resulted in the requested amendment in order to diversify the potential of the source. The approved mining will also contribute to the diversification of activities on the property, extending it from agriculture to include mining.

g) Motivation for the overall preferred site, activities and technology alternative.

The permitted site earmarked for the mining of the loose aggregate will entail an area previously used for agriculture. The permitted site was identified as the preferred alternative due to the following reasons:

- The mining site offers the mineral sought after.
- The permitted sites were previously used for mining activities, thus minimal environmental damage will occur.
- The mining area can be reached by an existing farm access road that connects to R67.
- No new road infrastructure needs to be constructed.
- Due to the small size of the activity and the remote location of the mining area the potential impacts on the surrounding environment, associated with mining is deemed to be of low significance.
- No residual waste as a result of the mining activity, will be produced that needs to be treated on site. Any general waste that may be produced on-site will be contained in sealed refuse bins to be transported to the local municipal landfill site. Major maintenance and servicing of the equipment will be done at an off-site workshop, the amount of hazardous waste to be produced at the site will be minimal and will mainly be as a result of accidental leakage. Contaminated soil will be removed to the depth of the spillage and contained in sealed bins until removed from site by a hazardous waste handling contractor to be disposed of at a registered hazardous waste handling site.

h) Full description of the process followed to reach the proposed preferred alternatives within the site.

NB!! – This section is about the determination of the specific site layout and the location of infrastructure and activities on site, having taken into consideration the issues raised by interested and affected parties, and the consideration of alternatives to the initially proposed site layout.

(i) Details of the development footprint alternatives considered.

With reference to the site plan provided as Appendix 4 and the location of the individual activities on site, provide details of the alternatives considered with respect to:

(a) the property on which or location where it is proposed to undertake the activity;
(b) the type of activity to be undertaken;
(c) the design or layout of the activity;
(d) the technology to be used in the activity;
(e) the operational aspects of the activity; and
(f) the option of not implementing the activity.

1. APPROVED WITTLESEA FBAR:

Due to the outcome of the public participation process it was best thought to change site alternative one to accommodate the surrounding landowners (Thus, the change from the DBAR to the FBAR). The original site of 4.89 ha split into two sites of 2.800134 ha and 2.08 ha respectively will change in terms of the location and size to one site of 4.9ha. The reasons for these changes are described in detail in section ii Details of the Public Participation Process Followed. It is now proposed that:

The applicant identified two alternative sites for the proposed mining activity namely:

Site Alternative 1 (S1) (Preferred Alternative):

The Applicant / permit holder Mr. David Hayes was granted a mining permit to mine 4.9 ha (Site Alternative 1) within the boundaries of the following GPS Coordinates:

Table 7: GPS Coordinates of Site Alternative 1 (approved site alternative)

DEGREES, MINUTES, SECONDS (DD°MM'SS")			DECIMAL DEGREES (DD)	
	LATITUDE	**LONGITUDE**	**LATITUDE**	**LONGITUDE**
A	31°59'40.60"S	26°47'41.12"E	-31.994611°°S;	26.794756°E
B	31°59'45.00"S	26°47'47.76"E	-31.995833°S;	26.796600°E
C	31°59'39.45"S	26°47'52.45"E	-31.994292°S;	26.797903°E
D	31°59'34.85"S	26°47'45.96"E	-31.993014°S;	26.796100°E

Figure 5: Satellite view showing the position of Site Alternative 1 (4.9ha in extent).

Site Alternative 1 was identified during the assessment phase of the environmental impact assessment, by the applicant and project team, and was therefore selected and permitted by DMR as the **preferred alternative** due to the following:

- The site offers the mineral sought after,
- The proposed footprint area was previously used for agricultural grazing and mining, therefore very little indigenous vegetation needs to be disturbed in order to establish the mining area.

- The mining area can be reached by an existing access road that formally connects to the R67. No new road infrastructure needs to be constructed.
- The mining site is more than 14 km away from the Komani residential area and will not affect the community dust and noise wise.
- Due to the small size of the activity and the remote location of the mining area the potential impacts on the surrounding environment, associated with mining is deemed to be of low significance.

Table 8: Site Alternative 2 entails the mining of a 4.84 ha area within the boundaries of the following GPS Coordinates:

DEGREES, MINUTES, SECONDS (DD˚MM'SS")			DECIMAL DEGREES (DD)	
	LATITUDE	**LONGITUDE**	**LATITUDE**	**LONGITUDE**
A	31°59'37.40"S	26°47'33.48"E	-31.993722°S	26.792633°E
B	31°59'31.27"S	26°47'37.86"E	-31.992020°S	26.793850°E
C	31°59'35.30"S	26°47'44.99"E	-31.993139°S	26.795831°E
D	31°59'40.65"S	26°47'40.57"E	-31.994626°S	26.794602°E

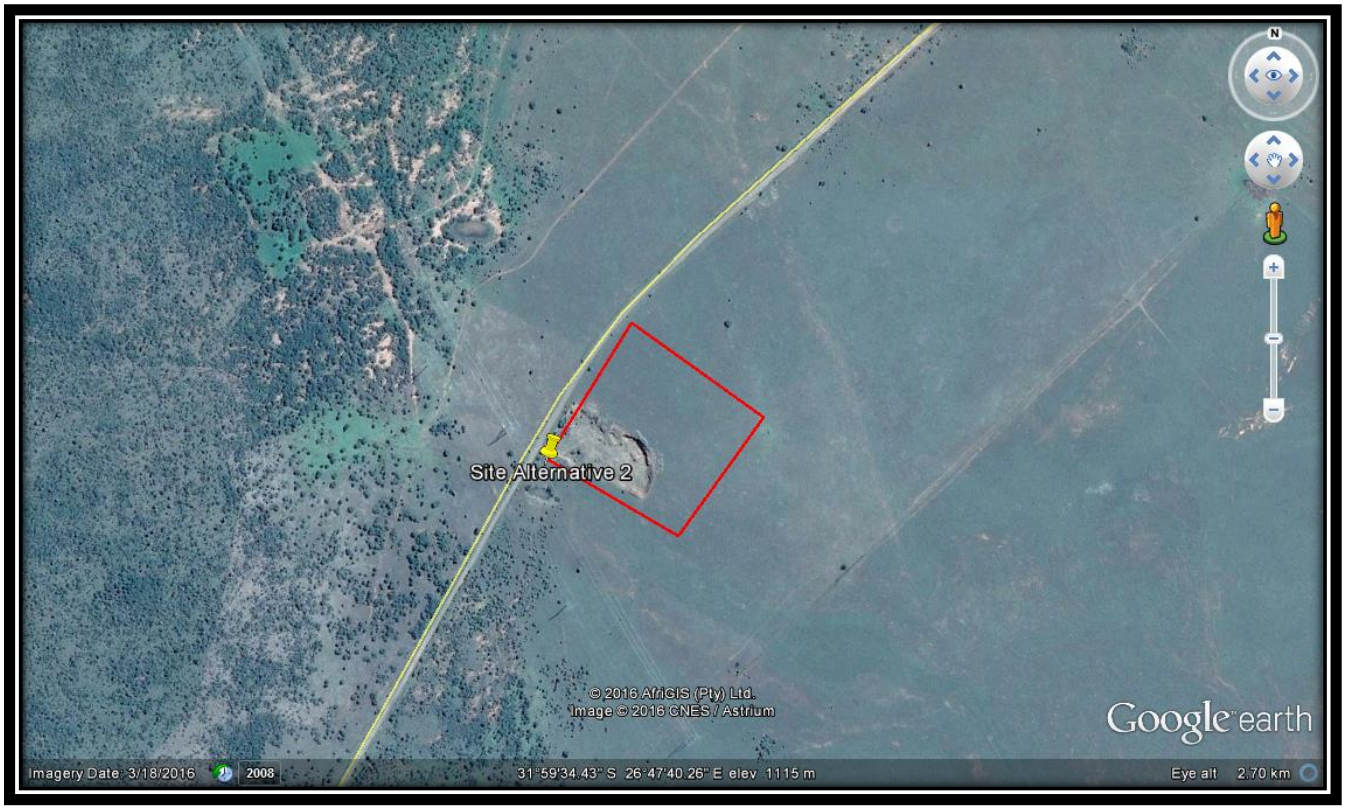

Figure 6: Satellite view showing the position of Site Alternative 2.

The applicant investigated the possibility of establishing the proposed Mining area closer to the haul road to cut transporting costs. This alternative was however found not to be the preferred alternative due to the following reasons:

- The site alternative will entail the building of a new road to gain access to the site.
- The site alternative will counteract the visual aesthetic value of the area by being closer to the road.
- The site alternative 2 will also have difficulties with storm water drainage as the site is placed in on an outcrop that declines to west of the site boundaries. The area will thus not have adequate drainage and storm water will contaminate surrounding areas. This is a major concern due to a valley bottom wetland within 500m of the site.
- The footprint area of the site is within 500 meters of a valley bottom wetland. Thus an EIA will be needed as it will trigger NEMA's listed activity.
- The footprint area of the site is within 500 meters of a valley bottom wetland. Thus a water use licence will need to be applied for with the DWA

No-go Alternative: The no-go alternative entails no change to the status quo and is therefore a real alternative that needs to be considered. The aggregate to be stockpiled at the site will be used for road and construction industries, if however, the no-go alternative is implemented the applicant /

permit holder will not be able to utilize the mineral present in the area. This could have major impacts on aspects such as transporting of material to construction sites from far off mining areas, cost effectiveness of material, impact on roads, and road users due to long distance hauling of aggregate and loss of income to the Queenstown - Whittlesea business area due to the multiplier effect.

The no-go alternative was not deemed to be the preferred alternative as:

- The applicant / permit holder will not be able to supply in the demand of road or construction contractors.
- The application, if approved, would allow the applicant / permit holder to utilize the available aggregates, as well as provide employment opportunities to local employees.
- Should the no-go alternative be followed these opportunities will be lost to the applicant / permit holder, potential employees, and clients.
- The applicant / permit holder will not be able to diversify the income of the property.

2. SECTION 102 PROPOSAL:

Alternatives were outlined in the initial application and approved accordingly. The section 102 does not include any alternatives as this is not relevant to the application.

ii) **Details of the Public Participation Process Followed**

Describe the process undertaken to consult interested and affected parties including public meetings and one on one consultation. NB the affected parties must be specifically consulted regardless of whether or not they attended public meetings. (Information to be provided to affected parties must include sufficient detail of the intended operation to enable them to assess what impact the activities will have on them or on the use of their land.

1. APPROVED WITTLESEA FBAR:

The stakeholders and I&AP's informed of the project by means of I&AP comment/notification letters that were either delivered by hand, or sent directly to the contact person. A 30 days commenting period was allowed which extended from the 24th of August 2016 to the 23rd of September 2016.The following I&AP's and stakeholders were contacted to obtain their comments:

Table 9: List of the I&AP's and stakeholders that were notified of the approved project.

INTERESTED AND AFFECTED PARTIES	STAKEHOLDERS
• Mr. David Hayes • Mr. Angus McClain • Mr. David Ozborne • Mr. John Maghlana • Mr. Ozzy Schlenkrich	• Mr. Moppo Mene (Chris Hani District Municipality) • Mr. Cira Ngetu (Department of Economic Development, Environmental Affairs and Tourism) • Mrs. Nolwandle Gqiba (Lukhanji Local Municipality) • Mr. Sibusiso Mvana (Lukhanji Local Municipality Ward 14) • Department of Labour • Mr. Lumkile Ngada (Department of Rural Development and Agrarian Reform) • Mr. Kholekile Golela (Department of Rural Development and Land Reform) • Mr. Mcedisi Gazi (Department of Social Development) • Ms. Irene Mpolweni (Department of Transport) • Ms. P. Makhanya (Department of Water and Sanitation) • South African Heritage Resource Agency
I&AP'S AND STAKEHOLDERS THAT REGISTERED DURING THE COMMENTING PERIOD	
• Mr. David Hayes (Applicant / permit holder & Landowner) • Mr. David Ozborne • Mr. Ozzy Schlenkrich	

On-site notices were placed at the turn off from the R67 onto the farm Road Queenstown and the Chris Hani municipality clipboard. The project was also advertised in the representative on the 1st of July 2016.

Comments that were received on the Draft Basic Assessment Report was added to this Final Basic Assessment Report, and was submitted to DMR for final review. See attached as Appendix E proof that the stakeholders and I&AP's were contacted. To explain the changes from the Draft Basic Assessment to the Final Basic Assessment it must be understood that the project site alternative 1 (preferred site) layout and location was changed completely. To clarify the changes from the DBAR to the FBAR. The DBAR site layout was described, then the FBAR site layout (permitted site) was described, followed by the reason for these changes.

Public Participation Process – Notification of Environmental Authorisation

The stakeholders and I&AP's were informed of the Environmental Authorisation by means of I&AP comment/notification letters that were either delivered by hand or sent directly to the contact persons. A 30 days commenting period were allowed which extended from the 24th of August 2016 to 23d September 2016.

DBAR Site layout description:

- The Applicant Mr. David Hayes intends to apply for a mining permit to mine two sections, site 1 - 2.800134 ha and site 2 - 2.08 ha that comes to a total of 4.89 ha on a portion of Portion 5 of farm Latham 205, Queenstown, Eastern Cape Province & portion 2 of farm Cathcart's gift 311, Queenstown, Eastern Cape.

- Note that the mining site of 4.89 ha was divided into 2 sections and located on 2 bordering farms namely Portion 5 of farm Latham 205 & portion 2 of farm Cathcart's gift 311.

- The GPS coordinates for the approved site(s) (Site alternative 1) of the DBAR are as listed below:

Table 10: Site 1 & Site 2 Coordinates

DEGREES, MINUTES, SECONDS (DD°MM'SS")			**DECIMAL DEGREES (DD)**	
	LATITUDE	**LONGITUDE**	**LATITUDE**	**LONGITUDE**
A	31º 59'40.73"S	26º 47'40.99"E	-31.994647°S;	26.794719°E
B	31º 59'44.51"S	26º 47'46.42"E	-31.995697°S;	26.796228°E
C	31º 59'40.43"S	26º 47'49.88" E	-31.994564°S;	26.797189°E
D	31º 59'36.70"S	26º 47'44.50"E	-31.993528°S;	26.795694°E
DEGREES, MINUTES, SECONDS (DD°MM'SS")			**DECIMAL DEGREES (DD)**	
	LATITUDE	**LONGITUDE**	**LATITUDE**	**LONGITUDE**
A	32º 0'20.84"S	26º 48'11.01"E	-32.005789°S;	26.803058°E
B	32º 0'16.19"S	26º 48'11.55"E	-32.004497°S;	26.803208°E
C	32º 0'12.19"S	26º 48'8.85"E	-32.003386°S;	26.802458°E
D	32º 0'16.87"S	26º 48'8.86"E	-32.004686°S;	26.802461°E

Figure 7: An aerial view of the site for the DBAR.

- As seen above the green area next to the R67 is 200m away from the Chicken egg production farm.
- The Proposed DBAR area was assessed after disapproval during the public participation process. The proposed mining site was found to be too close to the egg production farm. Thus a new area needed to be identified.

FBAR Site layout description:

- The Applicant and land owner Mr. David Hayes was granted a mining permit to mine one section of 4.9 ha on a portion of Portion 5 of farm Latham 205, Queenstown, Eastern Cape.
- Note that the mining site of 4.9ha has only one mining area extent and comprise only one farm namely Portion 5 of farm Latham 205.
- The GPS coordinates for the approved site (Site alternative 1) of the FBAR are as listed below:

Table 11: Site 1 Coordinates

DEGREES, MINUTES, SECONDS (DD˚MM'SS")			DECIMAL DEGREES (DD)	
	LATITUDE	**LONGITUDE**	**LATITUDE**	**LONGITUDE**
A	31°59'40.60"S	26°47'41.12"E	-31.994611°°S;	26.794756°E
B	31°59'45.00"S	26°47'47.76"E	-31.995833°S;	26.796600°E
C	31°59'39.45"S	26°47'52.45"E	-31.994292°S;	26.797903°E
D	31°59'34.85"S	26°47'45.96"E	-31.993014°S;	26.796100°E

Figure 8: An aerial view of the site for the DBAR.

- As seen above the green area 1km away from the Chicken egg production farm.
- The Proposed new FBAR area was assessed and found to be at a tolerable distance from the egg production farm whist being at a viable site in terms of the environment and production.

Reason:

- The reason for this was noticed during the Public Participation process in terms of the DBAR. The main concern in the public participation process was a Chicken egg production

farm 200m from the Site alternative 1 (preferred site). Mr. Ozzy Schlenkrich submitted the following comments:

Request for additional information site 2 (of site alternative 1):

- The distance of the quarry site in relation to the egg production farm was requested.

Concerns in terms of the poultry farm for egg production site 2:

- Dust
- Blasting
- Noise levels

Site 2 (of site alternative 1) was strongly objected to due to the close proximity to the egg production.

A comprehensive response was offered to address Mr. Ozzy Schlenkrich concerns (See public participation), but the applicant proposes to adjust the mining area and extent of the mine to accommodate Mr Ozzy Schlenkrich's concerns. Thus, a noticeable change was introduced in the Final Basic Assessment. The changes are distinguished as Extent and location as mentioned above.

2. SECTION 102 PROPOSAL:

Public Participation Process – Notification of Section 102 Amendment Application

The stakeholders and I&AP's will be informed of the Section 102 amendment application by means of I&AP comment/notification letters that will either be delivered by hand or send directly to the contact persons. A 30 days commenting period will be allowed which extended from the 10th of July 2020 to 12th of August 2020. Thereafter the report will be submitted with updated comments and response report to DMR Eastern Cape.

Table 12: List of the I&AP's and stakeholders Section 102 Proposal.

REGISTERED INTERESTED AND AFFECTED PARTIES	STAKEHOLDERS
• Mr. David Hayes • Mr. Angus McClain • Mr. David Ozborne • Mr. John Maghlana • Mr. Ozzy Schlenkrich	• Mr.Moppo Mene (Chris Hani District Municipality) • Mr. Cira Ngetu (Department of Economic Development, Environmental Affairs and Tourism) • Mr. S Nomandela (Enoch Mgijima Local Municipality) • Department of Labour • Municpal Manager (Enoch Mgijima Municipality Ward 14) • Mrs ZB Makina (Department of Rural Development and Agrarian Reform)

REGISTERED INTERESTED AND AFFECTED PARTIES	STAKEHOLDERS
	• Mr. Kholekile Golela (Department of Rural Development and Land Reform) • Mr Babini Mbewu (Department of Social Development) • Mr Babini Mbewu (Department of Transport) • Ms.P. Makhanya (Department of Water and Sanitation) • South African Heritage Resource Agency • Mr MD Qwase (Department of Public Works) • Mr. Chumisa Njingana (SANRAL) • Mr. Howard Blane (Eskom)
I&AP'S AND STAKEHOLDERS THAT REGISTERED DURING THE COMMENTING PERIOD	
• Mr. George van der Westhuizen (Civil and General)	

On-site notices were placed at the turn off from the R67 onto the farm Road Queenstown and the Chris Hani municipality clipboard. The project was also advertised in the representative on Friday the 10th of July 2020.

Comments that were received on the Draft Basic Assessment Report will be added to the Final Basic Assessment Report, and will be submitted to DMR for final review. See attached as Appendix E proof that the stakeholders and I&AP's were contacted. To explain the changes from the Final Basic Assessment to the Amendment Section 102 it must be understood that the projects site alternative 1 (preferred site) was already approved in the initial Environmental Authorisation granted on (17 May 2017).

iii) Summary of issues raised by I&APs

(Compile the table summarising comments and issues raised, and reaction to those responses)

1. APPROVED WITTLESEA FBAR:

Table 13: Summary of Issues raised by I&AP's

Interested and Affected Parties **List the name of persons consulted in this column, and** **Mark with an X where those who must be consulted were in fact consulted**		**Date Comments Received**	**Issues raised**	**EAPs response to issues as mandated by the applicant**	**Section and paragraph reference in this report where the issues and or response were incorporated.**
AFFECTED PARTIES					
Landowner/s	**X**				
• Mr. David Hayes (Applicant & Landowner)	X	No comments received	N/A	N/A	N/A
Lawful occupier/s of the land					
• Mr. David Hayes	X	No comments received	N/A	N/A	N/A
Landowners or lawful occupiers on adjacent properties	**X**				
• Mr. Angus McClain	X	No comments received	N/A	N/A	N/A

Interested and Affected Parties **List the name of persons consulted in this column, and** **Mark with an X where those who must be consulted were in fact consulted**		**Date Comments Received**	**Issues raised**	**EAPs response to issues as mandated by the applicant**	**Section and paragraph reference in this report where the issues and or response were incorporated.**
• Mr. David Ozborne	X	4 July 2016	Mr. David Ozborne submitted the following comments: • Please provide us with a map of exactly where the proposed mine is .of David Hayes Latham 205.	The following response is offered to address Mr. David Ozborne concerns: • A preliminary Regulation 2.2 map was sent via E-mail.	Appendix A - Whittlesea Regulation 2.2 Map
• Mr. John Maghlana	X	No comments received	N/A	N/A	N/A
• Mr. Ozzy Schlenkrich	X	9 September 2016	Mr. Ozzy Schlenkrich submitted the following comments: Request for additional information site 2 (of site alternative 1): • The distance of the quarry site in relation to the egg production farm was requested. Concerns in terms of the poultry farm for egg production site 2:	The following response is offered to address Mr. Ozzy Schlenkrich's concerns: Request for additional information: • The egg production farm is approximately 200 m away from the proposed site. Concerns in terms of the poultry farm for egg production:	N/A

Interested and Affected Parties **List the name of persons consulted in this column, and** **Mark with an X where those who must be consulted were in fact consulted**		**Date Comments Received**	**Issues raised**	**EAPs response to issues as mandated by the applicant**	**Section and paragraph reference in this report where the issues and or response were incorporated.**
			•Dust •Blasting •Noise levels • Site 2 (of site alternative 1) strongly objected to due to the close proximity to the egg production.	• Dust – Dust emitters was discussed and mitigation measures as well as precautions. • Blasting - was discussed as well as mitigation measures and precautions. • Noise - was discussed as well as mitigation measures and precautions. Mr Ozzy Schlenkrich concerns were raised to the applicant and in order to accommodate Mr Ozborne's egg production farm the applicant is willing to increase site 1 extent rather than splitting the 2 areas as well as relocate the proposed mining site further away from Mr Ozzy Schlenkrich egg production farm.	
Municipal councillor					
Chris Hani District Municipality	X	No comments received	N/A	N/A	N/A
Municipality					

Interested and Affected Parties **List the name of persons consulted in this column, and** **Mark with an X where those who must be consulted were in fact consulted**		**Date Comments Received**	**Issues raised**	**EAPs response to issues as mandated by the applicant**	**Section and paragraph reference in this report where the issues and or response were incorporated.**
Lukhanji Local Municipality	X	No comments received	N/A	N/A	N/A
Lukhanji Local Municipality Ward 14	X	No comments received	N/A	N/A	N/A
Organs of state (Responsible for infrastructure that may be affected Roads Department, Eskom, Telkom, DWA e					
Communities					
Dept. Land Affairs	X	No comments received	N/A	N/A	N/A
Department of Rural Development and Agrarian Reform	X	No comments received	N/A	N/A	N/A
Department of Rural Development and Land Reform	X	8 August 2016 5 September 2016	Department of Rural Development and Land Reform responded to A land claim request sent on 8 August 2016:	Greenmined environmental response is reserved:	N/A

Interested and Affected Parties **List the name of persons consulted in this column, and** **Mark with an X where those who must be consulted were in fact consulted**		**Date Comments Received**	**Issues raised**	**EAPs response to issues as mandated by the applicant**	**Section and paragraph reference in this report where the issues and or response were incorporated.**
			• Enquiry has been received and forwarded to the Amathole district team for confirmation.	• Proof of the concerned land claim was received on 5 September 2016 and is kept on file.	
Traditional Leaders	N/A	N/A	N/A	N/A	N/A
Dept. Environmental Affairs	X	No comments received	N/A	N/A	N/A
Department of Economic Development, Environmental Affairs and Tourism	X	30 August 2016	The Department of Economic Development, Environmental Affairs and Tourism acknowledged receipt of the Draft BAR	N/A	N/A
Other Competent Authorities affected					
Department of Labour	X	8 July 2016	The Department of Labour responded: • the notification has been sent to Eastern Cape Provincial Manager for further assistance	N/A	N/A
Department of Transport	X	No comments received	N/A	N/A	N/A

Interested and Affected Parties **List the name of persons consulted in this column, and** **Mark with an X where those who must be consulted were in fact consulted**		**Date Comments Received**	**Issues raised**	**EAPs response to issues as mandated by the applicant**	**Section and paragraph reference in this report where the issues and or response were incorporated.**
Department of Water and Sanitation	X	No comments received	N/A	N/A	N/A
Department Of Social Development	X	No comments received	N/A	N/A	N/A
South African Heritage Resource Agency	X	24 August 2016	South African Heritage Resource Agency requested: • Upload of application on to SAHRIS	The following response is offered to South African Heritage Resource Agency: • Uploaded onto SAHRIS: 24 August 2016	N/A
OTHER AFFECTED PARTIES					
INTERESTED PARTIES					

2. SECTION 102 PROPOSAL:

Table 14 : Summary of issues raised by I&AP's during the Section 102 amendment process.

Interested and Affected Parties **List the name of persons consulted in this column, and** **Mark with an X where those who must be consulted were in fact consulted**		**Date Comments Received**	**Issues raised**	**EAPs response to issues as mandated by the applicant**	**Section and paragraph reference in this report where the issues and or response were incorporated.**
AFFECTED PARTIES					
Landowner/s	**X**				
• Mr. David Hayes (Applicant & Landowner)	X				
Lawful occupier/s of the land					
• Mr. David Hayes	X				
Landowners or lawful occupiers on adjacent properties	**X**				
• Mr. Angus McClain	X				
• Mr. David Ozborne	X				
• Mr. Ozzy Schlenkrich	X				

Interested and Affected Parties **List the name of persons consulted in this column, and** **Mark with an X where those who must be consulted were in fact consulted**		**Date Comments Received**	**Issues raised**	**EAPs response to issues as mandated by the applicant**	**Section and paragraph reference in this report where the issues and or response were incorporated.**
Municipal councillor					
• Chris Hani District Municipality	X				
Municipality					
Lukhanji Local Municipality	X				
Lukhanji Local Municipality Ward 14	X				
Organs of state (Responsible for infrastructure that may be affected Roads Department, Eskom, Telkom, DWA e					
Communities					
	X				
Dept. Land Affairs	X				
Department of Rural Development and Agrarian Reform	X				

Interested and Affected Parties **List the name of persons consulted in this column, and** **Mark with an X where those who must be consulted were in fact consulted**		**Date Comments Received**	**Issues raised**	**EAPs response to issues as mandated by the applicant**	**Section and paragraph reference in this report where the issues and or response were incorporated.**
Department of Rural Development and Land Reform	X				
Traditional Leaders	N/A				
Dept. Environmental Affairs	X				
Department of Economic Development, Environmental Affairs and Tourism	X				
Other Competent Authorities affected					
Department of Labour	X				
Department of Transport	X				
Department of Water and Sanitation	X				
Department of Social Development	X				
South African Heritage Resource Agency	X				

Interested and Affected Parties **List the name of persons consulted in this column, and** **Mark with an X where those who must be consulted were in fact consulted**		**Date Comments Received**	**Issues raised**	**EAPs response to issues as mandated by the applicant**	**Section and paragraph reference in this report where the issues and or response were incorporated.**
<u>OTHER AFFECTED PARTIES</u>					
<u>INTERESTED PARTIES</u>					

iv) The Environmental attributes associated with the alternatives.

(The environmental attributes described must include socio-economic, social, heritage, cultural, geographical, physical and biological aspects)

1) Baseline Environment

(a) Type of environment affected by the proposed activity.

(Its current geographical, physical, biological, socio-economic, and cultural character)

PHYSICAL ENVIRONMENT

Geology:

The Queenstown area is in the Burgersdorp formation of the Tarkastad sub group, in the upper Beaufort Group Triassic in age in the Karoo super group. The lithology is red mudstone 1 to 10 m rich layers and sub-ordinate 1 to 2 m rich sandstone layers deposited by meandering rivers in the flood plain in an oxidising environment gradually filling the Karoo basin. The formation reaches thickness of 600 m in the Queenstown and Lady Frere area (S.gcobo). Numerous dolerite dykes and ring structures intruded the area creating good localities for ground water exploration.

Shallow soils typical of lb, Fb and Fv land types on mudstones and sandstones of the Beaufort Group (Karoo Super group). Jurassic dolerite intrusions form ridges in the area. An outcrop of “Sebunga” rock. That is known as weathered Dolerite which is the mineral to be mined.

Natural Vegetation:

The site earmarked for the permitted mining activity has previously been used for aggregate mining purposes. Although some indigenous vegetation did re-establish through succession the vegetation of the area can be described as disturbed with a high invasion of alien invader plants. No red data or protected plants could be identified in the approved footprint area of the mining area.

Fauna:

The resident fauna found during the site inspection mainly comprised of birds such as doves, starlings, sparrows, and crows as well as commonly found insects, reptiles, and a few small mammals. No protected or red data species could be identified to be resident within the footprint area of the proposed mining area.

There is a low probability that fauna that may be present within the permitted mining footprint will be disturbed by the approved activities. The fauna will be able to move away or through the site, without being harmed. Workers will be educated and managed to ensure that no fauna at the site is harmed. Upon commencement of the proposed mining activities, the mining area must be fenced to prevent livestock, such as cattle and sheep that may be grazing in the area falling into the excavation.

Surface and Ground Water:

The site is located in Water Management Area 12 known as the Mzimvubu to Keiskamma Water Management Area, and falls into the quaternary drainage area S31G.

A tributary of the Klaas Smits River flows approximately 4 km North of the proposed mining area (site alternative 1). As the mining activities will be contained within the boundaries of the area the tributary should not be affected by the project. No river diversions will be needed and no wetland could be identified within 500 m radius of the site. Ground water will not be affected with this activity of mining.

Although the depth of the groundwater is unknown it is presumed to be deeper than 5 m as the existing quarry pit has been mined to 5 m and groundwater was not intersected. Mining at the proposed site is expected to be up to a maximum depth of 30 m and therefore the impact on the groundwater will need continuous monitoring should ground water be intersected.

Air Quality:

The background air quality of the surrounding area is highly impacted on by vehicles travelling along the R67. Given the surrounding extent of mostly covered vegetated areas, no extreme dust generation under windy conditions is experienced.

Emission into the atmosphere is controlled by the National Management: Air Quality Act, 2004. The proposed activity at the site will however not trigger an application in terms of the Air Quality Act as the emissions to be produced at the mining site will only entail dust generation due to the disturbance of soil. Dust will be generated by the movement of earthmoving equipment, the loading of material and transporting of material from site.

The trucks driving on site have to comply with the speed limit to prevent the generation of excessive dust. Loads will be flattened to prevent spillage of material during transportation.

Topsoil stockpiles will be planted with indigenous grass species to ensure that exposed surface areas are minimised, reducing windblown dust from the site.

Dust generated on the access- and haul roads, as well as the excavation, can be managed through dust suppression measures via water carts and or a sprinkler system at the processing plant when needed. The applicant has to conduct formal fall out dust monitoring on site to provide management with an effective management tool for measuring and mitigating the impact of the mining activity on the air quality of the surrounding environment.

Ambient Noise:

The background noise level of the surrounding area is highly impacted on by traffic travelling along the R67 road passing the property.

Due to the nature of the proposed activity, noise will be generated as a result of mechanical excavation including activities such as drilling.

Blasting will occur once every six (6) to eight (8) weeks. The limit for the air blast or “noise” generated by a blasting event is 134dB. Blasting noise is instantaneous and of short duration. If the blast is designed so that the maximum amount of energy released by the explosive goes into breaking and displacing the rock, the air blast is limited.

Site management has to notify the surrounding landowners in writing prior to blasting occasions. In order to minimise the noise impact, blasting has to occur between 8:00 and 15:00 Monday – Fridays. The noise generated during the various phases of the proposed development will comply with the Nose Control Regulations, and all noise will be monitored and controlled on the site as specified in the EMPr. Best practice measures will be implemented throughout all environmental impacts throughout the life of the mine.

The nuisance value of noise generated by heavy earthmoving equipment for residence in the near vicinity is deemed to be of low – medium significance, as the mine is expected to be operational 24 hours a day for 6 days a week. The distance of residents from the mining area (>2 km) will however assist in the mitigation of the noise impact. All mining vehicles will also be equipped with silencers and maintained in a road worthy condition in terms of the National Road Traffic Act, 1996 (Act No 93 of 1996).

Archaeological and Cultural Interest:

No sites of archaeological or cultural importance could be identified at the proposed mining area during the site inspection. The area was previously used for grazing agriculture and no areas of cultural importance could be identified within the footprint area of the site, should any be spotted. Should any artefacts be discovered during the site commissioning or operational phase of the project, the area needs to be demarcated and all activity should to be stopped, until cleared by a qualified archaeologist.

Visual Exposure:

Due to the current mining disturbance nearby the area the site has a low aesthetic value. The proposed mining area will visible from R67 passing the property and will therefore have a visual impact on the immediate surrounding area.
The applicant should ensure that housekeeping is managed to standard, as this will mitigate the visual impacts during the operational phase of the stockpile area. Upon closure of the stockpile area and decommissioning of the site, the area should be fully rehabilitated and all exposed areas should be seeded to enhance vegetation recovery should natural vegetation not establish within six months of completion of rehabilitation.

(b) Description of the current land uses.

Portion 5 of farm Latham 205, Queenstown, Eastern Cape is situated in an agricultural and mining setting to the west of the R67. The land use of the property comprises of the following:

- Agriculture – Mainly grazing
- Mining - Signs of previous mining activities for aggregate is evident on the farm portions.

The land use of the surrounding properties comprises of the following:

- Industrial – NONE
- Residents – Residents are situated more than 500 m to the North West of the mining site.
- Transport – Farm road is located 150 m from Site alternative 1 that's connected to the R67 (±1.5 km away).
- Agriculture – Grazing and grain farming.

- Agriculture – Chicken coup farming on the other side of the R 67

- Residential – NONE

(c) Description of specific environmental features and infrastructure on the site.

The permitted mining area is approximately 4.9 ha in extent and the applicant intends to win aggregate from the area for at least two years the is remaining on the permit possible extensions. The aggregate to be removed from the mining area will be supplied to the road construction industry in the Whittlesea district.

The existing infrastructure within 500 m of the permitted mining area is the Aggregate Access Road, R67 and two old quarries. The provincial road (R67) is approximately 800 m from the proposed mining area. There is power line infrastructure to the south of the approved mining site, but will not be affected as it is more than 100 m away (Eskom will be notified of the proposed amendment application). The impact of the proposed mining area on the infrastructural features of the surrounding area is deemed to be of low significance as the impact of the mining activity will be concentrated within the 4.9 ha footprint area of the mine.

In order to mitigate the potential impact on the surface and/or ground water. Storm water management will be implemented on-site. Storm water will be channelled around the mining area to prevent possible contamination of clean water flowing over dirty areas. If this is implemented the proposed activity is not expected to have a negative effect on the surface or ground water in the vicinity.

(d) Environmental and current land use map.

(Show all environmental and current land use features)

The environmental and current land use map is attached as Appendix C.

v) Impacts and risks identified including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts

(Provide a list of the potential impacts identified of the activities described in the initial site layout that will be undertaken, as informed by both the typical known impacts of such activities, and as informed by the consultations with affected parties together with the significance, probability, and duration of the impacts. Please indicate the extent to which they can be reversed, the extent to which they may cause irreplaceable loss of resources, and can be avoided, managed or mitigated.)

The following potential impacts were identified of each main activity in each phase. The significance rating was determined using the methodology as explained under *vi) Methodology Used in Determining and Ranking the Significance*. The impact rating listed below was determined for each impact **prior** to bringing the proposed mitigation measures into consideration. The degree of mitigation indicates the possibility of partial, full or no mitigation of the identified impact.

1. APPROVED WHITTLESEA FBAR:

STRIPPING AND STOCKPILING OF TOPSOIL:

Visual intrusion associated with the establishment of the mining area

Rating: Low–Medium **Degree of Mitigation: Partial**

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
2	4	2	2.6	5	1	3	7.8

Dust nuisance caused by the disturbance of the soil

Rating: Medium **Degree of Mitigation: Partial**

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
2	4	2	2.6	4	4	4	10.4

Noise nuisance caused by machinery stripping and stockpiling the topsoil

Rating: Medium **Degree of Mitigation: Partial**

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
2	4	1	2.3	5	5	5	11.7

Infestation of the topsoil heaps by weeds or invader plants

Rating: Low – Medium **Degree of Mitigation: Fully Mitigated**

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
2	4	1	2.3	4	2	3	6.9

Loss of topsoil due to incorrect storm water management

Rating: Medium **Degree of Mitigation: Fully Mitigated**

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
3	4	1	2.6	4	4	4	10.4

Contamination of area with hydrocarbons or hazardous waste materials

Rating: Medium **Degree of Mitigation: Fully Mitigated**

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
4	4	1	3	5	4	4.5	13.5

EXCAVATION:

Visual intrusion associated with the excavation activities

Rating: Medium **Degree of Mitigation: Partial**

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
2	4	2	2.6	5	4	4.5	11.7

Dust nuisance due to excavation activities

Rating: Medium **Degree of Mitigation: Partial**

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
2	4	2	2.6	5	5	5	13

Noise nuisance generated by excavation equipment

Rating: Medium **Degree of Mitigation: Partial**

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
2	4	2	2.6	4	5	4.5	11.7

Contamination of surface or groundwater due to effluent runoff from excavation area

Rating: Medium **Degree of Mitigation: Fully Mitigated**

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
3	4	2	3	4	3	3.5	10.5

Unsafe working conditions for employees

Rating: Medium **Degree of Mitigation: Fully Mitigated**

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
2	4	1	2.3	4	5	4.5	10.35

Negative impact on the fauna and flora of the area

Rating: Low **Degree of Mitigation: Fully Mitigated**

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
2	1	2	1.6	5	1	3	4.8

Contamination of area with hydrocarbons or hazardous waste materials

Rating: Medium **Degree of Mitigation: Fully Mitigated**

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
4	4	1	3	4	5	4.5	13.5

Weed and invader plant infestation of the area

Rating: Low – Medium **Degree of Mitigation: Fully Mitigated**

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
3	4	1	2.6	5	2	2	5.2

SLOPING AND LANDSCAPING DURING REHABILITATION:

Soil erosion

Rating: Medium **Degree of Mitigation: Fully Mitigated**

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
4	4	1	3	3	4	3.5	10.5

Health and safety risk posed by un-sloped areas

Rating: Medium **Degree of Mitigation: Fully Mitigated**

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
4	4	1	3	4	5	4.5	13.5

Dust nuisance caused during sloping and landscaping activities

Rating: Low – Medium **Degree of Mitigation: Partial**

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
2	3	1	2	4	5	4.5	9

Noise nuisance caused by machinery

Rating: Low – Medium **Degree of Mitigation: Partial**

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
2	`2	2	2	3	5	4	8

Contamination of area with hydrocarbons or hazardous waste materials

Rating: Low – Medium **Degree of Mitigation: Fully Mitigated**

			Consequence			Likelihood	**Significance**
Severity	Duration	Extent		Probability	Frequency		
4	4	1	3	3	3	3	**9**

REPLACING OF TOPSOIL AND REHABILITATION OF DISTURBED AREA:

Loss of reinstated topsoil due to the absence of vegetation

Rating: Low – Medium **Degree of Mitigation: Fully Mitigated**

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
3	3	1	2.3	3	3	3	6.9

Infestation of the area by weed and invader plants

Rating: Low – Medium **Degree of Mitigation: Fully Mitigated**

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
3	4	1	2.6	4	2	3	7.8

2. SECTION 102 PROPOSAL:

BLASTING:

Health and safety risk posed by blasting activities

Rating: Low – Medium **Degree of Mitigation: Fully Mitigated**

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
4	4	1	3	3	3	3	9

Dust nuisance caused by blasting activities

Rating: Low – Medium **Degree of Mitigation: Not Mitigated**

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
2	2	2	2	4	2	3	6

Noise nuisance caused by blasting activities

Rating: Low **Degree of Mitigation: Partial**

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
1	2	1	1.3	1	5	3	3.9

CRUSHING AND SCREENING:

Visual intrusion associated with the crushing and screening activities

Rating: Medium **Degree of Mitigation: Partial**

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
1	3	2	2	5	5	5	10

Dust nuisance due to crushing and screening activities

Rating: Low-Medium **Degree of Mitigation: Partial**

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
2	2	2	2	4	2	3	6

Noise nuisance generated by crushing and screening equipment

Rating: Low **Degree of Mitigation: Partial**

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
1	2	1	1.3	1	5	3	3.9

Contamination of surface or groundwater due to effluent runoff from crushing and screening area

Rating: Medium

			Consequence			Likelihood	Significance
Severity	Duration	Extend		Probability	Frequency		
3	5	2	3.3	4	3	3.5	11.5

LOADING AND TRANSPORTING:

Dust nuisance due to loading and vehicles transporting the material

Rating: Medium **Degree of Mitigation: Fully Mitigated**

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
2	4	2	2.6	4	5	4.5	11.7

Degradation of access roads

Rating: Medium **Degree of Mitigation: Fully Mitigated**

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
3	4	2	3	4	4	4	12

Noise nuisance caused by vehicles

Rating: Medium **Degree of Mitigation: Partial**

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
2	4	2	2.6	4	5	4.5	11.7

Contamination of area with hydrocarbons or hazardous waste materials

Rating: Medium **Degree of Mitigation: Fully Mitigated**

			Consequence			Likelihood	Significance
Severity	Duration	Extent		Probability	Frequency		
4	4	1	3	4	5	4.5	13.5

vi) Methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks;

(Describe how the significance, probability, and duration of the aforesaid identified impacts that were identified through the consultation process was determined in order to decide the extent to which the initial site layout needs revision.)

Methodology for the assessment of the potential environmental, social and cultural impacts

DEFINITIONS AND CONCEPTS:

Environmental significance:

The concept of significance is at the core of impact identification, evaluation and decision-making. The concept remains largely undefined and there is no international consensus on a single definition. The following common elements are recognised from the various interpretations:

- Environmental significance is a value judgement
- The degree of environmental significance depends on the nature of the impact
- The importance is rated in terms of both biophysical and socio-economic values
- Determining significance involves the amount of change to the environment perceived to be acceptable to affected communities.

Significance can be differentiated into impact magnitude and impact significance. Impact magnitude is the measurable change (i.e. intensity, duration and likelihood). Impact significance is the value placed on the change by different affected parties (i.e. level of acceptability) (DEAT (2002) Impact Significance, Integrated Environmental Management, Information Series 5).

The concept of risk has two dimensions, namely the consequence of an event or set of circumstances, and the likelihood of particular consequences being realised (Environment Australia (1999) Environmental Risk Management).

Impact

The positive or negative effects on human well-being and / or the environment.

Consequence

The intermediate or final outcome of an event or situation OR it is the result, on the environment, of an event.

Likelihood

A qualitative term covering both probability and frequency.

Frequency

The number of occurrences of a defined event in a given time or rate.

Probability

The likelihood of a specific outcome measured by the ratio of a specific outcome to the total number of possible outcomes.

Environment

Surroundings in which an organisation operates, including air, water, land, natural resources, flora, fauna, humans and their interrelation (ISO 14004, 1996).

Methodology that will be used

The environmental significance assessment methodology is based on the following determination:

Environmental Significance = Overall Consequence x Overall Likelihood

Determination of Overall Consequence

Consequence analysis is a mixture of quantitative and qualitative information and the outcome can be positive or negative. Several factors can be used to determine consequence. For the purpose of determining the environmental significance in terms of consequence, the following

factors were chosen: ***Severity/Intensity, Duration and Extent/Spatial Scale***. Each factor is assigned a rating of 1 to 5, as described in the tables below.

Determination of Severity / Intensity

Severity relates to the nature of the event, aspect or impact to the environment and describes how severe the aspects impact on the biophysical and socio-economic environment.

The Table below will be used to obtain an overall rating for severity, taking into consideration the various criteria.

Table 15: Table to be used to obtain an overall rating of severity, taking into consideration the various criteria.

Type of criteria	Rating				
	1	**2**	**3**	**4**	**5**
Quantitative	0-20%	21-40%	41-60%	61-80%	81-100%
Qualitative	Insignifiant / Non-harmful	Small / Potentially harmful	Significant/ Harmful	Great/ Very harmful	Disastrous Extremely harmful
Social/ Community response	Acceptable / I&AP satisfied	Slightly tolerable / Possible objections	Intolerable/ Sporadic complaints	Unacceptable / Widespread complaints	Totally unacceptable / Possible legal action
Irreversibility	Very low cost to mitigate/ High potential to mitigate impacts to level of insignificance/ Easily reversible	Low cost to mitigate	Substantial cost to mitigate/ Potential to mitigate impacts/ Potential to reverse impact	High cost to mitigate	Prohibitive cost to mitigate/ Little or no mechanism to mitigate impact Irreversible
Biophysical (Air quality, water quantity and quality, waste production, fauna and flora)	Insignificant change / deterioration or disturbance	Moderate change / deterioration or disturbance	Significant change / deterioration or disturbance	Very significant change / deterioration or disturbance	Disastrous change / deterioration or disturbance

Determination of Duration

Duration refers to the amount of time that the environment will be affected by the event, risk or impact, if no intervention e.g. remedial action takes place.

Table 16: Criteria for the rating of duration.

Rating	Description
1	Up to ONE MONTH
2	ONE MONTH to THREE MONTHS (QUARTER)
3	THREE MONTHS to ONE YEAR
4	ONE to TEN YEARS
5	Beyond TEN YEARS

Determination of Extent/Spatial Scale

Extent or spatial scale is the area affected by the event, aspect or impact.

Table 17 Criteria for the rating of extent / spatial scale.

Rating	Description
1	Immediate, fully contained area
2	Surrounding area
3	Within Business Unit area of responsibility
4	Within the farm/neighboring farm area
5	Regional, National, International

Determination of Overall Consequence

Overall consequence is determined by adding the factors determined above and summarized below, and then dividing the sum by 3.

Table 18: Example of calculating Overall Consequence

Consequence	Rating
Severity	Example 4
Duration	Example 2
Extent	Example 4
SUBTOTAL	**10**
TOTAL CONSEQUENCE: (Subtotal divided by 3)	**3.3**

Determination of Likelihood:

The determination of likelihood is a combination of Frequency and Probability. Each factor is assigned a rating of 1 to 5, as described below and in tables 6 and 7.

Determination of Frequency

Frequency refers to how often the specific activity, related to the event, aspect or impact, is undertaken.

Table 19: Criteria for the Rating of Frequency:

Rating	Description
1	Once a year or once/more during operation
2	Once/more in 6 Months
3	Once/more a Month
4	Once/more a Week
5	Daily

Determination of Probability

Probability refers to how often the activity or aspect has an impact on the environment.

Table 20: Criteria for the Rating of Probability

Rating	Description
1	Almost never / almost impossible
2	Very seldom / highly unlikely
3	Infrequent / unlikely / seldom
4	Often / regularly / likely / possible
5	Daily / highly likely / definitely

Overall Likelihood

Overall likelihood is calculated by adding the factors determined above and summarised below, and then dividing the sum by 2.

Table 21: Example of calculating Overall Likelihood

Consequence	Rating
Frequency	Example 4
Probability	Example 2
SUBTOTAL	**6**
TOTAL LIKELIHOOD (Subtotal divided by 2)	**3**

Determination of Overall Environmental Significance:

The multiplication of overall consequence with overall likelihood will provide the environmental significance, which is a number that will then fall into a range of **LOW**, **LOW-MEDIUM**, **MEDIUM**, **MEDIUM-HIGH** or **HIGH**, as shown in the table below.

Table 22: Determination of overall environmental significance.

Significance or Risk	Low	Low-Medium	Medium	Medium-High	High
Overall Consequence X Overall Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25

Qualitative description or magnitude of Environmental Significance

This description is qualitative and is an indication of the nature or magnitude of the Environmental Significance. It also guides the prioritisations and decision making process associated with this event, aspect or impact.

Table 23:Description of Environmental Significance and related action required

Significance	Low	Low-Medium	Medium	Medium-High	High

Impact Magnitude	Impact is of very low order and therefore likely to have very little real effect. Acceptable.	Impact is of low order and therefore likely to have little real effect. Acceptable.	Impact is real, and potentially substantial in relation to other impacts. Can pose a risk to company	Impact is real and substantial in relation to other impacts. Pose a risk to the company. Unacceptable	Impact is of the highest order possible. Unacceptable. Fatal flaw.
Action Required	Maintain current management measures. Where possible improve.	Maintain current management measures. Implement monitoring and evaluate to determine potential increase in risk. Where possible improve	Implement monitoring. Investigate mitigation measures and improve management measures to reduce risk, where possible.	Improve management measures to reduce risk.	Implement significant mitigation measures or implement alternatives.

Based on the above, the significance rating scale has been determined as follows:

High — Of the highest order possible within the bounds of impacts which could occur. In the case of negative impacts, there would be no possible mitigation and / or remedial activity to offset the impact at the spatial or time scale for which it was predicted. In the case of positive impacts, there is no real alternative to achieving the benefit.

Medium-High — Impacts of a substantial order. In the case of negative impacts, mitigation and / or remedial activity would be feasible but difficult, expensive, time-consuming or some combination of these. In the case of positive impacts, other means of achieving this benefit would be feasible, but these would be more difficult, expensive, time-consuming or some combination of these.

Medium — Impact would be real but not substantial within the bounds of those, which could occur. In the case of negative impacts, mitigation and / or remedial activity would be both feasible and fairly easily possible, in case of positive impacts; other means of achieving these benefits would be about equal in time, cost and effort.

Low-Medium — Impact would be of a low order and with little real effect. In the case of negative impacts, mitigation and / or remedial activity would be either easily achieved of little would be required, or both. In case of positive impacts alternative means for achieving this benefit would likely be easier, cheaper, more effective, less time-consuming, or some combination of these.

Low	Impact would be negligible. In the case of negative impacts, almost no mitigation and or remedial activity would be needed, and any minor steps, which might be needed, would be easy, cheap and simple. In the case of positive impacts, alternative means would almost all likely be better, in one or a number of ways, than this means of achieving the benefit
Insignificant	There would be a no impact at all – not even a very low impact on the system or any of its parts.

vii) The positive and negative impacts that the proposed activity (in terms of the initial site layout) and alternatives will have on the environment and the community that may be affected.

(Provide a discussion in terms of advantages and disadvantages of the initial site layout compared to alternative layout options to accommodate concerns raised by affected parties)

1. APPROVED WHITTLESEA FBAR:

SITE ALTERNATIVE 1

Positive Impacts:

- The mining site offers the mineral sought after
- The mineral to be mined is already in aggregate form and will not need to be blasted in order to loosen the material.
- The proposed sites were previously used for mining activities, thus minimal environmental damage will occur.
- The proposed sites were previously used for mining activities, thus minimal environmental damage will occur.
- Due to the small size of the activity and the remote location of the mining area the potential impacts on the surrounding environment, associated with mining is deemed to be of low significance.
- No residual waste as a result of the mining activity will be produced that needs to be treated on site. Any general waste that may be produced on-site will be contained in sealed refuse bins to be transported to the local municipal landfill site. As major maintenance and servicing of the equipment will be done at an off-site workshop the amount of hazardous waste to be produced at the site will be minimal and will mainly be as a result of accidental leakage. Contaminated soil will be removed to the depth of the spillage and contained in sealed bins until removed from site by a hazardous

waste handling contractor to be disposed of at a registered hazardous waste handling site.

Negative Impacts:

- Due to the remote location of the mining area very little negative impacts on the community could be identified that were deemed to be of significant importance. The dust and noise impacts that may emanate from the mining area during the operational phase could have a negative impact on the surrounding community if the mitigation measures proposed in this document is not implemented and managed on-site.
- Negative impacts with regard to the environment include potential contamination of the area due to spillage of hydrocarbon products.

SITE ALTERNATIVE 2

Positive Impacts:

- The site is near the mineral sought after,
- No natural or pristine vegetation area has to be disturbed as the footprint of the proposed area falls over a portion previously used for mining and bares minimal vegetation.
- The alternative area will not have to compete with other land uses as all the activities can be contained within the boundaries of the site. Upon closure of the mining area, the land will revert back to agriculture.
- The aggregate to be mined will be used for the upgrading of the roads in the vicinity of the activity.
- The alternative mining area will therefore contribute to the upgrading/maintenance of infrastructure in and around Whittlesea - Queenstown area and indirectly contribute to the economy of the area.

Negative Impacts:

- The alternative site will need a short new road that connects to the farm road.
- The mining area will be within 500 m from the valley bottom wetland and the applicant will have to apply for full EIA in terms of DEA.
- The mining area will be within 500 m from the valley bottom wetland and the applicant will have to apply for a water use licence in terms of DWA

- The dust and noise impacts that may emanate from the mining area during the operational phase cold have a negative impact on the surrounding community if the mitigation measures proposed in this document is not implemented and managed on-site.
- Negative impacts with regard to the environment include potential contamination of the area due to spillage of hydrocarbon products.

2. SECTION 102 PROPOSAL:

As this is an existing operation, no site alternatives were identified for the proposed amendment of the mining activities.

viii) The possible mitigation measures that could be applied and the level of risk.

(With regard to the issues and concerns raised by affected parties provide a list of the issues raised and an assessment/discussion of the mitigation or site layout alternatives available to accommodate or address their concerns, together with an assessment of the impacts or risks associated with the mitigation or alternatives considered)

1. APPROVED WHITTLESEA FBAR:

Visual Mitigation:

The risk of the proposed mining activity having a negative impact on the aesthetic quality of the surrounding environment can be reduced to a low – medium risk through the implementation of the mitigation measures listed below:

- The site needs to have a neat appearance and be kept in good condition at all times.
- Upon closure the site needs to be rehabilitated to insure that the visual impact on the aesthetic value of the area is kept to a minimum.

Dust Handling:

The risk of dust, generated from the approved mining activity, having a negative impact on the surrounding environment can be reduced to being low through the implementation of the mitigation measures listed below:

- The liberation of dust into the surrounding environment must be effectively controlled by the use of, inter alia, water spraying and/or other dust-allaying agents.
- The site manager must ensure continuous assessment of all dust suppression equipment to confirm its effectiveness in addressing dust suppression.
- Speed on the access roads must be limited to 40km/h to prevent the generation of excess dust.
- Roads must be sprayed with water or an environmentally friendly dust-allaying agent that contains no PCB's (e.g. DAS products) if dust is generated above acceptable limits.

Noise Handling:

The risk of noise, generated from the proposed mining activity, having a negative impact on the surrounding environment can be reduced to being low-medium through the implementation of the mitigation measures listed below:

- The applicant must ensure that employees and staff conduct themselves in an acceptable manner while on site, both during work hours and after hours.
- No loud music may be permitted at the mining area.
- All mining vehicles must be equipped with silencers and maintained in a road worthy condition in terms of the Road Transport Act.

Management of weed or invader plants:

The risk of weeds or invader plants invading the disturbed area can be reduced to being low through the implementation of the mitigation measures listed below:

- A weed and invader plant control management plan must be implemented at the site to ensure eradication of all listed invader plants in terms of Conservation of Agricultural Act (Act No 43 1983).
- Management must take responsibility to control declared invader or exotic species on the rehabilitated areas. The following control methods can be used:
  - "The plants can be uprooted, felled or cut off and can be destroyed completely."
  - "The plants can be treated with an herbicide that is registered for use in connection therewith and in accordance with the directions for the use of such an herbicide."
- The temporary topsoil stockpiles need to be kept free of weeds.

Storm water Handling:

The risk of contamination through dirty storm water escaping from work areas, or erosion or loss of stockpiled topsoil caused due to uncontrolled storm water flowing through the mining area can be reduced to being low through the implementation of the mitigation measures listed below:

- Storm water must be diverted around the topsoil heaps, and access roads to prevent erosion and loss of material.
- Mining must be conducted only in accordance with the Best Practice Guideline for small scale mining that relates to storm water management, erosion and sediment control and waste management, developed by the Department of Water and Sanitation (DWS), and any other conditions which that Department may impose:

- Clean water (e.g. rainwater) must be kept clean and be routed to a natural watercourse by a system separate from the dirty water system. You must prevent clean water from running or spilling into dirty water systems.
- Dirty water must be collected and contained in a system separate from the clean water system.
- Dirty water must be prevented from spilling or seeping into clean water systems.
- The storm water management plan must apply for the entire life cycle of the mining activity and over different hydrological cycles (rainfall patterns).
- The statutory requirements of various regulatory agencies and the interests of stakeholders must be considered and incorporated into the storm water management plan.

Waste Management:

The risk of waste generation having a negative impact on the surrounding environment can be reduced to being low through the implementation of the mitigation measures listed below:

- No waste stockpile area may be established outside the boundaries of the mining area.
- Vehicle maintenance may only take place within the service bay area of the off-site workshop.
- The diesel bowser needs to be equipped with a drip tray at all times. Drip trays have to be used during each and every refuelling event.
- The nozzle of the bowser needs to rest in a sleeve to prevent dripping after refuelling.
- Site management must ensure drip trays are cleaned after each use. No dirty drip trays may be used on site.
- Any effluents containing oil, grease or other industrial substances must be collected in a suitable receptacle and removed from the site, either for resale or for appropriate disposal at a recognised facility.
- Spills must be cleaned up immediately to the satisfaction of the Regional
- Manager by removing the spillage together with the polluted soil and by disposing it at a recognised facility. Proof should be filed.
- Suitable covered receptacles should be available at all times and conveniently placed for the disposal of waste.

- Non-biodegradable refuse such as glass bottles, plastic bags, metal scrap, etc, should be stored in a container with a closable lid at a collecting point and collected on a regular basis and disposed of at a recognised landfill site.
- Specific precautions should be taken to prevent refuse from being dumped on or in the vicinity of the mine area.
- Biodegradable refuse generated should be handled as indicated above.

Management of Health and Safety Risks:

The health and safety risk, posed by the proposed mining activity can be reduced to being low through the implementation of the mitigation measures listed below:

- Workers must have access to the correct personal protection equipment (PPE) as required by law.
- All operations must comply with the Occupational Health and Safety Act.

Protection of fauna and flora:

The risk on the fauna and flora of the footprint area as well as the surrounding environment, as a result of the proposed mining activity, can be reduced to being low through the implementation of the mitigation measures listed below:

- The site manager should implement measures to prevent that fauna is caught, killed, harmed, sold or played with.
- Workers should be instructed to report any animals that may be trapped in the working area.
- No snares may be set or nests raided for eggs or young.
- No plants or trees may be removed without the approval of the ECO.
- Clearing of vegetation has to be restricted to the smallest possible area.

Management of Access Roads:

The risk on the condition of the roads, as a result of the proposed mining activities, can be reduced to being low-medium through the implementation of the mitigation measures listed below:

- Storm water should be diverted around the access roads to prevent erosion.
- Erosion of access road: Vehicular movement must be restricted to existing access routes to prevent crisscrossing of tracks through undisturbed areas.

- Rutting and erosion of the access road caused as a result of the mining activity should be repaired by the applicant.

Topsoil Handling:

The risk of loss of topsoil can be reduced to being low through the implementation of the mitigation measures listed below:

- Where applicable the first 300 mm of topsoil should be removed in strips and stored along the boundary of the mining area. Stockpiling of topsoil must be done to protect it from erosion, mixing with overburden or other material. The topsoil must be used to cover the rehabilitated area and improve the establishment of natural vegetation.
- The temporary topsoil stockpiles should be kept free of weeds.
- Topsoil stockpiles should be placed on a levelled area and measures should be implemented to safeguard the piles from being washed away in the event of heavy rains/storm water.
- Topsoil heaps should not exceed 1.5 m in order to preserve micro-organisms within the topsoil, which can be lost due to compaction and lack of oxygen.
- Should natural vegetation not establish on the heaps within 6 months of stockpiling it should be planted with an indigenous grass species.
- Storm- and runoff water should be diverted around the topsoil stockpiles and access roads to prevent erosion.

2. SECTION 102 PROPOSAL:

Dust Handling:

The risk of dust, generated from the approved mining activity, having a negative impact on the surrounding environment can be reduced to being low through the implementation of the mitigation measures listed below:

- Dust suppression equipment such as a water car, water dispenser and sprayers on the crusher plant.

Noise Handling:

The risk of noise, generated from the proposed mining activity, having a negative impact on the surrounding environment can be reduced to being low-medium through the implementation of the mitigation measures listed below:

- Plan the type, duration and timing of the blasting procedures with due cognizance of other land users and structures in the vicinity.
- Notify the surrounding land owners in writing prior to each blasting occasion.
- Implement best practice measures to minimise potential noise impacts.
- Contract a qualified occupational hygienist to quarterly monitor and report on the personal noise exposure of the employees working at the mine. Monitoring must be in accordance with SANS 10083:2004 (Edition 5) sampling method as well as NEM:AQA 2004, SANS 10103:2008.

Storm water Handling:

The risk of contamination through dirty storm water escaping from work areas, or erosion or loss of stockpiled topsoil caused due to uncontrolled storm water flowing through the mining area can be reduced to being low through the implementation of the mitigation measures listed below:

- Storm water must be diverted around the topsoil heaps, and access roads to prevent erosion and loss of material.
- Mining must be conducted only in accordance with the Best Practice Guideline for small scale mining that relates to storm water management, erosion and sediment control and waste management, developed by the Department of
- Water and Sanitation (DWS), and any other conditions which that Department may impose:
- Clean water (e.g. rainwater) must be kept clean and be routed to a natural watercourse by a system separate from the dirty water system. You must prevent clean water from running or spilling into dirty water systems.
- Dirty water must be collected and contained in a system separate from the clean water system.
- Dirty water must be prevented from spilling or seeping into clean water systems.
- The storm water management plan must apply for the entire life cycle of the mining activity and over different hydrological cycles (rainfall patterns).

- The statutory requirements of various regulatory agencies and the interests of stakeholders must be considered and incorporated into the storm water management plan.

Waste Management:

The risk of waste generation having a negative impact on the surrounding environment can be reduced to being low through the implementation of the mitigation measures listed below:

- Minor maintenance and servicing of machinery will be done at the mining area.
- Should a vehicle need major maintenance it will be moved off-site to the applicants existing workshop.

Management of Health and Safety Risks:

The health and safety risk, posed by the proposed mining activity can be reduced to being low through the implementation of the mitigation measures listed below:

- Plan the type, duration and timing of blasting with due cognizance of other land users and structures in the vicinity.
- Inform the surrounding landowners and communities in writing ahead of any blasting event.
- Monitor the compliance of ground vibration and air blast levels to USBM standards with each blasting event.
- Record all blasts with a vibro recorder.
- Give audible warning of a pending blast at least 3 minutes in advance of the blast.
- Limit fly rock, and collect and remove fly rock and rock spill that falls beyond the working area.

ix) Motivation where no alternative sites were considered.

1. APPROVED WHITTLESEA FBAR:

As this is an existing operation, only one (1) viable site was identified for the proposed amendment of the mining activities.

2. SECTION102 PROPOSAL:

No alternatives applicable. The alternative was confirmed in the granting letter received 17 May 2017.

x) Statement motivating the alternative development location within the overall site.
(Provide a statement motivating the final site layout that is proposed)

1. APPROVED WHITTLESEA FBAR:

Mr David Hayes identified the need for gravel/aggregate in the area due to an increase in building, construction and road maintenance projects. As mentioned earlier the quarry pit on the property of the applicant has previously been used for mining purposes. In this light the applicant identified the proposed (site alternative 1) area as preferred and only viable site alternative. The establishment of a quarry (site alternative 2) pit will be within 500 m from a valley bottom wetland. This will necessitate a full EIA application to be approved by DEA prior to commencement of the mining activities. The facts that the two existing quarries have not yet been mined out and will be extended were found to be the best option contrary to sustainable development in terms of site alternative 2. It must be noted that the applicant is the land owner.

2. SECTION 102 PROPOSAL:

No alternatives applicable. The alternative was confirmed in the granting letter received 17 May 2017.

i) Full description of the process undertaken to identify, assess and rank the impacts and risks the activity will impose on the preferred site (In respect of the final site layout plan) through the life of the activity.

(Including (i) a description of all environmental issues and risks that were identified during the environmental impact assessment process and (ii) an assessment of the significance of each issue and risk and an indication of the extent to which the issue and risk could be avoided or addressed by the adoption of mitigation measures)

During the impact assessment process the following potential impacts were identified of each main activity in each phase. An initial significance rating (listed under *v) Impacts and Risks Identified*) was determined for each potential impact should the mitigation measures proposed in this document not be implemented on-site. The impact assessment process then continued in identifying mitigation measures to address the impact that the proposed mining activity may have on the surrounding environment.

The significance rating was again determined for each impact using the methodology as explained under *vi) Methodology Used in Determining and Ranking the Significance*. The impact ratings listed below was determined for each impact **after** bringing the proposed

mitigation measures into consideration and therefore represents the final layout/activity proposal

1. APPROVED WHITTLESEA FBAR:

STRIPPING AND STOCKPILING OF TOPSOIL:

Visual intrusion associated with the establishment of the processing area

Rating: Medium **Degree of Mitigation: Partial**

			Consequence			Likelihood	**Significance**
Severity	Duration	Extent		Probability	Frequency		
2	3	2	2.3	3	2	2.5	**5.75**

Dust nuisance caused by the disturbance of the soil

Rating: Medium **Degree of Mitigation: Partial**

			Consequence			Likelihood	**Significance**
Severity	Duration	Extent		Probability	Frequency		
2	3	2	2.3	3	3	3	**6.9**

Noise nuisance caused by machinery stripping and stockpiling the topsoil

Rating: Medium **Degree of Mitigation: Partial**

			Consequence			Likelihood	**Significance**
Severity	Duration	Extent		Probability	Frequency		
2	1	2	1.6	3	2	2.5	**4**

Infestation of the topsoil heaps by weeds or invader plants

Rating: Medium **Degree of Mitigation: Partial**

			Consequence			Likelihood	**Significance**
Severity	Duration	Extent		Probability	Frequency		
2	4	1	2.3	2	2	2	**4.6**

Loss of topsoil due to incorrect storm water management

Rating: Medium **Degree of Mitigation: Partial**

			Consequence			Likelihood	**Significance**
Severity	Duration	Extent		Probability	Frequency		
3	3	2	2.6	2	3	2.5	**6.5**

Contamination of area with hydrocarbons or hazardous waste materials

Rating: Medium Degree of Mitigation: Partial

			Consequence			Likelihood	**Significance**
Severity	Duration	Extent		Probability	Frequency		
4	3	1	2.6	3	2	2.5	**6.5**

EXCAVATION:

Visual intrusion associated with the excavation activities

Rating: Medium Degree of Mitigation: Partial

			Consequence			Likelihood	**Significance**
Severity	Duration	Extent		Probability	Frequency		
2	4	1	2.3	4	4	4	**9.2**

Dust nuisance due to excavation activities

Rating: Medium Degree of Mitigation: Partial

			Consequence			Likelihood	**Significance**
Severity	Duration	Extent		Probability	Frequency		
2	3	1	2	3	5	4	**8**

Noise nuisance generated by excavation equipment

Rating: Medium Degree of Mitigation: Partial

			Consequence			Likelihood	**Significance**
Severity	Duration	Extent		Probability	Frequency		
1	2	2	1.6	4	4	4	**6.4**

Contamination of surface or groundwater due to effluent runoff from excavation area

Rating: Medium Degree of Mitigation: Partial

			Consequence			Likelihood	**Significance**
Severity	Duration	Extend		Probability	Frequency		
3	1	2	2	2	1	1.5	**3**

Unsafe working conditions for employees

Rating: Medium Degree of Mitigation: Partial

			Consequence			Likelihood	**Significance**
Severity	Duration	Extent		Probability	Frequency		
2	4	1	2.3	2	3	2.5	**5.75**

Negative impact on the fauna and flora of the area

Rating: Medium Degree of Mitigation: Partial

			Consequence			Likelihood	**Significance**

Severity	Duration	Extent		Probability	Frequency		
2	1	1	1.3	5	1	3	**3.9**

Contamination of area with hydrocarbons or hazardous waste materials

Rating: Medium Degree of Mitigation: Partial

			Consequence			Likelihood	**Significance**
Severity	Duration	Extent		Probability	Frequency		
3	4	1	2.6	3	3	3	**7.8**

Weed and invader plant infestation of the area

Rating: Medium Degree of Mitigation: Partial

			Consequence			Likelihood	**Significance**
Severity	Duration	Extent		Probability	Frequency		
2	4	1	2.3	3	3	3	**6.9**

SLOPING AND LANDSCAPING UPON CLOSURE OF THE SITE

Soil erosion

Rating: Medium Degree of Mitigation: Partial

			Consequence			Likelihood	**Significance**
Severity	Duration	Extent		Probability	Frequency		
4	4	1	3	2	2	1.5	**4.5**

Health and safety risk posed by un-sloped areas

Rating: Medium Degree of Mitigation: Partial

			Consequence			Likelihood	**Significance**
Severity	Duration	Extent		Probability	Frequency		
2	4	1	2.3	3	3	3	**6.9**

Dust nuisance caused during landscaping activities

Rating: Medium Degree of Mitigation: Partial

			Consequence			Likelihood	**Significance**
Severity	Duration	Extent		Probability	Frequency		
2	3	1	2	2	1	1.5	**3**

Noise nuisance caused by machinery

Rating: Medium Degree of Mitigation: Partial

			Consequence			Likelihood	**Significance**
Severity	Duration	Extent		Probability	Frequency		
2	1	2	1.6	3	1	2	**3.2**

Contamination of area with hydrocarbons or hazardous waste materials

Rating: Medium **Degree of Mitigation: Partial**

			Consequence			Likelihood	**Significance**
Severity	Duration	Extent		Probability	Frequency		
4	4	1	3	2	1	1.5	**4.5**

REPLACING OF TOPSOIL AND REHABILITATION OF DISTURBED AREA

Loss of reinstated topsoil due to the absence of vegetation

Rating: Medium **Degree of Mitigation: Partial**

			Consequence			Likelihood	**Significance**
Severity	Duration	Extent		Probability	Frequency		
3	3	1	2.3	2	1	1.5	**3.5**

Infestation of the area by weeds and invader plants

Rating: Medium **Degree of Mitigation: Partial**

			Consequence			Likelihood	**Significance**
Severity	Duration	Extent		Probability	Frequency		
3	4	1	2.6	2	1	1.5	**3.9**

2. SECTION 102 PROPOSAL:

BLASTING:

Health and safety risk posed by blasting activities

Rating: Low **Degree of Mitigation: Fully Mitigated**

			Consequence			Likelihood	**Significance**
Severity	Duration	Extent		Probability	Frequency		
4	1	1	2	2	1	1.5	**3**

Dust nuisance caused by blasting activities

Rating: Low- Medium **Degree of Mitigation: Fully Mitigated**

			Consequence			Likelihood	**Significance**
Severity	Duration	Extent		Probability	Frequency		
2	2	2	2	3	2	2.5	**5**

Noise nuisance caused by blasting activities

Rating: Low **Degree of Mitigation: Partial**

			Consequence			Likelihood	**Significance**
Severity	Duration	Extent		Probability	Frequency		
1	2	1	1.3	1	5	3	**3.9**

CRUSHING AND SCREENING:

Visual intrusion associated with the crushing and screening activities

Rating: Low-Medium **Degree of Mitigation: Partial**

			Consequence			Likelihood	**Significance**
Severity	Duration	Extent		Probability	Frequency		
1	3	2	2	2	3	2.5	**5**

Dust nuisance due to crushing and screening activities

Rating: Low-Medium **Degree of Mitigation: Partial**

			Consequence			Likelihood	**Significance**
Severity	Duration	Extent		Probability	Frequency		
2	2	2	2	3	2	2.5	**5**

Noise nuisance generated by crushing and screening equipment

Rating: Low **Degree of Mitigation: Partial**

			Consequence			Likelihood	**Significance**
Severity	Duration	Extent		Probability	Frequency		
1	2	1	1.3	1	5	3	**3.9**

Contamination of surface or groundwater due to effluent runoff from crushing and screening area

Rating: Low **Degree of Mitigation: Partial**

			Consequence			Likelihood	**Significance**
Severity	Duration	Extend		Probability	Frequency		
1	2	1	1.3	1	5	3	**3.9**

LOADING AND TRANSPORTING:

Dust nuisance due to loading and vehicles transporting the material

Rating: Low-Medium **Degree of Mitigation: Partial**

			Consequence			Likelihood	**Significance**
Severity	Duration	Extent		Probability	Frequency		
2	4	2	2.6	3	3	3	**7.8**

Impact on the access roads

Rating: Low-Medium **Degree of Mitigation: Partial**

			Consequence			Likelihood	**Significance**
Severity	Duration	Extent		Probability	Frequency		
3	4	2	3	3	1	2	**6**

Noise nuisance caused by vehicles

Rating: Low-Medium **Degree of Mitigation: Partial**

			Consequence			Likelihood	**Significance**
Severity	Duration	Extent		Probability	Frequency		
1	4	2	2.3	3	4	3.5	**8.05**

Contamination of area with hydrocarbons or hazardous waste materials

Rating: Low **Degree of Mitigation: Partial**

			Consequence			Likelihood	**Significance**
Severity	Duration	Extent		Probability	Frequency		
4	4	1	3	2	1	1.5	**4.5**

j) Assessment of each identified potentially significant impact and risk

(This section of the report must consider all the known typical impacts of each of the activities (including those that could or should have been identified by knowledgeable persons and not only those that were raised by registered interested and affected parties).

1. APPROVED WHITTLESEA FBAR:

Table 24: Assessment of each identified potentially significant impact and risk.

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE	MITIGATION TYPE	SIGNIFICANCE
Whether listed or not listed. (E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.)	(E.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, air pollution, etc...etc...etc.)		In which impact is anticipated. (E.g. Construction, commissioning, operational Decommissioning closure, post closure.)	If not mitigated.	(modify, remedy, control, or stop) through (e.g. noise control measures, storm water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc etc) E.g. Modify through alternative method Control through noise control Control through management and monitoring through rehabilitation.	If not mitigated.
DEMARCATION OF SITE WITH VISIBLE BEACONS.	No impact could be identified other than the beacons being outside the boundaries of the approved processing area.	N/A	Construction / Site Establishment phase	N/A	N/A	N/A

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE	MITIGATION TYPE	SIGNIFICANCE
SLOPING, LANDSCAPING AND REPLACEMENT OF TOPSOIL OVER DISTURBED AREA (FINAL REHABILITATION)	Erosion of returned topsoil after rehabilitation	Soil erosion, may affect the agricultural potential of the site after closure of the mine.	Decommissioning phase	Medium	Control: Soil management and seeding of mined areas	Low
SLOPING, LANDSCAPING AND REPLACEMENT OF TOPSOIL OVER DISTURBED AREA (FINAL REHABILITATION)	Dust nuisance caused during landscaping activities	Should dust levels become excessive it may have an impact on surrounding landowners?	Decommissioning phase	Low – Medium	Control: Dust suppression	Low
	Health and safety risk posed by un-sloped areas	The impact on health and safety due to un-sloped areas will be contained within the site boundary.	Decommissioning phase	Medium	Control: Sloping of area upon decommissioning	Low - Medium
	Noise nuisance caused by machinery	Should noise levels become excessive it may have an impact on surrounding landowners.	Decommissioning phase	Low – Medium	Control: Noise management	Low
	Contamination of area with hazardous waste materials	Contamination may cause surface or ground water	Decommissioning phase	Low – Medium	Control: Waste management	Low

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE	MITIGATION TYPE	SIGNIFICANCE
		pollution if not addressed.				
SLOPING, LANDSCAPING AND REPLACEMENT OF TOPSOIL OVER DISTURBED AREA (FINAL REHABILITATION)	Loss of reinstated topsoil due to the absence of vegetation	Loss of topsoil will affect the rehabilitation of the processing area and the future agricultural potential of the site.	Decommissioning phase	Low – Medium	Control:Stormwater management	Low
	Weeds and invader plant infestation of the area	Biodiversity	Decommissioning phase	Low – Medium	Control & Remedy: Implementation of weed control	Low

2. SECTION 102 PROPOSAL:

Table 25 : Assessment of each identified potentially significant impact and risk.

ACTIVITY Whether listed or not listed. (E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.)	POTENTIAL IMPACT (E.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, air pollution, etc...etc...etc.)	ASPECTS AFFECTED	PHASE In which impact is anticipated. (E.g. Construction, commissioning, operational Decommissioning closure, post closure.)	SIGNIFICANCE If not mitigated.	MITIGATION TYPE (modify, remedy, control, or stop) through (e.g. noise control measures, storm water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc etc) E.g. Modify through alternative method Control through noise control Control through management and monitoring through rehabilitation.	SIGNIFICANCE If not mitigated.
BLASTING	Health and safety risk posed by blasting activities	The impact on health and safety posed by blasting will be contained within the site	Operational phase	Low	<u>Control:</u> Implementation of safety control measures	Low

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE	MITIGATION TYPE	SIGNIFICANCE
	Dust nuisance caused by blasting activities	Should dust levels become excessive it may have an impact on surrounding landowners?	Operational phase	Low – Medium	Control: Dust suppression	Low
BLASTING	Noise nuisance caused by blasting activities	Should noise levels become excessive it may have an impact on surrounding landowners.	Operational phase	Low	Control: Noise management	Low
CRUSHING AND SCREENING	Visual intrusion associated with the crushing and screening activities	The visual impact may affect the aesthetics of the landscape.	Operational phase	Low - Medium	Control: Implementation of proper housekeeping	Low – Medium
	Dust nuisance due to crushing and screening activities	Dust will be contained within the property boundaries and will therefore affect only the landowner.	Operational phase	Low - Medium	Control: Dust suppression	Low – Medium
CRUSHING AND SCREENING	Noise nuisance generated by crushing and screening equipment	The noise impact should be contained within the boundaries of the property, and will represent the	Operational phase	Low	Control: Noise control measures	Low

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE	MITIGATION TYPE	SIGNIFICANCE
		current noise levels of the farm.				
	Contamination of surface or groundwater due to effluent runoff from crushing and screening area.	the impact of surface and groundwater contamination due to the excavated area will be mitigated through berms and topsoil stockpiling	Operational phase	Low	Control: Measures will be implemented as subscribed by DWS	Low
LOADING AND TRANSPORTING	Dust nuisance due to loading and transportation of the material	Should dust levels become excessive it may have an impact on surrounding landowners.	Operational phase	Low - Medium	Control: Dust suppression	Low – Medium
	Impact on the access roads	All road users will be affected	Operational phase	Low - Medium	Control & Remedy: Road management	Low – Medium
LOADING AND TRANSPORTING	Noise nuisance caused by vehicles	The noise impact should be contained within the boundaries of the property, and will represent the	Operational phase	Low - Medium	Control: Noise control measures	Low - Medium

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE	MITIGATION TYPE	SIGNIFICANCE
		current noise levels of the farm.				
	Contamination of area with hazardous waste materials	Contamination may cause surface or ground water pollution if not addressed	Operational phase	Low	Control: Waste management	Low

k) Summary of specialist reports.

(This summary must be completed if any specialist reports informed the impact assessment and final site layout process and must be in the following tabular form): -

Table 26: Summary of specialist reports.

LIST OF STUDIES UNDERTAKEN	RECOMMENDATIONS OF SPECIALIST REPORTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT (Mark with an X where applicable)	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED
No specialist studies were deemed necessary for this project as the project entails the establishment of the mining area over an area previously used for agriculture and mining.			

l) Environmental impact statement

(i) Summary of the key findings of the environmental impact assessment

1. APPROVED WHITTLESEA FBAR:

The key findings of the environmental impact assessment entail the following:

- The project entails the excavation mining of aggregates in an area previously used for agricultural grazing and mining. Due to the small area used for grazing and mining, mining of aggregates in the area was identified as a more viable use. As a result of the agricultural activities no natural areas needs to be disturbed.
- The mining procedure will only entail the excavation and transporting of the aggregates by means of a front-end loader upon which it will be loaded onto trucks and transported from the mining site to the stockpiling site. The clients will then acquire the aggregate from the stockpiling site. Minimal blasting (limited to one blast), no crushing will be necessary.
- The existing roads to the mine area can be used to gain access to the site. No new roads are needed.
- The off-site workshop of the applicant will be used for servicing of vehicles thereby reducing the risk of hazardous spills and contamination at the mining site.
- The proposed mining area will be visible from the R67 passing the property and will therefore have a visual impact on the immediate surrounding area.

2. SECTION 102 PROPOSAL:

- The mining procedure will entail the excavation, crushing, screening and transporting of the aggregates after which it will be loaded onto trucks and transported from the mining site to the stockpiling site.
- The clients will then acquire the aggregate from the stockpiling site.
- Blasting by means of explosives in order to loosen the hard rock.
- The material is then loaded and hauled out of the excavation to the crushing and screening plants.
- The aggregate will be screened to various sized stockpiled.

- The aggregate will be stockpiled and transported to clients via trucks and trailers.
- All activities will be contained within the boundaries of the site.
- Blasting will occur once every six (6) to eight (8) weeks.
- The off-site workshop of the applicant will be used for major servicing of vehicles thereby reducing the risk of hazardous spills and contamination at the mining site.
- The proposed mining area will be visible from the R67 passing the property and will therefore have a visual impact on the immediate surrounding area.

(ii) Final Site Map

Provide a map at an appropriate scale which superimposes the proposed overall activity and its associated structure and infrastructure on the environmental sensitivities of the preferred site indicating any areas that should be avoided, including buffers. Attach as Appendix.

See the map indicating site activities attached as Appendix B.

(iii) Summary of the positive and negative impacts and risks of the proposed activity and identified alternatives;

1. APPROVED WHITTLESEA FBAR:

The positive impacts associated with the project include:

- Job creation for approximately 10 employees indirectly contributing to the socio-economic status of the Queenstown - Whittlesea area,
- The aggregate to be mined will be used for the upgrading of roads and construction industry in the vicinity of the mining site, thereby indirectly contributing to infrastructure development,
- The project will assist the landowner and lawful users in diversification of the land use of the property.

The negative impacts associated with the project that was deemed to have a Low-Medium or Medium significance includes:

- Visual intrusion due to the proposed project Low – Medium
- Loss of topsoil due to incorrect storm water Low – Medium
- Weeds and invader plant infestation of the area Low – Medium
- Contamination of area with hazardous waste materials Low – Medium
- Dust nuisance stemming from proposed project Low – Medium
- Noise nuisance due to proposed activity Low – Medium

- Impact on the access roads Low – Medium
- Health and safety risk posed by un-sloped areas Low – Medium

m) Proposed impact management objectives and the impact management outcomes for inclusion in the EMPr;

Based on the assessment and where applicable the recommendations from specialist reports, the recording of proposed impact management objectives, and the impact management outcomes for the development for inclusion in the EMPr as well as for inclusion as condition of authorization.

1. APPROVED WHITTLESEA FBAR:

Table 27: Proposed impact management objectives and the impact management outcomes for inclusion in the EMPR.

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT OUTCOMES
Dust Handling	Site Manager to ensure compliance with the guidelines as stipulated in the EMPr. Compliance to be monitored by the Environmental Control Officer.	• Control the liberation of dust into the surrounding environment by the use of; inter alia, water spraying and/or other dust-allaying agents. • Limit speed on the access roads to 40km/h to prevent the generation of excess dust. • Spray roads with water or an environmentally friendly dust-allaying agent that contains no PCB's (e.g. DAS products) if dust is generated above acceptable limits. • Assess effectiveness of dust suppression equipment.
Noise Handling	Site Manager to ensure compliance with the guidelines as stipulated in the EMPr. Compliance to be monitored by the Environmental Control Officer.	• Ensure that employees and staff conduct themselves in an acceptable manner while on site. • No loud music may be permitted at the mining area. • Ensure that all mining vehicles are equipped with silencers and maintained in a road worthy condition in terms of the Road Transport Act.
Management of weed/invader plants	Site Manager to ensure compliance with the guidelines as stipulated in the EMPr. Compliance to be monitored by the Environmental Control Officer.	• Implement a weed and invader plant control management plan. • Control declared invader or exotic species on the rehabilitated areas. • Keep the temporary topsoil stockpiles free of weeds.
Surface and Storm water Handling	Site Manager to ensure compliance with the guidelines as stipulated in the EMPr.	• Divert storm water around the topsoil heaps and access roads to prevent erosion and loss of material.

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT OUTCOMES
	Compliance to be monitored by the Environmental Control Officer.	• Conduct mining in accordance with the Best Practice Guideline for small scale mining that relates to storm water management, erosion and sediment control and waste management, developed by the Department of Water and Sanitation (DWS), and any other conditions which that Department may impose.
Management of health and safety risks	Site Manager to ensure compliance with the guidelines as stipulated in the EMP. Compliance to be monitored by the Environmental Control Officer.	• Ensure that workers have access to the correct PPE as required by law. • Ensure all operations comply with the Occupational Health and Safety Act.
Waste management	Site Manager to ensure compliance with the guidelines as stipulated in the EMPr. Compliance to be monitored by the Environmental Control Officer.	• Ensure no waste storage area is established outside the boundaries of the mining area. • Ensure vehicle maintenance only take place within the service bay area of the off-site workshop. If emergency repairs are needed on site, ensure drip trays is present. Ensure all waste products are disposed of in a 200 litre closed container/bin inside the emergency service area. • Ensure diesel bowser is equipped with a drip tray at all times. • Use drip trays during each and every refuelling event. • Ensure the nozzle of the bowser rests in a sleeve to prevent dripping after refuelling. • Keep drip trays clean. No dirty drip trays may be used on site. • Collect any effluents containing oil, grease or other industrial substances in a suitable receptacle and removed from the site, either for resale or for appropriate disposal at a recognised facility. • Clean spills immediately to the satisfaction of the Regional Manager by removing the spillage together with the polluted soil and by disposing of them at a recognised facility. File proof on site. • Ensure the availability of suitable covered receptacles at all times and conveniently placed for the disposal of waste. • Store non-biodegradable refuse such as glass bottles, plastic bags etc., in a container with a closable lid at a collecting point. Collection should take place on a regular basis and disposed of at the

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT OUTCOMES
		recognised landfill site. Prevent refuse from being dumped on or in the vicinity of the mining area. • Biodegradable refuse to be handled as indicated above.
Management of access roads	Site Manager to ensure compliance with the guidelines as stipulated in the EMP. Compliance to be monitored by the Environmental Control Officer.	• Divert storm water around the access roads to prevent erosion. • Erosion of access road: Restrict vehicular movement to existing access routes to prevent crisscrossing of tracks through undisturbed areas.
Topsoil handling	Site Manager to ensure compliance with the guidelines as stipulated in the EMP. Compliance to be monitored by the Environmental Control Officer.	• Remove the first 300mm of topsoil in strips and store along the boundary of the site. • Keep the temporary topsoil stockpiles free of weeds. • Place topsoil stockpiles on a levelled area and implement measures to safeguard the piles from being washed away in the event of heavy rains/storm water. • Topsoil heaps should not exceed 1.5 m in order to preserve micro-organisms within the topsoil, which can be lost due to compaction and lack of oxygen. • Seed the stockpiled topsoil heaps if vegetation does not re-establish within 6 months of mining. • Divert storm- and runoff water around the stockpile area and access roads to prevent erosion.
Fauna and Flora	Site Manager to ensure compliance with the guidelines as stipulated in the EMP. Compliance to be monitored by the Environmental Control Officer.	• Ensure no fauna is caught, killed, harmed, sold or played with. • Instruct workers to report any animals that may be trapped in the working area. • Ensure no snares are set or nests raided for eggs or young. • Do not remove plants or trees without the approval of the ECO.

2. SECTION 102 PROPOSAL:

Table 28: Proposed impact management objectives and the impact management outcomes for inclusion in the EMPR – Section 102 Application.

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTION	MANAGEMENT OUTCOME
AIR QUALITY **Dust management**	Site Manager to ensure compliance with the guidelines as stipulated in the EMPR. Compliance to be monitored by the Environmental Control Officer.	• Control the liberation of dust into the surrounding environment by the use of; inter alia, straw, water spraying and/or environmentally friendly dust-allaying agents that contains no PCB's (e.g. DAS products). • Limit speed on the access roads to 40 km/h to prevent the generation of excess dust. • Minimise areas devoid of vegetation. • Ensure dust generating activities comply with the National Dust Control Regulations, GN No R827 promulgated in terms of NEM:AQA, 2004 and ASTM D1739 (SANS 1137:2012).	• Dust prevention measures are applied to minimise the generation of dust.
NOISE AMBIANCE **Noise mitigation.**	Site Manager to ensure compliance with the guidelines as stipulated in the EMPR. Compliance to be monitored by the Environmental Control Officer.	• Ensure that employees and staff conduct themselves in an acceptable manner while on site. • No loud music may be permitted at the prospecting area. • Ensure that all project related vehicles are equipped with silencers and maintained in a road worthy condition in terms of the National Road Traffic Act, 1996. • Implement best practice measures to minimise potential noise impacts.	• Prevent unnecessary noise to the environment by ensuring that noise from development activity is mitigated.
GEOLOGY AND SOIL **Waste management**	Site Manager to ensure compliance with the guidelines as stipulated in the EMPR.	• Ensure no waste storage area is established outside the boundaries of the mining area. • Ensure all major vehicle maintenance only take place within the service bay area of the off-site workshop. If	• Wastes are appropriately handled and safely disposed of at a recognised waste facility.

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTION	MANAGEMENT OUTCOME
	Compliance to be monitored by the Environmental Control Officer.	emergency repairs are needed on site, ensure drip trays is present. Ensure all waste products are disposed of in a 200 litre closed container/bin inside the emergency service area. • Ensure diesel bowser is equipped with a drip tray at all times. • Use drip trays during each and every refuelling event. • Ensure the nozzle of the bowser rests in a sleeve to prevent dripping after refuelling. • Keep drip trays clean. No dirty drip trays may be used on site. • Collect any effluents containing oil, grease or other industrial substances in a suitable receptacle and removed from the site, either for resale or for appropriate disposal at a recognised facility. • Clean spills immediately to the satisfaction of the Regional Manager by removing the spillage together with the polluted soil and by disposing of them at a recognised facility. File proof on site. • Ensure the availability of suitable covered receptacles at all times and conveniently placed for the disposal of waste. • Store non-biodegradable refuse such as glass bottles, plastic bags etc., in a container with a closable lid at a collecting point. Collection should take place on a regular basis and disposed of at the recognised landfill site. Prevent refuse from being dumped on or in the vicinity of the mining area. • Biodegradable refuse to be handled as indicated above.	
HYDROLOGY **Storm water management.**	Site Manager to ensure compliance with the guidelines as stipulated in the EMPR.	• Divert storm water around the topsoil heaps and access roads to prevent erosion and loss of material.	• Uncontrolled storm water impact to the environment is avoided.

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTION	MANAGEMENT OUTCOME
	Compliance to be monitored by the Environmental Control Officer.	• Conduct mining in accordance with the Best Practice Guideline for small scale mining that relates to storm water management, erosion and sediment control and waste management, developed by the Department of Water and Sanitation (DWS), and any other conditions which that Department may impose.	
GROUNDCOVER **Vegetation management.**	Site Manager to ensure compliance with the guidelines as stipulated in the EMPR. Compliance to be monitored by the Environmental Control Officer.	• Do not remove plants without the approval of an environmental control officer (ECO). • Contain vehicle traffic (as far as possible) to the existing farm roads. Do not allow crisscrossing through undisturbed areas.	• Vegetation clearing (if needed) is controlled .
GROUNDCOVER **Mitigating invader plants.**	Site Manager to ensure compliance with the guidelines as stipulated in the EMPR. Compliance to be monitored by the Environmental Control Officer.	• Implement a weed and invader plant control management plan. • Control declared invader or exotic species on the rehabilitated areas. • Keep the temporary topsoil stockpiles free of weeds.	• Mining area is kept free of invasive plant species.
FAUNA **Mitigating the fauna component.**	Site Manager to ensure compliance with the guidelines as stipulated in the EMPR. Compliance to be monitored by the Environmental Control Officer.	• Ensure no fauna is caught, killed, harmed, sold or played with. • Instruct workers to report any animals that may be trapped in the working area. • Ensure no snares are set or nests raided for eggs or young. • Do not remove plants or trees without the approval of the ECO.	• Disturbance to fauna is minimised.
CULTURE/HERITAGE	Site Manager to ensure compliance with the guidelines as stipulated in the EMPR.	• Confine all mining to the footprint area.	• Impact to cultural/heritage resources is avoided or at least minimised.

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTION	MANAGEMENT OUTCOME
Mitigating cultural/heritage aspects.	Compliance to be monitored by the Environmental Control Officer.	• Use existing roads as far as possible. Implement the following change find procedure when discoveries are made on site: • If during the operations or closure phases of this project, any person employed by the developer, one of its subsidiaries, contractors and subcontractors, or service provider, finds any artefact of cultural significance or heritage site, this person must cease work at the site of the find and report this find to their immediate supervisor, and through their supervisor to the senior on-site manager. • It is the responsibility of the senior on-site Manager to make an initial assessment of the extent of the find, and confirm the extent of the work stoppage in that area. • The senior on-site Manager will inform the ECO of the chance find and its immediate impact on operations. The ECO will then contact a professional archaeologist for an assessment of the finds who will notify SAHRA. • Work may only continue once the go-ahead was issued by SAHRA.	
EXISTING INFRASTRUCTURE **Control of access road.**	Site Manager to ensure compliance with the guidelines as stipulated in the EMPR. Compliance to be monitored by the Environmental Control Officer.	• Divert storm water around the access road to prevent erosion. • Restrict vehicular movement to the existing access road to prevent crisscrossing of tracks through undisturbed areas.	• The access road remains accessible to the road users during the operational phase, and upon closure the road is returned in a better, or at least the same state as received by the MP Holder.
GENERAL **Health and safety aspects.**	Site Manager to ensure compliance with the guidelines as stipulated in the EMPR.	• Ensure adequate ablution facilities and water for human consumption is daily available on site. • Ensure that workers have access to the correct PPE as required by law.	• Employees work in a healthy and safe environment.

MANAGEMENT OBJECTIVES	ROLE	MANAGEMENT ACTION	MANAGEMENT OUTCOME
	Compliance to be monitored by the Environmental Control Officer.	• Manage all operations in compliance with the Mine Health and Safety Act, 1996 (Act No 29 of 1996).	

n) Aspects for inclusion as conditions of Authorization.

Any aspects which must be made conditions of the Environmental Authorization

The management objectives listed in this report under Point M above should be considered for inclusion in the environmental authorization.

o) Description of any assumptions, uncertainties and gaps in knowledge.

(Which relate to the assessment and mitigation measures proposed)

The assumptions made in this document which relate to the assessment and mitigation measures proposed, stem from site specific information gathered from the property owner, as well as site inspections, and background information gathering.

p) Reasoned opinion as to whether the proposed activity should or should not be authorised

(i) Reasons why the activity should be authorised or not.

Should the mitigation measures and monitoring programmes proposed in this document be implemented on site, no fatal flaws could be identified that were deemed as severe as to prevent the activity continuing.

(ii) Conditions that must be included in the authorization

The management objectives listed in this report under Point M should be considered for inclusion in the environmental authorization.

q) Period for which the Environmental Authorization is required.

1. APPROVED WHITTLESEA FBAR:

The applicant requests the Environmental Authorization to be valid for a two-year period.

2. SECTION 102 PROPOSAL:

The permit Holder requests the Environmental Authorisation to be valid for the duration of the mining permit.

r) Undertaking

Confirm that the undertaking required to meet the requirements of this section is provided at the end of the EMPr and is applicable to both the Basic assessment report and the Environmental Management Programme report.

The undertaking required to meet the requirements of this section is provided at the end of the EMPr and is applicable to both the Basic Assessment Report and the Environmental Management Programme report.

s) Financial Provision

State the amount that is required to both manage and rehabilitate the environment in respect of rehabilitation.

i) Explain how the aforesaid amount was derived

The annual amount required to manage and rehabilitate the environment was estimated to be R43 000. Please see the explanation as to how this amount was derived at attached as Appendix G – Financial and Technical Competence. Bridging finance, will be supplied where needed by Roadmac Surfacing Cape (PTY) limited.

ii) Confirm that this amount can be provided from operating expenditure.

(Confirm that the amount is anticipated to be an operating cost and is provided for as such in the Mining Work Programme, Financial and Technical Competence Report or Prospecting Work Programme as the case may be).

The mining operation will be self-funded through income generated by sales of the aggregate mined. Bridging finance, will be supplied where needed by Roadmac Surfacing Cape (PTY) limited.

t) Specific Information required by the competent Authority

(i) Compliance with the provisions of sections 24(4)(a) and (b) read with section 24 (3)(a) and (7) of the National Environmental Management Act (Act 107 of 1998). The EIA report must include the: -

(1) Impact on the socio-economic conditions of any directly affected person.

(Provide the results of investigation, assessment, and evaluation of the impact of the mining, bulk sampling or alluvial diamond prospecting on any directly affected person including the landowner, lawful occupier, or, where applicable, potential beneficiaries of any land restitution claim, attach the investigation report as an Appendix)

1. APPROVED WHITTLESEA FBAR:

The following potential impacts were identified that may impact on socio-economic conditions of directly affected persons:

Visual exposure:

The mining area was identified to constitute the lowest possible visual impact on the surrounding environment. The surrounding areas have previously been disturbed by mining activities, and this application entails the extension of the existing mining area. The applicant should however ensure that housekeeping is managed to standard, as this will mitigate the visual impacts during the operational phase of the mine.

Upon closure the site will be rehabilitated and sloped to insure that the visual impact on the aesthetic value of the area is kept to a minimum. The site will have a neat appearance and be kept in good condition at all times.

Air Quality:

The background air quality of the surrounding area is relatively good due to low industrial activity. Factors contributing to air pollution are the burning of veld and agriculture in the area. Given the surrounding extent of mostly covered areas, no extreme dust generation under windy conditions is experienced.

Dust will be generated by the proposed operation through blasting (limited to one blast) and the movement of machinery and vehicles. Dust suppression measures should be implemented to prevent excessive dust on site. Due to the remote setting of the proposed mining area the potential impact of dust nuisance on the surrounding environment is deemed to be of low significance.

Noise:

The surrounding areas are characterised by an agricultural setting in which vehicles and farm equipment operate. The traffic on the R67 and other public roads surrounding the property contributes to the ambient noise of the area. The noise to be generated at the proposed site (site alternative 1) operation is expected to temporarily increase the noise levels of the area. Blasting noise will be instantaneous and of short duration occurring only once. Loading and transportation of the material will generate noise daily. The significance of noise on the surrounding environment is therefore deemed to be of low significance. Mitigation measures

should be implemented to ensure employees conduct them in an acceptable manner while on site in order to lessen the noise impact of the proposed activity on the surrounding environment.

Existing Infrastructure:

It is expected that the proposed processing activity will have a very low impact on the surrounding environment as activities will be contained within the boundaries of the site. The proposed (Site alternative 1) footprint area will not require the building of any permanent structures. The proposed production of aggregate on the property will also reduce the amount of trucks delivering aggregate, from outside sources. This will have a direct positive impact on the traffic volumes of the surrounding roads and price of the aggregate.

2. SECTION 102 PROPOSAL:

Air Quality:

The background air quality of the surrounding area is relatively good due to low industrial activity. Factors contributing to air pollution are the burning of veld and agriculture in the area. Given the surrounding extent of mostly covered areas, no extreme dust generation under windy conditions is experienced.

Dust will be generated by the proposed operation through blasting which will occur once every six (6) to eight (8) weeks and the movement of machinery and vehicles. Dust suppression measures should be implemented to prevent excessive dust on site. Due to the remote setting of the proposed mining area the potential impact of dust nuisance on the surrounding environment is deemed to be of low significance.

Noise:

The surrounding areas are characterised by an agricultural setting in which vehicles and farm equipment operate. The traffic on the R67 and other public roads surrounding the property contributes to the ambient noise of the area. The noise to be generated at the proposed site (site alternative 1) operation is expected to temporarily increase the noise levels of the area. Blasting noise will be instantaneous and of short duration blasting will occur once every six (6) to eight (8) weeks. Loading and transportation of the material will generate noise daily. The significance of noise on the surrounding environment is therefore deemed to be of low significance. Mitigation measures should be implemented to ensure employees conduct them

in an acceptable manner while on site in order to lessen the noise impact of the proposed activity on the surrounding environment.

(2) Impact on any national estate referred to in section 3(2) of the National Heritage Resources Act. (Provide the results of investigation, assessment, and evaluation of the impact of the mining, bulk sampling or alluvial diamond prospecting on any national estate referred to in section 3(2) of the National Heritage Resources Act, 1999 (Act No 25 of 1999) with the exception of the national estate contemplated in section 3(2)(i)(vi) and (vii) of the Act, attach the investigation report as Appendix 2.19.2 and confirm that the applicable mitigation is reflected in 2.5.3; 2.11.6 and 2.12 herein).

No sites of archaeological or cultural importance were identified at the proposed mining area during the site inspection. The area was previously used for grazing and mining no areas of cultural importance could be identified during the site inspection within the 4.9ha footprint area of the site.

Should any artefacts be discovered during the site commissioning or operational phase of the project, the area needs to be demarcated and all activity should be stopped, until cleared by a qualified archaeologist.

u) Other matters required in terms of section 24(4)(a) and (b) of the Act.
(the EAP managing the application must provide the competent authority with detailed, written proof of an investigation as required by section 24(4)(b)(i) of the Act and motivation if no reasonable or feasible alternatives, as contemplated in sub-regulation 22(2)(h), exist. The EAP must attach such motivation as Appendix 4)

The site and project alternatives investigated during the impact assessment process were done at the hand of information obtained during the site investigation, public participation process as well as desktop studies conducted of the study area. As discussed earlier the following only Site Alternative 1 was considered:

1. APPROVED WHITTLESEA FBAR:

1. Site Alternative 1 – The proposed mining area over a 4.9 ha footprint area (Preferred Alternative).
2. No-go Alternative.

2. SECTION 102 PROPOSAL:

No alternatives applicable. The alternative was confirmed in the granting letter received 17 May 2017.

PART B

ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

1) Final environmental management programme.

a) Details of the EAP (Confirm that the requirements for the provision of the details and expertise of the EAP are already included in Part A, section 1(a) herein as required).

The details and expertise of Christine Fouché of Greenmined Environmental that acts as EAP on this project has been included in Part a Section 1(a) as well as Appendix I as required.

b) Description of the Aspects of the Activity (Confirm that the requirements to describe the aspects of the activity that are covered by the Final environmental management programme is already included in PART A, section (1)(h) herein as required).

The aspects of the activity that are covered by the Final environmental management programme has been described and included in Part A, section (1)(h).

c) Composite Map

(Provide a map (Attached as an Appendix) at an appropriate scale which superimposes the proposed activity, its associated structures, and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that any areas that should be avoided, including buffers)

As mentioned under Part A, section (1)(L)(ii) this map has been compiled and is attached as Appendix B to this document.

d) Description of impact management objectives including management statements

i) Determination of closure objectives. (Ensure that the closure objectives are informed by the type of environment described)

Rehabilitation of the excavated area:

Due to the impracticality of importing large volumes of fill to restore the quarry area to its original topography, the rehabilitation option is to develop the quarry into a minor landscape feature.

This will entail creating a series of irregular benches along the quarry faces, the top edges of each face being blasted away to form slopes on the benches below, thereby reducing the overall face angle.

Fill and topsoil could be placed over the benches to provide a suitable medium for the establishment of vegetation, especially trees which will break up the line of the faces and enhance their appearance. The floor of the quarry should be capped with suitable soil material and re-vegetated.

Rocks and coarse material removed from the excavation must be dumped into the excavation.

No waste will be permitted to be deposited in the excavations.

Once overburden, rocks and coarse natural materials has been dumped into the excavated area and profiled with acceptable contours and erosion control measures, topsoil shall be returned over the area.

The area shall be fertilized to allow vegetation to establish rapidly. The site shall be seeded with a local or adapted indigenous seed mix in order to propagate the locally or regionally occurring flora.

If a reasonable assessment indicates that the re-establishment of vegetation is unacceptably slow, the Regional Manager may require that the soil be analysed and any deleterious effects on the soil arising from the mining operation be corrected and the area be seeded with a vegetation seed mix to his or her specification.

Rehabilitation of plant, office and service areas:

Coarse natural material used for the construction of ramps must be removed and dumped into the excavations.

Stockpiles will be removed during the decommissioning phase, the area ripped and the topsoil returned to its original depth to provide a growth medium.

On completion of operations, all structures or objects shall be dealt with in accordance with section 44 of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002):

- Where sites have been rendered devoid of vegetation/grass or where soils have been compacted owing to traffic, the surface shall be scarified or ripped.
- Areas containing French drains shall be compacted and covered with a final

layer of topsoil to a height of 10cm above the surrounding ground surface.

- The site shall be seeded with a vegetation seed mix adapted to reflect the local indigenous flora.

Photographs of the camp and office sites, before and during the mining operation and after rehabilitation, shall be taken at selected fixed points and kept on record for the information of the Regional Manager.

On completion of mining operations, the surface of these areas, if compacted due to hauling and dumping operations, shall be scarified to a depth of at least 200mm and graded to an even surface condition. Where applicable/possible topsoil needs to be returned to its original depth over the area.

Prior to replacing the topsoil, the material that was removed from these areas will be replaced in the same order as it originally occurred.

The area shall then be fertilized if necessary to allow vegetation to establish rapidly. The site shall be seeded with a local, adapted indigenous seed mix.

If a reasonable assessment indicates that the re-establishment of vegetation is unacceptably slow, the Regional Manager may require that the soil be analysed and any deleterious effects on the soil arising from the mining operation be corrected and the area be seeded with a seed mix to his or her specification.

Final rehabilitation:

Rehabilitation of the surface area shall entail landscaping, levelling, top dressing, land preparation, seeding and maintenance, and weed / alien clearing.

All infrastructures, equipment, plant, temporary housing and other items used during the mining period will be removed from the site.

Waste material of any description, including receptacles, scrap, rubble and tyres, will be removed entirely from the mining area and disposed of at a recognized landfill facility. It will not be permitted to be buried or burned on the site.

Weed / Alien clearing will be done in a sporadic manner during the life of the mining activities. Species regarded as Category 1 weeds according to CARA (Conservation of Agricultural

Recourses Act, 1983 – Act 43; Regulations 15 & 16 (as amended in March 2001) need to be eradicated from the site on final closure.

Final rehabilitation shall be completed within a period specified by the Regional Manager.

Seeding of the area:

Once the pit slopes have been shaped and the soil replaced, the initial goal is to establish a good cover of a robust grass that will stabilise the soil and start the accumulation of soil organic carbon. This will be done using a combination of hydro seeding and physical planting of runners to apply a mix of commercial and indigenous species that includes both tufted and creeping species. The plants that were collected during the establishment and operational phases and kept in the designated area will be replanted.

ii) Volume and rate of water use required for the operation

Water will only be used for dust suppression purposes as the mining method does not require any washing or related process water. A water truck will be used to spray access roads to alleviate dust generation. It is proposed that the mining activities will require approximately 10 000 l of water per day.

iii) Has a water use licence has been applied for?

The applicant / permit holder will obtain water for a registered water source. Should water be abstracted from a natural watercourse or any unlicensed/ registered source, water use authorization will be applied for.

iv) Impacts to be mitigated in their respective phases

1. APPROVED WHITTLESEA FBAR:

Table 29: Impact to be mitigated in their respective phases.

ACTIVITIES (as listed in 2.11.1)	**PHASE** of operation in which activity will take place. State; Planning and design, Pre-Construction, Operational, Rehabilitation, Closure, Post closure	**SIZE AND SCALE of disturbance** volumes, tonnages and hectares or m^2)	**MITIGATION MEASURES** (describe how each of the recommendations herein will remedy the cause of pollution or degradation and migration of pollutants)	**COMPLIANCE WITH STANDARDS** A description of how each of the recommendations herein will comply with any prescribed environmental management standards or practices that have been identified by Competent Authorities)	**TIME PERIOD FOR IMPLEMENTATION** Describe the time period when the measures in the environmental management programme must be implemented. Measures must be implemented when required. With regard to Rehabilitation specifically this must take place at the earliest opportunity. With regard to Rehabilitation, therefore state either – Upon cessation of the individual activity or Upon the cessation of mining, bulk sampling or alluvial diamond prospecting as the case may be.
DEMARCATION OF SITE WITH VISIBLE BEACONS	Construction / Site Establishment phase	4.9 ha	Demarcation of the site will ensure that all employees are aware of the boundaries of the processing area and that work stay within approved area.	Processing of the waste rock/stone is only allowed within the boundaries of the approved processing area. • MHSA, 1996 • OHSA, 1993	Beacons need to be in place throughout the life of the activity.

ACTIVITIES	PHASE	SIZE AND SCALE of disturbance	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
STRIPPING AND STOCKPILING OF TOPSOIL & BLASTING & EXCAVATION	Operational phase	4.9 ha	**Visual Mitigation:** • The site must have a neat appearance and be kept in good condition at all times. • The height of the stockpiles must be controlled to manage the visual impact on the surrounding environment. • Upon rehabilitation of the processing area all infrastructure must be removed and the area must be returned to its prior status.	**Land use zoning:** • Eastern Cape LUPA, 2014 • Lukhanji Municipality: Land Use Planning Bylaws, 2015 • The property is zoned for agriculture as primary use.	Throughout operational phase
STRIPPING AND STOCKPILING OF TOPSOIL & LOADING AND TRANSPORTING & SLOPING, LANDSCAPING & REPLACEMENT OF TOPSOIL OVER DISTURBED AREA & BLASTING	Operational phase & Decommissioning phase	4.9 ha	**Dust Handling:** • The liberation of dust into the surrounding environment must be effectively controlled by the use of, inter alia, water spraying and/or other dust-allaying agents. • During periods of high wind spells, the stockpiles must be dampened to control dust emission. • The site manager must ensure continuous assessment of all dust suppression equipment to confirm its effectiveness in addressing dust suppression. • Speed on the access roads must be limited to 40km/h to prevent the generation of excess dust.	**Dust Handling:** • NEM:AQA, 2004 Regulation 6(1)	Throughout operational and decommissioning phases

ACTIVITIES	PHASE	SIZE AND SCALE of disturbance	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
& **EXCAVATION**			• Gravel roads must be sprayed with water or an environmentally friendly dust-allaying agent that contains no PCB's (e.g. DAS products) if dust is generated above acceptable limits.		
STRIPPING AND STOCKPILING OF TOPSOIL **&** **SLOPING, LANDSCAPING AND REPLACEMENT OF TOPSOIL OVER DISTURBED AREA** **&** **BLASTING** **&** **EXCAVATION**	Operational phase & Decommissioning phase	4.9 ha	**Noise Handling:** • The applicant must ensure that employees and staff conduct themselves in an acceptable manner while on site. • No loud music may be permitted at the processing area. • All project-associated vehicles must be equipped with silencers and maintained in a road worthy condition in terms of the Road Transport Act.	**Noise Handling:** • NEM:AQA, 2004 Regulation 6(1) All project related vehicles must be in a road worthy condition in terms of the Road Transport Act, 1987	Throughout operational and decommissioning phases
STRIPPING & STOCKPILING OF TOPSOIL **&**	Operational phase & Decommissioning phase	4.9 ha	**Management of weed- or invader plants:** • A weed and invader plant management plan must be implemented at the site to ensure	**Management of weed- or invader plants:** • CARA, 1983 • All species regarded as Category 1 weeds according	Throughout operational and decommissioning phases

ACTIVITIES	PHASE	SIZE AND SCALE of disturbance	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
SLOPING, LANDSCAPING AND REPLACEMENT OF TOPSOIL OVER DISTURBED AREA			eradication of all listed invader plants in terms of Conservation of Agricultural Act (Act No 43 1983). • Management must take responsibility to control declared invader or exotic species on the habilitated areas. The following control methods can be used: • "The plants can be uprooted, felled or cut off and can be destroyed completely." • "The plants can be treated with an herbicide that is registered for use in connection therewith and in accordance with the directions for the use of such an herbicide." • The temporary topsoil stockpiles need to be kept free of weeds.	to CARA need to be eradicated from site.	
STRIPPING AND STOCKPILING OF TOPSOIL	Operational phase	4.9 ha	**Loss of topsoil due to incorrect storm water management** • Storm water must be diverted around the topsoil heaps, processing and stockpile areas to prevent erosion. • Topsoil heaps must be stockpiled along the northern and western boundaries of the study area to divert runoff water away from the processing area. Site management must weekly monitor the stockpiles	**Loss of topsoil due to incorrect storm water management:** • CARA, 1983 • NEMA, 1998 • NWA, 1998 • The replacement of the topsoil is of utmost importance to ensure the effective future use of the area for agricultural purposes.	Throughout operational phase

ACTIVITIES	PHASE	SIZE AND SCALE of disturbance	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION

			and should any signs of erosion become apparent soil erosion protection measures must be implemented.
			• The effectiveness of the storm water infrastructure needs to be continuously monitored.
			• The activity must be conducted in accordance with the Best Practice Guideline for small scale mining that relates to storm water management, erosion and sediment control and waste management, developed by the Department of Water and Sanitation (DWS), and any other conditions which that Department of Mineral Resources may impose:
			  • Clean water (e.g. rainwater) must be kept clean and be routed to a natural watercourse by a system separate from the dirty water system. You must prevent clean water from running or spilling into dirty water systems.
			  • Dirty water must be collected and contained in a system separate from the clean water system.
			  • Dirty water must be prevented from spilling or seeping into clean water systems.		

ACTIVITIES	PHASE	SIZE AND SCALE of disturbance	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			• Storm water management must apply for the entire life cycle of the site and over different hydrological cycles (rainfall patterns). • The statutory requirements of various regulatory agencies and the interests of stakeholders must be considered and incorporated into the storm water management.		
STRIPPING AND STOCKPILING OF TOPSOIL & LOADING AND TRANSPORTING & BLASTING & EXCAVATION	Operational phase	4.9 ha	**Negative impact on fauna that may enter the area:** • The site manager must ensure that no fauna is caught, killed, harmed, sold or played with. • Workers must be instructed to report any animals that may be trapped in the working area. • No snares may be set or nests raided for eggs or young.	**Negative impact on fauna that may enter the area:** • NEM:BA, 2004 • Site management has to strive to eliminate the impact on fauna in the surrounding environment for the duration of the processing activities.	Throughout operational phase
STRIPPING AND STOCKPILING OF TOPSOIL & LOADING AND TRANSPORTING &	Operational phase & Decommissioning phase	4.9 ha	**Contamination of surface or groundwater due to hazardous spills not cleaned:** • Regular vehicle maintenance may only take place at the workshop on site.	**Contamination of surface or groundwater due to hazardous spills not cleaned:** • NWA, 1998 • NEM:WA, 2008	Throughout operational and decommissioning phases

ACTIVITIES	PHASE	SIZE AND SCALE of disturbance	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
SLOPING, LANDSCAPING & REPLACEMENT OF TOPSOIL OVER **DISTURBED AREA** **&** **BLASTING** **&** **EXCAVATION**			• If emergency repairs are needed on equipment not able to move to the workshop, drip trays must be present. All waste products must be disposed of in a 200 litre closed container/bin to be removed from the emergency service area to the formal workshop in order to ensure proper disposal. • Any effluents containing oil, grease or other industrial substances must be collected in a suitable receptacle and removed from the site, either for resale or for appropriate disposal at a recognized facility. • Spills must be cleaned up immediately to the satisfaction of the Regional Manager of DMR by removing the spillage together with the polluted soil and by disposing it at a recognized facility. Proof must be filed. • Suitable covered receptacles must be available at all times and conveniently placed for the disposal of waste. • Non-biodegradable refuse such as glass bottles, plastic bags, metal scrap, etc., must be stored in a container with a closable lid at a collecting point, collected on a weekly basis, and disposed of at a recognized landfill site.	• Every precaution must be taken to prevent contamination. The precautionary principal must apply.	

ACTIVITIES	PHASE	SIZE AND SCALE of disturbance	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			• Specific precautions must be taken to prevent refuse from being dumped on or near the processing area. • Biodegradable refuse generated must be handled as indicated above.		

2. SECTION 102 PROPOSAL:

Table 30: Impacts to be mitigated in their respective phases – S102 Application.

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
BLASTING, CRUSHING & SCREENING	Operational phase	4.9 ha	**Visual Mitigation:** • The site must have a neat appearance and be kept in good condition at all times. • The height of the stockpiles must be controlled to manage the visual impact on the surrounding environment. • Upon rehabilitation of the processing area all infrastructure must be removed and the area must be returned to its prior status.	**Management of the mining area must be in accordance with the:** • MPRDA, 2008 • NEMA, 1998	Throughout operational phase
BLASTING, CRUSHING & SCREENING	Operational phase & Decommissioning phase	4.9 ha	**Noise Handling:** • The applicant / permit holder must ensure that employees and staff conduct themselves in an acceptable manner while on site. • No loud music may be permitted at the processing area. • All project-associated vehicles must be equipped with silencers and maintained in a road worthy condition in terms of the Road Transport Act. • Implement Best practice measures to minimise potential noise.	**Noise Handling:** • NEM:AQA, 2004 Regulation 6(1) • All project related vehicles must be in a road worthy condition in terms of the Road Transport Act, 1987 • NRTA, 1996	Throughout operational and decommissioning phases

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
STRIPPING AND STOCKPILING OF TOPSOIL **&** **LOADING AND TRANSPORTING** **&** **BLASTING** **&** **EXCAVATION** **&** **CRUSHING AND SCREENING**	Operational phase	4.9 ha	**<u>Negative impact on fauna that may enter the area:</u>** • The site manager must ensure that no fauna is caught, killed, harmed, sold or played with. • Workers must be instructed to report any animals that may be trapped in the working area. • No snares may be set or nests raided for eggs or young.	**<u>Negative impact on fauna that may enter the area:</u>** • NEM:BA, 2004 • Site management has to strive to eliminate the impact on fauna in the surrounding environment for the duration of the processing activities.	Throughout operational phase

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
STRIPPING AND STOCKPILING OF TOPSOIL **&** **LOADING AND TRANSPORTING** **&** **BLASTING** **&** **CRUSHING AND SCREENING**	Operational phase & Decommissioning phase	4.9 ha	**<u>Contamination of surface or groundwater due to hazardous spills not cleaned:</u>** • Minor maintenance and servicing of machinery will be done at the mining area. Should a vehicle need major maintenance it will be moved off-site to the applicant / permit holder s existing workshop. All waste products must be disposed of in a 200 litre closed container/bin to be removed from the emergency service area to the formal workshop in order to ensure proper disposal. • Any effluents containing oil, grease or other industrial substances must be collected in a suitable receptacle and removed from the site, either for resale or for appropriate disposal at a recognized facility. • Spills must be cleaned up immediately to the satisfaction of the Regional Manager of DMR by removing the spillage together with the polluted soil and by disposing it at a recognized facility. Proof must be filed. • Suitable covered receptacles must be available at all times and conveniently placed for the disposal of waste.	**<u>Contamination of surface or groundwater due to hazardous spills not cleaned:</u>** • NWA, 1998 • NEM:WA, 2008 • Every precaution must be taken to prevent contamination. The precautionary principal must apply.	Throughout operational and decommissioning phases

ACTIVITIES	PHASE	SIZE AND SCALE OF DISTURBANCE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			• Non-biodegradable refuse such as glass bottles, plastic bags, metal scrap, etc., must be stored in a container with a closable lid at a collecting point, collected on a weekly basis, and disposed of at a recognized landfill site. Specific precautions must be taken to prevent refuse from being dumped on or near the processing area. • Biodegradable refuse generated must be handled as indicated above.		

e) Impact Management Outcomes

(A description of impact management outcomes, identifying the standard of impact management required for the aspects contemplated in paragraph ();

1. APPROVED WHITTLESEA FBAR:

Table 31: Impact Management Outcomes

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
whether listed or not listed (E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc..etc.)	(e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc...etc..)		In which impact is anticipated (e.g. Construction, commissioning, operational Decommissioning, closure, post-closure))	(modify, remedy, control, or stop) through (e.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc...etc..)E.g. Modify through alternative method. Control through noise control Control through management and monitoring Remedy through rehabilitation.	(Impact avoided, noise levels, dust levels, rehabilitation standards, end use objectives) etc.
DEMARCATION OF SITE WITH VISIBLE BEACONS	No impact could be identified other than the beacons being outside the boundaries of the approved processing area.	N/A	Construction / Site Establishment phase	Control through management and monitoring	Processing of the waste rock/stone is only allowed within the boundaries of the approved processing area. • MHSA, 1996 • OHSA, 1993
STRIPPING AND STOCKPILING OF TOPSOIL	Visual impact due to removal of topsoil	The visual impact may affect the aesthetics of the landscape.	Operational phase	<u>Control:</u> Implementation of proper housekeeping	**<u>Land use zoning:</u>** • Eastern Cape Planning and Development Act, 201

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
					• 3 Lukhanji Municipality: Land Use Planning Bylaws, 2015 • The property is zoned for agriculture as primary use.
STRIPPING AND STOCKPILING OF TOPSOIL	Loss of natural vegetation	The loss of natural vegetation may affect the biodiversity of the surrounding environment.	Operational phase	Control: Management of buffer areas and demarcation of work areas	**Negative impact on biodiversity of the area (Site Alternative 1):** • NEM:BA, 2004
STRIPPING AND STOCKPILING OF TOPSOIL	Loss of natural vegetation	The loss of natural vegetation may affect the biodiversity of the surrounding environment.	Operational phase	Modify: Consider use of a less sensitive area	**Negative impact on biodiversity of the area (Site Alternative 2):** • NEM:BA, 2004
STRIPPING AND STOCKPILING OF TOPSOIL	Dust nuisance caused by the disturbance of soil.	Dust will be contained within the property boundaries and will therefore affect only the landowner.	Operational phase	Control: Dust suppression	**Dust Handling:** • NEM:AQA, 2004 Regulation 6(1)

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
STRIPPING AND STOCKPILING OF TOPSOIL	Noise nuisance caused by machinery stripping and stockpiling the topsoil.	The noise impact should be contained within the boundaries of the property and will represent the current noise levels of the site.	Operational phase	Control: Noise control measures	**Noise Handling:** • NEM:AQA, 2004 Regulation 6(1) • All project related vehicles must be in a road worthy condition in terms of the Road Transport Act, 1987
STRIPPING AND STOCKPILING OF TOPSOIL	Infestation of the topsoil heaps by weeds and invader plants.	Biodiversity	Operational phase	Control & Remedy: Implementation of weed control and the weed/invader plant management plan	**Management of weed- or invader plants:** • CARA, 1983 • All species regarded as Category 1 weeds according to CARA need to be eradicated from site.
STRIPPING AND STOCKPILING OF TOPSOIL	Loss of topsoil due to incorrect storm water management.	Loss of topsoil will affect the rehabilitation of the processing area and the future agricultural potential of the site.	Operational phase	Control: Storm water management	**Loss of topsoil due to incorrect storm water management:** • CARA, 1983 • NEMA, 1998 • NWA, 1998 • The replacement of the topsoil is of utmost importance to ensure the effective future use of the area for agricultural purposes.

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
STRIPPING AND STOCKPILING OF TOPSOIL	Contamination of area with hazardous waste materials	Contamination may cause surface or ground water pollution if not addressed	Operational phase	Control: Waste management	**Contamination of surface or groundwater due to hazardous spills not cleaned:** • NWA, 1998 • NEM:WA, 2008 • Every precaution must be taken to prevent contamination. The precautionary principal must apply.
BLASTING	Health and safety risk posed by blasting activities	The impact on health and safety posed by blasting will be contained within the site	Operational phase	Control: Implementation of safety control measures	**Blasting standards implemented** • MHSA, 1996 • OHSA, 1993
BLASTING	Dust nuisance caused by blasting activities	Dust will be contained within the property boundaries and will therefore affect only the landowner.	Operational phase	Control: Dust suppression	**Dust Handling:** • NEM:AQA, 2004 Regulation 6(1)
BLASTING	Noise nuisance caused by blasting activities	The noise impact caused by blasting is instantaneous	Operational phase	Control: Noise control measures	**Noise Handling:** • NEM:AQA, 2004 Regulation 6(1) • All project related vehicles must be in a road worthy

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
		and has a short duration			condition in terms of the Road Transport Act, 1987
EXCAVATION	Visual intrusion associated with the excavation activities	The visual impact may affect the aesthetics of the landscape.	Operational phase	Control: Implementation of proper housekeeping	**Land use zoning:** • Eastern Cape Planning and Development Act, 2013 • Lukhanji Municipality: Land Use Planning Bylaws, 2015 • The property is zoned for agriculture as primary use.
EXCAVATION	Dust nuisance due to excavation activities	Dust will be contained within the property boundaries and will therefore affect only the landowner.	Operational phase	Control: Dust suppression	**Dust Handling:** • NEM:AQA, 2004 Regulation 6(1)
EXCAVATION	Noise nuisance generated by excavation equipment	The noise impact should be contained within the boundaries of the property, and will represent the current noise levels of the farm.	Operational phase	Control: Noise control measures	**Noise Handling:** • NEM:AQA, 2004 Regulation 6(1) • All project related vehicles must be in a road worthy condition in terms of the Road Transport Act, 1987

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
EXCAVATION	Unsafe working conditions for employees	The Unsafe working conditions should only impact the applicant. Safety measures will be implemented	Operational phase	Control: Implementation of safety control measures	**The Occupational Health and safety act in conjunction with the Mine Health and Safety act as mitigation measure.** • MHSA, 1996 • OHSA, 1993
EXCAVATION	Negative impact on the fauna and flora of the area	The impact of the fauna of the area will not be significant as vibration and noise will drive the fauna away	Operational phase	Control: Implementation of fauna protection measures	**Protection of Fauna on site:** • NEM:BA, 2004
EXCAVATION	Contamination of area with hydrocarbons or hazardous waste materials	Contamination may cause surface or ground water pollution if not addressed	Operational phase	Control: Waste management	**Contamination of surface or groundwater due to hazardous spills not cleaned:** • NWA, 1998 • NEM:WA, 2008 • Every precaution must be taken to prevent contamination. The precautionary principal must apply.

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
EXCAVATION	Weed and invader plant infestation of the area	Biodiversity	Operational phase	Control & Remedy: Implementation of weed control	**Management of weed- or invader plants:** • CARA, 1983 • All species regarded as Category 1 weeds according to CARA need to be eradicated from site.
LOADING AND TRANSPORTING	Dust nuisance due to loading and transportation of the material	Should dust levels become excessive it may have an impact on surrounding landowners.	Operational phase	Control: Dust suppression	**Dust Handling:** • NEM:AQA, 2004 Regulation 6(1)
LOADING AND TRANSPORTING	Noise nuisance caused by vehicles	The noise impact should be contained within the boundaries of the property, and will represent the current noise levels of the farm.	Operational phase	Control: Noise control measures	**Noise Handling:** • NEM:AQA, 2004 Regulation 6(1) • All project related vehicles must be in a road worthy condition in terms of the Road Transport Act, 1987
LOADING AND TRANSPORTING	Impact on the access roads	All road users will be affected	Operational phase	Control & Remedy: Road management	**Degradation of the gravel access road:** • NRTA, 1996

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
					• The gravel access road needs to be monitored for signs of degradation. Should any signs become apparent immediate rectification actions must be implemented.
LOADING AND TRANSPORTING	Contamination of area with hazardous waste materials	Contamination may cause surface or ground water pollution if not addressed	Operational phase	Control: Waste management	**Contamination of surface or groundwater due to hazardous spills not cleaned:** • NWA, 1998 • NEM:WA, 2008 • Every precaution must be taken to prevent contamination. The precautionary principal must apply.
SLOPING, LANDSCAPING AND REPLACEMENT OF TOPSOIL OVER DISTURBED AREA	Erosion of returned topsoil after rehabilitation	Soil erosion, may affect the agricultural potential of the site after closure of the mine.	Decommissioning phase	Control: Soil management	**Erosion of returned topsoil after rehabilitation:** • CARA, 1983 • NEM:BA, 2004 • MPRDA, 2008 • The replacement of the topsoil and sloping of the area is of utmost importance to ensure the effective future use of the area for agricultural purposes.

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
					• Rehabilitation cannot be considered complete until the first cover crop is well established.
SLOPING, LANDSCAPING AND REPLACEMENT OF TOPSOIL OVER DISTURBED AREA	Dust nuisance caused during landscaping activities	Should dust levels become excessive it may have an impact on surrounding landowners.	Decommissioning phase	Control: Dust suppression	**Dust Handling:** • NEM:AQA, 2004 Regulation 6(1)
SLOPING, LANDSCAPING AND REPLACEMENT OF TOPSOIL OVER DISTURBED AREA	Noise nuisance caused by machinery	Should noise levels become excessive it may have an impact on surrounding landowners.	Decommissioning phase	Control: Noise management	**Noise Handling:** • NEM:AQA, 2004 Regulation 6(1) • All project related vehicles must be in a road worthy condition in terms of the Road Transport Act, 1987
SLOPING, LANDSCAPING AND REPLACEMENT OF TOPSOIL OVER DISTURBED AREA	Contamination of area with hazardous waste materials	Contamination may cause surface or ground water pollution if not addressed	Decommissioning phase	Control: Waste management	**Contamination of surface or groundwater due to hazardous spills not cleaned:** • NWA, 1998 • NEM:WA, 2008 • Every precaution must be taken to prevent contamination. The precautionary principal must apply.

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
SLOPING, LANDSCAPING AND REPLACEMENT OF TOPSOIL OVER DISTURBED AREA	Loss of reinstated topsoil due to the absence of vegetation	Loss of topsoil will affect the rehabilitation of the processing area and the future agricultural potential of the site.	Decommissioning phase	Control: Storm water management	**Erosion of returned topsoil after rehabilitation:** • CARA, 1983 • NEM:BA, 2004 • MPRDA, 2008 • The replacement of the topsoil and sloping of the area is of utmost importance to ensure the effective future use of the area for agricultural purposes. • Rehabilitation cannot be considered complete until the first cover crop is well established.
LOPING, LANDSCAPING AND REPLACEMENT OF TOPSOIL OVER DISTURBED AREA	Weeds and invader plant infestation of the area	Biodiversity	Decommissioning phase	Control & Remedy: Implementation of weed control	**Management of weed- or invader plants:** • CARA, 1983 • All species regarded as Category 1 weeds according to CARA need to be eradicated from site.

2. SECTION 102 PROPOSAL: Impact Management Outcomes

Table 32: Impact Management Outcomes – S102 Application.

ACTIVITY whether listed or not listed (E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc..etc.)	POTENTIAL IMPACT (e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc...etc..)	ASPECTS AFFECTED	PHASE In which impact is anticipated (e.g. Construction, commissioning, operational Decommissioning, closure, post-closure))	MITIGATION TYPE (modify, remedy, control, or stop) through (e.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc...etc..)E.g. Modify through alternative method. Control through noise control Control through management and monitoring • Remedy through rehabilitation.	STANDARD TO BE ACHIEVED (Impact avoided, noise levels, dust levels, rehabilitation standards, end use objectives) etc.
BLASTING	Health and safety risk posed by blasting activities	The impact on health and safety posed by blasting will be contained within the site	Operational phase	Control: Implementation of safety control measures	**Blasting standards implemented** • MHSA, 1996 • OHSA, 1993
BLASTING	Dust nuisance caused by blasting activities	Dust will be contained within the property boundaries and will therefore	Operational phase	Control: Dust suppression	**Dust Handling:** • NEM:AQA, 2004 Regulation 6(1)

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
		affect only the landowner.			
BLASTING	Noise nuisance caused by blasting activities	The noise impact caused by blasting is instantaneous and has a short duration	Operational phase	Control: Noise control measures	**Noise Handling:** • NEM:AQA, 2004 Regulation 6(1) • All project related vehicles must be in a road worthy condition in terms of the Road Transport Act, 1987
CRUSHING AND SCREENING	Visual intrusion associated with the crushing and screening activities	The visual impact may affect the aesthetics of the landscape.	Operational phase	Control: Implementation of proper housekeeping	**Management of the mining area must be in accordance with the:** • MPRDA, 2008 • NEMA, 1998
CRUSHING AND SCREENING	Dust nuisance due to crushing and screening activities.	Dust will be contained within the property boundaries and will therefore affect only the landowner.	Operational phase	Control: Dust suppression	**Dust Handling:** • NEM:AQA, 2004 Regulation 6(1)
CRUSHING AND SCREENING	Noise nuisance generated by excavation equipment	The noise impact should be contained within the boundaries	Operational phase	Control: Noise control measures	**Noise Handling:** • NEM:AQA, 2004 Regulation 6(1) • All project related vehicles must be in a road worthy

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
		of the property, and will represent the current noise levels of the farm.			condition in terms of the Road Transport Act, 1987
CRUSHING AND SCREENING	Contamination of surface or groundwater due to effluent runoff from crushing and screening area.	The impact of surface and groundwater contamination due to the excavated area will be mitigated through berms and topsoil stockpiling	Operational phase	Control: Waste management	**Contamination of surface or groundwater due to effluent runoff:** • NWA, 1998 • NEM:WA, 2008 • Every precaution must be taken to prevent contamination. The precautionary principal must apply.
LOADING AND TRANSPORTING	Dust nuisance due to loading and transportation of the material	Should dust levels become excessive it may have an impact on surrounding landowners	Operational phase	Control: Dust suppression	**Dust Handling:** • NEM:AQA, 2004 Regulation 6(1)
LOADING AND TRANSPORTING	Impact on the access roads	All road users will be affected	Operational phase	Control & Remedy: Road management	**Access roads must be managed in accordance with the:** • NRTA, 1996

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
LOADING AND TRANSPORTING	Noise nuisance caused by vehicles	The noise impact should be contained within the boundaries of the property, and will represent the current noise levels of the farm	Operational phase	Control: Noise control measures	**Noise Handling:** • NEM:AQA, 2004 Regulation 6(1) • All project related vehicles must be in a road worthy condition in terms of the Road Transport Act, 1987
LOADING AND TRANSPORTING	Contamination of area with hazardous waste materials	Contamination may cause surface or ground water pollution if not addressed	Operational phase	Control: Waste management	**Contamination of surface or groundwater due to hazardous spills not cleaned:** • NWA, 1998 • NEM:WA, 2008 • Every precaution must be taken to prevent contamination. The precautionary principal must apply.

f) Impact Management Actions

(A description of impact management actions, identifying the manner in which the impact management objectives and outcomes in paragraph (c) and (d) will be achieved)

1. APPROVED WHITTLESEA FBAR:

Table 33: Impact Management Actions

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
whether listed or not listed (E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc..etc.)	(e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc...etc..)	(modify, remedy, control, or stop) through (e.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc... etc.) E.g • Modify through alternative method. • Control through noise control • Control through management and monitoring Remedy through rehabilitation.	Describe the time period when the measures in the environmental management programme must be implemented Measures must be implemented when required. With regard to Rehabilitation specifically this must take place at the earliest opportunity. With regard to Rehabilitation, therefore state either: Upon cessation of the individual activity Or. Upon the cessation of mining bulk sampling or alluvial diamond prospecting as the case may be.	(A description of how each of the recommendations in 2.11.6 read with 2.12 and 2.15.2 herein will comply with any prescribed environmental management standards or practices that have been identified by Competent Authorities)

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
DEMARCATION OF SITE WITH VISIBLE BEACONS	No impact could be identified other than the beacons being outside the boundaries of the approved processing area.	Control through management and monitoring	Beacons need to be in place throughout the life of the mine.	Processing of the waste rock/stone is only allowed within the boundaries of the approved processing area. • MHSA, 1996 • OHSA, 1993
STRIPPING & STOCKPILING OF TOPSOIL	Visual impact due to removal of topsoil.	Control: Implementation of proper housekeeping	Throughout operational phase	**Land use zoning:** • Eastern Cape Planning and Development Act, 2013 • lukhanji Municipality: Land Use Planning Bylaws, 2015 • The property is zoned for agriculture as primary use.
	Loss of natural vegetation	Control: Management of buffer areas and demarcation of work areas	Throughout operational phase	**Negative impact on biodiversity of the area (Site Alternative 1):** • NEM:BA, 2004
	Loss of natural vegetation	Modify: Consider use of a less sensitive area	Throughout operational phase	**Negative impact on biodiversity of the area (Site Alternative 2):** • NEM:BA, 2004
	Dust nuisance caused by the disturbance of soil.	Control: Dust suppression	Throughout operational phase	**Dust Handling:** • NEM:AQA, 2004 Regulation 6(1)
	Noise nuisance caused by machinery stripping and stockpiling the topsoil	Control: Noise control measures	Throughout operational phase	**Noise Handling:** • NEM:AQA, 2004 Regulation 6(1) • All project related vehicles must be in a road worthy condition in terms of the Road Transport Act, 1987

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
	Infestation of the topsoil heaps by weeds and invader plants.	Control & Remedy: Implementation of weed control and weed/invader plant management plan	Throughout operational phase	**Management of weed- or invader plants:** • CARA, 1983 • All species regarded as Category 1 weeds according to CARA need to be eradicated from site.
STRIPPING & STOCKPILING OF TOPSOIL	Loss of topsoil due to incorrect storm water management	Control: Storm water management	Throughout operational phase	**Loss of topsoil due to incorrect storm water management:** • CARA, 1983 • NEMA, 1998 • NWA, 1998 • The replacement of the topsoil is of utmost importance to ensure the effective future use of the area for agricultural purposes
	Contamination of area with hazardous waste materials	Control: Waste management	Throughout operational phase	**Contamination of surface or groundwater due to hazardous spills not cleaned:** • NWA, 1998 • NEM:WA, 2008 • Every precaution must be taken to prevent contamination. The precautionary principal must apply.
BLASTING	Health and safety risk posed by blasting activities	Control: Implementation of safety control measures	Throughout Operational phase	**Blasting standards implemented** • MHSA, 1996 • OHSA, 1993
	Dust nuisance caused by blasting activities	Control: Dust suppression	Throughout Operational phase	**Dust Handling:** • NEM:AQA, 2004 Regulation 6(1)

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
	Noise nuisance caused by blasting activities	Control: Noise control measures	Throughout Operational phase	**Noise Handling:** • NEM:AQA, 2004 Regulation 6(1) • All project related vehicles must be in a road worthy condition in terms of the Road Transport Act, 1987
EXCAVATION	Visual intrusion associated with the excavation activities	Control: Implementation of proper housekeeping	Throughout Operational phase	**Land use zoning:** • Eastern Cape Planning and Development Act, 2013 • Lakhani Municipality: Land Use Planning Bylaws, 2015 The property is zoned for agriculture as primary use.
	Dust nuisance due to excavation activities	Control: Dust suppression	Throughout Operational phase	**Dust Handling:** • NEM:AQA, 2004 Regulation 6(1)
	Noise nuisance generated by excavation equipment	Control: Noise control measures Operational phase	Throughout Operational phase	**Noise Handling:** • NEM:AQA, 2004 Regulation 6(1) All project related vehicles must be in a road worthy condition in terms of the Road Transport Act, 1987
	Unsafe working conditions for employees	Control: Implementation of safety control measures	Throughout Operational phase	**The Occupational Health and safety act in conjunction with the Mine Health and Safety act as mitigation measure.** • MHSA, 1996 • OHSA, 1993
	Negative impact on the fauna and flora of the area	Control: Implementation of fauna protection measures	Throughout Operational phase	**Protection of Fauna on site:** • NEM:BA, 2004

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
EXCAVATION	Contamination of area with hydrocarbons or hazardous waste materials	Control: Waste management	Throughout Operational phase	**Contamination of surface or groundwater due to hazardous spills not cleaned:** • NWA, 1998 • NEM:WA, 2008 • Every precaution must be taken to prevent contamination. The precautionary principal must apply.
	Weed and invader plant infestation of the area	Control & Remedy: Implementation of weed control	Throughout Operational phase	**Management of weed- or invader plants:** • CARA, 198All species regarded as Category 1 weeds according to CARA need to be eradicated from site.
SLOPING, LANDSCAPING & REPLACEMENT OF TOPSOIL OVER DISTURBED AREA	Dust nuisance caused during landscaping activities	Control: Dust suppression	Throughout decommissioning phase	**Dust Handling:** • NEM:AQA, 2004 Regulation 6(1)
	Noise nuisance caused by machinery	Control: Noise management	Throughout decommissioning phase	**Noise Handling:** • NEM:AQA, 2004 Regulation 6(1) • All project related vehicles must be in a road worthy condition in terms of the Road Transport Act, 1987
SLOPING, LANDSCAPING & REPLACEMENT OF TOPSOIL OVER DISTURBED AREA	Contamination of area with hazardous waste materials	Control: Waste management	Throughout decommissioning phase	**Contamination of surface or groundwater due to hazardous spills not cleaned:** • NWA, 1998 • NEM:WA, 2008 Every precaution must be taken to prevent contamination. The precautionary principal must apply.

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
SLOPING, LANDSCAPING & REPLACEMENT OF TOPSOIL OVER DISTURBED AREA	Loss of reinstated topsoil due to the absence of vegetation	Control: Storm water management	Throughout decommissioning phase	**Erosion of returned topsoil after rehabilitation:** • CARA, 1983 • NEM:BA, 2004 • MPRDA, 2008 • The replacement of the topsoil and sloping of the area is of utmost importance to ensure the effective future use of the area for agricultural purposes. Rehabilitation cannot be considered complete until the first cover crop is well established.
	Weeds and invader plant infestation of the area	Control & Remedy: Implementation of weed control	Throughout decommissioning phase	**Management of weed- or invader plants:** • CARA, 1983 • All species regarded as Category 1 weeds according to CARA need to be eradicated from site.

2. SECTION 102 PROPOSAL:

Table 34: Impact Management Actions – S102 Application.

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
BLASTING	Health and safety risk posed by blasting activities	Control: Implementation of safety control measures	Throughout Operational phase	**Blasting standards implemented** • MHSA, 1996 • OHSA, 1993
	Dust nuisance caused by blasting activities	Control: Dust suppression	Throughout Operational phase	**Dust Handling:** • NEM:AQA, 2004 Regulation 6(1) • National Dust Control Regulations, GN No R827 • ASTM D1739 (SANS 1137:2012)
	Noise nuisance caused by blasting activities	Control: Noise control measures	Throughout Operational phase	**Noise Handling:** • NEM:AQA, 2004 Regulation 6(1) • NRTA, 1996 • All project related vehicles must be in a road worthy condition in terms of the Road Transport Act, 1987
CRUSHNG AND SCREENING	Visual intrusion associated with the excavation activities	Control: Implementation of proper housekeeping	Throughout Operational phase	**Management of the mining area must be in accordance with the:** • MPRDA, 2008 • NEMA, 1998

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
CRUSHING & SCREENING	Dust nuisance due to excavation activities	Control: Dust suppression	Throughout Operational phase	**Dust Handling:** • NEM:AQA, 2004 Regulation 6(1) • National Dust Control Regulations, GN No R827 • ASTM D1739 (SANS 1137:2012)
CRUSHING & SCREENING	Noise nuisance generated by excavation equipment	Control: Noise control measures Operational phase	Throughout Operational phase	**Noise Handling:** • NEM:AQA, 2004 Regulation 6(1) • NRTA, 1996 • All project related vehicles must be in a road worthy condition in terms of the Road Transport Act, 1987
CRUSHING & SCREENING	Contamination of surface or groundwater due to effluent runoff from crushing and screening area.	Control: Waste management	Throughout Operational phase	**Contamination of surface or groundwater due to effluent runoff:** • NWA, 1998 • NEM:WA, 2008 • Precaution must be taken to prevent contamination. The precautionary principal must apply.
LOADING AND TRANSPORTING	Dust nuisance due to loading and transportation of the material	Control: Dust suppression	Throughout Operational phase	**Dust Handling:** • NEM:AQA, 2004 Regulation 6(1) • National Dust Control Regulations, GN No R827

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
				• ASTM D1739 (SANS 1137:2012)
LOADING AND TRANSPORTING	Impact on the access roads	Control & Remedy: Road management	Throughout Operational phase	**Access roads must be managed in accordance with the:** • NRTA, 1996
LOADING AND TRANSPORTING	Noise nuisance caused by vehicles	Control: Noise control measures	Throughout Operational phase	**Noise Handling:** • NEM:AQA, 2004 Regulation 6(1) • NRTA, 1996 • All project related vehicles must be in a road worthy condition in terms of the Road Transport Act, 1987
LOADING AND TRANSPORTING	Contamination of area with hazardous waste materials	Control: Waste management	Throughout Operational phase	**Contamination of surface or groundwater due to hazardous spills not cleaned:** • NWA, 1998 • NEM:WA, 2008 • Precaution must be taken to prevent contamination. The precautionary principal must apply.

i) Financial Provision

(1) Determination of the amount of Financial Provision.

(a) Describe the closure objectives and the extent to which they have been aligned to the baseline environment described under the Regulation.

The closure objectives entail the sloping, landscaping and replacement of the topsoil over the processing area in order to rehabilitate the disturbance. The stockpiled topsoil will be spread over the disturbed area to a depth of at least 500 mm.

Final rehabilitation will entail the removal of all infrastructure and equipment from the site. Final sloping, landscaping, levelling and top dressing will be done on all areas. Control of weeds and alien invasive plant species is an important aspect after topsoil replacement and seeding has been done in an area. Site management will implement an alien invasive plant management plan during the 12 months' aftercare period to address germination of problem plants in the area. The applicant / permit holder will comply with the minimum closure objectives as prescribed by DMR.

(b) Confirm specifically that the environmental objectives in relation to closure have been consulted with landowner and interested and affected parties.

1. APPROVED WHITTLESEA FBAR:

This report, the Final Basic Assessment Report, includes all the environmental objectives in relation to closure and were available for perusal of I&AP's and stakeholders. Any additional comments were added to the Final Basic Assessment Report to be submitted to DMR for approval.

2. SECTION 102 PROPOSAL:

This report, the amended Draft Basic Assessment Report includes all the environmental objectives in relation to closure and will be made available for perusal by the landowner, I&AP's and stakeholders over a 30-days commenting period. Comments on the DBAR will be incorporated into the FBAR to be submitted to the DMR for approval.

(c) Provide a rehabilitation plan that describes and shows the scale and aerial extent of the main mining activities, including the anticipated mining area at the time of closure.

The requested rehabilitation plan is attached as Appendix D. Upon closure of the mining activity all infrastructure will be removed. The compacted areas will be ripped and levelled upon which the topsoil will be replaced. No permanent structures will remain upon closure of the site.

(d) Explain why it can be confirmed that the rehabilitation plan is compatible with the closure objectives.

The rehabilitation of the mining area as indicated on the rehabilitation plan attached as Appendix D will comply with the minimum closure objectives as prescribed by DMR and detailed below, and therefore is deemed to be compatible:

Rehabilitation of the excavated area:

- Due to the impracticality of importing large volumes of fill to restore the quarry area to its original topography, the rehabilitation option is to develop the quarry into a minor landscape feature.
- This will entail creating a series of irregular benches along the quarry faces, the top edges of each face being blasted away to form slopes on the benches below, thereby reducing the overall face angle.
- Fill and topsoil could be placed over the benches to provide a suitable medium for the establishment of vegetation, especially trees which will break up the line of the faces and enhance their appearance. The floor of the quarry should be capped with suitable soil material and re-vegetated.
- Rocks and coarse material removed from the excavation must be dumped into the excavation.
- No waste will be permitted to be deposited in the excavations.
- Once overburden, rocks and coarse natural materials has been dumped into the excavated area and profiled with acceptable contours and erosion control measures, topsoil shall be returned over the area.
- The area shall be fertilized to allow vegetation to establish rapidly. The site shall be seeded with a local or adapted indigenous seed mix in order to propagate the locally or regionally occurring flora.
- If a reasonable assessment indicates that the re-establishment of vegetation is unacceptably slow, the Regional Manager may require that the soil be analysed and any deleterious effects on the soil arising from the mining operation be corrected and the area be seeded with a vegetation seed mix to his or her

specification.

Rehabilitation of plant, office and service areas:

- Coarse natural material used for the construction of ramps must be removed and dumped into the excavations.
- Stockpiles will be removed during the decommissioning phase, the area ripped and the topsoil returned to its original depth to provide a growth medium.
- On completion of operations, all structures or objects shall be dealt with in accordance with section 44 of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002):
  - Where sites have been rendered devoid of vegetation/grass or where soils have been compacted owing to traffic, the surface shall be scarified or ripped.
  - Areas containing French drains shall be compacted and covered with a final layer of topsoil to a height of 10cm above the surrounding ground surface.
  - The site shall be seeded with a vegetation seed mix adapted to reflect the local indigenous flora.
- Photographs of the camp and office sites, before and during the mining operation and after rehabilitation, shall be taken at selected fixed points and kept on record for the information of the Regional Manager.
- On completion of mining operations, the surface of these areas, if compacted due to hauling and dumping operations, shall be scarified to a depth of at least 200mm and graded to an even surface condition. Where applicable/possible topsoil needs to be returned to its original depth over the area.
- Prior to replacing the topsoil, the material that was removed from these areas will be replaced in the same order as it originally occurred.
- The area shall then be fertilized if necessary to allow vegetation to establish rapidly. The site shall be seeded with a local, adapted indigenous seed mix.
- If a reasonable assessment indicates that the re-establishment of vegetation is unacceptably slow, the Regional Manager may require that the soil be analysed and any deleterious effects on the soil arising from the mining operation be corrected and the area be seeded with a seed mix to his or her specification.

Final rehabilitation:

- Rehabilitation of the surface area shall entail landscaping, levelling, top dressing, land preparation, seeding and maintenance, and weed / alien clearing.
- All infrastructures, equipment, plant, temporary housing and other items used during the mining period will be removed from the site.
- Waste material of any description, including receptacles, scrap, rubble and tyres, will be removed entirely from the mining area and disposed of at a recognized landfill facility. It will not be permitted to be buried or burned on the site.
- Weed / Alien clearing will be done in a sporadic manner during the life of the mining activities. Species regarded as Category 1 weeds according to CARA (Conservation of Agricultural Recourses Act, 1983 – Act 43; Regulations 15 & 16 (as amended in March 2001) need to be eradicated from the site on final closure.
- Final rehabilitation shall be completed within a period specified by the Regional Manager.

Seeding of the area:

- Once the pit slopes have been shaped and the soil replaced, the initial goal is to establish a good cover of a robust grass that will stabilise the soil and start the accumulation of soil organic carbon. This will be done using a combination of hydro seeding and physical planting of runners to apply a mix of commercial and indigenous species that includes both tufted and creeping species. The plants that were collected during the establishment and operational phases and kept in the designated area will be replanted.

(e) Calculate and state the quantum of the financial provision required to manage and rehabilitate the environment in accordance with the applicable guideline.

1. APPROVED WHITTLESEA FBAR:

The calculation of the quantum for financial provision was according to Section B of the working manual.

Mine type and saleable mineral by-product

According to Tables B.12, B.13 and B.14

Mine type	Aggregate
Saleable mineral by-product	None

Risk ranking

According to Tables B.12, B.13 and B.14

Primary risk ranking (either Table B.12 or B.13	C (Low risk).
Revised risk ranking (B.14)	N/A

Environmental sensitivity of the mine area

According to Table B.4

Environmental sensitivity of the mine area	Low

Level of information

According to Step 4.2.

Level of information available	Limited

Identify closure components

According to Table B.5 and site-specific conditions

COMPONENT NO.	MAIN DESCRIPTION	APPLICABILITY OF CLOSURE COMPONENTS (CIRCLE YES OR NO)	
1	Dismantling of processing plant and related structures (including overland conveyors and power lines)		No
2(A)	Demolition of steel buildings and structures		No
2(B)	Demolition of reinforced concrete buildings and structures		No
3	Rehabilitation of access roads		No
4(A)	Demolition and rehabilitation of electrified railway lines		No
4(B)	Demolition and rehabilitation of non-electrified railway lines		No
5	Demolition of housing and facilities		No
6	Opencast rehabilitation including final voids and ramps	Yes	
7	Sealing of shafts, adits and inclines		No
8(A)	Rehabilitation of overburden and spoils	Yes	
8(B)	Rehabilitation of processing waste deposits and evaporation ponds (basic, salt-producing)		No

8(C)	Rehabilitation of processing waste deposits and evaporation ponds (acidic, metal-rich)		No
9	Rehabilitation of subsided areas		No
10	General surface rehabilitation, including grassing of all denuded areas	Yes	
11	River diversions		No
12	Fencing		No
13	Water management (Separating clean and dirty water, managing polluted water and managing the impact on groundwater)		No
14	2 to 3 years of maintenance and aftercare	Yes	

Unit rates for closure components

According to Table B.6 master rates and multiplication factors for applicable closure components.

COMPONENT NO.	MAIN DESCRIPTION	MASTER RATE	MULTIPLICATION FACTOR
1	Dismantling of **processing plant and related structures** (including overland conveyors and power lines)		
2(A)	Demolition of **steel buildings and structures**		
2(B)	Demolition of **reinforced concrete buildings and structures**		
3	Rehabilitation of **access roads**		
4(A)	Demolition and rehabilitation of **electrified railway lines**		
4(B)	Demolition and rehabilitation of **non-electrified railway lines**		
5	Demolition of **housing and facilities**		
6	**Opencast rehabilitation** including final voids and ramps	200415	0.04
7	Sealing of **shafts, audits and inclines**		
8(A)	Rehabilitation of **overburden and spoils**	133610	1
8(B)	Rehabilitation of **processing waste deposits and evaporation ponds (basic, salt-producing)**		
8(C)	Rehabilitation of **processing waste deposits and evaporation ponds (acidic, metal-rich)**		
9	Rehabilitation of **subsided areas**		
10	**General surface rehabilitation**, including grassing of all denuded areas	105842	1
11	**River diversions**		
12	**Fencing**	121	1
13	**Water management** (Separating clean and dirty water, managing polluted water and managing the impact on groundwater)		
14	2 to 3 years of **maintenance and aftercare**	14085	1

Determine weighting factors

According to Tables B.7 and B.8

Weighting factor 1: Nature of terrain/accessibility	1

Weighting factor 2: Proximity to urban area where goods and services are to be supplied	1.05

Calculation of closure costs

Table 35: Calculation of closure cost

CALCULATION OF THE QUANTUM							
Mine:	**Portion 5 of farm Latham 205, Queenstown, Eastern Cape province.**			**Location:**	**Whittlesea**		
Evaluators:	**S Smit**			**Date:**	**2016-05-13**		
No	**Description**	**Unit**	**A Quantity**	**B Master rate**	**C Multiplication factor**	**D Weighting factor 1**	**E=A *B*C*D Amount (rands)**
			Step 4.5	**Step 4.3**	**Step 4.3**	**Step 4.4**	
1	Dismantling of processing plant and related structures (including overland conveyors and power lines)	m^3	0	14	1	1	R 0.00
2(A)	Demolition of steel buildings and structures	m^2	0	191	1	1	R 0.00
2(B)	Demolition of reinforced concrete buildings and structures	m^2	0	282	1	1	R 0.00
3	Rehabilitation of access roads	m^2	0	34	1	1	R 0.00
4(A)	Demolition and rehabilitation of electrified railway lines	m	0	332	1	1	R 0.00
4(B)	Demolition and rehabilitations of non-electrified railway lines	m	0	181	1	1	R 0.00
5	Demolition of housing and/or administration facilities	m^2	0	383	1	1	R 0.00
6	Opencast rehabilitation including final voids and ramps	ha	2.9	200 415	0.04	1	R23 248.14
7	Sealing of shaft, audits and inclines	m^3	0	103	1	1	R 0.00
8(A)	Rehabilitation of overburden and spoils	ha	1	133610	1	1	R133 610.00
8(B)	Rehabilitation of processing waste deposits and evaporation ponds (basic, salt-producing waste)	ha	0	166 408	1	1	R 0.00
8(C)	Rehabilitation of processing waste deposits and evaporation ponds (acidic, metal-rich waste)	ha	0	483 329	0.51	1	R 0.00

9	Rehabilitation of subsided areas	ha	0	111 878	1	1	R 0.00
10	General surface rehabilitation	ha	4.9	105 842	1	1	R 518 625.80
11	River diversions	ha	0	105 842	1	1	R 0.00
12	Fencing	m	900	121	1	1	R 108 900.00
13	Water Management	ha	0	40 244	0.17	1	R 0.00
14	2 to 3 years of maintenance and aftercare	ha	4.9	14 085	1	1	R 69 016.50
15(A)	Specialists study	Sum	0			1	R 0.00
15(B)	Specialists study	Sum	0				R 0.00
Sum of items 1 to 15 above							R 853 400.44
Multiply Sum of 1-15 by Weighting factor 2 (Step 4.4)		1.05		R 853 400.44		**Sub Total 1**	R 896 070.46

1	Preliminary and General	6% of Subtotal 1 if Subtotal 1 <R100 000 000.00	R 53 764.23
		12% of Subtotal 1 if Subtotal 1 >R100 000 000.00	-
2	Contingency	10.0% of Subtotal 1	R 89 607.04
Sub Total 2 (Subtotal 1 plus management and contingency)			R 1 039 441.72
Vat (14%)			R 145 521.84
GRAND TOTAL (Subtotal 3 plus VAT)			**R 1 184 963.56**

The amount that will be necessary for the rehabilitation of damages caused by the operation, both sudden closures during the normal operation of the project and at final, planned closure gives a sum total of **R 1 184 963.56**

2. SECTION 102 PROPOSAL:

An exemption request for the financial provision update was sent to the DMR on 26 April 2019 due to no mining at the permitted area in light of a tender pending. The area has not been mined nor disturbed and remains as a greenfield site. The applicant undertakes to bring the financial provision in line with the annual CPI master rate as soon as mining commences. The request was granted on 28 May 2019.

(f) Confirm that the financial provision will be provided as determined.

Herewith I, the person, whose name is stated below confirm that I am the person authorised to act as representative of the applicant / permit holder in terms of the resolution submitted with the application. I herewith confirm that the company will provide the amount that will be determined by the Regional Manager in accordance with the prescribed guidelines.

Mechanisms for monitoring compliance with and performance assessment against the environmental management programme and reporting thereon, including

g) Monitoring of Impact Management Actions
h) Monitoring and reporting frequency
i) Responsible persons
j) Time period for implementing impact management actions
k) Mechanisms for monitoring compliance

1. APPROVED WHITTLESEA FBAR:

Table 36: Mechanisms for monitoring compliance with and performance assessment against the EMPR and reporting thereon

.APPROVED WHITTLESEA FBAR:SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
DEMARCATION OF SITE WITH VISIBLE BEACONS	Maintenance of beacons	• Visible beacons need to be established at the corners of the processing area. • A 20 m buffer area (if applicable) from any natural areas need to be demarcated. • A 30 m buffer area from a watercourse needs to be demarcated if applicable.	Responsibility: • Site Manager to ensure compliance with the guidelines as stipulated in the EMPr. • Compliance to be monitored by the Environmental Control Officer. Role: • Ensure beacons are in place throughout the life of the activity.	Throughout Operational Phase • Daily compliance monitoring by site management. • Quarterly compliance monitoring of site by an Environmental Control Officer. • Annual compliance monitoring of site by an Independent Environmental Control Officer.

.APPROVED WHITTLESEA FBAR:SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
STRIPPING AND STOCKPILING OF TOPSOIL **&** **BLASTING** **&** **EXCAVATION**	Monitoring of visual impacts	• Ensure that the site have a neat appearance and is kept in good condition at all times. • Control the height of the stockpiles to minimize the visual impact on the surrounding environment. • Remove all infrastructure upon rehabilitation of the processing area and return the area to its prior status.	Responsibility: • Site Manager to ensure compliance with the guidelines as stipulated in the EMPr. • Compliance to be monitored by the Environmental Control Officer. Role: • Minimize the visual impact of the activity on the surrounding environment.	Throughout Operational Phase • Daily compliance monitoring by site management. • Quarterly compliance monitoring of site by an Environmental Control Officer. • Annual compliance monitoring of site by an Independent Environmental Control Officer.
STRIPPING AND STOCKPILING OF TOPSOIL **&** **LOADING AND TRANSPORTING** **&** **SLOPING, LANDSCAPING & REPLACEMENT OF TOPSOIL OVER DISTURBED AREA** **&** **BLASTING** **&** **EXCAVATION**	Dust Monitoring: • The dust generated by the processing activities must be continuously monitored, and addressed by the implementation of dust suppression methods.	Dust Handling and Monitoring: • Dust suppression equipment such as a water car and water dispenser. The applicant already has this equipment available.	Responsibility: • Site Manager to ensure compliance with the guidelines as stipulated in the EMPr. • Compliance to be monitored by the Environmental Control Officer. Role: • Control the liberation of dust into the surrounding environment by the use of; inter alia, water spraying and/or other dust-allaying agents. • Dampen the stockpiles during periods of high wind spells. • Assess effectiveness of dust suppression equipment.	Throughout Construction, Operational and Decommissioning Phase • Daily compliance monitoring by site management. • Quarterly compliance monitoring of site by an Environmental Control Officer. • Annual compliance monitoring of site by an Independent Environmental Control Officer.

.APPROVED WHITTLESEA FBAR:SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
			• Limit speed on the access roads to 40km/h to prevent the generation of excess dust. • Spray gravel roads with water or an environmentally friendly dust-allaying agent that contains no PCB's (e.g. DAS products) if dust is generated above acceptable limits.	
STRIPPING AND STOCKPILING OF TOPSOIL & SLOPING, LANDSCAPING & REPLACEMENT OF TOPSOIL OVER DISTURBED AREA & BLASTING & EXCAVATION	Noise Monitoring • The noise impact should be contained within the boundaries of the property, as it will represent the current activities.	Noise Handling and Monitoring: • Site manager to ensure that the vehicles are equipped with silencers and maintained in a road worthy condition. • Compliance with the appropriate legislation with respect to noise will be mandatory.	Responsibility: • Site Manager to ensure compliance with the guidelines as stipulated in the EMPr. • Compliance to be monitored by the Environmental Control Officer. Role: • Ensure that employees and staff conduct themselves in an acceptable manner while on site. • No loud music may be permitted at the processing area. • Ensure that all project related vehicles are equipped with silencers and maintained in a road worthy condition in terms of the Road Transport Act.	Throughout Construction, Operational and Decommissioning Phase • Daily compliance monitoring by site management. • Quarterly compliance monitoring of site by an Environmental Control Officer. • Annual compliance monitoring of site by an Independent Environmental Control Officer.
STRIPPING AND STOCKPILING OF TOPSOIL	Management of weed or invader plants	Management of weed or invader plants: • Removal of weeds must be manually or by the use of an approved herbicide.	Responsibility:	Throughout Operational and Decommissioning Phase

.APPROVED WHITTLESEA FBAR:SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
& SLOPING, LANDSCAPING & REPLACEMENT OF TOPSOIL OVER DISTURBED AREA	• The presence of weed and/or invader plants must be continuously monitored, and any unwanted plants must be removed.		• Site Manager to ensure compliance with the guidelines as stipulated in the EMPr. • Compliance to be monitored by the Environmental Control Officer. Role: • Implement a weed and invader plant management plan. • Control declared invader or exotic species on the rehabilitated areas. • Keep the temporary topsoil stockpiles free of weeds.	• Daily compliance monitoring by site management. • Quarterly compliance monitoring of site by an Environmental Control Officer. • Annual compliance monitoring of site by an Independent Environmental Control Officer.
STRIPPING AND STOCKPILING OF TOPSOIL & SLOPING, LANDSCAPING & REPLACEMENT OF TOPSOIL OVER DISTURBED AREA	Topsoil management	Topsoil Handling: • Excavating equipment to remove the first 500 mm of topsoil from the proposed work areas. The applicant already has this equipment available. • Berms to be made to direct storm- and runoff water around the stockpiled topsoil area.	Responsibility: • Site Manager to ensure compliance with the guidelines as stipulated in the EMPr. • Compliance to be monitored by the Environmental Control Officer. Role: • Strip and stockpile the upper 500 mm of the soil and protect as topsoil. • Remove topsoil at right angles to the slope to slow down surface runoff and prevent erosion. • Conduct topsoil stripping, stockpiling and re-spreading in a systematic way.	Throughout Construction, Operational and Decommissioning Phase • Daily compliance monitoring by site management. • Quarterly compliance monitoring of site by an Environmental Control Officer. • Annual compliance monitoring of site by an Independent Environmental Control Officer.

.APPROVED WHITTLESEA FBAR:SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
			• Ensure topsoil is stockpiled for the minimum possible time. • Protect topsoil stockpiles against losses by water and wind erosion through the establishment of plants on the stockpiles. • Topsoil heaps may not exceed 1.5 m in order to preserve microorganism within the topsoil. • Conduct the activity in accordance with the Best Practice Guideline for small-scale mining as stipulated by DWS.	
STRIPPING &STOCKPILING OF TOPSOIL	Loss of natural vegetation	Management of buffer areas: • Site management has to ensure the use of visible beacons to demarcate the boundaries of the approved area.	Responsibility: • Site Manager to ensure compliance with the guidelines as stipulated in the EMPr. • Compliance to be monitored by the Environmental Control Officer. Role: • Contain all activities within the boundaries of the approved processing area. • Demarcate, signpost and manage the 20 m buffer area as no-go area around areas with natural vegetation.	Throughout Construction, Operational and Decommissioning Phase • Daily compliance monitoring by site management. • Quarterly compliance monitoring of site by an Environmental Control Officer. • Annual compliance monitoring of site by an Independent Environmental Control Officer.

.APPROVED WHITTLESEA FBAR:SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
STRIPPING &STOCKPILING OF TOPSOIL & LOADING & TRANSPORTING & BLASTING & EXCAVATION	Protection of fauna	Protection of fauna: • Site management has to protect fauna that enters the processing area.	Responsibility: • Site Manager to ensure compliance with the guidelines as stipulated in the EMPr. • Compliance to be monitored by the Environmental Control Officer. Role: • Ensure no fauna is caught, killed, harmed, sold or played with. • Instruct workers to report any animals that may be trapped in the working area. • Ensure no snares are set or nests raided for eggs or young.	Throughout Construction, Operational and Decommissioning Phase • Daily compliance monitoring by site management. • Quarterly compliance monitoring of site by an Environmental Control Officer. • Annual compliance monitoring of site by an Independent Environmental Control Officer.
STRIPPING AND STOCKPILING OF TOPSOIL & LOADING AND TRANSPORTING & SLOPING, LANDSCAPING AND REPLACEMENT OF	Waste Management: • Management of waste must be a daily monitoring activity. • Hydrocarbon spills need to be cleaned immediately and the site manager must check compliance daily.	Waste Management: • Closed containers for the storage of general of hazardous waste until waste is removed to the appropriate landfill site. • A hydrocarbon spill kit to enable sufficient clean-up of contaminated areas. • Drip trays must be available to place underneath equipment parked for the night. • Should a vehicle have a break down, it must be decommissioned immediately and removed from site to be serviced. • Waste disposal register and file for the keeping of safe disposal records.	Responsibility: • Site Manager to ensure compliance with the guidelines as stipulated in the EMPr. • Compliance to be monitored by the Environmental Control Officer. Role: • Ensure regular vehicle maintenance only take place within the service bay area of the on-site workshop. If emergency repairs are needed on site, ensure drip trays is present. Ensure all waste products are disposed of in a	Throughout Operational and Decommissioning Phase • Daily compliance monitoring by site management. • Quarterly compliance monitoring of site by an Environmental Control Officer. • Annual compliance monitoring of site by an Independent Environmental Control Officer.

.APPROVED WHITTLESEA FBAR:SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
TOPSOIL OVER DISTURBED AREA & BLASTING & EXCAVATION			200 litre closed container/bin inside the emergency service area. • Collect any effluents containing oil, grease or other industrial substances in a suitable receptacle and removed from the site, either for resale or for appropriate disposal at a recognized facility. • Clean spills immediately to the satisfaction of the Regional Manager by removing the spillage together with the polluted soil and by disposing of them at a recognized facility. File proof. • Ensure the availability of suitable covered receptacles at all times and conveniently placed for the disposal of waste. • Store non-biodegradable refuse such as glass bottles, plastic bags, metal scrap, etc., in a container with a closable lid at a collecting point. Collection must take place on a regular basis and waste must be disposed of at the recognized landfill site. Prevent refuse from being dumped on or near the processing area. • Biodegradable refuse to be handled as indicated above.	

.APPROVED WHITTLESEA FBAR:SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
LOADING AND TRANSPORTING	Management of Access Roads • The condition of the access road must be continuously monitored.	Management of Access Roads: • Dust suppression equipment such as a water car and dispenser. • Grader to restore the road surface when needed.	Responsibility: • Site Manager to ensure compliance with the guidelines as stipulated in the EMPr. • Compliance to be monitored by the Environmental Control Officer. Role: • Divert storm water around the access roads to prevent erosion. • Restrict vehicular movement to existing access routes to prevent crisscrossing of tracks through undisturbed areas. • Repair rutting and erosion of the access roads caused by the processing activities.	Throughout Construction, Operational and Decommissioning Phase • Daily compliance monitoring by site management. • Quarterly compliance monitoring of site by an Environmental Control Officer. • Annual compliance monitoring of site by an Independent Environmental Control Officer.
SLOPING, LANDSCAPING AND REPLACEMENT OF TOPSOIL OVER DISTURBED AREA	Soil erosion: • Loss of reinstated topsoil after rehabilitation.	Erosion monitoring: • Grader to restore areas prone to soil erosion. • Planting of a cover crop to stabilize re-instated soil • Erosion prevention equipment.	Responsibility: • Site Manager to ensure compliance with the guidelines as stipulated in the EMPr. • Compliance to be monitored by the Environmental Control Officer. Role: • Control run-off water via temporary banks to ensure that accumulation of run-off does not cause down-slope erosion.	Throughout Construction, Operational and Decommissioning Phase • Daily compliance monitoring by site management. • Quarterly compliance monitoring of site by an Environmental Control Officer. • Annual compliance monitoring of site by an Independent Environmental Control Officer.

.APPROVED WHITTLESEA FBAR:SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
			• Only do topsoil spreading at a time of year when vegetation cover can be established as quickly as possible afterwards, so that erosion of returned topsoil by both rain and wind is minimized. The best time of year is at the end of the rainy season, when there is moisture in the soil for vegetation establishment and the risk of heavy rainfall events is minimal. • Plant a cover crop immediately after spreading of topsoil, to stabilize the soil and protect it from erosion. Fertilize the cover crop for optimum production. • Ensure rehabilitation be taken up to the point of cover crop stabilization. Rehabilitation must not be considered complete until the first cover crop is well established. • Monitor all rehabilitated areas for erosion, and appropriately stabilized if any erosion occurs.	
STRIPPING AND STOCKPILING OF TOPSOIL **&**	Health and safety risk	Health and safety Management: • Stocked first aid box. • Level 1 certified first aider • All appointments in terms of the Mine Health and Safety Act.	Responsibility: • Site Manager to ensure compliance with the guidelines as stipulated in the EMPr. • Compliance to be monitored by the Environmental Control Officer.	Throughout Construction, Operational and Decommissioning Phase • Daily compliance monitoring by site management. • Quarterly compliance monitoring of site by an Environmental Control Officer.

.APPROVED WHITTLESEA FBAR:SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
LOADING AND TRANSPORTING **&** **SLOPING, LANDSCAPING AND REPLACEMENT OF TOPSOIL OVER DISTURBED AREA** **&** **BLASTING** **&** **EXCAVATION**			Role: • Ensure workers have access to the correct personal protection equipment (PPE) as required by law. • Manage all operations in compliance with the Occupational Health and Safety Act as well as the Mine Health and Safety Act.	• Annual compliance monitoring of site by an Independent Environmental Control Officer.
STRIPPING AND STOCKPILING OF TOPSOIL **&** **LOADING AND TRANSPORTING** **&** **SLOPING, LANDSCAPING & REPLACEMENT OF TOPSOIL OVER DISTURBED AREA** **&** **BLASTING**	Protection of Cultural and Heritage Artefacts	Should any artefacts be discovered the area needs to be demarcated and work needs to be stopped.	Responsibility: • Site Manager to ensure compliance with the guidelines as stipulated in the EMPr. • Compliance to be monitored by the Environmental Control Officer. Role: • Immediately stop work should any evidence of human burials or other heritage artefact be discovered during the execution of the activities. • Notify Heritage Eastern Cape and the ECO immediately.	Throughout Construction, Operational and Decommissioning Phase • Daily compliance monitoring by site management. • Quarterly compliance monitoring of site by an Environmental Control Officer. • Annual compliance monitoring of site by an Independent Environmental Control Officer.

.APPROVED WHITTLESEA FBAR:SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
& **EXCAVATION**			• Work may only commence once the area was cleared by Heritage Eastern Cape.	

2. SECTION 102 PROPOSAL:

Table 37: Mechanisms for monitoring compliance with and performance assessment against the EMPR and reporting thereon – S102 Application.

APPROVED WHITTLESEA FBAR:SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
BLASTING & CRUSHING & SCREENING	Health and safety risk	Health and safety Management: • Stocked first aid box. • Level 1 certified first aider • All appointments in terms of the Mine Health and Safety Act.	Responsibility: • Site Manager to ensure compliance with the guidelines as stipulated in the EMPr. • Compliance to be monitored by the Environmental Control Officer. Role: • Ensure workers have access to the correct personal protection equipment (PPE) as required by law. • Manage all operations in compliance with the Occupational Health and Safety Act as well as the Mine Health and Safety Act.	Throughout Construction, Operational and Decommissioning Phase • Daily compliance monitoring by site management. • Quarterly compliance monitoring of site by an Environmental Control Officer. • Annual compliance monitoring of site by an Independent Environmental Control Officer.
BLASTING & CRUSHING & SCREENING	Dust Monitoring: • The dust generated by the processing activities must be continuously monitored, and addressed by the implementation of	Dust Handling and Monitoring: • Dust suppression equipment such as a water car and water dispenser. The applicant already has this equipment available.	Responsibility: • Site Manager to ensure compliance with the guidelines as stipulated in the EMPr. • Compliance to be monitored by the Environmental Control Officer. Role: • Control the liberation of dust into the surrounding environment by the use of;	Throughout Construction, Operational and Decommissioning Phase • Daily compliance monitoring by site management. • Quarterly compliance monitoring of site by an Environmental Control Officer. • Annual compliance monitoring of site by an Independent Environmental Control Officer.

APPROVED WHITTLESEA FBAR:SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
	dust suppression methods.		inter alia, water spraying and/or other dust-allaying agents. • Dampen the stockpiles during periods of high wind spells. • Assess effectiveness of dust suppression equipment. • Limit speed on the access roads to 40km/h to prevent the generation of excess dust. • Spray gravel roads with water or an environmentally friendly dust-allaying agent that contains no PCB's (e.g. DAS products) if dust is generated above acceptable limits.	
BLASTING & CRUSHING & SCREENING	Noise Monitoring • The noise impact should be contained within the boundaries of the property, as it will represent the current activities.	Noise Handling and Monitoring: • Site manager to ensure that the vehicles are equipped with silencers and maintained in a road worthy condition. • Compliance with the appropriate legislation with respect to noise will be mandatory.	Responsibility: • Site Manager to ensure compliance with the guidelines as stipulated in the EMPr. • Compliance to be monitored by the Environmental Control Officer. Role: • Ensure that employees and staff conduct themselves in an acceptable manner while on site. • No loud music may be permitted at the processing area. • Ensure that all project related vehicles are equipped with silencers and	Throughout Construction, Operational and Decommissioning Phase • Daily compliance monitoring by site management. • Quarterly compliance monitoring of site by an Environmental Control Officer. • Annual compliance monitoring of site by an Independent Environmental Control Officer.

APPROVED WHITTLESEA FBAR:SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
			maintained in a road worthy condition in terms of the Road Transport Act.	
BLASTING & CRUSHING & SCREENING	Visual Characteristics:	• Ensure that the site have a neat appearance and is kept in good condition at all times. • Control the height of the stockpiles to minimize the visual impact on the surrounding environment. • Remove all infrastructure upon rehabilitation of the processing area and return the area to its prior status. .	Responsibility: • Site Manager to ensure compliance with the guidelines as stipulated in the EMPr. • Compliance to be monitored by the independent Environmental Control Officer during the annual environmental audit. Role: • Minimize the visual impact of the activity on the surrounding environment.	Throughout Operational Phase • Daily compliance monitoring by site management. • Quarterly compliance monitoring of site by an Environmental Control Officer. • Annual compliance monitoring of site by an Independent Environmental Control Officer.
	Waste Management: • Management of waste must be a daily monitoring activity. • Hydrocarbon spills need to be cleaned immediately and the site manager must check compliance daily.	Waste Management: • Closed containers for the storage of general of hazardous waste until waste is removed to the appropriate landfill site. • A hydrocarbon spill kit to enable sufficient clean-up of contaminated areas. • Drip trays must be available to place underneath equipment parked for the night. • Should a vehicle have a break down, it must be decommissioned immediately and removed from site to be serviced. • Waste disposal register and file for the keeping of safe disposal records.	Responsibility: • Site Manager to ensure compliance with the guidelines as stipulated in the EMPr. • Compliance to be monitored by the Environmental Control Officer. Role: • Ensure regular vehicle maintenance only take place within the service bay area of the on-site workshop. If emergency repairs are needed on site, ensure drip trays is present.	Throughout Operational and Decommissioning Phase • Daily compliance monitoring by site management. • Quarterly compliance monitoring of site by an Environmental Control Officer. • Annual compliance monitoring of site by an Independent Environmental Control Officer.

APPROVED WHITTLESEA FBAR:SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
			• Ensure all waste products are disposed of in a 200 litre closed container/bin inside the emergency service area. • Collect any effluents containing oil, grease or other industrial substances in a suitable receptacle and removed from the site, either for resale or for appropriate disposal at a recognized facility. • Clean spills immediately to the satisfaction of the Regional Manager by removing the spillage together with the polluted soil and by disposing of them at a recognized facility. File proof. • Ensure the availability of suitable covered receptacles at all times and conveniently placed for the disposal of waste. • Store non-biodegradable refuse such as glass bottles, plastic bags, metal scrap, etc., in a container with a closable lid at a collecting point. Collection must take place on a regular basis and waste must be disposed of at the recognized landfill site. Prevent refuse from being dumped on or near the processing area. • Biodegradable refuse to be handled as indicated above.	

l) Indicate the frequency of the submission of the performance assessment/environmental audit report.

The Mineral and Petroleum Resources Development Regulations stipulates that performance assessment reporting should be done annually. The applicant / permit holder commits to submitting the performance assessment reports of the proposed processing activity annually to DMR for perusal.

m) Environmental Awareness Plan

i) Manner in which the applicant intends to inform his or her employees of any environmental risk which may result from their work.

Once mining of the proposed area starts a copy of the Basic Assessment Report and Environmental Management Programme report will be handed to the site manager during the site establishment meeting. Issues such as topsoil handling, site clearance, fire principals and hazardous waste handling will be discussed.

An induction meeting will be held with all the site workers to inform them of the Basic Rules of Conduct with regard to the environment.

ii) Manner in which risk will be dealt with in order to avoid pollution or the degradation of the environment.

The operations manager must ensure that he/she understands the EMPr document and its requirement and commitments before any mining takes place. An Environmental Control Officer needs to check compliance of the mining activity to the management programmes described in the EMPr.

The following list represents the basic steps towards environmental awareness, which all participants in this project must consider whilst carrying out their tasks

- **<u>Site Management:</u>**
  - Stay within boundaries of site – do not enter adjacent properties
  - Keep tools and material properly stored
  - Smoke only in designated areas
  - Use toilets provided – report full or leaking toilets

- **Water Management and Erosion:**
  - Check that rainwater flows around work areas and are not contaminated
  - Report any erosion
  - Check that dirty water is kept from clean water
  - Do not swim in or drink from streams

- **Waste Management:**
  - Take care of your own waste
  - Keep waste separate into labelled containers – report full bins
  - Place waste in containers and always close lid
  - Don't burn waste
  - Pick-up any litter laying around

- **Hazardous Waste Management (Petrol, Oil, Diesel, Grease)**
  - Never mix general waste with hazardous waste
  - Use only sealed, non-leaking containers
  - Keep all containers closed and store only in approved areas
  - Always put drip trays under vehicles and machinery
  - Empty drip trays after rain
  - Stop leaks and spills, if safe
    - ✓ Keep spilled liquids moving away
    - ✓ Immediately report the spill to the site manager/supervision
    - ✓ Locate spill kit/supplies and use to clean-up, if safe
    - ✓ Place spill clean-up wastes in proper containers
    - ✓ Label containers and move to approved storage area
- **Discoveries:**
  - Stop work immediately
  - Notify site manager/supervisor
  - Includes – Archaeological finds, Cultural artefacts, Contaminated water, Pipes, Containers, Tanks and drums, Any buried structures

- **Air Quality:**
  - Wear protection when working in very dusty areas

- Implement dust control measures:
  - ✓ Sweep paved roads
  - ✓ Water all roads and work areas
  - ✓ Minimize handling of material
  - ✓ Obey speed limit and cover trucks

- **Driving and Noise:**

  - Use only approved access roads
  - Respect speed limits
  - Only use turn-around areas – no crisscrossing through undisturbed areas
  - Avoid unnecessary loud noises
  - Report or repair noisy vehicles

- **Vegetation and Animal life:**

  - Do not remove any plants or trees without approval of the site manager
  - Do not collect fire wood
  - Do not catch, kill, harm, sell or play with any animal, reptile, bird or amphibian on site
  - Report any animal trapped in the work area
  - Do not set snares or raid nests for eggs or young

- **Fire Management:**

  - Do not light any fires on site, unless contained in a drum at demarcated area
  - Put cigarette butts in a rubbish bin
  - Do not smoke near gas, paints or petrol
  - Know the position of firefighting equipment
  - Report all fires
  - Don't burn waste or vegetation

n) Specific information required by the Competent Authority

(Among others, confirm that the financial provision will be reviewed annually)

The applicant / permit holder undertakes to annually review and update the financial provision calculation, upon which it will be submitted to DMR for review and approved as being sufficient to cover the environmental liability at the time and for closure of the mine at that time.

2. UNDERTAKING

The EAP herewith confirms

a) the correctness of the information provided in the reports **X**
b) the inclusion of comments and inputs from stakeholders and I&AP's **X**
c) the inclusion of inputs and recommendations from the specialist reports where relevant, and **X**
d) that the information provided by the EAP to interested and affected parties and any response by the EAP to comments or inputs made by interested and affected parties are correctly reflected herein **X**

Signature of the environmental assessment practitioner: **(Project Consultant)**

Greenmined Environmental

Name of Company:

8 July 2020

Date:

-END-