Revised Draft Environmental Management Programme (Second Revision)

South Coast Stone Crushers

DMR Ref: 87MR

Report Prepared for

South Coast Stone Crushers (Pty) Ltd.

Report Number 483383-EMPr

Report Prepared by

srk consulting

August 2016

Revised Draft Environmental Management Programme (Second Revision)

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DMR Ref: 87MR

South Coast Stone Crushers (Pty) Ltd.

SRK Consulting (South Africa) (Pty) Ltd.
Section A Second Floor
Norfolk House
54 Norfolk Terrace
Westville 3630
South Africa

e-mail: durban@srk.co.za
website: www.srk.co.za

Tel: +27 (0) 31 279 1200
Fax: +27 (0) 31 279 1204

SRK Project Number 483383

August 2016

Compiled by:

Romi Bellusci
Environmental Scientist

Wouter Jordaan (Pr. Sci. Nat)
Principal Scientist

Email: wjordaan@srk.co.za

Reviewed by:

Andy Smithen (Pr. Eng)
Partner

Authors:

Ms. R. Bellusci and Mr. W. Jordaan

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Abbreviations

BID	Background Information Document
DEA	Department of Environmental Affairs
DMR	Department of Mineral Resources
DoH	Department of Health
DWS	Department of Water and Sanitation
EDTEA	Department of Economic Development Tourism and Environmental Affairs
EIA	Environmental Impact Assessment
EKZNW	Ezemvelo KZN Wildlife
EMPr	Environmental Management Programme
EO	Environmental Officer
IAP	Interested and Affected Party
IAR	Impact Assessment Report
LoM	Life of Mine
MPRDA	Minerals and Petroleum Resources Development Act
NEMA	National Environmental Management Act
PPP	Public Participation Process
QM	Quarry Manager
QP	Quarry Planner
SCC	Species of Conservational Concern
SCSC	South Coast Stone Crushers (Pty) Ltd
SHEO	Safety Health and Environmental Officer
SRK	SRK Consulting South Africa (Pty) Ltd
WUL	Water Use Licence

Disclaimer

The opinions expressed in this Report have been based on the information supplied to SRK Consulting (South Africa) (Pty) Ltd. (SRK) by South Coast Stone Crushers (Pty) Ltd. (SCSC). SRK has exercised all due care in reviewing the supplied information from SCSC and specialist studies which were undertaken. Whilst SRK has evaluated the information supplied, the accuracy of and conclusions of the EMPr are entirely reliant on the accuracy and completeness of the supplied data.

SRK does not accept responsibility for any errors or omissions in the supplied information and does not accept any consequential liability arising from commercial decisions or actions resulting from them. Opinions presented in this report apply to the site conditions and features as they existed at the time of SRK's investigations, and those reasonably foreseeable. These opinions do not necessarily apply to conditions and features that may arise after the date of this Report, about which SRK had no prior knowledge nor had the opportunity to evaluate.

1 Introduction

1.1 Background and History

South Coast Stone Crushers (Pty) Ltd. (SCSC) operates a quarry approximately 4.5 km north of Margate, KwaZulu-Natal. The mine is also known as the Margate Quarry and the active mining area is located on Lots 1995, 1996, 2000 and 2001 of Uvongo within the Ugu District Municipality, KwaZulu-Natal. The title holder of the property is South Coast Stone Crushers (Pty) Ltd. (Registration number 1986/000560/07).

The mine has been operational for the past 45 years and is a primary supplier of aggregates to the construction industry in the area. The mineral deposit that is mined is Dwyka tillite rock, which is mined via an open cast mining method. Once mined, the blue-grey tillite is processed (crushed and sifted) and transported to stockpiles of different sizes. The aggregate is loaded from the stockpiles onto trucks and transported to SCSC's customers.

SCSC is proposing to expand the mining operations onto the adjacent Lots 1997, 1998 and a portion of Lot 1994 and has been issued with an amended Mining Right in terms of Section 102 of the Minerals and Petroleum Resources Development Act (No. 28 of 2002) (MPRDA) on the 04th of October 2011 for the inclusion of these properties into the Mining Right (**Ref: 02/2007 MRC**) (see Appendix A). The amended mining right, covers a surveyed area of 34.4665 hectares and comprises of Lots 1995, 1996, 2000, 2001, 1997, 1998 and a portion of Lot 1994 of Uvongo. The mining area is intersected by the Vungu River which meanders through the Lots.

The Department of Mineral Resources (DMR) has requested that the existing EMPR[1] be updated and amended to make provision for the new Lots to be mined, i.e. Lots 1997, 1998 and 1994 and to align the EMPR with the National Environmental Management Act (No. 107 of 1998) (NEMA) Environmental Impact Assessment (EIA) Regulations (2014) for EMPr's.

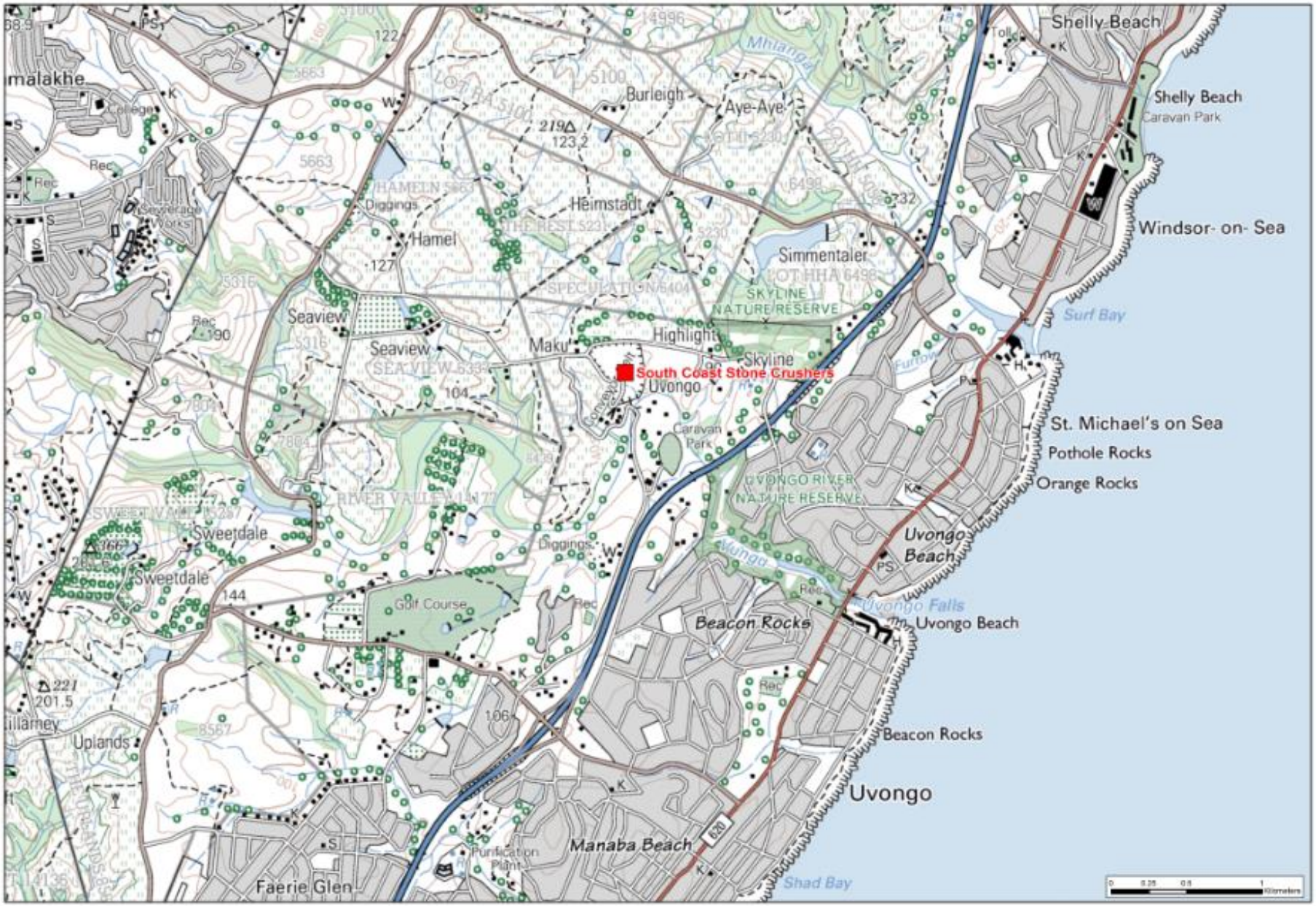
1.2 Phasing of Mining Operations

As the existing reserves on Lots 1995, 1996 and 2000 are nearing exhaustion, SCSC plans to expand the quarry by straightening the benches on the western side of the quarry, which forms part of Portion 5 of Lot 1994 (see **Figure 1**). This will provide an additional 6.2545 ha to be mined, which comprises of a geological reserve estimated at approximately 537 420 tons at a 95% recovery rate. It is estimated that the reserve would, in the short term, extend the Life of Mine (LoM) by approximately 3-5 years.

Once Portion 5 of Lot 1994 has been mined, SCSC will extend mining onto Lot 1997 followed by Lot 1998. It is estimated that Erf 1997 has a geological reserve of approximately 1,73 million tons of tillite and Erf 1998 has a reserve of approximately 1,9 million tons. Combined these two sites, if mined in future, could extend the LoM by an additional 14-15 years. It must also be noted that the intricacies of the mining process has not been assessed in detail at this stage of design.

The focus of SCSC is currently to extend mining to Lot 1994 and the EMPr provides specific management measures for Lot 1994. Generic management measures are proposed for Lots 1997 and 1998 as these Lots will only be mined once the benches have been straightened on Lot 1994, i.e. by the year 2021. The EMPr will need to be updated with further specialist assessments prior to mining activities expanding to 1997 and 1998.

1 The acronyms "EMPR" and "EMPr" are used in this document as follows: EMPR (all capital letters) refers to the Environmental Management Programme Report compiled under the MPRDA in 2000 and the EMPr (small "r") refers to the Environmental Management Programme compiled in 2015 in terms of the requirements of Appendix 4 of the NEMA EIA Regulations (2014). The EMPr includes the provisions of the amended mining right issued by the DMR to SCSC in 2011.



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SOUTH COAST STONE CRUSHERS
LOCALITY MAP

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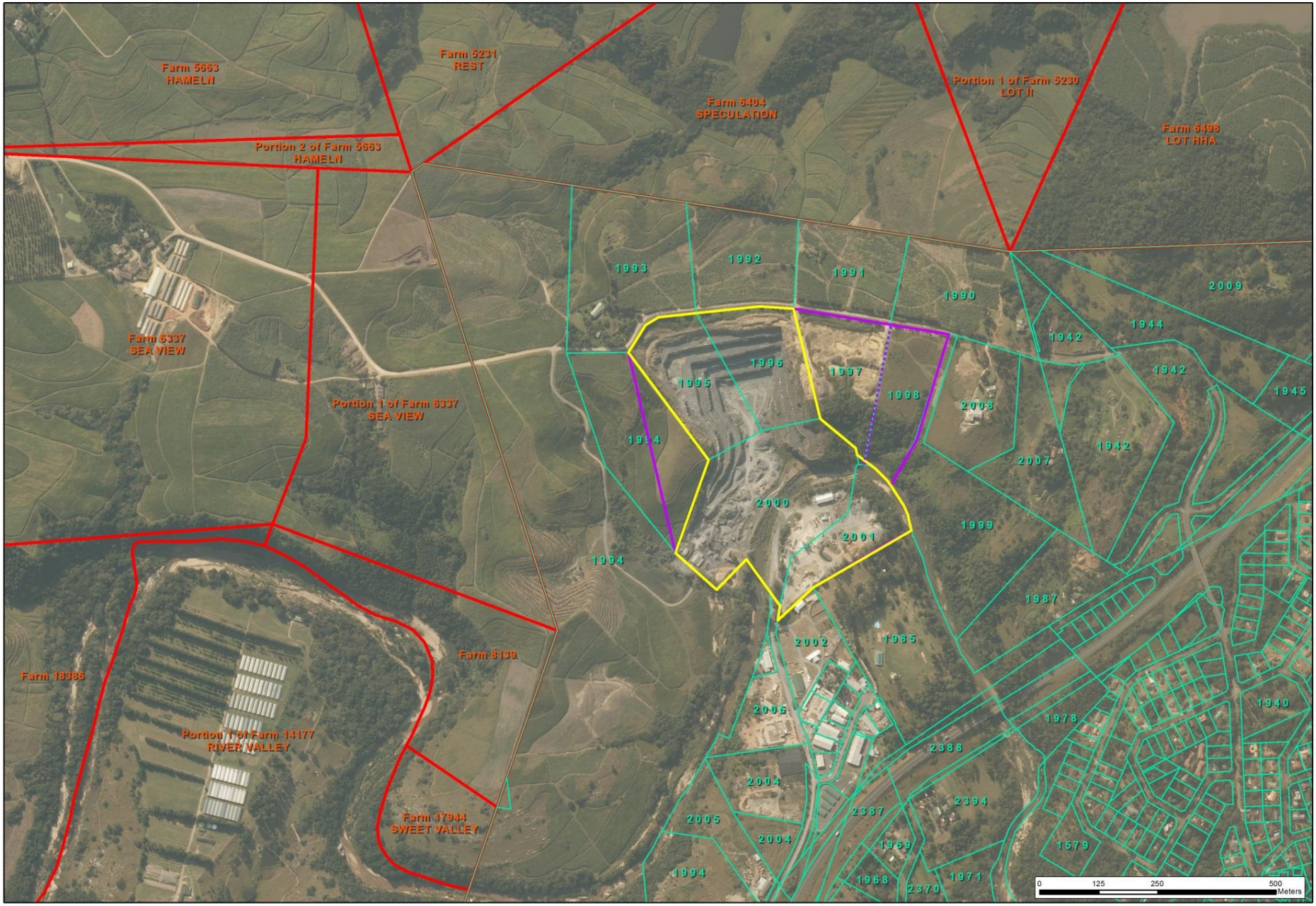

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SOUTH COAST STONE CRUSHERS

AERIAL IMAGE INDICATING THE EXISTING AND NEW MINING AREAS

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1.3 Purpose of the EMPr

The Environmental Management Programme (EMPr) report serves as a revision and update to the EMPR produced under the MPRDA in 2000, and replaces all previous versions as of July 2016.

The primary reasons for the revision and update are threefold:

1. The existing EMPR is outdated as it excludes the new Lots 1997, 1998 and Portion 5 of Lot 1994. The aspects of SCSC's operations which may have potential environmental impacts on these Lots have not previously been identified or assessed. As such, no management or monitoring measures have been established for these areas. Specialist assessments have been undertaken on these portions and were used to inform management and monitoring requirements for inclusion into the EMPr. A separate Impact Assessment Report (IAR) was compiled to inform the EMPr. The IAR is attached as Appendix B.
2. The existing EMPR was compiled under the MPRDA in 2000. The MPRDA requirements for EMPR's were repealed and replaced on the 4th of December 2014 with the requirements of the NEMA, as outlined in Appendix 4 of the EIA Regulations (GNR 982 of 2014). The format of the EMPR, compiled in the year 2000, is outdated and needed to be aligned with the NEMA format.
3. The revision of the EMPr provided SCSC the opportunity to optimise management efficiency by updating the management and monitoring requirements for existing aspects and by aligning these measures with current legislation.

1.4 Objectives of the EMPr

The main objectives of this EMPr are as follows:

- To identify on-site developments that occurred from 2000 – 2016 and compare them to existing management measures in an effort to assess the accuracy of the EMPr and propose additional measures for implementation and remove measures no longer required;
- Update the EMPr to include the mining expansion portions;
- Align the EMPr with current environmental legislation which was not in place in the year 2000;
- To ensure that the surrounding landowners, tenants and public are made aware of the EMPr; and given opportunity to comment thereon;
- There are currently two tenants (lessees) operating within the mining area, i.e. National Asphalt (an asphalt producer) on a portion of Lot 2000 and NPC Concrete who operates a concrete batching plant on a portion of Lot 2001. Management and monitoring measures had to be established for the tenants to limit the risk of impacts on land for which SCSC is responsible;
- Assess aspects and impacts associated with the current and proposed mining activities;
- To compile a management plan to address the adverse impacts of mining (as well as knowledge gaps where appropriate) and to ensure that they are successfully managed or addressed, during the operational stages of mining;
- To compile a management plan that will aim to provide for an ecologically stable surface, aesthetically acceptable, and with an end result that will be achievable and in-line with the surrounding land use practices; and
- To review the closure and rehabilitation measures and associated liabilities, in-line with current operations.

2 Outline of the EMPr

The EMPr aims to outline the management of impacts in compliance with the requirements of Appendix 4 of the NEMA, EIA Regulations (2014). Further details regarding the EMPr requirements and the content of this report are provided in Table 2-1 below.

Table 2-1: Content of the EMPr

Information Required in terms of the Appendix 4 of the EIA Regulations – Content of EMPr	Reference in the EMPr (this report)
(a) details of - (i) the EAP who prepared the EMPr; and (ii) the expertise of that EAP to prepare an EMPr, including a curriculum vitae	Section 3
(b) a detailed description of the aspects of the activity that are covered by the EMPr as identified by the project description	Section 10
(c) a map 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	Figure 4 (It is not expected that the existing infrastructure within the quarry will be moved).
(d) a description of the impact management objectives, including management statements, identifying the impacts and risks that need to be avoided, managed and mitigated as identified through the environmental impact assessment process for all phases of the development including- (i) planning and design; (ii) pre-mining activities; (iii) mining activities; and (iv) rehabilitation of the environment after expansion and where applicable post closure	Section 10
(e) a description and identification of impact management outcomes required for the aspects contemplated in paragraph (d)	Section 10
(f) a description of proposed impact management actions, identifying the manner in which the impact management objectives and outcomes contemplated in paragraphs (d) and (e) will be achieved, and must, where applicable, include actions to – (i) avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation; (ii) comply with any prescribed environmental management standards or practices; (iii) comply with any applicable provisions of the Act regarding closure, where applicable; and (iv) comply with any provisions of the Act regarding financial provisions for rehabilitation, where applicable	Section 10
(g) the method of monitoring the implementation of the impact management actions contemplated in paragraph (f)	Section 11
(h) the frequency of monitoring the implementation of the impact management actions contemplated in paragraph (f)	Section 11
(i) an indication of the persons who will be responsible for the implementation of the impact management actions	Section 10
(j) the time periods within which the impact management actions contemplated in paragraph (f) must be implemented	Section 10
(k) the mechanism for monitoring compliance with the impact management actions contemplated in paragraph (f)	Section 11
(l) a program for reporting on compliance, taking into account the requirements as prescribed by the Regulations	Section 11
(m) an environmental awareness plan describing the manner in which- (i) the applicant intends to inform his or her employees of any environmental risk which may result from their work; and (ii) risks must be dealt with in order to avoid pollution or the degradation of the environment	Section 12
(n) any specific information that may be required by the competent authority	N/A

3 Authors of the EMPr

SRK Consulting has been appointed to amend and revise the existing EMPR drafted for SCSC.

Table 3-1 provides information on the compilers of this document and their related experience.

Table 3-1: Details of the EAP team

Name	Qualifications	Years of experience
Andrew Smithen Pr. Eng.	M.Sc (Eng) MBL	26 years
Wouter Jordaan Pr. Sci. Nat.	B.Sc. (Hons) Geography and Environmental Management	15 years
Romi Bellusci	BA (Hons) Environmental Sciences	5 years

This EMPr has been developed by the SRK project team as stated in Table 3-1.

Any queries regarding the EMPr can be addressed to:

Mr. W. Jordaan or Ms. R. Bellusci
SRK Consulting (SA) (Pty) Ltd
PO Box 1969, Westville
3629
Tel: +27 (0)31 279 1200
Fax: + 27 (0)31 279 1204

CV's of the environmental scientists and practitioners listed above are included in **Appendix C**.

4 Mine Management

The quarry is owned by SCSC and the current Mine Manager is Mr. Lindani Mkungo.

Table 4-1: Table describing the mine management

		Name	Address	Telephone	Fax
1.1	Mine	Margate Quarry	PO Box 15245, Bellair, 4006	039 3159559	039 3156325
1.2	Mine Owner	South Coast Stone Crushers (Pty) Ltd	PO Box 15245, Bellair, 4006	039 3159559	039 3156325
1.3	Manager/ Responsible Person	Mr. Lindani Mkungo	PO Box 15245, Bellair, 4006	039 3159568	039 3156325
1.4	Mineral Rights Holder	State (Department of Mineral Resources)	Lots 1995, 1996, 1997, 1998 2000, 2001 and Portion 5 of Lot 1994 of Uvongo	031 333 9400	031 333 9475
1.5	Applicant	South Coast Stone Crushers (Pty) Ltd	PO Box 15245, Bellair, 4006	039 3159559	039 3156325
1.6	Landowner	South Coast Stone Crushers (Pty) Ltd	Lots 1995, 1996, 1997, 1998 2000, 2001 and Portion 5 of Lot 1994 of Uvongo	039 3159559	039 3156325
1.7	Mine Engineer	Mr. Dave Round	PO Box 15245, Bellair, 4006	039 315 9556	039 3156325
1.8	Area Manager	Mr. Jaco Bezuidenhout		039 3159555	039 3156325

5 Brief Site Overview

This section only provides a brief overview of the key environmental features of the area and the current and proposed operations at the quarry. For detailed information on the Environmental Setting and Environmental Impact Assessments undertaken by selected specialists, refer to Appendix B which contains the Environmental Impact Assessment Report for the mine.

5.1 Regional Setting

The mine is located over Portion 5 of Lot 1994 and Lots 1995, 1996, 1997, 1998, 2000 and 2001 Uvongo, in the Margate Transitional Local Council of the Ugu District Municipality in KwaZulu-Natal (**Figure 1**). The site is situated approximately 2km northwest of Uvongo and 5km north of Margate. The Vungu River meanders through the site before it meets the Indian Ocean approximately 2km to the southeast.

The site is accessed via Quarry Road which is linked to the R61 main road, via the Wingate Road off-ramp. The mine is situated on the western side of the R61 with the residential area of Uvongo situated on the eastern side of the R61.

The most prominent landuse to the north, west and southwest of the mining area is sugar cane, banana cultivation and macadamia plantations which is undertaken in a rural agricultural setting. A small commercial and light industrial complex is situated directly to the south of the site. Small business associated with the building and construction industry has developed along Quarry Road, stretching from the R61 to the site.

The area to the northeast of the site, between the site and the R61, comprises two nature reserves. The landuse directly to the east of the site comprise a small holding, a municipal water treatment works interspersed by semi-natural areas. Further east, across the R61 is the residential area of Uvongo which is a popular holiday destination.

Three residential dwellings are located within a 500m radius of the site, these include:

- A house on a small holding directly across the road on the northwestern boundary;
- A house on a small holding adjacent (directly east) to Lot 1998 (to be mined in future); and
- A double storey house approximately 100m northeast of the corner of Lot 1998.

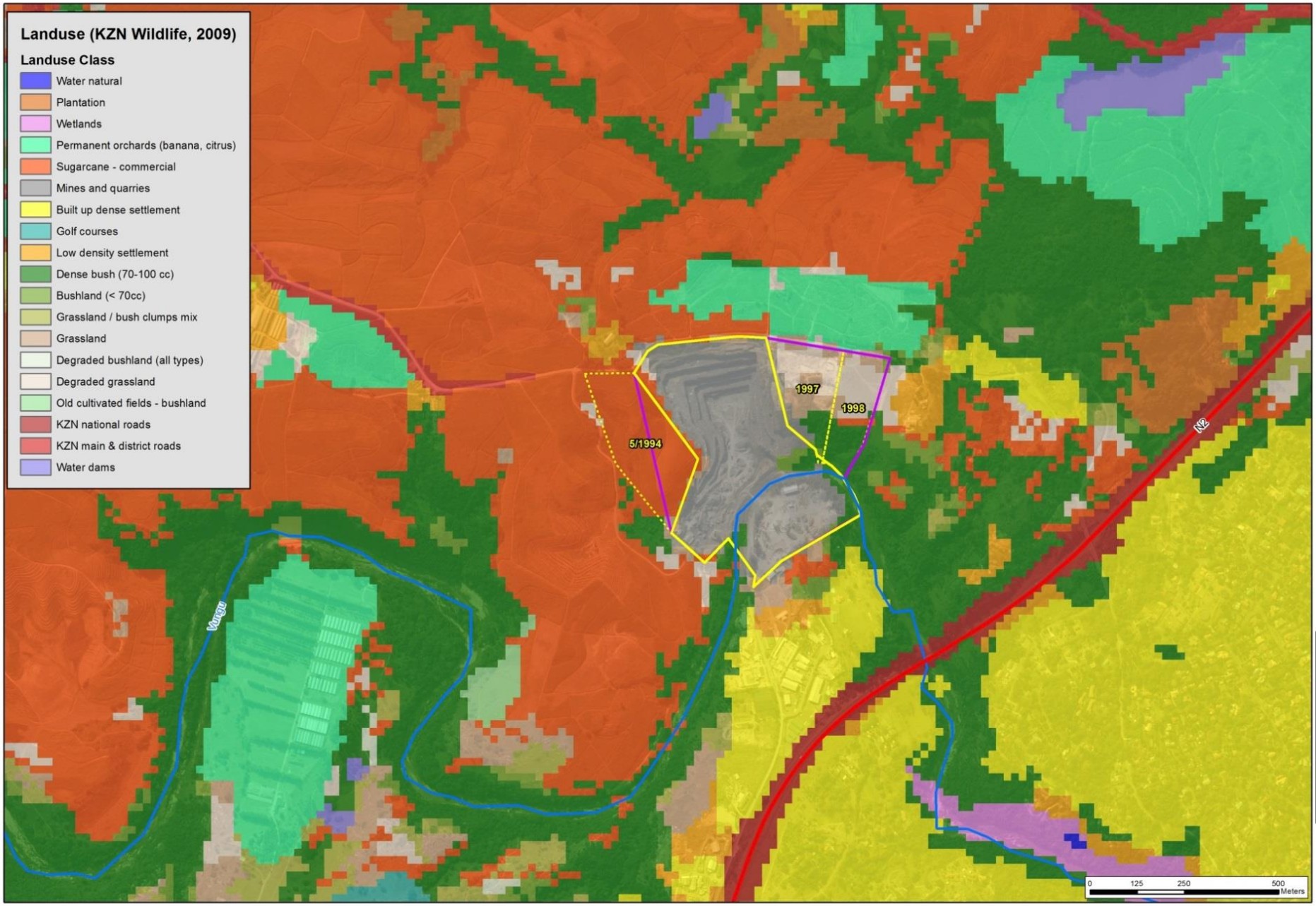
An informal settlement has established between the small businesses on the right hand side of Quarry Road, approximately 1.2km from the site.

5.2 Environmental Attributes

The topography of the surrounding area is undulating and is characterised by incised meandering river valleys and low rolling hillsides which is typical of the area. Due to extensive development in the area, natural areas are confined to valleys, water courses and protected areas, such as nature reserves. A map indicating these land uses is shown in **Figure 3**.

The most prominent environmental feature in the area is the meandering Vungu River, which is fed by a wide catchment to the west and northwest. The river enters the mine area from the southwest, forms a hoof shape pointing to the north and exits the site to the east before turning southeast. The river then enters the Indian Ocean next to the Uvongo Beach 2km to the southeast.

The current mining area and the proposed extension areas fall within four habitat units namely; transformed habitat unit, riparian habitat unit, coastal grassland habitat unit and coastal forest habitat unit. There are several floral species of conservational concern (SCC) found within the current mining site and the areas which SCSC intends on extending into.



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EMPR AMENDMENT: SOUTH COAST STONE CRUSHERS

SURROUNDING LANDUSE

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5.3 Description of the Existing Mine Layout

Access to the mine is through two dedicated access controlled security gates. The main gate is located along the southern perimeter of the site, at the end of Quarry Road. The second smaller gate is situated on the western side of the Vungu River, next to the workshop area. Both gates are security controlled.

The mine is intersected by the Vungu River, splitting the mine into two distinct areas i.e. the southeastern and the northwestern sections. The northwestern portion comprises the quarry, aggregate stockpiles, conveyors, crushing and screening plant, settling system, site offices and quarry workshop. SCSC's operations are exclusively taking place on the northwestern section. The area on which SCSC operates is linked to the southeastern section and main entrance with a low level concrete bridge across the Vungu River. There is a haul route on the eastern perimeter of Lot 1994, this haul road was not constructed by SCSC, it was pre-existing when SCSC bought over the mine. The haul route is used by haul trucks, emergency, service vehicles and local community.

Beyond the Vungu River lies land which has been leased out to National Asphalt and NPC Concrete (Pty) Ltd. Margate Operations. Both these companies lease out the southern section of the mine property and both companies use mobile batching plant assemblages. The layout of the southern section of the mine comprises of the contractor's workshop, fuel dispensers, a National Asphalt batching plant and NPC Concrete. Beyond NPC Concrete lies the main entrance gate. A plan showing the mine layout, on which the major components of the operation are marked, is provided in **Figure 4**. The proposed expansion areas are delineated by dotted lines. The area to the east of the quarry has been mined by a local clay miner and therefore most of Lot 1997 has already been cleared of vegetation and topsoil.

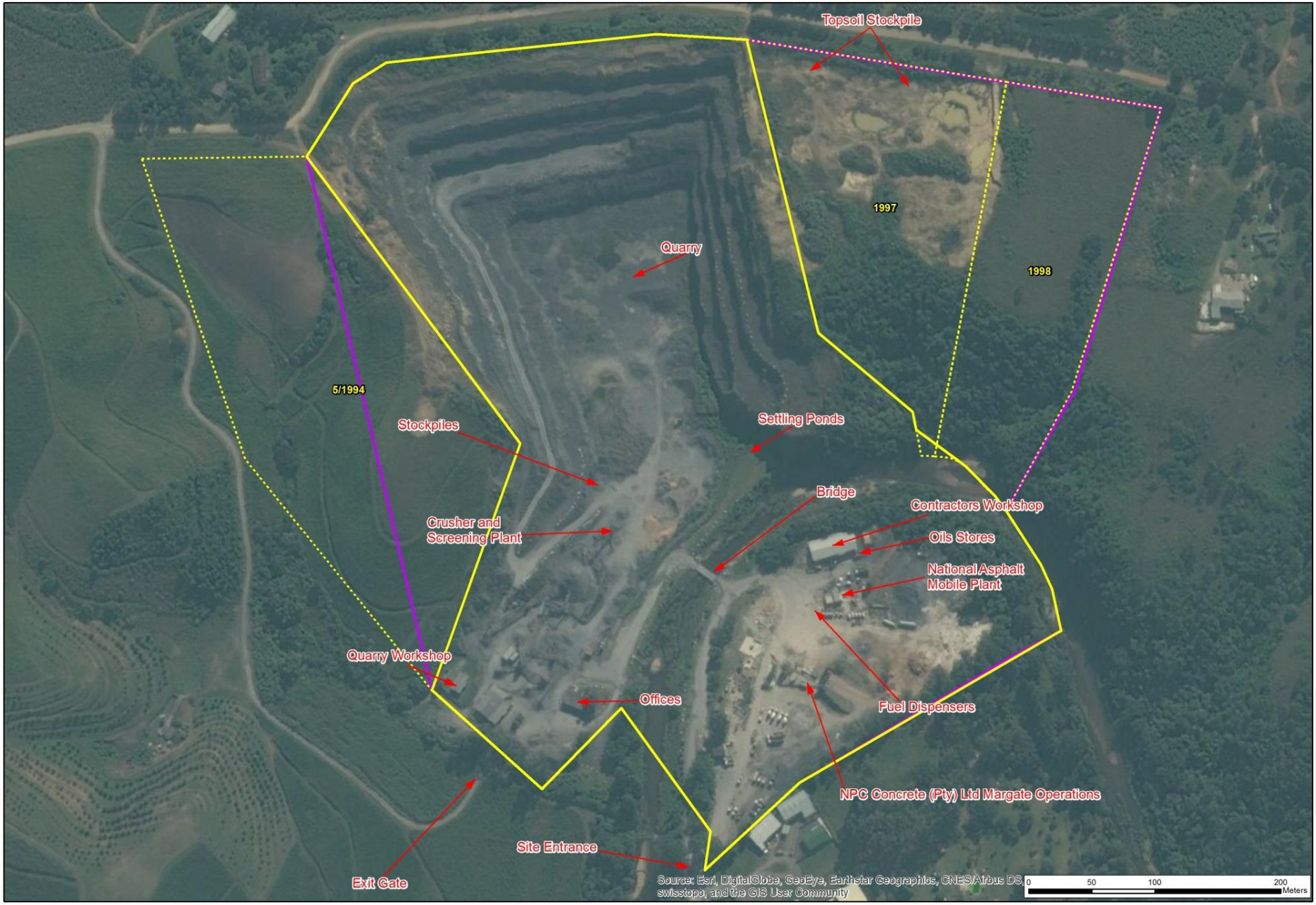
5.4 Description of the Future Mine Layout

SCSC will mine Portion 5 of 1994 in the short term which will involve the straightening of the western benches of the existing quarry (See Figure 5). Only a triangular section of the portion will be mined in order to avoid impacting on a wetland and a small stream that was identified on Lot 1994. It is expected that the existing haul road will remain in place and that no changes will be required to the processing plant. The mine has however indicated that it will upgrade the site's stormwater infrastructure to comply with the National Water Act (No. 36 of 1998) and its associated Water Use Licence (WUL) requirements. In this regard a WUL has been commissioned and an Integrated Water and Waste Management Plan (IWWMP) was compiled by WSP and submitted to the Department of Water and Sanitation (DWS) in May 2016.

The tillite reserves on Lot 5 are estimated to be mined over a five year period. Once Portion 5 of Lot 1994 has been mined, the existing northern benches of the quarry will be extended in an easterly direction onto Lot 1997. Opencast mining will continue into the eastern wall of the quarry through Lot 1997 and later 1998. The long-term mine layout plan is attached as **Figure 5.**

5.5 Limitation

This EMPr focusses mainly on the existing mine area and the proposed mining of Portion 5 of Lot 1994 and should be updated upon further studies for Lots 1997 and 1998. At this stage generic management and mitigation measures are provided for Lots 1997 and 1998. This is mainly due to the fact that the mine management are still determining the approach to mine Lots 1997 and 1998 and to optimise the mine layout to make provision for the haulage of rock to the processing plant and to avoid impacting on the Vungu River.



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SOUTH COAST STONE CRUSHERS
EXISTING AND PROPOSED MINE LAYOUT

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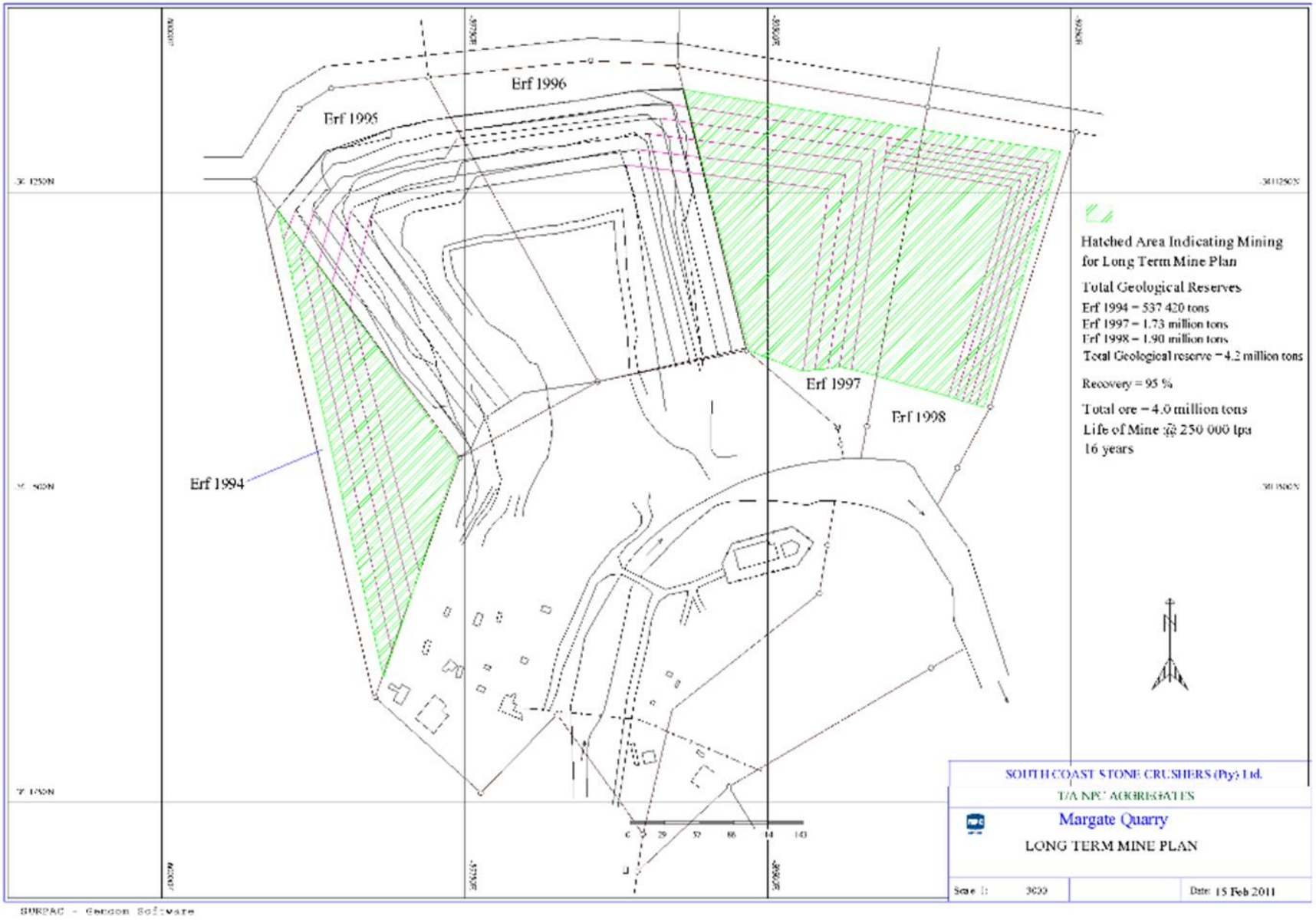

Figure 5 Long Term Mine Layout Plan

6 Applicable Legislation, Policies and Guidelines

6.1 Legislative Requirements for the EMPr

Appendix 4 of the NEMA, EIA Regulations (2014) sets out the content of an EMPr. This EMPr has been developed in fulfilment of these requirements for the existing mine and the proposed quarry expansion.

The following is a list of all legislation, policies and/or guidelines of relevant spheres of Government that have been considered and that may be applicable to the mining activity.

Table 6-1: Applicable Legislation

Title of legislation, policy or guideline	Administering authority	Description
Constitution of the Republic of South Africa, Act 108 of 1996		The constitution provides the legal foundation for the republic of South Africa
National Environmental Management Act (Act No. 107 of 1998), as amended in 2010	KwaZulu-Natal Department of Economic Development Tourism and Environmental Affairs (EDTEA)/ Department of Environmental Affairs (DEA)	NEMA is the overarching framework guiding all aspects relating to the environment, all industries that have the potential to impact on the environment must abide by the relevant legislation, policies and guidelines pertaining to their activity under NEMA.
Minerals and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002)	KwaZulu-Natal Department of Mineral Resources (DMR)	The MPRDA promotes economic growth through mining and governs the mining rights and mining processes.
National Environmental Management Biodiversity Act, 2004 (No. 10 of 2004)	Department of Environmental Affairs (DEA)	Provides guidance and regulations on the protection and preservation of fauna and flora species.
National Water Act, 1998 (Act No. 36 of 1998)	KwaZulu-Natal Department of Water and Sanitation (DWS)	The Water Act governs all aspects relating to the access to and use of water as well as the release of substances into water reserves.
National Heritage Resources Act No. 25 of 1999	AMAFA	Provides guidance on the protection and conservation on living and intangible heritage resources.
KwaZulu-Natal Heritage Act, 2008 (No. 04 of 2008)	AMAFA	
National Environmental Management Waste Act, 2008 (Act 59 of 2008)	KwaZulu-Natal Department of Economic Development Tourism and Environmental Affairs (EDTEA)/ Department of Environmental Affairs (DEA)	The Waste Act governs all aspects relating to the production and use of waste.
National Environment Management: Air Quality Act, 2004 (Act No. 39 of 2004)	Air quality officer (district municipality)	The purpose of NEM:AQA is to provide guidelines and regulations on the release of substances into the air.

This EMPr, which should form an integral part of the contract documents that informs the tenants and SCSC as to their duties in the fulfilment of the site objectives, with particular reference to the prevention and mitigation of environmental impacts caused by activities associated with the mining

activities and the proposed expansion areas. All parties should note that obligations imposed by the EMPr are legally binding in terms of environmental statutory legislation.

SCSC and its tenants must sign the declaration of acceptance of the EMPr, included at the end of this document.

7 Public Participation Process

As the MPRDA does not specify procedures for public participation, SRK has taken cognisance of the requirements for public participation in terms of the NEMA EIA Regulations (2014) as amended, and has ensured that the public participation principles are upheld.

The Public Participation Process (PPP) is aimed to achieve the following objectives:

- Identify and notify Interested and Affected Parties (IAPs) of the proposed activity;
- Provide IAPs with the opportunity to comment on the proposed activity and to raise issues and concerns; and
- Document and respond to IAP issues and concerns and ensure necessary mitigation measures are formulated.

7.1 Interested and Affected Parties

The following Interested and Affected Parties were identified:

- Department of Mineral Resources (DMR);
- Department of Water and Sanitation (DWS);
- Department of Economic Development, Tourism and Environmental Affairs (EDTEA);
- Department of Health (DoH);
- Ezemvelo KZN Wildlife (EKZNW);
- Amafa KwaZulu-Natali;
- Ugu District Municipality;
- Hibiscus Coast Local Municipality;
- Skyline Nature Reserve;
- Uvongo River Nature Reserve;
- Neighbouring farmers and landowners;
- Surrounding Industries; and
- Tenants on SCSC property.

7.2 Public Involvement

- A Newspaper advertisement was lodged in the South Coast Herald on the 20th of November 2014 notifying the public of the revision and proposed extension of the mining area (Appendix D);
- A Background Information Document (BID) was prepared and distributed to IAPs and surrounding landowners on the 26th of November 2014 (Appendix E). The BID briefly described the proposed amendment to the EMPr;
- Amended notification letters describing the process in alignment with the amendment to NEMA, was distributed to IAPs on the 17th of August 2015 (Appendix F);
- Site notices were placed at suitable locations notifying IAPs (Appendix G);
- A list of all the IAPs is attached to Appendix H;

- Comments and responses received on the BID and notification letters has been included in Appendix I.
- Comments and responses received on the Draft EMPr and notification letters has been included in Appendix I.

A summary of I&AP comments SRK''s responses to these comments is provided in Table 7-1].

Table 7-1: Comments and Responses Table

Date	IAP	Organisation	Comments/Issues/Concern	Response
26 November 2014	Mr. Richard Coke		Please will you register the following as an affected party The owners of Lot 1987 OVONGO Mr. R. A. Coke Mrs. L. Roborg-Coke (please note my wife) Mr. V. A. Adlem Mr. E. R. Adlem We were made aware of the quarry and its operations during the course of the purchase of this property. At that time there was no mention made of future expansion work to the quarry owners / operators. 1. Please note that our property is in the immediate vicinity of the overall quarry site. 2. Could you please supply us with a drawing of the lots of land owned by the quarry with the position of our property shown on the drawing. 3. At this stage we appear to be affected by the proposed expansion programme, nevertheless let us enter into an open discussion where the intention can be fully disclosed before opposition becomes necessary. It is hoped that a fair outcome for all parties involved can be arrived at. 4. We note that a Department of Water Affairs research document read on the internet states that the quarry works impact the Vungu River water quality and that the river from the work-site is viewed as being "environmentally dead". 5. We were given to understand that in terms of the current EMP, the owners / operators of the quarry are under an obligation to rehabilitate the quarry site as work proceeds using both non-invasive grasses and also trees. To Date we are not aware of any trees being planted and duly cared for. This eventuality is of concern for further works and expansion. 6. In relation to point No.4 above, it is unfortunate that many developers will promise anything to gain approval, but they seldom implement their promises fully and plead	(04 December 2014) Dear Mr. Coke We are still in the process of drafting you a formal response. However in the mean-time, please see attached map depicting the proposed development in relation to your property. (11 February 2015) This letter serves as a response to the letter submitted by you to SRK Consulting (Pty) Ltd (SRK) on the 26 November 2014. The compilation of the EMPR and our response has been delayed due to a change in legislation on 08 December 2014, which may have implications for the project. Therefore we are providing an interim response to your queries, where possible. In response to your queries, the following refers: • A map showing the location of your property in relation to the proposed extension was emailed to you on 4 December 2014; • There will be a section within the EMPR that will address the rehabilitation of the quarry and a rehabilitation plan will be compiled and included in the EMPR • In terms of water quality, South Coast Stone Crushers (SCSC) currently undertakes yearly monitoring and the EMPR will recommend ongoing monitoring and the results of historical analysis will be made available in the Draft EMPR and the Water Use Licence (WULA) currently underway for the project. • As part of the WULA process a meeting will be held with the Department of Water and Sanitation (DWS) to assess and address any water related issues, any requirements specified by the DWS will be adhered to; and • Currently there is no directive from the Department of Mineral Resources (DMR) which enforces independent

Date	IAP	Organisation	Comments/Issues/Concern	Response
			poverty to escape prosecution. There needs to be an independent officer appointed to oversee the EMP implementation particularly the rehabilitation aspects thereof. It is our opinion that infrequent control inspections result in further damage and costs to the environment. The EMP rehabilitation plan needs to be implemented long before closure of the work-site takes place; this opinion is held due to the high cost of rehabilitation, which is made worse of left until after closure of the work-site. If it necessary, please register Mr. R. A. Coke as the representative / contact person for the owners of Lot 1987. Note that Mr. Coke is one of the owners of the Lot 1987.	monitoring for compliance with the EMPR. Should the DMR issue such a Directive SCSC will undertake such monitoring. As per your request, SRK has added you and the listed persons to the Interested and Affected Parties (IAP) database and you will be notified of the submission of the Draft EMPR, should you wish to review the document and provide comments. A wetland assessment is currently underway and the EMPR will be updated with the wetland specialist's findings and recommendations prior to circulation for comment.
08 December 2014	Ms. F. Mhlongo	Hibuscus Coast Municipality	Kindly send a copy of the EMPr in order for the Municipality to comment accordingly.	Comment was noted and a copy of the Draft EMPr was subsequently submitted to the Hibiscus Coast Municipality.
30 January 2015	Ms. K. Methula	DWS	Reference is made to the afore-mentioned document submitted to this Office, dated November 2014. This Department has no objection to the proposed extension of the existing mining area. The Environmental Management Programme must address the following: 1. The management of solid waste material generated by the operation. 2. A stormwater management plan/system for the site. 3. Wastewater and sewage treatment and/or management 4. Erosion control measures implemented on site. 5. Management of overburden. 6. Spill contingency plan. In addition to the above, the following is applicable: 1. It is understood that the site is bounded by a watercourse; this Department would like to bring to the attention of the Applicant that a Water Use Authorisation is required for all activities within the riparian habitat or 1: 100 year flood line or a horizontal distance of 100 meters from any watercourse. In addition, any activity taking place within a 500 m radius from the boundary of a	This letter serves in response to the letter received from the Department of Water and Sanitation (DWS) on the 30 January 2015. The compilation of the Environmental Management Programme (EMPr) and our response has been delayed due to a change in environmental legislation which came into effect on 04 December 2014 and has implications on the structure of the amended EMPr (also refer to our letter attached to appendix A of this letter). In response to your requirements the following refers: • The management of solid waste will be addressed in the EMPr; • A stormwater management plan is being compiled and will be appended to the EMPr; • Wastewater and sewage treatment on site will be addressed in the EMPr; • Erosion control and management of spoil will be addressed in the EMPr; and • A Spill contingency plan will be appended to the EMPr.

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			wetland requires a Water Use Licence. 2. Please note that no person may use water otherwise as permitted under the National Water Act (Act No 36 of 1998) (NWA). Commencing with a water use in terms of Section 21 of the NWA without prior authorisation from this Department is unlawful in terms of Section 151 of the NWA and the water user will be guilty of an offence and liable for a fine or imprisonment as stipulated in Section 151 of the NWA. 3. It is the responsibility of the applicant to identify all water uses applicable to his undertakings in terms of Section 21 of the NWA and ensure that all applicable water uses are authorised as such. The Applicant must consult with this Department if clarity is required with regard to water uses and water use authorisations. 4.This Department recommends that a pre-application meeting be held with the representatives of and/or the Applicant to discuss the technical requirements necessary for the submission of the Water Use Licence Application. Please contact Ms Zamashenge Hadebe of this Department's Water Use Authorisation Unit on (031) 336 *276712700* in this regard. 5. Notwithstanding the above, the responsibility rests with the Applicant to identify all sources or potential sources of pollution from its undertaking and to take appropriate measures to prevent any pollution of the environment. Failure to comply with the requirements of the NWA could lead to legal action being instituted against the Applicant.	A Water Use Licence (WUL) is in the process of being applied for by South Coast Stone Crushers (SCSC) and a pre-application meeting and site visit has been held with DWS. Specialist studies are currently underway and the EMPr will be updated with the specialist's findings and recommendations prior to circulation for comment. The Draft EMPr is expected to be finalised and released for comment by the end of October
12 February 2015	Mr. Richard Coke		Thank you for your letter dated 11th February 2015. I have taken note that this is an interim response while the process develops. Please note that it is my opinion as a Civil Engineer who has worked in the field of discharging treated wastewater to a river, that "annual monitoring" is inadequate at this particular site. (I assume that "annual monitoring" means assessing the water quality of the river once a year.) The quarry is immediately adjacent the water coarse of the	(18 August 2015) Dear Mr. Coke Apologies for the delay in our response to you, the project was placed on hold due to a changes in legislation. Since our last correspondence with you specialist studies have been commissioned. You had previously highlighted your concerns around the monitoring of water quality in the Vungu River, please note that an Aquatic and Terrestrial biodiversity Impact Assessment has been commissioned. This assessment and the specialist recommendation will be used to inform the monitoring requirements which will be

Date	IAP	Organisation	Comments/Issues/Concern	Response
			Vungu River and the "works" actually straddle the river. In view of the reported poor water quality downstream from the quarry, I propose that a more regular monitoring programme be included in the revised EMP. I would like to see monitoring done on a weekly basis, and that sampling should be done while the quarry and the related crushers etc are being operated. That is, it is my opinion that monitoring the river water quality when the "works" are idle will produce records that do not indicate the actual working conditions. To be fair to the quarry operations, monitoring should be done both upstream of the site and downstream for comparative records. This comment is submitted in a spirit of co-operation.	included in the EMPr. You will be informed of the availability of the EMPr for your review and comments. Please see attached letter for your attention. Should you have any further queries or concerns, do not hesitate to contact me. (Attached letter) In November 2014 Interested and Affected Parties (IAP's) were notified of South Coast Stone Crushers' (SCSC's) intent to update the approved Environmental Management Programme Report (EMPR) for the Margate quarry. In addition, SCSC proposed to amend the EMPR to make provision for mining an additional area to the west of the quarry. The proposed update and revision of the EMPR were at that time, subject to the requirements of the Minerals and Petroleum Resources Development Act (No. 28 of 2002) (MPRDA). The update of the EMPR is necessitated by the fact that the SCSC EMPR was last revised in 2000 and as such the information and management measures are outdated. The revision of the EMPR is necessitated as SCSC is proposing to extend the existing mining area by an additional 13 hectares in a westerly direction, in an effort to align the benches and optimise the available mine area. On 04 December 2014 amendments to the National Environmental Management Act (No. 107 of 1998) (NEMA) and its associated Environmental Impact Assessment (EIA) Regulations were gazetted. The amendments had implications for the amendment of SCSC's EMPR as EMPR's for mines were previously subject to the requirements of the MPRDA, but are now subject to the requirements of the NEMA. The implication of the change is that the amendment to the

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				EMPR will need to conform to the requirements as provided in Appendix 4 of the NEMA EIA Regulations. Under the MPRDA, an Environmental Management Programme Report (EMPR) referred to a single document in which impacts were assessed and an EMPR was documented. Under NEMA, the term Environmental Management Programme report (EMPr) refers to a stand-alone report documenting an EMPr following an assessment of all potential impacts. Although the legislation governing EMPR's/EMPr's has changed, the competent Authority remains the Department of Mineral Resources (DMR). In order to clarify the legislative changes and associated requirements SRK Consulting (SRK) met with the DMR on 03 March 2015 to discuss the format for the update of the EMPR. It was decided that a single EMPr, which covers current operations and proposed extensions to the mine area (Appendix A), would be the most practical option. The compilation of a single updated EMPr, in the NEMA EMPr format will ensure uniformity in management and monitoring measures and eliminate user confusion brought about by two separate EMPr's under different sets of legislation. Subsequent to the meeting with DMR, SCSC commissioned specialist studies to inform an Assessment Report to be compiled for the entire SCSC mining area. The specialist studies include an Aquatic and Terrestrial Biodiversity Impact Assessment and Wetland Delineation and Assessment. The consolidated Assessment Report will include the findings and recommendations of all specialist studies undertaken and the management and monitoring requirements will be included in the EMPr. The final document that will be submitted to DMR will be an EMPr with the Assessment Report appended.

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				The EMPr will be made available for public comment prior to being released to DMR for approval. All IAPs will be informed once the EMPr is available for comment
25 February 2016	Mr. Richard Coke		It appears to me that you and Mr. Jordaan have put together a comprehensive document. There are a couple of apparent gaps that worry me though. Last year I wrote to you raising several points. Three of these are: •· That the monitoring inspections should be someone employed by the quarry owners to write the reports needed) •· That environmental monitoring (especially of the water related issues) should be done monthly, if not even more frequently; that "annual inspection and reporting was inadequate. •· I noted that the quarry management had not effectively done much in the way of early rehabilitation of areas already worked out and no longer being exploited; I noted that I presumed that there was some sort of "plan" in that respect in the previous document/s. The upshot being that, personally, I do not have any confidence in the quarry management actively started such a programme of rehabilitation. You responded in a letter dated 11 February 2015. Part of your response referred to there being no directive from the DMR enforcing independent monitoring. I have addressed this problem below: 10.2 Operational Phase (pg. 19) : There is much said about protection of areas such as wetlands, riparian, etc; but there is no "operational activity" that speaks of commencing rehabilitation in areas that have been worked out and are no longer being exploited. It is my experience that if all rehabilitation is left to the closure phase (i.e. when the quarry is no longer producing revenue / income), then the owners plead poverty and the rehabilitation is severely cut back or in some cases, simply not done at all. It is my opinion that the best way to	Section 10.2 Operational Phase of the Environmental Management Programme Report (EMPr) states under the heading "visual impact of mining activities" that progressive rehabilitation and re-vegetation is to be undertaken in areas where no further mining is planned during the operational phase. No benches have been closed to date, and many of the existing benches will be used for access to the section of quarry to be mined in future. Once the benches are no longer in use South Coast Stone Crushers (SCSC) will commence with progressive rehabilitation. SCSC has made financial provision for closure and rehabilitation of the mine; this is updated on an annual basis and submitted to the DMR. It is in SCSC's best interest undertake progressive rehabilitation as it will reduce the amount of financial provision which is required upon closure and therefore SCSC will undertake progressive rehabilitation on areas no longer in operation. Guidelines for rehabilitation and revegetation have been provided in the Floral and Faunal Assessment attached to Appendix C of the Impact Assessment Report. SRK has advised SCSC that a Closure and Rehabilitation Plan needs to be drafted for the mine and this will be the next step once DMR has approved the EMPr.

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			counteract that management style is to ensure that rehabilitation starts before the quarry is closed from a production point of view. Thus, it will be necessary to have provision in the "operational phase" list of activities, methodologies, etc made for on-going partial rehabilitation during the operating phases of the quarry.	
			10.3 Closure Phase (pg. 23): It is only after operations have ceased at closure that there is mention made of "rehabilitation". As stated above, I am of the opinion that this is a major omission in the "Operational Phase". Rehabilitation to re-establish the natural vegetation and biodiversity needs to be done progressively as areas of the quarry are worked out and active quarrying of each area stops. Also note that I am of the opinion that the quarry owners will try to prevent such an inclusion by arguing that they "might decide" to extend the quarry further at some unspecified future date. There must be delimitation on the eastward and/or northward boundaries where no further "expansion" will be permitted due to proximity of the established township of Uvongo, the Municipal Sewage Treatment Works, private property, the proclaimed road reserve, and the proclaimed Skyline Nature Reserve to the north of this road.	We are in agreement with this comment and as mentioned above provision has been made in the EMPr for rehabilitation during the operational phase. The EMPr, once approved by the Department of Mineral Resources (DMR) will become a binding document, as such failure to comply with the EMPr will constitute an offence and SCSC, its tenants and contractors can be liable for legal action. Therefore SCSC intend to abide conditions and requirements of the EMPr. At present the mining right only allows mining to be conducted within the specified boundaries, as covered by this EMPr. At this stage SCSC in not intending to quarry outside the area covered by its mining right. It has been recommended to the mine management that they have to decide on feasible closure objectives and identify a final land-use post-closure. The closure objectives and proposed post-closure land-use must be revised on an annual basis and the financial provision updated to reflect the proposed closure requirements.
			11. Monitoring – Table 11-1 refers (pg. 24): During the "Expansion Phase" there will be fortnightly monitoring with monthly reporting. However, during the "Operation Phase" (the proposed extent of further operation is some 26 years) the monitoring frequency is marked as "annual" with the reporting also "annual". I have had occasion to visit the quarry site during working hours to enquire about and ordering crushed stone products for a project that I was building on the property that I co-own. The state of the area let to NCP Ready-Mix batching plant and drum-truck deliveries was hardly as envisaged by the presently	In terms of monitoring- SCSC are in the process of applying for a Water Use License (WUL). As part of the WULA an Integrated Water and Waste Management Plan (IWWMP) has been compiled by WSP and submitted to the Department of Water and Sanitation (DWS) in May 2016. As part of the IWWMP monitoring requirements have been set, these requirements are listed below and are subject to approval by the DWS : • Sampling of the monitoring wells will be undertaken on a biannual basis to assess potential impacts of the SCSC operations on

Date	IAP	Organisation	Comments/Issues/Concern	Response
			proposed EMPr. There was cement- polluted wash-water every-where and my vehicle came away well and truly soiled (note that I only used the indicated roadways to drive on in order to access the offices). That means that the designated "wash-down area" was either not being used and vehicles were being washed outside of this area, or the designated area was not able to cope with the volume / number of vehicles so that it was "overflowing", or perhaps both; and also the batching plant area was being indiscriminately "washed". I did not get out of my vehicle (except at the two offices I visited) so did not "inspect" the area and the adjacent river, because I felt that I was there as a potential customer and had no "right" to go anywhere other than the two offices. I am determined that "annual monitoring" is definitely not adequate for the following reasons: • The person authorised to do the monitoring is to be employed by the quarry owners for that specific purpose. I am concerned regarding the quality and timing of such monitoring site inspections because of the "He who pays the piper calls the tune" principle. • The site management will be forewarned of the E.O.'s impending visit and will make sure that everything is squeaky clean – a small price to pay if it only happens once a year and probably during a non-working period. I have worked too long in the civil engineering industry to have much confidence in quarry site management practices. The only way that I can see to avoid this kind of "covering-up poor operating management", is by having a truly independent competent person appointed by the Dept. of Mineral Resources (DMR) to undertake spot inspections at irregular intervals not exceeding 6 weeks. Yes, the NEMBA requires the owners to also have their own E.O.; this person will have to co-operate with the "independent assessor". And the only way I can see for establishing this kind of inspection regime, is by having it included in the EMPr. That means the EMPr will allocate	the groundwater; • Surface water monitoring in the Vungu River will be undertaken on a monthly basis at monitoring points, one upstream of SCSC and the other downstream of SCSC. • Biomonitoring will be conducted by an accredited South African Scoring System (SASS) practitioner once every two years, alternating between wet and dry season. • Waste monitoring will conform to SCSC waste Management Procedure which outlines monitoring requirements of various waste types and defines the manner in which waste is stored and disposed on site. The DMR may stipulate further monitoring requirements based on the comments and recommendations received from the commenting authorities. In response to the comment regarding the wash down area, the washout drum, which was previously not in operation has been repaired and is now in operation. All trucks now wash out into the drums before leaving the site. SCSC is also in the process of purchasing a new pump, which will be used to reuse water in the production of concrete. This will alleviate the issue of excess water pooling in the plant. Due to financial constraints the pump can only be purchased toward the end of the year, i.e. end 2016.

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			responsibilities involving both the quarry management / owners, and the relevant controlling Government Departments. It is my opinion that the imposition of such "shared responsibilities" is fair, and constitutionally correct. Also please note that I do not believe the DMR has the resources (people) to undertake monthly inspections at every site that falls under their jurisdiction. I am of the opinion that provision must be made in the EMPr that will assist the DMR in performing their duties.	
			13 Decommissioning and Closure (pg. 25):13.1 : mention is made of "... natural vegetation and biodiversity to establish over time post closure ...". This rather vague expression "over time" needs to have some sort of parameters set, and defined in the EMPr. An expert in plant biology would be in the best position to advise on such time parameters. 13.3 : reference is made to decommissioning diesel and petrol storage facilities, the possible contamination of the soil, and how to deal with the problem (removal to a hazardous waste disposal site). The clause goes on to mention, "If there is heavy contamination ...". If the term "heavy contamination" is left undefined, it is subjective and open to dispute. A suitable definition must be spelt out in the EMPr; I suggest that the state of contamination be determined in terms such as "grams of contaminant per kilogram of soil", or "grams of contaminant per cubic meter of soil", or some similar method. Thus the level of contamination can be classified into "mild", "medium", and "heavy". May I also note that "petrol" is largely volatile and "evaporates" quite quickly and the "residue" is quite difficult to pick up; so the "contamination" will have dispersed and the environmental damage will not be measured. Diesel, being anoil, is less volatile and the "residue" is likely to be the larger portion.	We are in agreement with these comments and the EMPr has been updated to include a measurable unit for heavy contamination. All diesel spills will be cleared to the depth of the spill and disposed of accordingly. However if the spill is greater than 200 litres then a contamination specialist will be consulted to remove the spill and a reportable Section 30 Incident will be triggered as per the National Environmental Management Act (NEMA) Act 107 of 1998. A timeframe in terms of re-establishment of natural vegetation would be detailed in the closure and rehabilitation plan, which is still to be compiled.
			App. B: IAR : App. C "Floral and Faunal Assessment and Management Plan"; pg.2 Figure 1 Topographical Map:	The Floral and Faunal Assessment has since been updated to include a more recent topographical map.

Date	IAP	Organisation	Comments/Issues/Concern	Response
			The 1:50,000 map presented is very old; the information it contains is of interest historically and shows information that is probably useful. This Figure needs to have reference made to the historical nature of this map, which does not show either the development of Uvongo Drive, or the position of the highway. The inclusion of a more recent topographical map, together with the digital satellite image, is necessary to understand the current impacts of the existing developments and the expected impacts of the proposed mining extension.	
			App. B: IAR : the report does not appear to refer to the existing Uvongo River Conservation Area, which is a proclaimed conservancy (this Conservancy is not indicated on any of the maps / figures included in the report). The Conservancy is downstream of the Quarry Site and is subject to pollutants exiting from the Quarry Site. It is my opinion that this Conservancy should be included in the "wider impact stress analysis" of the IAR.	The IAR does make mention of two nature reserves which surround the site. (one being the Skyline Nature Reserve and the other the Uvongo River Nature Reserve). The Uvongo Nature River Reserve is marked on the locality map on page 2 of the EMPr, and was considered during the assessment. Furthermore, many of the mitigation measures that were developed for the EMPr are aimed at minimising impacts on site as well as off-site receptors. For this reason we believe that the mitigation measures provided are sufficient to protect off site areas, such as the Uvongo Nature River Reserve
			My purpose in writing to you is because I think my comments are important, and the relevant matters must be addressed in the EMPr. • I am aware that my remarks regarding the "independence" of the E.O. are not enforceable in terms of the current regulations etc. I suppose we are stuck with that. But at least the frequency of the monitoring needs to be much more than merely "annual". I am of the opinion that the regulations set the "minimum parameters" that will satisfy the Act; there is – as far as I know – nothing about doing more than the mere minimum, especially where the additional effort will promote a positive result.	Please refer to response relating to this issue further above, which includes the additional requirements from the IWWMP.
			• Could you please inform me regarding what checking the relevant Departments do and how often, and what prior notice do they give to the site management, et al (during the operational phase of the site) ? I am aware	In 2015, there were three visits from the DMR, DWS and an independent auditor. The DMR provides a days' notice for a site inspection. The Department of Agriculture Forestry and Fisheries (DAFF) also

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			that they try to do inspections from time to time (that is what used to happen at the Municipal Solid Waste disposal sites when I was employed in that department of the Johannesburg City Council). I do think that the DMR or DEA or DWA (or all three) need to put such a directive into the whole basket of effective monitoring. On the other hand, if the duly employed E.O. is from a firm such as yours, then the confidence levels will rise considerably.	conducted a site inspection in 2016. In addition to this, National Asphalt (a tenant on site) also has their own licenses and therefore government authorities conduct site visits on their site (the details of these authority site inspections have not been disclosed to SCSC). SCSC is also independently audited once a year by the Aggregate and Sand Producers Association of Southern Africa (ASPASA), and as part of their audit they look at Safety Health and Environmental (SHE) requirements.
			• An early start to the rehabilitation of areas where mining has been completed must be enforceable in terms of the EMPr.	We believe that as mentioned above, this has been adequately addressed within the EMPr and will be further detailed in the Closure and Rehabilitation Plan.
29 February 2016	Ms. K. Moodley	DAFF	The Department of Agriculture, Forestry and Fisheries (DAFF) appreciates the opportunity given to review and comment on the Draft Environmental Management Programme Report (EMPr) for the above mentioned project. With reference to the document received on 27 January 2016 (dated 26 January 20 16), desktop analysis conducted using KML files for the proposed study area and the site inspection undertaken with SRK consultants, DAFF's concern pertain to the patches of Coastal Forest and protected tree species (Pittosporum viriflorum, Sideroxylon inerme) that fall within the proposed site. DAFF has no objection towards the proposed mining activity provided the following conditions are strictly adhered to: • The patch of Coastal forest occurring within the proposed project footprint should not be disturbed under any circumstances and a 50 metre buffer should be maintained between the coastal forest edges and proposed mining activities, particularly from the northern portion of the Coastal Forest. • Protected trees occurring within the study area should	(response letter from Scientific Aquatic Services, the appointed biodiversity specialist) Scientific Aquatic Services (SAS) was appointed to conduct a floral and faunal ecological assessment as part of the Environmental Management Programme report (EMPr) of the Margate Quarry operated by South Coast Stone Crushers (SCSC) in the vicinity of Margate, KwaZulu-Natal Province (SAS, 2015). During the field assessment, a patch of KwaZulu- Natal Coastal Belt forest was identified within the western portion of the study area. This Coastal Forest Habitat Unit is bordered in the north by historically transformed sand mining and vegetation clearing activities and by Coastal Grassland in the northeast. The coastal forest habitat extends beyond the study area further to the east and southeast. Although considered largely intact, with floral Species of Conservation Concern (SCC) and a high diversity of indigenous woody species present, the Coastal Forest Habitat Unit has been impacted along its edges by the aforementioned anthropogenic disturbances, which has led to some invasive species being present and the loss of the natural forest edge and ecotone

Date	IAP	Organisation	Comments/Issues/Concern	Response
			be clearly demarcated with red-tape to avoid tree disturbance. • Mining staff should be educated about environmental aspects e.g. destruction of indigenous vegetation prior the operational phase of the project • The Environmental Control Officer whom is contracted to South Coast Stone Crushers should be present on site during the construction phase to ensure that no disturbance is caused to the natural forest patches. • Existing access roads and foot paths should be used during all phases of the project. • Conditions outlined in the biodiversity plan should be adhered to. • An alien invasive plant programme must be implemented to eradicate alien species on the forest edge. • Mitigation measures outlined in the EMPr should be strictly enforced by the Environmental Control Officer (ECO) in order to minimise the anticipated negative ecological impacts. • DAFF officials are permitted to monitor the site at any given time. Non-compliance with above conditions is a contravention of the National Forests Act 84 of 1998 and will thus result in legal action. This letter does not exempt you from considering other environmental legislations .	area in the north and west. The purpose of this document is to determine a suitable buffer zone to the north of the Coastal Forest Habitat Unit in line with the requirements from the Department of Agriculture, Forestry and Fisheries (DAFF) as well as to provide an outline of rehabilitation measures to be implemented within this proposed buffer area. 2. BUFFER ZONE DETERMINATION According to the Ezemvelo KZN Biodiversity Assessment Guidelines (2013), the following should be considered in terms of forest buffer areas: • All indigenous forest is designated as sensitive, regardless of condition; • While a buffer zone of 40m from the edge of the forest has been historically applied. this standard buffer may not always take the forest and development type into account, and has been found to be inappropriate in some instances; • The determination of an appropriate and site-specific buffer depends on a number of factors and the final buffer must be determined using the guide provided in Table 2 of the KZN Biodiversity Guidelines (2013); • A buffer zone must be able to accommodate dynamic processes and accommodate effective management of the forest edge and its ecotone; The Coastal Forest patch present does not conform to any of the categories listed in Table 2 of the KZN Biodiversity Guidelines summarised below for convenience: • Uniformly Secondary forest or forest uniformly representing recent succession from grassland, woodland or scrub; • Critically Endangered, Endangered or Vulnerable Forest types; or • Old growth forest.

Date	IAP	Organisation	Comments/Issues/Concern	Response
				Therefore, the buffer calculation should proceed on a case by case basis, due to the ecotone associated with the Coastal Forest Habitat Unit being limited to the north east (in the vicinity of the Coastal Grassland Habitat Unit) and lost to the north and west as a result of historic mining in the immediate vicinity of the forest patch and due to severe habitat transformation from sand and aggregate mining having already occurred up to the edge of the identified forest habitat. (Figure 1). Furthermore, the forest is mostly associated with inaccessible cliffs and ravines with associated riparian zones which will be excluded from future mining activities. In addition, the Coastal Forest Habitat Unit is bordered in the south by a riparian area, which is to remain protected under the National Water Act (1998). The proposed buffer will be important, particularly to protect the remaining forest edges to the north against structural damage, as well as damage by fire and further invasion by alien invasive species. It is therefore considered that a 20m buffer area to the north of the forest habitat is sufficient to protect the remaining forest from negative edge effects, provided that this area be appropriately managed to resemble a natural ecotone and suitably rehabilitated for this purpose. 3. REHABILITATION GUIDELINES According to DAFF, in the document entitled Policy, Principles and Guidelines for Control of Development affecting Natural Forests (2009), natural forests are fringed by belts of hardy pioneer plants that can recover or regenerate rapidly after being damaged by fire or grazing, provided that such destructive events do not occur too frequently. These margins are transitional zones (ecotones) between forests and the surrounding veld types (usually grassland, fynbos or woodland) that protect the forest from fire and the drying effects from the sun. The ecotones and vegetation types surrounding forest patches must be

Date	IAP	Organisation	Comments/Issues/Concern	Response
				kept intact as a vital part of maintaining the forest habitat and its fauna and flora (some animal species for example require a variety of habitat types). It is therefore important that, in terms of South Coast Stone Crushers, the proposed 20m buffer to the north of the Coastal Forest Habitat Unit as the surrounding vegetation type be rehabilitated to coastal grassland, where indigenous trees may naturally establish, and managed in line with the following measures: **General** The Coastal Forest Habitat Unit is not to be disturbed under any circumstances, due to the increased level of floral and faunal diversity and intact habitat provided by this area; The proposed 20m buffer to the northeast of the Coastal Forest Habitat Unit associated with the Coastal Grassland Habitat Unit to the northeast is to remain undisturbed; The natural linkage of the forest habitat with adjacent forest habitat beyond the site boundary to the east and southeast should not be disturbed. **Alien vegetation** It must be ensured that alien and invasive alien species are removed from the proposed 20m buffer zone in line with the guidelines stipulated in the SAS (2015) biodiversity report. **Soils** The proposed 20m buffer to the north of the Coastal Forest Habitat Unit is to be graded and levelled to a 1:3 slope to resemble a natural landscape and no ponding or steep slopes remaining from historic mining activities should remain present;

Date	IAP	Organisation	Comments/Issues/Concern	Response
				Soil preparation for rehabilitation should include ripping to a depth of at least 200mm and the replacement of topsoil or similar imported growing medium to a depth of at least 150mm across the area to be rehabilitated. **Revegetation** The proposed 20m buffer area to the revegetated in line with the guidelines provided in the SAS (2015) biodiversity report, with focus on re-establishing grass cover within this area; Additional forest trees as listed for the Coastal Forest Habitat Unit (SAS, 2015) are to be planted in this area, at a density of 100 trees per hectare (ha) in order to re-establish the natural transition from forest to grassland within the buffer zone area. **Management and Monitoring** Management and monitoring of the proposed 20m buffer area is to take place in line within the guidelines provided by SAS (2015), with special emphasis on alien vegetation and erosion control in the area, as well as ensuring that vegetation established successfully.
13 June 2016	Ms. K. Moodley	DAFF	The Department of Agriculture, Forestry and Fisheries (DAFF) appreciates the opportunity given to review and comment on the document for the above-mentioned proposed project. • With reference to the document received on 30 May 2016 (dated 17 March 2016) and comments issued on the 17 February 2016, DAFF initially proposed that a 40 metre buffer be maintained between the coastal forest edges and proposed mining activities, particularly from the northern portion of the Coastal Forest. However, after review of the recommended coastal buffer and rehabilitation guidelines, DAFF supports the 20 metre buffer that has been proposed by the specialist. All other conditions as stipulated below should be strictly adhered to:	These comments are noted and the 20m buffer will be enforced. All other conditions stipulated in this letter will be adhered to.

Date	IAP	Organisation	Comments/Issues/Concern	Response
			• Protected trees occurring within the study area should be clearly demarcated with red-tape to avoid tree disturbance . • Mining staff should be educated about environmental aspects e.g. destruction of indigenous vegetation prior the operational phase of the project • The Environmental Control Officer whom is contracted to South Coast Stone Crushers should be present on site during the construction phase to ensure that no disturbance is caused to the natural forest patches. • Existing access roads and foot paths should be used during all phases of the project. • Conditions outlined in the biodiversity plan should be adhered to. • An alien invasive plant programme must be implemented to eradicate alien species on the forest edge. • Mitigation measures outlined in the EMPr should be strictly enforced by the Environmental Control Officer (ECO) in order to minimise the anticipated negative ecological impacts. • DAFF officials are permitted to monitor the site at any given time. Non-compliance with above conditions is a contravention of the National Forests Act 84 of 1998 and will thus result in legal action.	

8 Impacts, Objectives and Management Statement

SCSC operates in terms of an internal Environmental Policy which has been drafted and is upheld by the operations (Refer to Appendix J for the Environmental Policy).

SCSC's Environmental Policy acts as the overarching environmental management statement which governs the ISO 14001 system for the site. The impacts as identified in the Impact Assessment Report (IAR) are summarised below in terms of the environmental management objectives that the EMPr intends to achieve. These environmental management objectives then inform the impact management outcomes associated with specific impact management actions as detailed in Tables 10-1 -10-4.

9 Roles and Responsibilities

The successful implementation of this EMPr requires co-operation by and between SCSC's operational and management teams as well as tenants.

General roles and responsibilities have been outlined in Table 9-1 and the project team will be required to comply with the conditions defined herein. The EMPr must be updated accordingly should the roles and responsibilities of the responsible agents change, or should there be changes to the management structure of the mine requiring changes to the responsible agents.

Table 9-1: Roles and Responsibilities

Responsible Agent	Role / Responsibility
SCSC- Quarry Manager (QM)	• Maintain overall responsibility for ensuring that the functions defined in the EMPr are carried out effectively; • Ensure that a copy of the EMPr and all agreed Method Statements and a layout plan are available on-site; • Ensure that all environmental protection procedures defined in this EMPr are being adhered to; • Appoint appropriately qualified team to co-ordinate, supervise and expedite different tasks; • Ensure all staff, sub-contractors, suppliers, etc. are familiar with and understand the EMPr (including revisions), and all agreed Method Statements; and • Maintain overall responsibility and accountability for the site during the operational and decommissioning phase.
SCSC – Appointed Engineer	• Responsible for the maintenance of structures (movable and fixed structures) associated with mining/quarry operations; • Responsible for the planning and construction of new structures (movable and fixed) for the mining/quarry operations; • Ensure that all necessary mine plans are in-line with legislation and are on site; and • Maintains responsibility and accountability for the site during the operational and decommissioning phase.
Tenants of SCSC Mine	• Ensure compliance with the lease agreement and legislative environmental requirements; • Maintain overall responsibility for ensuring that the functions defined in the EMPr are carried out effectively; • Ensure that a copy of the EMPr and all agreed Method Statements and a layout plan are available on-site; • Ensure that all environmental protection procedures defined in this EMPr are being adhered to; • Review their operations to ensure adherence to all applicable environmental legislation; and • Ensure compliance with applicable environmental permits and licence conditions.

Responsible Agent	Role / Responsibility
Environmental Officer (EO)	• Ensure compliance with the legislative environmental requirements; • Monitor compliance with procedures of the EMPr; • Liaise with DMR, DWS and IAPs if required; • Advise the Quarry Manager and tenants on actions or issues impacting on the environment and provide appropriate recommendations to address and rectify these matters; • Ensure all site personnel working on site have had training on the EMPr and compliance to the EMPr document forms part of their contract to operate on SCSC premises; • Ensure all tenants and sub-contractors have copies of the EMPr (including revisions) and all agreed Method Statements; • Undertake the evaluation of the implementation, effectiveness and level of compliance of on-site activities with this EMPr and associated plans and procedures; • Record and provide written documentation of non-conformances with this EMPr that require SCSC or its tenants to implement corrective action; • Order any site personnel to suspend part or all of the works if that person and/or any sub-contractors, suppliers, etc. fail to comply with any aspect of either this EMPr; • Advise the Quarry Manager on actions or issues impacting on the environment and provide appropriate recommendations to address and rectify these matters; • Identify possible areas of improvement in the execution of the extension from an environmental perspective; • Assess the suitability and/or effectiveness of this EMPr on an on-going basis, in liaison with the Quarry Manager. Make recommendations accordingly; • Submission of audit reports to Quarry Manager; and • Monitor the processing of public complaints relating to the extension activities.
Contractors	• Ensure all personnel are fully aware of all environmental issues relating to activities being undertaken on site and the related precautions that need to be taken; • Ensure all mitigation measures outlined in this EMPr are properly and competently directed, guided and execute; and • Ensure adherence to environmental laws and standards relevant to the decommissioning of the facility.
Safety Health and Environmental Officer (SHEO)	• Ensure compliance with the legislative environmental and safety requirements; • Record any injuries and incidents that occur on site; • Monitor compliance with procedures of the EMPr; • Liaise with DMR and IAPs if required; • Advise the Quarry Manager and tenants on actions or issues impacting on the environment and provide appropriate recommendations to address and rectify these matters; • Ensure all personnel working on site have had training on the EMPr and compliance to the EMPr document forms part of their contract to operate on SCSC premises; • Ensure all tenants and sub-contractors have copies of the EMPr (including revisions) and all agreed Method Statements; • Order any site personnel to suspend part or all of the works if that person and/or any sub-contractors, suppliers, etc. fail to comply with any aspect of either this EMPr; and • Advise the Quarry Manager and Environmental Officer on actions or issues impacting on the environment and provide appropriate recommendations to address and rectify these matters.
Quarry Planner (QP)	• Ensure that revisions to financial provisions for rehabilitation and closure (as necessary) are communicated and submitted to the mine manager and DMR; • Amend financial provisions in accordance to any legislation or activity changes; • Advise and provide plans on the closure of portions of the mining site; and • Advise on closed mining areas so that progressive rehabilitation of these areas

Responsible Agent	Role / Responsibility
	can commence.

10 Outcomes and Actions

The EMPr presented in this document details the potential impacts and mitigation measures identified for the mining activity and delegates responsibilities for implementation of the mitigation activities.

All activities to be managed, mitigated and management measures to be implemented, and the responsible individuals/organisations who should implement these measures, are detailed in subsections which follow. This information is the core of this EMPr and should be adhered to at all times. The subsections which follow may be periodically updated as necessary.

10.1 Pre-Mining Phase

Table 10-1: Impact Management outcomes and actions

Pre-mining Activities						
Impacts	**Aspects**	**Outcomes**	**Actions**	**Timeframes**	**Implementation**	**Monitoring**
Degradation/loss of floral habitat and areas of ecological sensitivity	Indiscriminate movement of vehicles and access road expansion through surrounding floral habitat and compaction of soils	Prevent degradation/loss of floral habitat	Vehicles should be restricted to travelling only on designated roadways to limit the ecological footprint of the proposed development activities.	Ongoing	QM	EO
Decrease/Loss of floral species	Removal of topsoil	Prevent loss of floral species	The sensitivity map, which was created as part of the Floral and Faunal Ecological Assessment and included as part of the IAR in Appendix B must be considered during all development phases to aid in the conservation of floral diversity within the study area.	Ongoing	QM	EO
	Degradation/loss of areas of increased ecological conservation		The boundaries of the proposed mine expansion footprint areas are to be clearly defined and it should be ensured that all activities remain within defined footprint areas.	Ongoing	QM	EO
	Removal of vegetative cover		All mining footprint areas and areas affected by the proposed mine expansion should remain as small as possible and should not encroach onto surrounding more sensitive riparian areas and the associated buffer zone and the 20m bufferzone from the edge of the coastal forest as stipulated by DAFF. It must also be ensured that these areas are off-limits to vehicles and personnel.	Ongoing	QM	EO
		Prevent loss or degradation of areas of ecological sensitivity	Should the presence of wetlands be confirmed within the Grassland Habitat Unit, this should also be taken into consideration as part of the overall mine planning process.	Once off	QM	EO
			If any floral SCC, including nationally (SANBI) or provincially (KZN) protected floral species will be disturbed, effective relocation of individuals to suitable similar habitat should be ensured where possible upon obtaining a permit to do so.	Ongoing	QM	EO
			All rescue and relocation plans and activities should be overseen by a suitably qualified specialist or a suitably qualified appointed member of the mine personnel.	Ongoing	QM	EO
			Should any protected tree species be destroyed during the mine expansion activities it is recommended that a new tree be planted for each tree destroyed upon obtaining a permit to do so from the Department of Forestry and Fisheries (DAFF). Any protected trees that will not be removed must be demarcated with red-tape to avoid tree disturbance.	Ongoing	QM	EO
Degradation/loss of faunal habitat	Removal of vegetative cover	Limit loss of faunal habitat	To reduce removal of vegetative cover - no areas falling outside of the proposed mine layout areas may be cleared for expansion purposes.	Ongoing	QM	EO
	Siltation of river system		To reduce removal of vegetative cover - no the boundaries of the proposed mine expansion footprint areas are to be clearly defined and it should be ensured that all activities remain within defined footprint areas.	Ongoing	QM	EO
	Encroachment of alien vegetation		To reduce removal of vegetative cover - all mining footprint areas and areas affected by the proposed mining development should remain as small as possible and any disturbance of sensitive habitat must be actively avoided.	Ongoing	QM	EO
			To reduce removal of vegetative cover - all development footprint areas and areas affected by the current and future mine development should remain as small as possible and should not encroach onto surrounding more sensitive riparian and coastal forest areas. It must be ensured that these areas are off-limits to vehicles and personnel.	Ongoing	QM	EO
			To reduce siltation of the river and prevent the erosion of top soils, management measures may include berms, soil traps, hessian curtains and storm water diversion away from areas susceptible to erosion. It must be ensured that topsoil stockpiles are located outside of any wetland and riparian areas and areas susceptible to erosion.	Ongoing	QM	EO
			To reduce siltation of the river- the extent of vegetation clearing should be kept to a minimum.	Ongoing	QM	EO
			All mining staff will be educated about all environmental aspects pertaining to the site prior to commencement of the operational phase.	Once off	QM	EO
			To reduce alien vegetation encroachment - Implement the vegetation management and eradication program as specified in the Floral and Faunal Assessment attached to of IAR in Appendix B.	Ongoing	QM	EO
Decrease/Loss in faunal species dues to trapping and hunting	Trapping and hunting of faunal species	Prevent loss of faunal species	Prohibit any trapping or hunting within the study area.	Ongoing	QM	EO
			Control access to the property must be used to ensure that no illegal trapping or poaching takes place	Ongoing	QM	EO

Decrease/Loss in faunal species dues to collision with vehicles	Collision with mining vehicles	Limit loss of faunal habitat	Vehicles to use designated roadways.	Ongoing	QM	EO
			Speed limits must be implemented.	Ongoing	QM	EO
Degradation of wetland resources and wetland biodiversity	Stockpiling of spoil within the riparian area	Prevent loss of faunal species	30 metre buffer around delineated wetland with no mitigation; or	Ongoing	QM	EO
	Management of alien plant proliferation		15 metre buffer around delineated wetland with mitigations, and the following conditions are met:			
	Undertaking any pre-mining activities within the buffer zones		Special care should be taken to demarcate the buffer zone and to actively prevent any encroachment into this zone;			
	Sedimentation and erosion arising from clearing activities		Under no circumstance are additional access roads to be constructed within wetland or buffer zones;			
	Spills from vehicles/ chemical spills on site leading to contamination of soil and groundwater		Dumping, stockpiling, excavation, borrowing of material and any temporary storage of equipment is to be strictly prohibited within the buffer zone;			
			Buffer zones must be established and maintained as open space areas with appropriate alien plant control and slashing to maintain grass cover (or existing dense sugarcane is to be retained);			
			Recommended sediment retention measures are to be implemented to control any sediment-laden runoff that could enter the adjacent wetland/riparian areas (where relevant);			
			Any embankments, stockpiles or other sources of exposed material/soils are to be appropriately stabilized and maintained to minimize risk of erosion and sedimentation downstream; and			
			Manage any surface/storm water runoff to ensure erosion and sedimentation and pollution is avoided.			
			Access roads are to be shaped so that flows are spread evenly and preferential flow paths are not formed as these can create erosion features and deliver sediment to aquatic downstream resources. Where possible, roads are to be sloped away from wetlands/rivers such that water collects on the upstream side.	Once off	QM	EO
			Appropriate sediment/erosion control is to be employed for access roads adjacent to wetland (as well as for existing road fill within the wetland on portion 1994). This can be in the form of sediment fences, rock pack, low earth berms or excavated trenches that trap sediment along the perimeter edge of the road (on the downslope side of the road).	Once off	QM	EO
			Vehicles are not to be left standing in areas where oil/fuel spillages could contaminate adjacent/downstream wetlands/rivers.	Ongoing	QM	EO
			Vehicles are not to be maintained/washed in close proximity to any wetland/river where there is a risk that contamination may occur.	Ongoing	QM	EO
			No fuels, chemicals or hazardous substances are to be stored, temporarily or permanently, outside of designated chemical/fuel storage areas to reduce the risk of water resource contamination.	Ongoing	QM	EO
Proliferation of alien vegetation within the riparian and wetland areas	Management and control of alien proliferation	Prevent the proliferation of alien plants within the riparian and wetland areas	All alien plant removal must be undertaken in accordance with method statement 01 IAP eradication & control for aquatic habitats as per section 5.2.4 of the specialist aquatic assessment report which can be found in IAR in Appendix B.	Ongoing	QM	EO

10.2 Operational Phase

Table 10-2: Impact management outcomes and actions

Operational Phase						
Impacts	**Aspects**	**Outcomes**	**Actions**	**Timeframes**	**Implementation**	**Monitoring**
Degradation of areas of ecological sensitivity	Mining in areas close to ecologically sensitive areas	Prevent degradation of ecologically sensitive areas	All mining footprint areas and areas affected by the proposed mine expansion should remain as small as possible and should not encroach onto surrounding more sensitive riparian areas and the associated buffer zone and the 20m bufferzone from the edge of the coastal forest as stipulated by DAFF.	Ongoing	QM	EO
			It must also be ensured that these areas are off-limits to mining vehicles and personnel.	Ongoing	QM	EO
			Should the presence of wetlands be confirmed within the Grassland Habitat Unit, this should also be taken into consideration as part of the overall mine planning process.	Once off	QM	EO
			The boundaries of the proposed mine expansion footprint areas are to be clearly defined and it should be ensured that all activities remain within defined footprint areas.	Ongoing	QM	EO
Loss of floral species of conservational concern	Mining in areas close to ecologically sensitive areas	Prevent degradation of ecologically sensitive areas	The footprint area cleared for the proposed mine expansion areas should be kept as small as possible.	Ongoing	QM	EO
	Removal of floral SCC	Prevent degradation and loss of any floral SCC	Permits must be obtained for the removal/ destruction of trees protected under the National Forests Act (Act 84 of 1998) prior to the expansion phase from DAFF.	When and where necessary	QM	EO
			The number of protected trees removed for ongoing mine expansion should be kept to a minimum and no trees should be needlessly destroyed.	When and where necessary	QM	EO
			Should any other floral SCC, including SANBI Red Data Listed species and provincially protected species, be encountered within the development footprint, these species are to be relocated as appropriate.	When and where necessary	QM	EO
			Floral SCC are to be handled with care and the relocation of these plant species to nearby suitable similar habitat is to be overseen by a botanist.	When and where necessary	QM	EO
			The collection of plant material for medicinal purposes or collection of firewood should be prohibited.	Ongoing	QM	EO
			Any protected trees that will not be removed must be demarcated with red-tape to avoid tree disturbance.	When and where necessary	QM	EO
			Edge effect control needs to be implemented to ensure no further degradation and potential loss of floral SCC outside of the proposed project footprint area.	Ongoing	QM	EO
Loss of floral habitat	Edge effects such as soil erosion	Prevent loss of floral habitat	To reduce the risk of erosion - the extent of vegetation clearing and the duration for which bare soils are exposed in areas surrounding the mining footprint clearing should be kept to a minimum.	Ongoing	QM	EO
	Indiscriminative movement of vehicles		To reduce the risk of erosion - management measures may include berms, soil traps, hessian curtains and stormwater diversion away from areas susceptible to erosion.	When and where necessary	QM	EO
			To reduce the risk of erosion - It must be ensured that topsoil stockpiles are located outside of any wetland and riparian areas and areas susceptible to erosion.	Ongoing	QM	EO
			To control the movement of vehicles - Vehicles should be restricted to travelling only on designated roadways to limit the ecological footprint of the proposed development activities.	Ongoing	QM	SHEO
			To control the movement of vehicles - As far as possible, existing access roads should be utilised to access the operational areas.	Ongoing	QM	SHEO
			To remediate the damage caused by vehicles - All soils compacted as a result of operational activities falling outside of the project footprint areas should be ripped and profiled. Special attention should be paid to alien and invasive control within these areas.	Ongoing	QM	EO
			To remediate the damage caused by vehicles - all disturbed habitat areas must be rehabilitated and planted with indigenous floral species as soon as possible to ensure that floral ecology is re-instated.	When and where necessary	QM	EO
Loss of faunal species due to trapping and hunting	Trapping and hunting	Prevent loss of faunal species	Access control to the property must be used to ensure that no illegal trapping or poaching takes place.	Ongoing	QM	SHEO
			Prohibit any trapping or hunting within the study area.	Ongoing	QM	SHEO
Ongoing faunal disturbance	Activities from the mining activities	Prevent disturbance of faunal species	No areas falling outside of the proposed mine layout areas may be cleared for mining purposes.	Ongoing	QM	SHEO

			The boundaries of the development footprint areas are to be clearly defined and it should be ensured that all activities remain within defined footprint areas.	Ongoing	QM	SHEO
			All mining footprint areas and areas affected by the proposed mining development should remain as small as possible and any disturbance of sensitive habitat must be actively avoided.	Ongoing	QM	SHEO
Proliferation of alien floral species	Removal of vegetative cover	Prevent proliferation of alien floral species	Alien vegetation eradication recommendations include: • Care should be taken with the choice of herbicide to ensure that no additional impact and loss of indigenous plant species occurs due to the herbicide used; • Footprint areas should be kept as small as possible when removing alien plant species; and • No vehicles should be allowed to drive through designated sensitive ecologically areas during the eradication of alien and weed species.	Ongoing	QM	SHEO/EO
			Eradication of alien invasive species should take place throughout the operational phase on an ongoing basis.	Ongoing	QM	SHEO/EO
	Disturbance to ecologically sensitive areas		Implement the vegetation management and eradication program as specified in the Floral and Faunal Assessment attached to IAR in Appendix B.	Ongoing	QM	SHEO
Degradation of groundwater quality	Lack of stormwater control leading to groundwater contamination	Prevent contamination of groundwater resources	Ensure monitoring is undertaken as per the requirements of the water monitoring programme included as an appendix to IAR in Appendix B.	Prior to undertaking any work on site	QM Specialist	EO
	Lack of maintenance and monitoring of septic tank		Ensure that bi-annual groundwater monitoring reports are compiled detailing the outcomes and of the groundwater monitoring sampling.	Once off	QM Specialist	EO
	Leaks or failure of underground diesel tanks		Based on the outcomes of the monitoring reports – implement mitigation measures where necessary.	When and where necessary	QM Specialist	EO
	Leaks from or overflow of catchment sump - which contains contaminated water from batching plant, truck drum, and truck washing		Check integrity of the lining of the settling ponds and evaporation dam.	Ongoing	Engineer	EO
Contaminated water from concrete plant	Lack of stormwater control leading to water contamination	Prevent contaminated stormwater discharge into water resources	Water contaminated with cement needs to be properly treated and should never be released into the environment.	Ongoing	QM, Engineer	EO
	Insufficient separation of clean and contaminated surface water	Ensure compliance with Water Use Licence	All infrastructure as proposed in the stormwater management plan is to be constructed and implemented. Refer to Stormwater Management Plan in IAR attached to appendix B.	Once off	Engineer	EO
	Runoff from batching plant, truck wash bay, truck drum making its way into water courses	Reduce civil liability due to contaminated water impacting on human health				
Contaminated stormwater runoff and discharge into the Vungu River	Lack of stormwater control leading to water contamination	Prevent contaminated stormwater discharge into water resources.	All infrastructure as proposed in the stormwater management plan is to be constructed and implemented. Refer to Stormwater Management Plan in IAR attached to appendix B.	Once off	Engineer	EO
	Insufficient separation of clean and contaminated surface water	Ensure compliance with Water Use Licence.	Move current material stockpiles away from the settling ponds to reduce the risk of further sedimentation and high turbidity levels.	Ongoing	QM	EO
	Runoff from batching plant, truck wash bay, truck drum making its way into water courses	Reduce civil liability due to contaminated water impacting on human health	Monthly monitoring of surface water quality to ensure compliance with the relevant water quality guidelines.	Seasonal	EO	Licence requirements – DWS, DMR
Contaminated stormwater runoff and discharge into the Stream which runs on the western boundary of the site	Lack of stormwater control leading to water contamination	Prevent contaminated stormwater discharge into water resources.	Replace the failing cement-block drop inlet structure with a proper, robust concrete structure in the west of the site.	Once off	Engineer	EO
	Insufficient separation of clean and contaminated surface water	Ensure compliance with Water Use Licence	Stabilise and shape the degraded river banks associated with the drop-inlet structure to their natural form.	Once off	QM, Engineer	EO
		Reduce civil liability due to contaminated water impacting on human health				
Flooding of the site	Insufficient stormwater infrastructure to control floods	Reduce the potential for a flood to occur on site	Stabilise bare/eroded river banks and where necessary use gabions and reno-mattresses.	Once off	QM	EO
			Undertake alien plant control along the riparian zone of the Vungu River and re-vegetate riparian areas with suitable locally occurring indigenous riparian vegetation (it is recommended that the quarry seeks the expertise of a suitably trained/qualified expert with experience in ecological rehabilitation).	Ongoing	QM Specialist	EO
			Gabions that have been improperly installed should be re-done. Gabions are to be properly constructed using the proper stone sizing and gabion baskets to be properly sized without gaps and tied properly.	Ongoing	QM Engineer	EO

			All infrastructure as proposed in the stormwater management plan is to be constructed and implemented. Refer to Stormwater Management Plan in IAR attached to appendix B.	Once off	Engineer	EO
			All channels must be checked monthly and cleared after any major rainfall events, to ensure that there are no blockages.	Ongoing	QM Engineer	EO
			Stone pitching channels are recommended to reduce high runoff velocity on channels.	Once off	Engineer	EO
			Sediment that accumulates within the channels, ponds and retention facility) must be routinely removed to ensure the design capacity is maintained. Should sediment be expected to contain contamination this sediment should be appropriately handled and disposed of.	Ongoing	QM Engineer	EO
			Material spills must be prevented where possible on site, including within the bunds. Should spills occur, these should be addressed immediately.	Ongoing	QM Engineer	EO
			Should contamination be expected within the bunds, this water may not be released to the environment, and must be chemically tested to determine appropriate management requirements (i.e. disposal at an appropriate facility if unfit for release to the environment).	Ongoing	QM Engineer	EO
			Regular checking and clearing of debris under low level bridge.	Ongoing	Engineer	EO
			Protective works such as earthen/rock levees/berms should be considered in order to avert flood risk. These will also have a dual-purpose in trapping contaminants/sediment generated at the site.	Once off	QM, Engineer	EO
Pollution from chemical and hazardous substances	Mismanagement of storage of hazardous substances Lack of maintenance to machinery and equipment	Prevent pollution from chemical and hazardous substances	Ideally, the storage of potentially hazardous materials (e.g. fuel, oil, cement, paint, etc.) must be outside of the 100-year flood line, or within a horizontal distance of 100m from a watercourse. Where these facilities are fixed and relocation is impractical, methods of protecting these areas from flood hazards and mechanisms to contain potential contaminants need to be investigated as per impact.	Ongoing	QM, Engineer	EO
Degradation of wetland resources and wetland biodiversity	Mismanagement of alien plant proliferation	Prevent loss or damage to wetland resources	30 metre buffer around delineated wetland with no mitigation; or	Ongoing	QM, Engineer, EO, SHE Officer	EO
	Undertaking mining activities or placing mining infrastructure within the buffer zones		15 metre buffer around delineated wetland with mitigations, and the following conditions are met:	Ongoing		
	Sedimentation and erosion arising from mining activities		Special care should be taken to demarcate the buffer zone and to actively prevent any encroachment into this zone;	Ongoing		
	Lack of stormwater management leading to contamination of soils/groundwater		Under no circumstance are additional access roads to be constructed within wetland or buffer zones;	Ongoing		
	Spills from vehicles and chemical spills on site leading to contamination of soil and groundwater		Dumping, stockpiling, excavation, borrowing of material and any temporary storage of equipment is to be strictly prohibited within the buffer zone;	Ongoing		
			Buffer zones must be established and maintained as open space areas with appropriate alien plant control and slashing to maintain grass cover (or existing dense sugarcane is to be retained);	Ongoing		
			Recommended sediment retention measures are to be implemented to control any sediment-laden runoff that could enter the adjacent wetland/riparian areas (where relevant); and	Ongoing		
			Any embankments, stockpiles or other sources of exposed material/soils are to be appropriately stabilized and maintained to minimize risk of erosion and sedimentation downstream.	Ongoing		
			Manage any surface/storm water runoff to ensure erosion and sedimentation and pollution is avoided.	Ongoing		
			Access roads are to be shaped so that flows are spread evenly and preferential flow paths are not formed as these can create erosion features and deliver sediment to aquatic downstream resources. Where possible, roads are to be sloped away from wetlands/rivers such that water collects on the upstream side.	Once off		
			Appropriate sediment/erosion control is to be employed for access roads adjacent to wetland (as well as for existing road fill within the wetland on portion 1994). This can be in the form of sediment fences, rock pack, low earth berms or excavated trenches that trap sediment along the perimeter edge of the road (on the downslope side of the road).	Once off		
			Vehicles are not to be left standing in areas where oil/fuel spillages could contaminate adjacent/downstream wetlands/rivers.	Ongoing		
			Vehicles are not to be maintained/washed in close proximity to any wetland/river where there is a risk that contamination may occur.	Ongoing		
			An ecological programme is to be developed and implemented, this programme will focus on: Environmental Water Quality monitoring and Habitat and Alien Plant monitoring.	Once-off		
			No fuels, chemicals or hazardous substances are to be stored, temporarily or permanently, outside of designated chemical/fuel storage areas to reduce the risk of water resource contamination.	Ongoing		
Proliferation of alien vegetation within the riparian and wetland areas	Mismanagement and control of alien proliferation	Prevent the alien plant growth within the riparian and wetland areas	All alien plant removal must be undertaken in accordance with method statement 01 IAP eradication & control for aquatic habitats as per section 5.2.4 of the specialist aquatic assessment report which can be found in the IAR report found in Appendix B.	Ongoing	QM	EO
Impact on air quality	Vehicle emissions	Maintain air quality	A fugitive dust management plan for the site should be drafted and implemented as appropriate. The fugitive dust management plan should aim to reduce dust fallout concentrations, specifically.	Ongoing	QM, SHEO	EO

	Dust released from crushing and screening process	Avoid public health and nuisance complaints	Water sprayed onto the roads by water trucks to reduce dust by vehicle entrainment.	Ongoing	QM, Engineer	EO
	Dust released from blasting	Avoid potential impacts on surrounding crops	Handling of material that has the potential to generate dust should be kept to a minimum.	When and where necessary	QM, SHEO	EO
	Dust generated from drilling		Dust suppression should be increased in dry periods and when wind speeds increase.	When and where possible	QM, SHEO	EO
	Dust released from stockpiles		Dust should be managed in and around the site as dust fallout standards have been exceeded.	When required	QM, SHEO	EO
	Dust generated haul roads		Any complaint, must to be logged in the complaints register and investigated on a monthly basis and reported to the licensing authority.	When required	QM, SHEO	EO
			Spill records should be available to determine whether there is any correlation between an increase in dust fallout and spills for a specific month.	Ongoing	SHEO	EO
	Dust released from when dumping rock or loading aggregate		Tenants to abide by their AEL conditions in particular compliance with monitoring requirements and MES.	Ongoing	QM	EO
Noise impact from operation activities	Loading of dump trucks and excavator operation	Reduce operational noise	Ensure factors such as wind direction, temperature and cloud cover are taken into account before blasting.	Ongoing	QM	EO
	Transportation of material in trucks	Avoid public health and nuisance complaints	Consult with surrounding landowners to identify issues and develop a transparent relationship.	Ongoing	QM, Transformation Dept	EO
	National Asphalt operations		Notify surrounding landowners of blasting schedule prior to blasting.	Yearly	QM, SHEO	EO
	Noise from blasting		Acoustic screening methods can be implemented to try reduce the noise levels of the jaw crushers.	Once off	QM, SHEO	EO
	Noise from screening process		Reverse hooters of vehicles must be replaced to a type with a different frequency that will reduce the distance that sound will travel.	Once off	QM, SHEO	EO
			Monitor noise levels.	Yearly	QM, SHE Officer	EO
Visual Impact of mining activities	Removal of natural vegetation	Retain the visual quality of the area	Undertake progressive rehabilitation and re-vegetation in areas where there no further mining is planned during the operational phase.	Ongoing	QM	EO
	Lack of progressive rehabilitation		Rehabilitate abandoned excavations according to the closure and rehabilitation plan to be developed by SCSC.	When required	QM	EO
			Update financial provision for closure, rehabilitation and maintenance on a yearly basis.	Yearly	QM, QP	EO
Traffic during operations	Increased trucks along the R61 and Quarry road	Reduce traffic impacts during the operational phase	Control vehicular access to the mine.	Ongoing	QM, SHEO	EO
	Spillages of aggregate and cement on roads leading to traffic		Make provision for safely accommodating all vehicle and pedestrian movements in the area of the works.	Ongoing	QM, SHE Officer	EO
	Degradation of the surrounding roads		Prevent spillage of soil, dust and stone on roads. If this does occur, the roads will be cleared.	Ongoing	QM, SHE Officer	EO
			Ensure safety signage is in place and maintained.	Ongoing	QM, SHE Officer	EO
Mismanagement of waste	Mismanagement of Hazardous waste such as oils, oily rags, mercury vapour lamps, batteries and fluorescent tubing.	No pollution, degradation or disturbance of natural resources	Place all waste in a skip to be collected by the Hibiscus municipal services.	Ongoing	QM, SHE Officer	EO
	Mismanagement of general waste such as glass, waste, refuse and plastic		Bins must be provided in a secure location.	Ongoing	QM, SHE Officer	EO
			Ensure that septic tanks are checked and cleaned on a quarterly basis.	Ongoing	QM, SHE Officer	EO
	Mismanagement of medical waste		Ensure that hazardous waste is disposed of at a licensed waste disposal facility. Proof of disposal (certificates / waybills) must be maintained for auditing purposes.	Ongoing	QM, SHE Officer	EO
			Prohibit the burning of waste on-site.	Ongoing	QM, SHE Officer	EO
			The excavation and use of rubbish pits is forbidden.	Ongoing	QM, SHE Officer	EO
			Used oil is to be collected by Oilkol and waybills are to be retained on-site.	Ongoing	QM, SHE Officer	EO
			Littering on-site is forbidden.	Ongoing	QM, SHE Officer	EO
			Should leaks from on-site vehicles or machinery be detected, these should be immediately cleaned up as follows:	Ongoing	QM, SHE Officer	EO
			Remove the soil to the depth of the contamination and dispose of at a registered hazardous waste facility.			
			Report major oil or fuel spills to the provincial Department of Water Affairs, as well as to the relevant Local Authority.			

			Provision of waste segregation should be implemented.	Ongoing	QM, SHE Officer	EO
			Relevant Material Safety Data Sheets (MSDS) must be available on the site.	Ongoing	QM, SHE Officer	EO
			It must be ensured that mining related waste or spillage and effluent do not affect the sensitive habitat boundaries and associated buffer zones.	Ongoing	QM, SHE Officer	EO
			No dumping of materials and soil within riparian, grassland or coastal forest areas or associated buffers may take place and all dumps must be placed within already transformed habitat areas.	Ongoing	QM, SHE Officer	EO

10.3 Closure and Rehabilitation

Table 10-3: Impact management outcomes and actions

Closure and rehabilitation						
Impacts	**Aspects**	**Outcomes**	**Actions**	**Timeframes**	**Implementation**	**Monitoring**
Loss of faunal habitat	Proliferation of alien floral species	Prevent loss of faunal habitat	Alien floral species management and eradication must continue to be implemented.	Ongoing	QM	EO
	Lack of progressive rehabilitation		Alien seed dispersal within the top layers of the soil within footprint areas, that will have an impact on future rehabilitation, also has to be controlled	Ongoing	QM	EO
			All soils compacted as a result of closure activities should be ripped and profiled. Special attention should be paid to alien and invasive control within these areas.	Ongoing	QM	EO
			All disturbed habitat areas must be rehabilitated and planted with indigenous floral species as soon as possible to ensure that floral ecology is re-instated.	Ongoing	QM	EO
			Implement the vegetation management and eradication program as specified in the Floral and Faunal Assessment attached to the IAR in Appendix B.	Ongoing	QM	EO
Disturbance to faunal and floral habitat	Improper erosion control	Prevent disturbance to faunal habitat	The extent of vegetation clearing should be kept to a minimum in order to minimise the risk of erosion.	Ongoing	QM	EO
			To minimise the risk of erosion, the extent of vegetation clearing should be kept to a minimum.	Ongoing	QM	EO
			To prevent the erosion of top soils, management measures may include berms, soil traps, hessian curtains and stormwater diversion away from areas susceptible to erosion.	Ongoing	QM	EO
			It must be ensured that topsoil stockpiles are located outside of any wetland and riparian areas and areas susceptible to erosion.	Ongoing	QM	EO
Faunal and floral habitat modification	Ineffective rehabilitation	Prevent any modification to the floral and faunal habitat	A biodiversity management and rehabilitation plan must be developed and implemented to ensure that all disturbed areas are reinstated to a natural state.	Ongoing	QM	EO

10.4 Post Closure Phase

Table 10-4: Impact management outcomes and actions

Post Closure Phase						
Impacts	**Aspects**	**Outcomes**	**Actions**	**Timeframes**	**Implementation**	**Monitoring**
Transformed or altered faunal habitat	Ineffective rehabilitation	Prevent any modification to the faunal habitat	Implementation of the biodiversity rehabilitation plan to ensure that all disturbed areas are reinstated to a natural state.	Once off	QM	EO
Altered faunal habitat	Proliferation of alien floral species	Prevent alterations to floral habitat	Implement the vegetation management and eradication program as specified in the Floral and Faunal Assessment attached to IAR in Appendix B.	Once off	QM	EO
Permanent loss of floral habitat	Ineffective rehabilitation	Prevent permanent loss of floral habitat	Post-closure, ongoing monitoring of rehabilitation works must take place to ensure that biodiversity and suitable vegetation cover has been reinstated until a closure certificate has been obtained.	Until closure certificate has been received	QM	EO
Altered floral habitat	Proliferation of alien floral species	Prevent alterations to floral habitat	Post-closure, ongoing monitoring and eradication of alien vegetation in the vicinity of the study area must take place until a closure certificate has been obtained.	Until closure certificate has been received	QM	EO

11 Monitoring

The key to a successful EMPr is appropriate monitoring and review to ensure effective functioning of the EMPr and to identify and implement corrective measures in a timely manner. In the event where discrepancies are identified, the problem must be investigated and attended to. All the results obtained during environmental monitoring must be documented for audit purposes.

An audit of the environmental monitoring and management actions undertaken is essential to ensure that it is effective in operation, is meeting specified goals, and performs in accordance with relevant regulations and standards.

SCSC has an EO who will be responsible for undertaking monthly environmental audits. Monitoring will be undertaken as follows:

Table 11-1: Monitoring Method

Project Phase	Monitoring method/ mechanism	Monitoring Frequency	Reporting Frequency
Planning, design and pre-mining	A site visit and associated pre-mining audit report to be prepared immediately prior to the start of the expansion. The report will document any non-compliance to be addressed prior to commencement of expansion.	Once off	Once off
Expansion	Site visits monthly with an audit report generated monthly for the duration of the expansion.	Monthly	Monthly
Operation	A site visit and associated operational audit report. The report will document any non-compliance to be addressed within a month of the audit report being submitted.	Annual	Annual
Decommissioning	Site visits monthly with and audit report generated and monthly for the duration of decommissioning.	Monthly	Monthly
Post decommissioning	A site visit and associated post decommissioning audit report to be prepared immediately after the completion of decommissioning.	Once off	Once off

During audits the EO will make observations regarding the implementation of the impact management outcomes. The EO is also responsible for guiding specialist processes and advises the QM on any licencing requirements. The EO will then assess the extent to which the impact management outcomes are being achieved and issue non-conformances as required. Non-conformances will therefore be based on compliance with both the impact management outcomes and actions.

In addition to the above SCSC is audited by the Aggregate and Sand Producers Association of Southern Africa (ASPASA) on an annual basis. The audits are independent and are based on safety health and environmental requirements.

12 Environmental Awareness Plan

Appendix 4 of the NEMA EIA Regulations (2014) requires the development of an environmental awareness plan describing the manner in which SCSC intends informing its employees of any environmental risks which may result from their work and the manner in which the risk must be dealt with to avoid pollution or degradation of the environment. Refer to SCSC environmental awareness plan in Appendix K.

13 Decommissioning Phase and Closure

To date, a formal Rehabilitation and Closure Plan for the mine has not been compiled. The mine has however compiled a Financial Provision in terms of the requirements of the MPRDA, this financial provision is updated on an annual basis and submitted to the DMR. The mine must compile a Rehabilitation and Closure Plan and make financial provision for such activities according to the requirements, and transitional arrangements as stipulated in Regulation 940 of 31 October 2014, as promulgated under NEMA. The sections below contain the rehabilitation and closure objective of the mine and management measures which should be implemented in the absence of such a plan.

13.1 Closure Objective

At present the closure objective is to make the area safe and to provide a platform for natural vegetation and biodiversity to establish over a period of time post-closure, to the extent that this can be reasonably achieved. The rehabilitated landscape should be aesthetically acceptable. Financial provisions for the necessary maintenance and aftercare is paramount. The rehabilitation procedures directed at these objectives are simple and effective, and are mostly a continuation of procedures of the operational phase.

The mine is currently investigating other alternative closure objectives, in line with the area the mine is operating within and the landuses surrounding the site. Alternative post-closure landuses may include:

- Commercial development of the quarry and processing area;
- Light industrial use;
- Recreational use due to the close proximity to the holiday resorts along the south coast.

At present the mine is undertaking progressive rehabilitation at the mine and intends to carry this practice forward towards closure, in order to spread the rehabilitation costs over the LoM.

13.2 Infrastructure Areas

All structures on-site are to be demolished, all waste produced from the demolition are to be disposed of at either a general or hazardous waste landfill site, depending on the waste type. Safe disposal certificates are to be retained and kept on record.

All the interested and affected parties must be consulted on the expectations of all the surface structures at the time of decommissioning. All stockpiled material will be used in the rehabilitation process as backfill or for surface grading in the case of waste rock or overburden, or as a growth medium in the case of soil. Footprint areas must be re-vegetated.

All debris will be gathered, removed and disposed of at a general waste landfill site. All remaining surfaces disturbed by mining operations will be treated with available topsoil and re-vegetated, the level and methods for rehabilitation will be defined in the Rehabilitation and Closure Plan to be compiled for the mine.

13.3 Mine Residue Deposits

The below ground diesel storage tanks are to be removed by the oil company responsible for the infrastructure and contaminated soil is to be disposed of at a hazardous landfill site. Any spills will be dug up to the depth of the spill and disposed of. However if there is heavy contamination (greater than 200 litres), a Section 30 incident in terms of NEMA will be triggered and the relevant authorities will be notified and consulted with. In the event of contamination, a contamination specialist should be consulted and the site remediated to an acceptable standard.

All pipes and related infrastructure will be removed, all related structures such as trenches, any settling ponds will be demolished and the area rehabilitated.

The stability of any residue deposits (waste – dumps) will be checked regularly, the re-vegetated surfaces are expected to curb and control erosion and dust pollution.

13.4 Potentially Dangerous Excavations

All potentially dangerous excavations, will, where practicable, be shaped to a safe upper surface as explained in mine and rehabilitation closure plan will be securely fenced, or made safe to the satisfaction of the DMR.

13.5 Haul Ramps and Roads

All haul ramps and roads must be ripped reshaped as necessary and re-vegetated.

13.6 Quarry Rehabilitation

The procedures described below will be carried out as far as is practicable:

13.6.1 Rehabilitation of the quarry

Proposed mining is to take place in benches of 5m wide by 12m high. The final blasting will take place on the highest benches/faces to reduce the slope of these upper benches and to scatter course rock and smaller boulders onto the lower worked out benches. Where practical all upper slopes of the final void will at the termination of operations, be graded to a safe angle or the upper benches will be left with maximum height of 2m and minimum width of 3m.

Final blasting of the lower benches will be directed at attaining slopes and appearance to blend with the nude and natural exposed tillite of the gorge, with random level terraces left for the establishment of natural vegetation.

Final blasting will take place on the higher benches to scatter course rock and smaller boulders onto the lower, worked-out benches. This course material is to act as retaining agent for earth, topsoil, organic material, seed and natural surface run-off, washed down the slopes. The floor of the pit will be levelled where necessary to allow re-vegetation

The proponent realizes his obligation in this regard, and for all the phases of the mine. Information on measurements, taken to comply with statutory requirements, will be submitted as required.

13.6.2 Re-establishment of vegetation

All rehabilitated land will be levelled out with the remaining topsoil, maintained and monitored until vegetation is fully established and self-sustaining and in accordance with the vegetation management plan and eradication program as specified in the Floral and Faunal Assessment attached to IAR in Appendix B. Where insufficient topsoil exists the mine will identify a suitable growth medium, which will be placed to encourage the growth of vegetation on denuded areas.

13.6.3 Maintenance

Any water pollution control structures which might have to be erected or constructed will be checked regularly for structural stability, for any signs of deterioration and to establish rehabilitation progress. Corrective measures will be applied immediately where necessary.

Maintenance of the decommissioned site, as set out above, will continue until such time as Closure is approved in terms of the Minerals Act.

13.6.4 Monitoring

Monitoring post closure has been detailed in Table 10.4 above and focuses on rehabilitation of the mining site and control of alien invasive floral species. Water quality will need to be monitored post closure therefore the water monitoring programme that was developed by WSP (appended to IAR in Appendix B) will need to be updated prior to closure of the mine to include water monitoring measures for the post closure phase.

13.7 Financial Provisions

Table 13-1: Table depicting Financial Provisions

Template for Level 2: "Rules - based" assessment of the quantum for financial provision

Calculation of the Quantum

Final
Mine: Margate Quarry
Evaluators: NPC

Location: Port Shepstone
Date: 29 June 2015

			A	B	C	D	Amount
No	Description	Unit	Quantity	Master Rate	Multiplication Factor	Weighting Factor 1	E = A*B*C*D Rands
1	Dismantling of process plant and structures (including overland conveyors and powerlines)	m3	328.00	6.82	1	1.1	R 2 460.66
2A	Demolition of steel buildings and structures (including floor slabs)	m2	750.00	95	1	1.1	R 78 375.00
2B	Demolition of reinforced concrete buildings and structures	m2	348.50	140	1	1.1	R 53 669.00
3	Rehabilitation of access roads	m2	4000.00	17	1	1.1	R 74 800.00
4A	Demolition and rehabilitation of electrified railway lines	m	0.00	165	1	1.1	R -
4B	Demolition and rehabilitation of non - electrified railway lines	m	0.00	90	1	1.1	R -
5	Demolition of housing and/or administration facilities	m2	1576.00	190	1	1.1	R 329 384.00
6	Opencast rehabilitation including final voids and ramps	ha	15.82	96700	0.04	1.1	R 67 310.94
7	Sealing of shafts, adits and inclines	m3	0.00	51	1	1.1	R -
8A	Rehabilitation of overburden and spoils (waste deposit)	ha	0.80	66400	1	1.1	R 58 432.00
8B	Rehabilitation of processing waste deposits & evaporation ponds (basic salt producing waste)	ha	0.00	82700	1	1.1	R -
8C	Rehabilitation of processing waste deposits & evaporation ponds (acidic metal - rich waste)	ha	0.00	240200	0.51	1.1	R -
9	Rehabilitation of subsided areas	ha	0.00	55600	1	1.1	R -
10	General surface rehabilitation	ha	4.90	52600	1	1.1	R 283 514.00
11	River diversions	ha	0.00	52600	1	1.1	R -
12	Fencing	m	1950.00	60	1	1.1	R 128 700.00
13	Water management	ha	1.10	20000	0.17	1.1	R 4 114.00
14	2/3 years of maintenance and aftercare	ha	6.80	7000	1	1.1	R 52 360.00
15(A)	Specialist study	sum					R 15 000.00
15(B)	Specialist study	sum					
	Total						R 1 217 006.77
	Weighting factor 2 = 1.05						
	Sub Total 1						R 1 277 857.11

Multiply Sum * of 1 - 15 by		(WF2)	R		R (Subtotal 1)	
1	Preliminary and General	Add 6 % of subtotal 1 if subtotal 1 > R 100.000.000.00				
		Add 12 % of subtotal 1 if subtotal 1 < R 100.000.000.0			R	153 342.85
2	Contingencies	Add 10 % of subtotal 1			R	127 785.71
				Sub Total 2	R	281 128.56
		(Subtotal 1 plus sum of management and contingency)			R	1 558 985.67
				Sub Total 3	R	1 558 985.67
			Vat @ 14 % of subtotal 3		R	218 257.99
				Grand Total (subtotal 3 plus vat)	R	1 777 243.66

13.8 Mining and Environmental Management Program

Table 13-2: Table depicting Environmental Management Program

Period	Phase	Mining and Rehabilitation Procedure
1985	Operational	Establishment of mine
1985 – 2042	Operational	Full-scale production
2043	Decommissioning and Aftercare	Aftercare up to a stage where re-vegetated areas are self-sustaining and maintenance free
Unknown		Proposed date for closure application

14 Conclusions

This EMPr revision has been undertaken to identify potential aspects and impacts requiring mitigation measures to ensure the responsible management of the environment. It is based on the original EMPR for the mine and as such contains management commitments deemed at the time to ensure that operations were undertaken in accordance with existing legislation. Due to the time that lapsed between 2000 and 2016 and the proposed extension to the mining area, potential gaps have been identified and addressed in the EMPr.

15 Amendments

Amendments to the EMPr may be required as the site activities proceed. Regulation 36 (1) states:

"*Where an amendment is required to the impact management actions of an EMPr, such amendments may immediately be effected by the holder and reflected in the next environmental audit report submitted as contemplated in the environmental authorisation and regulation 34.*"

Regulation 36 (2) states:

"*Where an amendment to the impact management outcomes or objectives of and EMPr or an amendment of the closure objectives of a closure plan is required before an audit is required in terms of the environmental authorisation, an EMPr or closure plan may be amended on application by the holder of the environmental authorisation.*"

Therefore while the impact management actions can be amended without a formal amendment application process, amendment of the impact management outcomes or objectives will require application to the authority and a public participation process as outlined in Regulation 37.

Further it is suggested that for this EMPr any amendment to the impact management actions in terms of Regulation 36(1) be discussed during site visits. Any amendments should then be agreed to by the QM and EO prior to being included in the audit reports.

16 Tenant's Acceptance

I, _____, (full name) representing _

_____, (company name) have read, understood and accept the above environmental management programme as a framework for my company's environmental performance during the above mentioned activities.

I, _____, (full name) representing _

_____, (company name) have read, understood and accept the above environmental management programme as a framework for my company's environmental performance during the above mentioned activities.

17 SCSC Acceptance

I, _____, (full name) representing _____, (company name) have read, understood and accept the above environmental management programme as a framework for my company's environmental performance during the above mentioned activities.

Prepared by

R Bellusci

Environmental Scientist

W. Jordaan (Pr.Sci.Nat)

Principal Scientist

Reviewed by

M.J Morris (Pr Eng)

Partner

All data used as source material plus the text, tables, figures, and attachments of this document have been reviewed and prepared in accordance with generally accepted professional engineering and environmental practices.

Appendices

Appendix A: Mining Right

Appendix B: Impact Assessment Report

Appendix C: EAP CV

Appendix D: Newspaper Advertisements

Appendix E: BID

Appendix F: Notification Letters

Appendix G: Site Notices

Appendix H: IAP Database

Appendix I: Comments and Responses

Appendix J: Environmental Policy

Appendix K: Environmental Awareness Plan

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