Draft Scoping Report for Public Comment for the Kudumane Manganese Resources Expansion Project for Properties Kipling 271, Devon 277 and Hotazel 280

Report Prepared for

Kudumane Manganese Resources (Pty) Ltd

Report Number 571395/IEA/DSR_H,D&K

DMRE Reference Numbers: NC 30/5/1/2/2/10053 MR

Report Prepared by

srk consulting

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SRK Project Number 574378

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Executive Summary

Kudumane Manganese Resources (Pty) Ltd (KMR) is situated approximately 3 km south-west of the town of Hotazel within the John Taolo Gaetsewe District Municipality in the Northern Cape.

The KMR mining operations commenced in June 2013 under the Mining Right NC/30/5/1/2/2/0268 MR (MR268) covering the farms York A 279 and Telele 312. The initial operation included the following mining related infrastructure:

- An opencast and future underground mining operation;
- Associated residue handling and disposal facilities;
- A crushing and screening plant;
- Rail and road infrastructure;
- Water and electrical reticulation infrastructure; and
- Various other supporting infrastructure and services, such as offices, waste storage areas and sewage treatment facilities.

In 2015, the mine expanded its operation through the application of Mining Right NC/ 30/5/1/2/2/10053 MR (MR10053) comprising the farms Devon 277, Hotazel 280 and Kipling 271. Under this mining right, the following main mining related activities and infrastructure were approved:

- Mining and removal of manganese ore from a historical pit and tailings storage facility (TSF) on the farm Devon 277;
- Mining and removal of manganese ore from an historical pit on the farm Hotazel 280, along with the establishment of haul road, utilisation of existing roads including the establishment and utilisation of a conveyor system between the farms Hotazel 280 and York A 279; and
- Potential future mining on the farm Kipling 271.

The KMR mining operation currently operates under two EMPrs approved by the Northern Cape Province Department of Environment and Nature Conservation (DENC) in June 2013 and October 2015 respectively. KMR also has a Water Use Licence (WUL) that was issued in 2016 by the Department of Water and Sanitation (DWS) and an amended WUL authorised in 2018.

Project Description

KMR intends to expand its existing operations and construct additional infrastructure in order to improve production capacity. As the proposed Expansion Project will affect both Mining Rights – MR268 and MR10053, two Environmental Authorisation (EA) application processes will be required. This Draft Scoping Report (DSR) has been compiled to fulfil the EA application process requirements relating to Mining Right MR1053 covering all activities and infrastructure required as part of the proposed Expansion Project on the farms Devon 277, Hotazel 280 and Kipling 271.

The infrastructure and activities associated with the proposed KMR Expansion Project for properties York and Telele, requires an amendment to the existing mine EMPr, a Waste Management Licence (WML) and Water Use Licence Application (WULA) to authorise the following key infrastructure and project related activities:

- Expansion of the York opencast pit; and
- Development of an attenuation dam within the Ga-Mogara River, to allow for the expansion of the York Pit.

The above key infrastructure will have secondary infrastructure and activities associated with them, which includes:

- Potable water storage tanks and pipelines;
- Expansion of waste rock dumps (WRDs);

- Establishment and expansion of ore stockpiles;
- Expansion of sewerage treatment plants;
- Development of supporting infrastructure such as admin offices ancillary infrastructure;
- Establishment of fuel and waste storage (general and hazardous) areas;
- Development and utilization of pollution control dams (PCDs);
- Establishment of a contractor's camp and laydown area; and
- Railway line expansion.

The infrastructure and activities associated with the proposed KMR Expansion Project will take place on the following farms and associated farm portions:

- York A 279: Portion 2/279 & Portion 11/279;
- Telele 312: Portion RE/312 & Portion 1/312;
- Devon 277: Portion RE/277;
- Hotazel 280: Portion RE/280 & Portion 4/280;and
- Kipling 271: Portion RE/271.

For the purposes of this Environmental Authorization process, the only properties which will form part of this Draft Scoping Report are:

- Devon 277: Portion RE/277;
- Hotazel 280: Portion RE/280 & Portion 4/280;and
- Kipling 271: Portion RE/271.

Environmental Assessment Practitioner

SRK Consulting (South Africa) (Pty) Ltd (SRK) were appointed by KMR as the independent environmental assessment practitioner (EAP) to manage and facilitate the integrated EA and associated public participation process in accordance with National Environmental Management Act (Act No. 107 of 1998) (NEMA), National Environmental Management: Waste Act (Act No. 59 of 2008) (NEM:WA), National Water Act (Act No. 36 of 1998) (NWA) and Mineral and Petroleum Resources Development Act (Act No. 28 of 2002) (MPRDA).

Environmental Authorisation Process

This draft scoping report has been compiled in terms of the provisions of Appendix 2 of the NEMA EIA Regulations of 2014, as amended in 2021 (GNR 982) as well as the requirements of the scoping report template issued by the Department of Mineral Resources and Energy (DMRE).

This report is titled "Draft Scoping Report for Public Comment for the Kudumane Manganese Resources Expansion Project for Properties Kipling 271, Devon 277 and Hotazel 280" and fulfils the requirements for a scoping report as contemplated in the NEMA EIA Regulations. All comments received during the review of the scoping report will be incorporated into the Final Scoping Report (FSR) for submission to the DMRE, as the competent authority.

Before KMR can commence with the development of the proposed Expansion Project, certain EAs and amendments to existing authorisations needs to be undertaken in terms of the following national legislation:

- The Mineral and Petroleum Resources Development Act (Act No. 28 of 2002) (MPRDA): For any amendments EMPr in accordance with Section 102 of the MPRDA;
- The National Environmental Management Act (Act No. 107 of 1998) (NEMA): For any project-related listed activities stipulated in the NEMA Environmental Impact Assessment (EIA) Regulations of 2014, as amended in 2021;

- The National Environmental Management: Waste Act (Act No. 59 of 2008) (NEM:WA): For any project-related waste management activities stipulated in GN R 921, promulgated under NEM:WA; and
- The National Water Act (Act No. 36 of 1998) (NWA): For any project related water uses stipulated under Section 21 of NWA.

The environmental authorisations in terms of NEMA, NEM:WA and MPRDA will be applied for to the Northern Cape DMRE. The WUL authorisation in respect of the NWA will be applied for from the Department of Water and Sanitation (DWS) in Kimberley.

Summary of the Baseline Environment

The table below provides an overview of the baseline biophysical and socio-economic environment of the proposed KMR Expansion Project. This information draws on existing data presented in specialist studies undertaken for the KMR operation and will be updated based on specialist studies undertaken for the KMR Expansion Project.

Aspect	Description
Geology	The proposed KMR Expansion Project is situated within the manganese mining district which is located on the eastern side of the Kalahari Manganese Field (KMF). The KMF is situated about 50km northeast of Kuruman within the Northern Cape (Metago, 2011). KMR mines the manganese from the Hotazel Formation (Transvaal Supergroup). The Hotazel Formation consists mainly of Banded iron Formation which has three laterally continuous stratiform manganese.
Topography	KMR is situated within an area which is relatively flat which gradually slops towards the west where the Ga-Mogara river flows along the boundary of the Kipling, Hotazel, York and Devon properties. The proposed KMR Expansion project is located as approximately 1040 meters above sea level (m-amsl) (SLR,2014).
Climate	The KMR mines are situated within the northern climatic zone as defined by the South Africa Weather Bureau. The area can experience fairly extreme weather ranging from hot days to cold nights. This area is a semi-arid region where majority of rainfall occurs within the summer months (January, February and March) and the lowest amount of rainfall within winter months (June, July and August).
Visual	The area where the proposed KMR Expansion Project will be located is fairly flat with some mountains to the west and east of the site. The main land uses are agriculture and mining. The KMR mining area is surrounded by other mining activities such as the Iron ore mine in Kathu (6okm away) as well as the Manganese mine such as the Mamatwan opencast mine and the deep mines at Nchwaning Wessels and Gloria with their associated tips and stock fields (SLR, 2014).
Soils	The area where the proposed KMR Expansion project is to be located is flat and sandy with the thickness varying from 10cm to 50m. This area is underlain by calcrete and the Dwyke Formation sediments (Gibb, 2019). The parent material, which was assessed as part of the EIA conducted in 2014, comprises of windblown red to yellow sand as well as surface limestone of a recent age. About 90% of the site is covered by deep Hutton and Clovelly soils. The remained of the area consist of Mispah soils and rock outcrops (SLR, 2014).
Biodiversity	Based on the assessment conducted in 2014 for the previous EMPr, no red data reptiles or amphibians were identified within the proposed area (Birch, 2014).

Aspect	Description
	However, a variety of red data bird species were identified to occur within a 500m radius of the proposed project site. In addition to these red data species, various red data mammal species were also identified to occur on the proposed site. Two of these mammals were also identified to have a high likelihood to occur within the area die to the suitable habitat. Three protected tree species were identified. These three species being *Acacia erioloba, Acacia haematoxylon* and *Boscia albitrunca*. A permit will need to be applied for from the relevant authority if any of these species are removed. Seven alien invasive species were identified within the proposed site area.
Surface Water	The KMR proposed project site is situated within the quaternary catchment D41K which falls within the Lower Vaal Water Management Area. The non-perennial Ga-Mogara river flows northwards along the western side of the KMR property boundary. This river is usually dry except for period of high rainfall. The project site drains into the Ga-Mogara river. The existing floodline of the Ga-Mogara River is generally falls within the 100m buffer with some small areas fall outside of the 100m buffer. While none of the previous infrastructure was within the Ga-Mogara River floodline, the proposed KMR Expansion Project will expand the existing opencast mines into the Ga-Mogara river.
Groundwater	There are two aquifer systems within the study area, namely an intergranular aquifer and a fractured aquifer. As indicated in the WUL, groundwater monitoring is required to understand whether groundwater contamination is occurring and to rectify this should contamination occur. Groundwater monitoring is undertaken at York, Hotazel and Telele.
Air Quality	During the air quality specialist study (Metago, 2011) which was conducted as part of the 2010 EIA/EMPr the following regional sources of emissions were identified: • Fugitive dust; • Existing mining operations; • Vehicle tailpipe emissions; • Household fuel combustion; • Rail related emissions; • Veld burning; • Long-range transportation of aerosols; and • Biomass burning.
Noise	The area where the proposed KMR Expansion Project will occur is within a rural area with no elevated noise levels. The main contributors to the noise levels within the area are surrounding farming activities, localised traffic, rail activities and mining operations. There is a potential that the KMR Expansion Project could contribute to increase noise levels within the area especially the proposed Kipling opencast mine as this is the closest to the town of Hotazel.
Heritage and Cultural importance	Based on the heritage assessment conducted in 2014 (SLR, 2014), a small amount of stone tools was identified near Hotazel which is on the banks of the Ga-Mogara River. The EIA conducted in 2011 indicated that there is a single grave in the southern portion of York which is fenced (Metago, 2011).
Socio-Economic	The proposed KMR Expansion Project is situated within the John Taolo Gaetsewe District Municipality (JTGDM) which is bordered by the ZF Mgcawu and Frances

Aspect	Description
	Baard District Municipalities. The JTGDM is the smallest district municipality in the Northern Cape. The JTGDM comprises of three local municipalities namely, Gamagara Local Municipality; Ga-Segonyana Local Municipality; and Joe Morolong Local Municipality. The proposed project site falls within the Joe Morolong Local Municipality. The JTGDM had a population increase of 1.5% between 2011 and 2016, however, there has been a substantial decline in the Joe Morolong Local Municipality between 1996 and 2016. This is mainly due to job seekers leaving the local municipality for better job opportunities (JTGDM IDP, 2021).

Employment Opportunities

Majority of the labour requirements associated with the proposed KMR Expansion Project will be sourced from local communities. External labour will only be sourced if semi-skilled and skilled positions are not available locally. Employment opportunities will be determined during the impact assessment phase of the project.

Alternatives considered

The location and mining method of the existing Hotazel pit operation and proposed Kipling pit operation are directly linked to the location and extent of the mineral reserve in the area. Therefore the only alternatives that will be considered as part of the KMR Expansion Project are the location of the project related infrastructure and the water management strategy that will be implemented to allow for the expansion of the Hotazel pit into the Ga-Mogara River.

Engineering details associated with these alternatives are being refined and will be reported on in full detail during the impact assessment phase.

Specialists Studies

A specialist team of consultants has been appointed to undertake various investigations; namely:

- Closure and liability;
- Socio-economic;
- Noise and vibration;
- Blasting and vibration;
- Surface water;
- Air quality;
- Heritage and paleontology;
- Traffic;
- Freshwater;
- Terrestrial biodiversity; and
- Soils, land use and land capability.

These studies will investigate the baseline environment, identify and assess potential impacts and propose management measures to mitigate impacts. Findings from these studies will be incorporated into the EIA/EMPr.

Anticipated Impacts

The Scoping Phase is used to identify potentially significant environmental issues on a qualitative level for further consideration during the EIA phase on a quantitative level. The key biophysical and socio-

economic issues and/or potential impacts that will receive attention during the EIA phase are presented in the table below.

Aspect	Type of Impact
Topography	The topography of the area may be permanently altered due to the opencast mines as well as the Waste Rock Dumps and Ore Stockpiles.
Land use	Due to the change in the land use from open land to mining, there is a medium to long-term impact especially should there be any land contaminated due to mining activities.
Biodiversity	There may be a negative impact on the biodiversity of the area due to the fragmentation of habitats caused by mining operations as well as loss of vegetation.
Surface water	There may be a negative impact on surface water within the study area especially due to the expansion of the opencast pits into the Ga-Mogara River as well as the construction of the attention dams.
Groundwater	There may be a negative impact on groundwater in the proposed site area due to the construction of the additional opencast mine.
Air quality	The expansion of the existing mine operations and the addition of the new activities and infrastructure may increase dust within the area.
Noise and vibration	Blasting activities may increase the noise levels and vibration within the area and negatively impact sensitive receptors in the vicinity of the mine.
Cultural heritage	There is a possibility that cultural heritage sites may be impacted due to the expansion activities as well as surrounding sites.
Social	The proposed project expansion may have a positive impact on the socio-economic aspects of the area due to the creation of employment opportunities.

Public Participation

The NEMA EIA Regulations (GN R 982 amended) require identification of and consultation with communities and interested and affected parties (I&APs). In terms of Section 24 0 (2) of NEMA, specific state departments were identified and recognised as commenting authorities on aspects of the proposed KMR Expansion Project.

I&APs identified in previous environmental authorisations processes, together with lists of stakeholders that KMR has regular contact with, and networking and referral formed the basis for the development of the stakeholder database.

The stakeholder database will be reviewed and updated after each round of engagement during the environmental authorisation process.

New regulations and guidance notes have been published in terms of the Protection of Personal Information Act 4 of 2013 (POPIA) and are affective as of 1 July 2021. Based on POPIA, all relevant regulatory processes will be undertaken in accordance with POPIA to protect all I&APs privacy and information.

Announcement

The project was announced to the public on 18 August 2021 by means of the placement of newspaper advertisements and site notices. Background Information Documents (BIDs) were distributed to I&APs to create awareness of the proposed KMR Expansion Project.

Availability of the draft scoping report for public comment

The DSR will be available for public comment from 30 August to 29 September 2021. The availability of the DSR will be announced as follows:

- Distribution of a letters to I&APs, accompanied by a registration and comment form (in English and Setswana), inviting I&APs to comment on the DSR and to register as an I&AP;
- Notifications to I&APs of the availability of the DSR via SMS, newspaper advertisement, site notices, email and letters; and
- Posting the DSR, announcement letter and comment form on the SRK website (https://docs.srk.co.za); and at public places.

Opportunities to comment

I&APs are encouraged to submit their written comments to SRK's stakeholder engagement office through the contact details provided in the stakeholder letters, BIDs and comment sheets. I&APs can also fill in comment forms at one of the public places, contact the SRK stakeholder engagement team via telephone, email or fax to submit comments and to discuss any issues of concern.

A record of project related comments received to date have been included in the comment and response report (CRR). Currently, no comments have been received, however, the CRR will be updated with comments received during the 30-day public review period of the DSR and included in the FSR to be submitted to the DMRE.

Conclusion

This report has been complied in accordance with Appendix 2 of the NEMA EIA Regulations of 2014, as recently amended in 2021, and provides a description of the proposed KMR Expansion Project that will affect properties Hotzel, Kipling and Devon in respect of the Mining Right MR10053. The DSR details:

- The proposed locality of the new infrastructure;
- Alternatives considered;
- The baseline environmental conditions from previous EMPrs conducted for the KMR operation;
- The public participation process undertaken so far; and
- A summary of key potential environmental and social impacts.

The following activities will take place as part of the planned EA process going forward:

- Develop the FSR once comments and feedback have been received from I&APs and authorities;
- Submit the FSR to DMRE for decision-making;
- Undertake specialist studies of the proposed KMR Expansion Project;
- Assess potential impacts using SRK's impact assessment methodology;
- Develop an EMPr which will include management measures to avoid and/or mitigate and manage the potential impacts identified in the impact assessment;
- Provide registered I&APs feedback on the impact assessment phase;
- Submit the draft EIA/EMPr for I&AP and authority comment;
- Submit the final EIA/EMPr to the relevant authorities following the incorporation of I&APs comments; and
- Communicate the decision of the DMRE and DWS to registered I&APs.

Table of Contents

List of Tables

List of Figures

Disclaimer

The opinions expressed in this report have been based on the information supplied to SRK Consulting (South Africa) (Pty) Ltd (SRK) by Kudumane Mineral Resources (Pty) Ltd (KMR). SRK has exercised all due care in reviewing the supplied information. Whilst SRK has compared key supplied data with expected values, the accuracy of the results and conclusions from the review 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.

Protection of Personal Information Act 4 of 2013 (POPIA)

The Protection of Personal Information Act 4 of 2013 (POPIA), which aims to promote protection of personal information, came into effect on 1 July 2021. The EIA Regulations, 2014 require, inter alia, transparent disclosure of registered stakeholders and their comments. In terms of the EIA Regulations, 2014, stakeholders who submit comment, attend a meeting or request registration in writing are deemed registered stakeholders who must be added to the project stakeholder database. By registering, stakeholders are deemed to give their consent for relevant information (including contact details) to be processed and disclosed, in fulfilment of the requirements of the EIA Regulations, 2014 and the National Appeal Regulations, 2014.

List of Abbreviations

CA	Competent Authority
CRR	Comment and response report
DEA	Department of Environmental Affairs
DEAT	Department of Environmental Affairs and Tourism
DENC	Department of Environment and Nature Conservation
DMRE	Department of Mineral Resources and Energy
DSR	Draft Scoping Report
DWS	Department of Water and Sanitation
EA	environmental authorisations
EAP	environmental assessment practitioner
ECA	Environment Conservation Act, (Act No. 73 of 1989)
EIA	Environmental Impact Assessment
EMPr	Environmental Management Programmes
FSR	Final Scoping Report
GNR	Government Notice Regulation
IDP	Integrated Development Plan
I&APs	Interested and Affected Parties
JTGDM	John Taolo Gaetsewe District Municipality
KMF	Kalahari Managenese Field
KMR	Kudumane Manganese Resources
LoM	Life of mine
MHSA	Mine Health Safety Act, 1996 (Act No. 29 of 1996)
MPRDA	Mineral and Petroleum Resources Development Act (Act No. 28 of 2002)
NEMA	National Environmental Management Act (Act No. 107 of 1998)
NEM:AQA	National Environmental Management Air Quality Act (Act No. 39 of 2004)
NEM:BA	The National Environmental Management: Biodiversity Act (Act No. 10 of 2004)
NEM:WA	National Environmental Management: Waste Act (Act No. 59 of 2008)
NFA	The National Forestry Act, 1998 (Act No. 84 of 1998)
NHRA	National Heritage Resources Act 25 of 1999
NWA	National Water Act (Act No. 36 of 1998)
PAJA	The Promotion of Administrative Justice Act, (Act No. 3 of 2000)
PAIA	The Promotion of Access to Information Act, (Act No. 2 of 2000)
PCD	Pollution Control Dam
POPIA	Protection of Personal Information Act 4 of 2013

RoM	Run of Mine
SRK	SRK Consulting (South Africa) (Pty) Ltd
S&EIR	Scoping and Environmental Impact Reporting
SPLUMA	Spatial Planning and Land Use Management Act, (Act No. 16 of 2013)
ToR	terms of reference
WULs	Water Use Licenses
WML	Waste Management Licenses
WULA	Water Use License Application
WHCA	The World Heritage Convention Act, (Act No. 49 of 1999)

1 Introduction and scope of report

1.1 Purpose of this report

This draft scoping report (DSR) has been compiled in terms of the provisions of Appendix 2 of the NEMA EIA Regulations of 2014, as amended in 2021 (Government Notice Regulation (GNR) 982) as well as the requirements of the scoping report template issued by the DMRE. A summary of the requirements of a scoping report including cross-references to sections in this report where these requirements have been addressed is provided in Table 1-1.

This report is titled "Draft Scoping Report for Public Comment for the Kudumane Manganese Resources Expansion Project for Properties Kipling 271, Devon 277 and Hotazel 280" and fulfils the requirements for a scoping report as contemplated in the NEMA EIA Regulations. All comments received during the review of the scoping report will be incorporated into the Final Scoping Report (FSR), which will be submitted to the DMRE, as the competent authority, for consideration. Table 1-1 presents the structure of the DSR aligned with regulatory requirements.

Table 1-1: Structure of the scoping report

Regulation requirement	Section Ref
(a) Details of – (i) The EAP who prepared the report and (ii) The expertise of the EAP, including a CV	**Section 2** **Appendix A**
(b) The location of the activity, including – (i) The 21-digit Surveyor General code of each cadastral land parcel (ii) Where available, the physical address and farm name (iii) Where the required information in terms of (i) and (ii) is not available, the coordinates of the boundary of the property or properties	**Section 5**
(c) A plan which locates the proposed activity or activities applied for at an appropriate scale, or, if it is – (i) A linear activity, a description and coordinates of the corridor in which the proposed activity or activities is to be undertaken or (ii) On land where the property has not been defined, the coordinates within which the activity is to be undertaken	**Figure 5-1 & Appendix B**
(d) A description of the scope of the proposed activity, including – (i) All listed and specified activities triggered (ii) A description of the activities to be undertaken, including associated structures and infrastructure	**Section 5**
(e) A description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process	**Section 6**
(f) A motivation for the need and desirability for the proposed development including the need and desirability of the activity in the context of the preferred location	**Section 8**
(g) A full description of the process followed to reach the proposed preferred activity, site and location of the development footprint within the site, including -	**Section 9**
(i) details of the alternatives considered	**Section 10-1 to 10-4**
(ii) details of the public participation process undertaken in terms of regulation 41 of the Regulations, including copes of the supporting documents and inputs;	**Section 11**
(iii) a summary of the issues raised by interested and affected parties, and an indication of the manner in which the issues were incorporated, or the reasons for not including them;	**Section 11.5**
(iv) the environmental attributes associated with the alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;	**Section 12**

Regulation requirement		Section Ref
(v)	the impacts and risks which have informed the identification of each alternative, including the nature, significance, consequence, extent, duration and probability of such identified impacts, including the degree to which these impacts – (aa) can be reversed; (bb) may cause irreplaceable loss of resources; and (cc) can be avoided, managed or mitigated;	**Section 13**
(vi)	the methodology used in identifying and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks associated with the alternatives;	**Section 14**
(vii)	positive and negative impacts that the proposed activity and alternatives will have on the environment and on the community that may be affected focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;	**Section 15**
(viii)	the possible mitigation measures that could be applied and level of residual risk;	**Section 16**
(ix)	the outcome of the selection matrix	**Section 17**
(x)	if no alternatives, including alternative locations for the activity were investigated, the motivation for no considering such; and	**Section 18**
(xi)	a concluding statement indicating the preferred alternatives, including preferred locations of the activity;	**Section 18**
(h)	**a plan of study for undertaking the environmental impact assessment process to be undertaken, including –**	**Section 19**
(i)	A description of the alternatives to be considered and assessed within the preferred site	**Section 19**
(ii)	A description of the aspects to be assessed as part of the environmental impact assessment process	**Section 19**
(iii)	Aspects to be assessed by specialists	**Section 19**
(iv)	A description of the proposed method of assessing the environmental aspects, including aspects to be assessed by specialists	**Section 19**
(v)	A description of the proposed method assessing duration significance	**Section 14**
(vi)	An indication of the stages at which the competent authority will be consulted	**Section 19**
(vii)	Particulars of the public participation process that will be conducted during the environmental impact assessment process	**Section 20**
(viii)	A description of the tasks that will be undertaken as part of the environmental impact assessment process	**Section 19**
(ix)	Identify suitable measures to avoid, reverse, mitigate or manage identified impacts and to determine the extent of the residual risks that need to be managed and monitored	**Section 21**
(i)	**An undertaking under oath or affirmation by the EAP in relation to –** (i) The correctness of the information provided in the report (ii) The inclusion of comments and inputs from stakeholders and interested and affected parties (iii) Any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested or affected parties	**Section 24**
(j)	**An undertaking under oath or affirmation by the EAP in relation to the level of agreement between the EAP and interested and affected parties on the plan of study for undertaking the environmental impact assessment**	**Section 25**
(k)	**Where applicable, any specific information required by the competent authority**	**Section 22**
(l)	**Any other matter required in terms of section 24(4)(a) and (b) of the Act**	**Section 23**

1.2 Background to KMR operation

Kudumane Manganese Resources (Pty) Ltd (KMR) is situated approximately 3 km south-west of the town of Hotazel within the John Taolo Gaetsewe District Municipality in the Northern Cape (Figure 1-1). The KMR mining operations commenced in June 2013 under the Mining Right NC/30/5/1/2/2/0268 MR covering the farms York A 279 and Telele 312. The initial operation included the following mining related infrastructure:

- An opencast and future underground mining operation;
- Associated residue handling and disposal facilities;
- A crushing and screening plant;
- Rail and road infrastructure;
- Water and electrical reticulation infrastructure; and
- Various other supporting infrastructure and services, such as offices, waste storage areas and sewage treatment facilities.

In 2015, the mine expanded its operation through the application of another mining right (Mining Right Ref: NC/ 30/5/1/2/2/10053 MR) over the farms Devon 277, Hotazel 280 and Kipling 271. Under this mining right, the following main mining related activities and infrastructure were approved:

- Mining and removal of manganese ore from a historical pit and tailings storage facility (TSF) on the farm Devon 227;
- Mining and removal of manganese ore from an historical pit on the farm Hotazel 280, along with the establishment of haul road, utilisation of existing roads including the establishment and utilisation of a conveyor system between the farms Hotazel 280 and York A 279; and
- Potential future mining on the farm Kipling 271.

The KMR mining operation therefore operates under two Environmental Management Programmes (EMPrs) as approved by the Northern Cape Province Department of Environment and Nature Conservation (DENC) in June 2013 and October 2015 respectively. KMR also has a Water Use Licence (WUL) that was issued in 2016 by the Department of Water and Sanitation (DWS) and an amended WUL authorised in 2018.

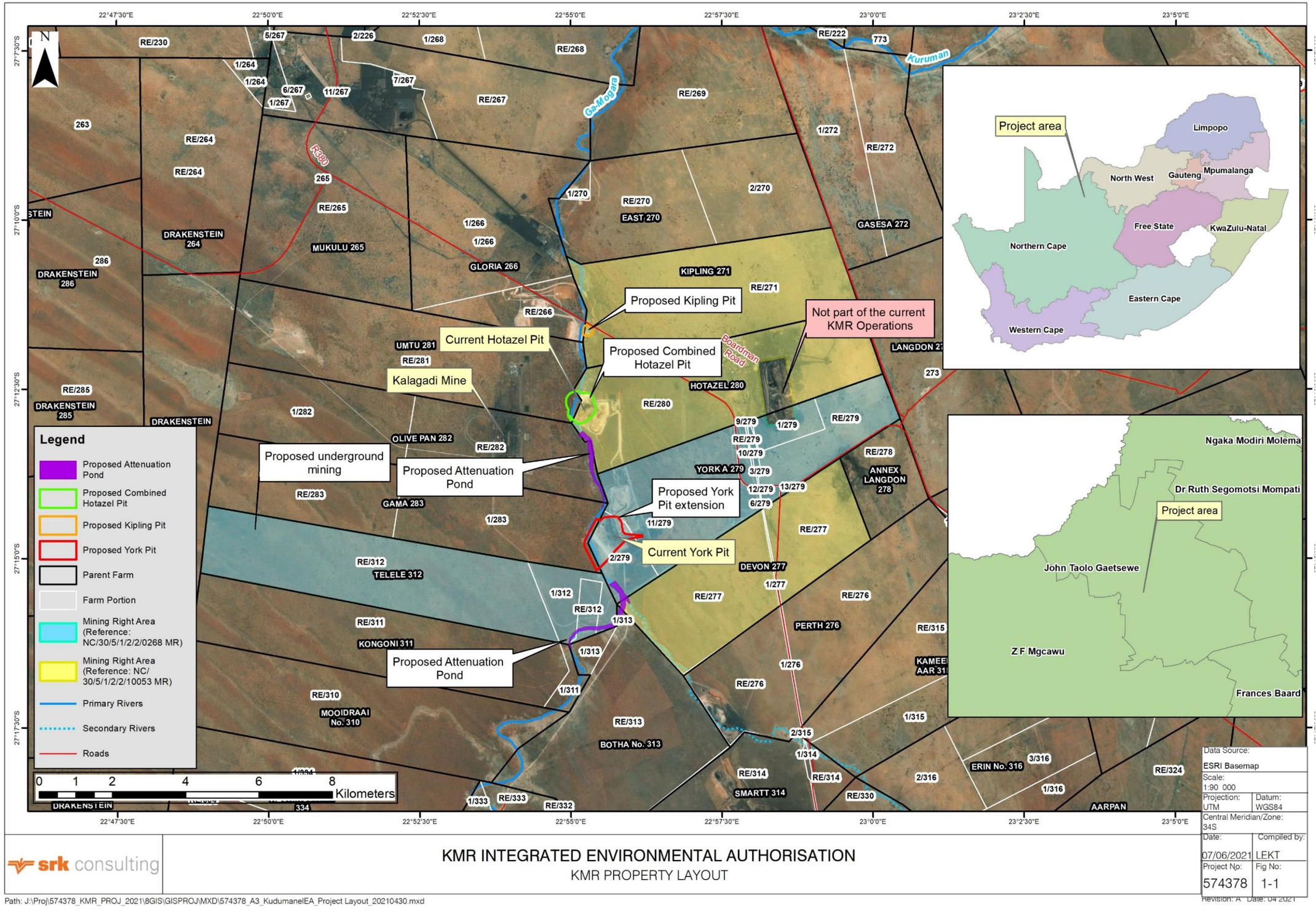


Figure 1-1: Locality of KMR's operations

1.3 Proposed project activities

It is the intension of KMR to expand its existing operations and construct additional infrastructure in order to improve production capacity. The EMPrs and associated environmental authorisations (EA) therefore need to be amended. The proposed expansion will be located within the existing KMR mining rights on York A 279, Telele 312, Kipling 27, Devon 277 and Hotazel 280. However, as the KMR operations fall under two Mining Rights, two amendments process will be undertaken for the KMR Expansion Project. One EMPr amendment will be conducted for Mining Right NC/30/5/1/2/2/0268 MR and another EMPr amendment will be conducted for Mining Right NC/ 30/5/1/2/2/10053 MR.

The infrastructure and activities associated with the proposed KMR Expansion Project, for properties Hotazel, Devon and Kipling, requires an Environmental Authorisation, the amendment of the mine's existing EMPrs, a Waste Management Licence (WML) and a WUL to authorise the following key infrastructure:

- A new opencast pit mine on Kipling;
- Expansion of the Hotazel opencast mine; and
- An attenuation dam on the Ga-Mogara River, to allow for the expansion of the Hotazel Pits.

The above key infrastructure will have secondary infrastructure and activities associated with them, which includes:

- Establishment of water storage tank and pipelines;
- Development and expansion of waste rock dumps;
- Establishment and expansion of ore stockpiles;
- New roads and expansion of existing roads;
- Development and expansion of sewerage treatment plants;
- Supporting infrastructure such as admin offices ancillary infrastructure;
- Waste and fuel storage areas;
- Pollution control dams;
- Upgrade of a tarred, provincial road (R380 intersection with KMR deliver and collection road;
- Contractor's camp; and
- Extension of existing powerlines.

The infrastructure and activities associated with the proposed KMR Expansion Project will take place on the following farms and associated farm portions:

- York A 279: Portion 2/279 & Portion 11/279;
- Telele 312: Portion RE/312 & Portion 1/312;
- Devon 277: Portion RE/277;
- Hotazel 280: Portion RE/280 & Portion 4/280;and
- Kipling 271: Portion RE/271.

Figure 1-2 provides a map showing the location of the proposed infrastructure within KMR's mining right areas.

For the purposes of this Environmental Authorisation process, the only properties which will form part of this Draft Scoping Report are:

- Devon 277: Portion RE/277;
- Hotazel 280: Portion RE/280 & Portion 4/280;and
- Kipling 271: Portion RE/271.

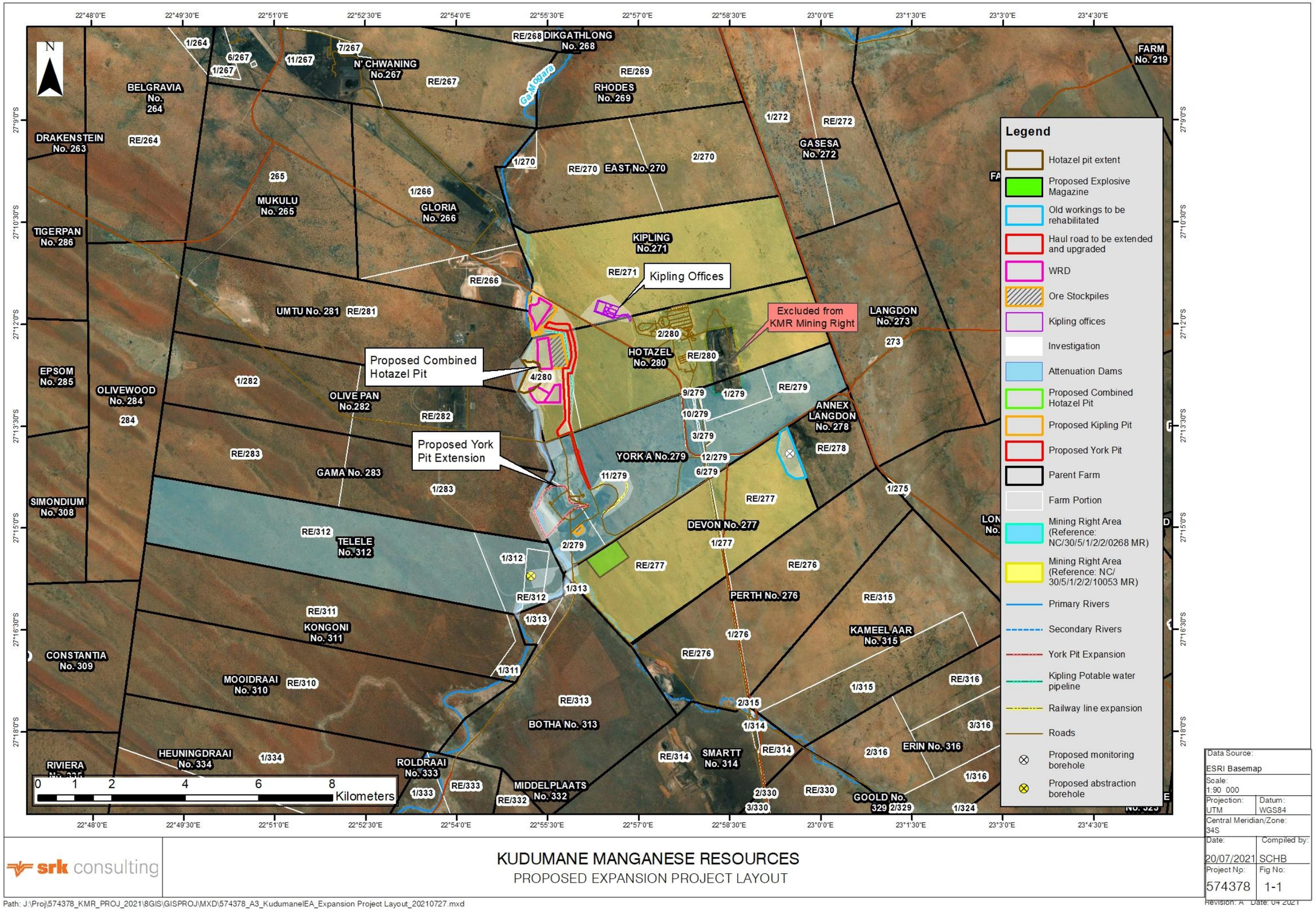


Figure 1-2: Proposed infrastructure in respect of KMRs Mining Right Areas

Before KMR can commence with the proposed expansion activities, the mine needs to obtain the necessary authorisations from the Department of Mineral Resources and Energy (DMRE) in respect of the listed activities that will be triggered by the proposed project in respect of the National Environmental Management Act (Act No. 107 of 1998) (NEMA) and National Environmental Management: Waste Act (Act No. 36 of 1998) (NEM:WA). In addition to the integrated environmental authorisation (EA) requirements, KMR will also need to apply for a WUL through DWS in respect of the water uses that will be associated with the proposed project in terms of the National Water Act (Act No. 36 of 1998) (NWA).

1.4 Appointed environmental assessment practitioner

SRK Consulting (South Africa) (Pty) Ltd (SRK) was appointed by KMR as the independent environmental assessment practitioner (EAP) to manage and facilitate the integrated EA process, amend the approved EMPrs and undertake the associated public participation process in accordance with NEMA, NEM:WA, NWA and MPRDA.

2 Details and expertise of the Environmental Assessment Practitioner

As the independent EAP, SRK will undertake the required integrated EA processes, including the associated public participation, to meet the requirements of NEMA & NEM:WA.

2.1 Details of EAP who prepared the report

The details of the EAPs involved in the compilation of this draft scoping report are provided in Table 2-1.

Table 2-1: EAP contact details

EAP Name	Contact Number	Fax Number	Email Address
Darryll Kilian	011 441 1111 (x1297)	086 506 1737	dkilian@srk.co.za
Selma Nel	011 441 1111 (x1127)	083 999 4690	snel@srk.co.za
Michelle Miles	011 441 1111	083 602 4988	mmiles@srk.co.za

2.2 Expertise of the EAP

2.2.1 Qualification of the EAP

The qualifications of the EAPs are provided in Table 2-2.

Table 2-2: EAP qualifications

EAP Name	Qualifications	Years' Experience
Darryll Kilian	MA (Environmental and Geographical Science)	27
Selma Nel	MA (Environmental Management)	14
Michelle Miles	B.Sc Hons (Environmental Water Management)	5

2.2.2 Summary of EAP's past experience

The EAPs' expertise is provided for in Table 2-3. Detailed curricula vitae (CVs) of the project team are provided in Appendix A.

Table 2-3: EAP expertise

EAP Name	Expertise
Darryll Kilian	Darryll Kilian has been involved in environmental management, development and research in Africa for over 27 years. His expertise includes: • Environmental and social impact assessment; • Due diligence reviews; • Project performance monitoring and review; • Environmental reporting; • Strategy and policy development; • Environmental and social research; and • Stakeholder facilitation and engagement.
Selma Nel	Selma Nel has been involved in the field of environmental management for the past 14 years. Her expertise includes: • project management and coordination of integrated environmental impact assessments, environmental management programmes; • environmental impact assessments and basic assessments for mining and energy related projects in South Africa; • specialist team co-ordination and drafting Terms of Reference (ToR); • compliance audits in respect of environment, waste and water as well as international standards; • analysis of environmental and social impacts assessment (ESIA) and environmental and social management plan/programmes (ESMP) prepared by other consultancies (outside South Africa) for African projects to determine level of upgrading required to meet international standards; • compilation of technical environmental documents, programmes and reports; • conducting environmental control officer work environmental projects; • environmental pre-feasibility and feasibility assessment input; • site selection assessment input; • environmental compliance audits in terms of NEMA, MPRDA, NEM: WA and NWA; • stakeholder engagement; and • vendor due diligence
Michelle Miles	Michelle has 5 years' experience within the environmental science and management field. She has been involved in a various aspect of projects ranging from concept studies all the way through to environmental construction management. Her experience include: • Environmental authorisations; • Environmental baseline assessments; • Environmental design criteria as well as permitting strategies; • Construction environmental management plans; • Independent audit report for construction; • Legislative reviews of various countries; • Geographical information systems (GIS) analyses; • Waste management plans; • Water monitoring sampling and analysis; and Environmental compliance auditing.

2.3 KMR details

The physical and postal address of KMR mine is provided in Table 2-4 and details of the responsible persons at KMR are presented in Table 2-5.

Table 2-4: Physical and postal address for KMR

Address	Details
Physical address:	Farm York A279, Hotazel, Northern Cape
Postal address:	Suite 201 D, 11 Crescent Drive, Melrose Arch, Melrose, 2196

Table 2-5: KMR responsible persons

Name	Designation
Eric Chung	President, Asia Minerals South Africa (Pty) Ltd
Siviwe Ntlonti	Mine Manager
Tshifhiwa Nemakhavhani	Safety, Health, Environment, Risk and Quality (SHERQ) Manager
Tshekedi Montshusi	Environmental Officer

3 Background and overview of KMR

3.1 Project background

KMR mines manganese at two opencast mine operations, namely the York and Hotazel mines. KMR has future plans for underground mining on the farm Telele 312, which has already been authorised as indicated in Table 3-1, but not yet commenced. The manganese ore mined at these mining operations is crushed, screened and stockpiled on site. The ore is then loaded and transported via rail to Durban and Gqeberha ports where it is exported.

KMR is currently operating under two mining rights, two EMPrs, a WUL and amended WUL, as summarised in Table 3-1.

Table 3-2 lists the NEMA Listed Activities previously authorised for KMR in terms of previously applicable EIA Regulations of 2006 and 2010, respectively.

Table 3-1: Summary of existing authorisations

Applicable legislation	Authorisation

National Environmental Management Act (Act No. 107 of 1998) (NEMA)	• Metago EMPr (KC/KGA/JTG/HOT-KUR/16/2010) approved on the 07 June 2011
	  ○ Initial Metago EMPr included the Mining Right for York (opencast) and Telele (underground) and approved infrastructure for York
	• The SLR EMPr(NC/EIA/OS/JTG/HOT/KUD/2013) approved on the 15 October 2015
	  ○ The SLR EMPr is the second environmental authorisation process which added Devon, Hotazel and Kipling with additional infrastructure to the York /Telele operation and additional activities to the new Mining Right areas (Devon, Hotazel and Kipling).

Mineral and Petroleum Resources Development Act (Act No. 28 of 2002) (MPRDA)	• Mining Right NC/30/5/1/2/2/0268 for farms York and Telele; and • Mining Right NC/ 30/5/1/2/2/10053 for farms Devon, Hotazel and Kipling

Applicable legislation	Authorisation
National Water Act (Act No. 36 of 1998) (NWA)	• WUL No. 07/D41K/ABCFGIJ/4533 issued on 29th May 2016; and • Amended WUL (Issued under the same WUL No.) issued on 23 July 2018.

Table 3-2: Listed activities authorised in terms of KMR's current operations

2010 EMPr (approved in 2011)	2014 EMPr (approved in 2015)
Listing Notice 1 (GNR 386 of 2006), **Activities**: • **1(b)** → The above ground storage of 1000 tons or more, but less than 100 000 tons of ore; • **1(k)** →The bulk transportation of sewage and water, including storm water, in pipelines- (i) With an internal diameter of 0.36m or more; or (ii) A peak throughput of 120 litre per second or more; • **1(l)** → The transmission and distribution of electricity above the ground with a capacity of more than 33kV and less than 120kV; • **7** → The above ground storage of a dangerous good in containers with a combined capacity of more than 30m^3 but less tan 1000 m^3 at any one location on site; • **13** → The abstraction of groundwater at a volume where, any generatl authorisation issued in terms of NWA, will be exceeded; • **14** → The construction of a mast of any material or type and of any height, excluding – (a) Mast of 15m or lower, exclusively used (i) By radio amateurs; or (ii) For lighting purposes (b) Flag poles; and (c) Lighting conductor poles; • **15** → The construction of a road that is wider than 4m or that has a reserve wider than 6m excluding access roads of less than 30m.	Listing Notice 1 (GNR 544 of 2010), **Activities**: • **1(i)** → The construction of facilities or infrastructure for the generation of electricity where: (i) the electricity output is more than 20MW; • **9(i)(ii)** → The construction of facilities or infrastructure exceeding 1000m in length for the bulk transportation of water, sewage or storm water- (i) With an internal diameter of 0.36m or more; or (ii) A peak throughput of 120 litre per second or more; • **10(i)** → The construction of facilities or infrastructure for the transmission and distribution of electricity, (i) outside urban areas or industrial complexes with a capacity of more than 33 but less than 275kV; • **11(iii)** → The construction of (iii) bridges; where such construction occurs within a watercourse or within 32m of a watercourse, measured from the edge of a watercourse; • **12** → The construction of facilities or infrastructure for the off-stream storage of water, including dams and reservoirs, with a combined capacity of 50 000m3 or more, unless such storage falls within the ambit of Activity 19 of Listing Notice 2; • **13** → The construction of facilities or infrastructure for the storage , or for the storge and handling, of dangerous good, where such storage occurs in containers with a combined capacity of 80 but not exceeding 500m3; • **22(i)(ii)** → The construction of a road, outside urban areas, (i) With a reserve wider than 13.5m; or (ii) Where no reserve exists where the road is wider than 8m; and • 26 → Any process or activity identified in terms of section 53(1) of the National Environmental Management: Biodiversity Act, Act 10 of 2004.

2010 EMPr (approved in 2011)	2014 EMPr (approved in 2015)
Listing Notice 2 (GNR 387 of 2006), **Activities**: **1(c)** → The above ground storage of a dangerous good in containers with a combined capacity of 1000m^3 or more at any one location on site; **1(h)** → The manufacturing, storage or testing of explosives, including ammunition, but excluding licensed retail outlets and the legal end use of such explosives; **1(l)** → The transmission and distribution of electricity above the ground with a capacity of 120kV or more; **1(s)** → Rail transportation, excluding railway lines and sidings in industrial areas and underground railway lines in mines, but including- (i) Railway lines; (ii) Stations; or (iii) Shunting yard; **2** → Any development activity, including associated structures and infrastructure, where the total area of the developed area, is or intended to be 20 ha or more; **3** → The construction of a filling station, including associated structures and infrastructure, or any other facility for the underground storage of dangerous good; **7** → Reconnaissance, exploration, production and mining as provided for the MPRDA as amended in respect of such permits and rights; **8** → In relation to permits and rights granted in terms of Activity 7 (Listing Notice 2) or any other right granted in terms of the previous mineral legislation, the undertaking of reconnaissance, exploration, production or mining activity or operation within an exploration or mining area, as defined in the MRPDA.	Listing Notice 2 (GNR 545 of 2010), **Activities**: **5** → The construction of facilities or infrastructure for any process or activity which requires a permit or license in terms of nationsl or provincial legislation governing the generation or release of emissions, pollution or effluent and which is not identified in Listing Notice 1 or included in the list of waste management activities published in terms of section 19 of NEM:WA in which case that Act will apply; **15** → Physical alteration or undeveloped, vacant or derelict land for residential, retail, commercial, recreational, industrial or institutional use where the total area to be transformed is 20 ha or more; 20 → Any activity which requires a mining right or renewal thereof as contemplated in sections 22 and 24 respectively of the MPRDA; 22 → Any activity which requires a production right or renewal thereof as contemplated in sections 83 and 85 respectively of the MPRDA; 26 → Commencing of an activity, which requires an atmospheric emission license in terms of section 21 of the National Environmental Management: Air Quality Act, Act 39 of 2004). Listing Notice 3 (GNR 546 of 2010), **Activities**: **2a(iii),bb** → The construction of reservoirs for bulk water supply with a capacity of more than 250 m^3; **3(a)(ii)** → The construction of masts or towers of any material or type used for telecommunication, broadcasting or radio transmission purposes where the mast (a) is to be placed on a site not previously used for this purpose; **4a(ii) cc** → The construction of a road wider than 4m with a reserve less than 13.5m; **9a(ii)** → The construction of above ground cableways and funiculars; **10a(ii)(cc)** → The construction of facilities or infrastructure for the storage, or storage and handling of a dangerous good with combined storage is 30 but not exceeding 80m^3; **14a(i)** → The clearance of an area of 5ha or more of vegetaton where 75% or more of the vegetation cover constitute indigenous vegetation; **16(iii)and (iv) - a(ii)dd** → The construction of (iii) buildings with a footprint exceeding 10m^2 in size; or (iv) infrastructure covering 10m^3 or more where such construction occurs within a watercourse or within 32m of a watercourse, measured from the edge of the watercourse.

3.2 Overview of existing activities and infrastructure at KMR

Table 3-3 provides an overview of the current mining and process operations including the residue facilities and ore stockpiles at KMR.

Table 3-4 and Figure 3-1 provides a summary of the water uses and water management infrastructure associated with the KMR operations.

Table 3-3: Overview of the KMR operations and water and waste management systems

Aspect	Description
Mining operations	
Target mineral	Manganese
Ore body	Kalahari Managenese Field
Products	Ore is crushed and screened on site where it is transported via rail to Durban and Gqeberha for export
Life of mine	The current Life of Mine (LoM) is estimated to by 22 years (end 2043). During the EIA phase the number of months/years the LoM will be extended by will be calculated and provided to all stakeholders.

Mining methods	• Open cast mining in two opencast pits, namely
	  ○ Hotazel
	  ○ York
	• An open pit was assessed and approved in 2015 on the farm Devon 277 (mining of a historic pit), however, it was found to be unviable and the pit is to be rehabilitated
	• Underground mining has been assessed and approved in 2015 in respect of the farm Telele 312. However, no mining has commenced to date on this property.

Waste and residue disposal	
Waste Rock Dumps	• Hotazel waste rock dump which is situated adjacent to the Hotazel opencast pit. • York Waste rock dump • Devon waste rock dump (approved but not constructed)
Ore Stockpiles	• York Run of Mine (RoM) and ore stockpile
Sewage treatment plants	• York Lilliput Sewerage treatment plant
Domestic, general and hazardous waste disposal	• York temporary waste storage and handling area • York waste management complex
Pollution control dams	• York Pollution control dam
Crushing and Screening	• York crushing and screening plant of high grade manganese ore
Other mine infrastructure	
Water management infrastructure	• York water infrastructure – pipeline and storage tanks • Hotazel water infrastructure – pipeline and storage tanks
Roads	• York access roads • Hotazel access road • Haul road between York and Hotazel
Rail loop	• Rail infrastructure to connect the mine to the existing Transnet network East of KMR properties • Rail loop including stack reclaimers and silo to load the ore

Table 3-4: Water management infrastructure and associated authorised water uses at KMR

Property	Water Use	Water use activities	Purpose
Portion 0 of farm Hotazel 280	Section 21 (a) - Abstraction of groundwater	Dewatering borehole curtain • Borehole HDW01 • Borehole HDW02 • Borehole HDW03 • Borehole HDW04 • Borehole HDW05 • Borehole HDW06 • Borehole HDW07 • Borehole HDW08 Taking of water from Hotazel open pit (dewatering)	Water to be used in mining processes and dust suppression
	Section 21 (j) - Removing water found underground	• Borehole HDW01 • Borehole HDW02 • Borehole HDW03 • Borehole HDW04 • Borehole HDW05 • Borehole HDW06 • Borehole HDW07 • Borehole HDW08	Safe continuation of mining
		Dewatering of Hotazel open pit	
	Section 21 (b)	Storage of water from Sedibeng Water Board in water storage tank	Storage of potable water in a tank
	Section 21 (c) and (i) - Impeding or diverting the flow of water in a water course & Altering the bed, banks, course or characteristics of watercourse	Flood defence berm to be located within 1:100 year floodline of the Ga-Mogara drainage channel	Clean storm-water diversion berm to prevent ingress of stormwater into pit during a 1:100 yr storm event
		Encroachment of the Hotazel Pit into the 100m regulated zone of Ga-Mogara River	To allow mining of Manganese
	Section 21 (g) - Disposing of water containing waste	Storage of waste rock material in waste rock dump	Waste rock disposal
		Use of waste rock material to backfill Hotazel open pit	Rehabilitation of Hotazel open pit
		Dust suppression using excess mine water (dewatering water) along haul road at Hotazel	Suppressing dust (site wide)
		Storing Run of mine ore from Hotazel into stockpiles	Run of mine ore storage before processing
		Storing Water collected during dewatering of the pit and from dewatering boreholes in a steel tank	Storage of water to be used for dust suppression
Portion 2 and 11 of farm York A279	Section 21 (a) - Abstraction of groundwater	Taking water from the York open pit (dewatering) for re-use in the process	Water to be used in mining processes and dust suppression
		Taking of water from borehole YGWO1	Re-use in the processing, for domestic use and for dust suppression
		Taking of water from borehole BH2	Re-use in the processing, for domestic use and for dust suppression
	Section 21 (j) - Removing water found underground	Dewatering of water from the York Pit	Safe continuation of mining
	Section 21 (c) and (i) - Impeding or diverting the flow	Flood defence berm to be located within 1:100 year floodline of the Ga-Mogara drainage channel	Clean storm-water diversion berm to prevent ingress of stormwater into pit

Property	Water Use	Water use activities	Purpose
	of water in a water course & Altering the bed, banks, course or characteristics of watercourse		aduring a 1:100 yr storm event
		Encroachment of the York Pit into the 100m regulated zone of Ga-Mogara River	To allow mining of manganese
	Section 21 (g) - Disposing of water containing waste	Storage of Low Grade ore into Low Grade Ore Stockpile (LGOS)	Grading of ore
		Use of dirty water for dust suppression (site wide)	Suppressing dust (site wide)
		Disposal of waste rock material into opencast pit (backfilling)	Rehabilitation of York open pit
		Disposal of waste rock onto Waste Rock Dump at York	Waste rock disposal
		Disposal of dirty storm water runoff to Rail Loop Pollution Control Dam	Stormwater/ Pollution Management
		Disposal of dirty storm water to South West Pit Pollution Control Dam	Stormwater/ Pollution Management
		Silt trap capturing suspended solids from storm water runoff into Rail Loop Pollution Control Dam	Stormwater/ Pollution Management
		Silt trap capturing suspended solids from storm water runoff into South West Pit Pollution Control Dam	Stormwater/ Pollution Management
		Dust suppression using treated sewage effluent	Suppressing dust (site wide)
Portion 11 of farm York A279	Section 21 (a) - Abstraction of groundwater	Taking water from game farm borehole	For watering game
	Section 21 (b)	Storage of water from Sedibeng Water Board in water storage tank 2	Storage of potable water in a tank
	Section 21 (c) and (i) - Impeding or diverting the flow of water in a water course & Altering the bed, banks, course or characteristics of watercourse	Destruction of second unnamed tributary of Ga-Mogara for the progression of York Pit	To allow mining of manganese
Portion 2 of farm York A279	Section 21 (b)	Storage of water from Sedibeng Water Board in water storage tank 1	Storage of potable water in a tank
	Section 21 (c) and (i) - Impeding or diverting the flow of water in a water course & Altering the bed, banks, course or characteristics of watercourse	Destruction of first unnamed tributary of Ga-Mogara for the progression of York Pit	To allow mining of manganese
	Section 21 (f)	Discharging of dewatered pit water into the Ga-Mogara	Emergency purpose (Should there be surplus water in the pit which cannot be used as process water)

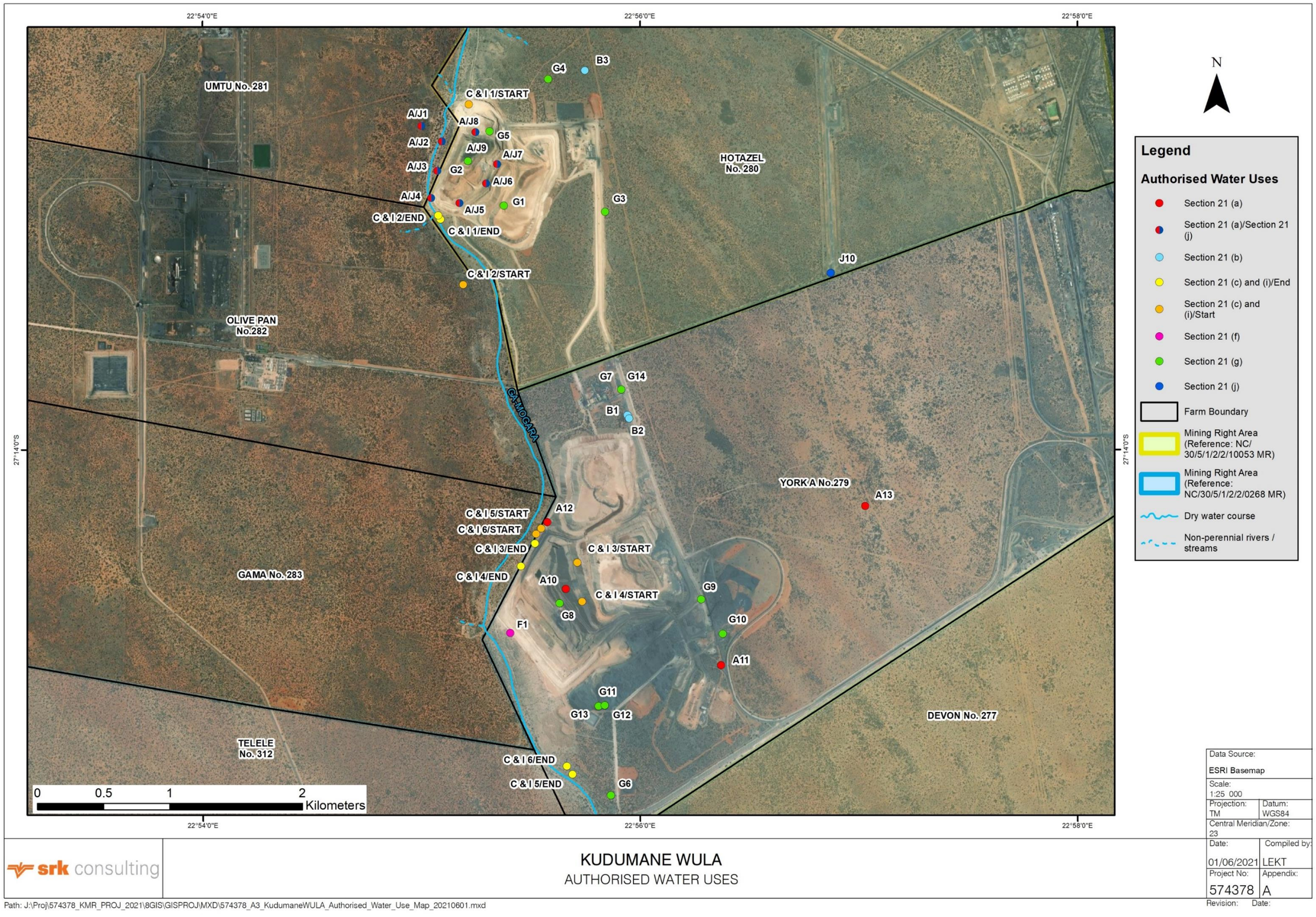


Figure 3-1: Water management infrastructure and associated authorised water uses at KMR

4 Description of the property

This section provides a description of the properties comprising the KMR operation for mining right NC/ 30/5/1/2/2/10053 as well as adjoining properties.

The information relating to properties, ownership, and mining and surface rights associated with the KMR mining right areas is summarised in Table 4-1. The infrastructure and activities associated with the proposed KMR Expansion Project will take place on the following farms and associated farm portions:

- Farm Devon 277;
- Farm Hotazel 280; and
- Farm Kipling 271.

Table 4-1: Properties associated with KMR's Mining Rights and proposed Expansion Project areas

Farm Name	Farm Portions	SG Code	Title Deed	Owner	Area (ha)
Devon 277	Portion RE/277	C04100000000027700000	T3044/2012	Kudumane Manganese Resources Pty Ltd	1656.9938
Hotazel 280	Portion RE/280	C04100000000028000002	T1414/1991	TELKOM S A LTD	1 938.82
	Portion 4/280	C04100000000028000004			
Kipling 271	Portion RE/271	C04100000000027100000	T953/1968	ASSMANG LTD	1 899.96

4.1 Adjacent properties associated with KMR

The proposed KMR Expansion Project borders the following properties:

- Umtu 281;
- Olive Pan 282;
- Gama 283;
- Gloria 266;
- East 270; and
- Botha 313,

The property which will be affected by the proposed KMR Expansion Project is Umtu as the Hotazel opencast pit will extent into this property (Figure 1-2). An agreement has been entered into between the affected landowners and the mine.

4.2 Details of the affected surface areas of KMR

Table 4-2 provides a summary of the properties that have been and are likely to be affected by the current and proposed infrastructure and activities associated with the KMR operations, i.e. Devon 277, Hotazel 280 and Kipling 271. The location of infrastructure related to the proposed KMR Expansion Project is provided in Figure 4-1 to Figure 4-3 respectively.

For ease of reference, the activities associated with the proposed KMR Expansion Project are highlighted in grey while existing authorised activities and infrastructure remain un-highlighted.

Table 4-2: Properties on which existing and proposed KMR mining related activities and infrastructure occur

Farm name: **Devon 277** Portion: **Portion RE/277** Surface rights owner: **Kudumane Manganese Resources Pty Ltd** Title deeds: **T3044/2012** SG code (21-digit code): **C04100000000027700000**	
EMPr/EMP Reference	**Mining Related Infrastructure**
Second EMPr (NC/EIA/OS/JTG/HOT/KUD/2013) approved on the 15 October 2015	• Re-mining of historic open pits as well as the associated haul roads • Water Management infrastructure • Soil and overburden stockpiles (WRDs) • Access and internal roads • Tailings storage facility
KMR Expansion Project 2021	• Rehabilitation activities at the pit • Establishment of monitoring boreholes
Farm name: **Hotazel 280** Portion: **Portion RE/280** Surface rights owner: **Kudumane Manganese Resources Pty Ltd** Title deeds: **T3049/2010** SG code (21-digit code): **C04100000000028000000**	
EMPr/EMP Reference	Mining Related Infrastructure
Second EMPr (NC/EIA/OS/JTG/HOT/KUD/2013) approved on the 15 October 2015	• Re-mining of historic open pits as well as the associated haul roads • Water Management infrastructure • Soil and overburden stockpiles (WRDs) • Access and internal roads • Tailings storage facility
KMR Expansion Project 2021	• Expansion of the Hotazel Pit • Run of Mine Stockpile • Waste Rock Dump North, South and East • Attenuation dam within the Ga-Mogara River to allow for the expansion of the Hotazel Pit • Potable water tank • Sewage Treatment Plant Lilliput style • Rehabilitation of road due to construction of New Waste Rock Dump • Relocation of Admin offices and security building.
Farm name: **Kipling 271** Portion: **Portion RE/271** Surface rights owner: **ASSMANG LTD** Title deeds: **T953/1968** SG code (21-digit code): **C04100000000027100000**	
EMPr/EMP Reference	**Mining Related Infrastructure**
Second EMPr (NC/EIA/OS/JTG/HOT/KUD/2013) approved on the 15 October 2015	Kipling was included as part of the project description as was included as part of the existing mining right, however, Kipling was not included as part of the impact assessment thus no mining related infrastructure was included in the EMPr approved in 2015.
KMR Expansion Project 2021	• Opencast Pits • Waste rock dump • RoM Stockpiles • Haul road (approx. 1.2km) • Sewerage Treatment Facility • Potable water tank

	• Potable water pipeline from York to Hotazel to Kipling • Admin Offices • Diesel bay and fuel storage • Temporary waste storage • Crushing facility • Pollution control dam • Ancillary infrastructure (e.g. Weighbridge) • Construction and upgrading of access gravel road to Kipling offices • Diversion of a 1.2km section of the tarred provincial road (R380) • Bridge associated with diversion of road over the river • Powerlines and associated infrastructure

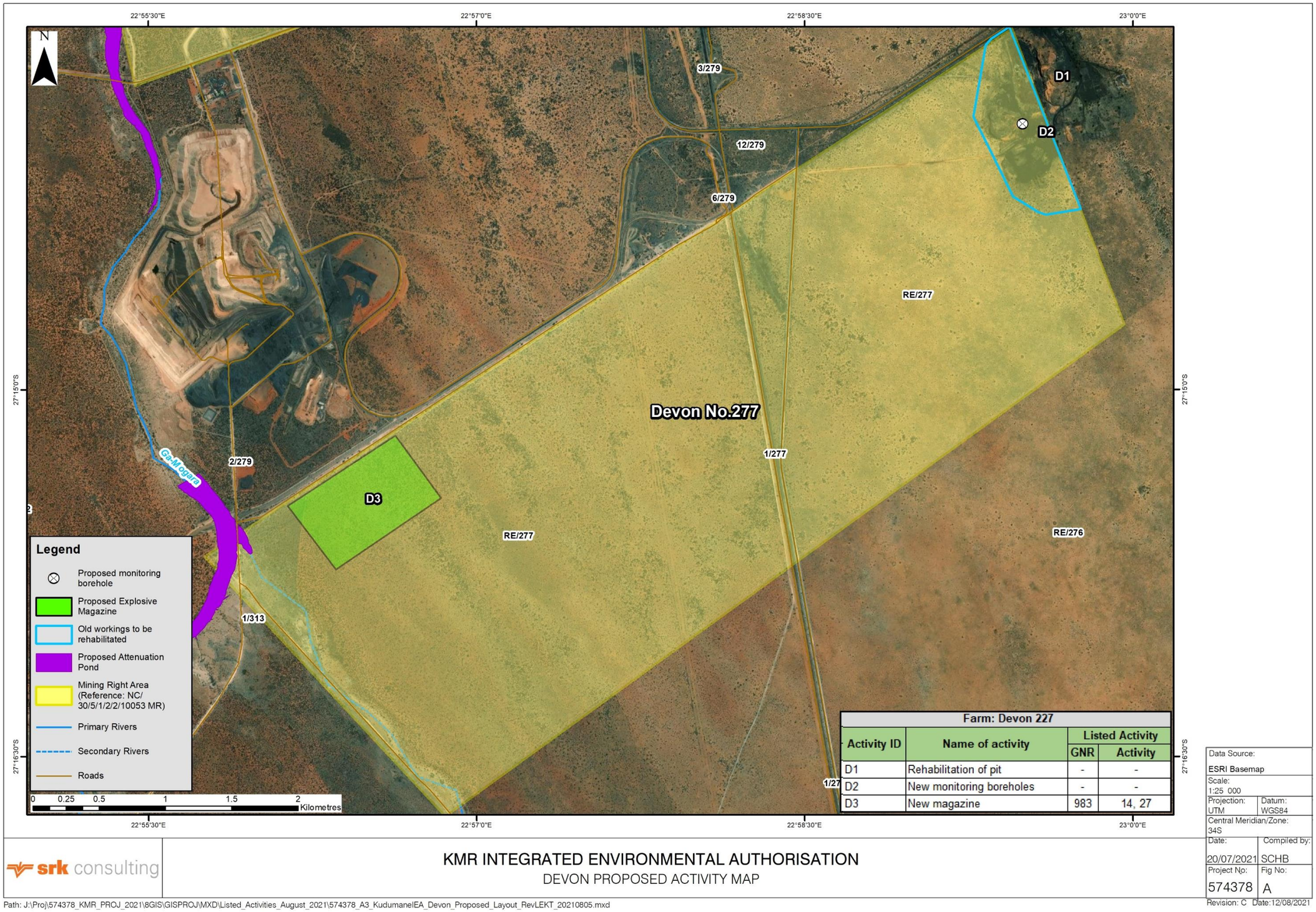
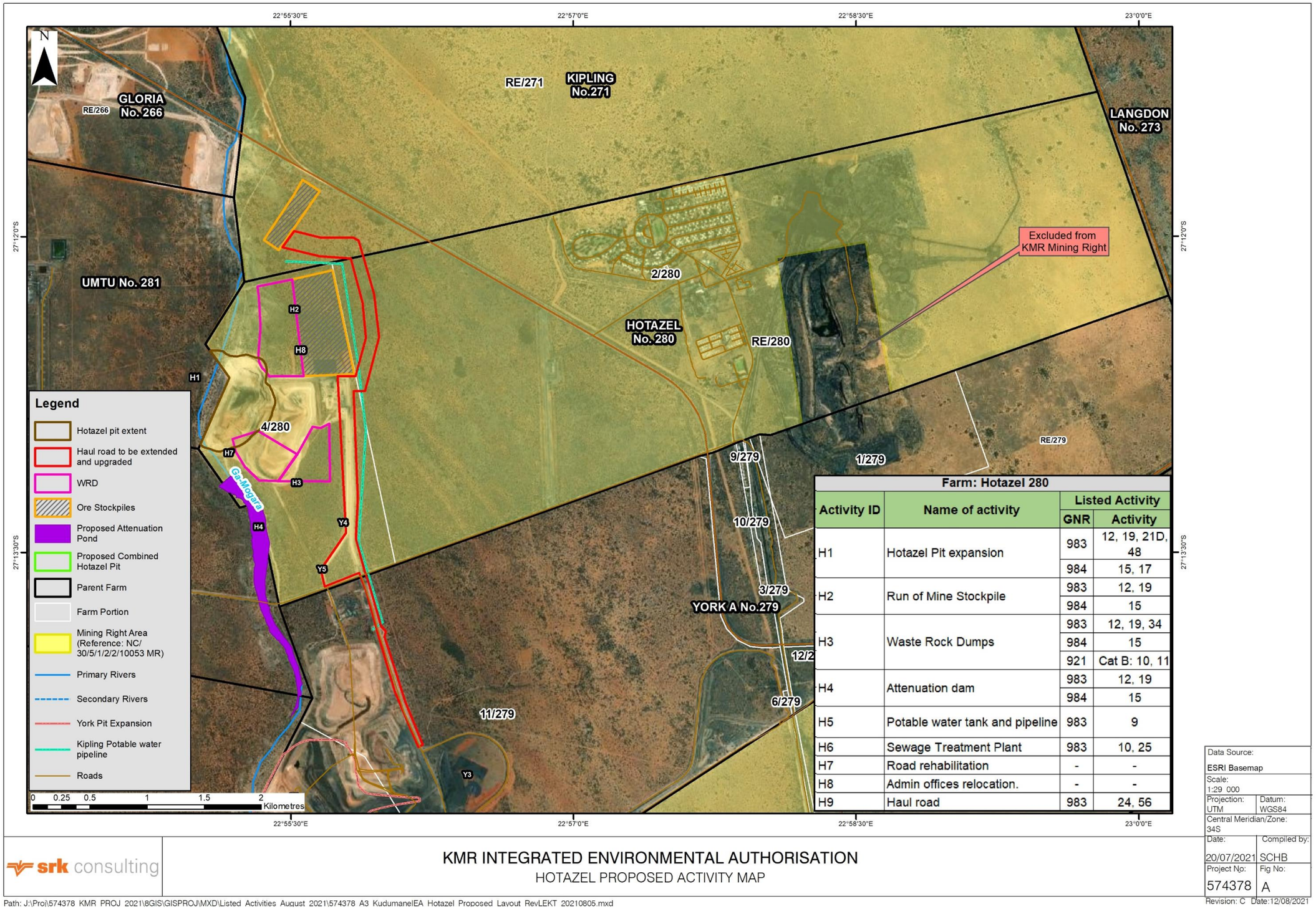


Figure 4-1: Proposed infrastructure and activities on the farm Devon 277



Farm: Hotazel 280

Activity ID	Name of activity	Listed Activity	
		GNR	Activity
H1	Hotazel Pit expansion	983	12, 19, 21D, 48
		984	15, 17
H2	Run of Mine Stockpile	983	12, 19
		984	15
H3	Waste Rock Dumps	983	12, 19, 34
		984	15
		921	Cat B: 10, 11
H4	Attenuation dam	983	12, 19
		984	15
H5	Potable water tank and pipeline	983	9
H6	Sewage Treatment Plant	983	10, 25
H7	Road rehabilitation	-	-
H8	Admin offices relocation.	-	-
H9	Haul road	983	24, 56

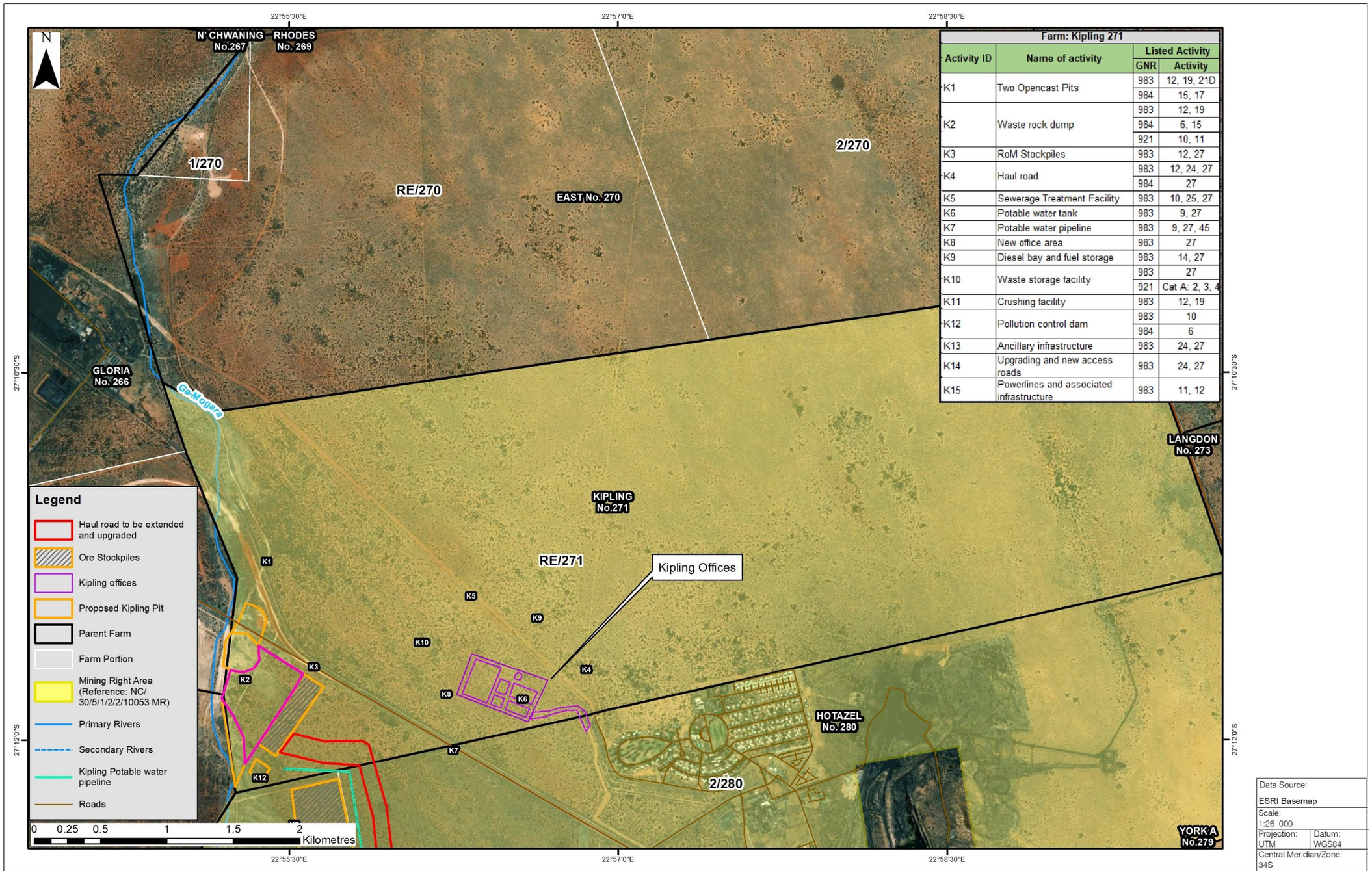
srk consulting

KMR INTEGRATED ENVIRONMENTAL AUTHORISATION
HOTAZEL PROPOSED ACTIVITY MAP

Data Source: ESRI Basemap
Scale: 1:29 000
Projection: UTM
Datum: WGS84
Central Meridian/Zone: 34S
Date: 20/07/2021
Compiled by: SCHB
Project No: 574378
Fig No: A
Revision: C Date:12/08/2021

Path: J:\Proj\574378 KMR PROJ 2021\8GIS\GISPROJ\MXD\Listed Activities August 2021\574378 A3 KudumaneIEA Hotazel Proposed Layout RevLEKT 20210805.mxd

Figure 4-2: Proposed infrastructure and activities on the farm Hotazel 280



Farm: Kipling 271			
Activity ID	Name of activity	Listed Activity	
		GNR	Activity
K1	Two Opencast Pits	983	12, 19, 21D
		984	15, 17
K2	Waste rock dump	983	12, 19
		984	6, 15
		921	10, 11
K3	RoM Stockpiles	983	12, 27
K4	Haul road	983	12, 24, 27
		984	27
K5	Sewerage Treatment Facility	983	10, 25, 27
K6	Potable water tank	983	9, 27
K7	Potable water pipeline	983	9, 27, 45
K8	New office area	983	27
K9	Diesel bay and fuel storage	983	14, 27
K10	Waste storage facility	983	27
		921	Cat A: 2, 3, 4
K11	Crushing facility	983	12, 19
K12	Pollution control dam	983	10
		984	6
K13	Ancillary infrastructure	983	24, 27
K14	Upgrading and new access roads	983	24, 27
K15	Powerlines and associated infrastructure	983	11, 12

Figure 4-3: Proposed infrastructure and activities on the farm Kipling 271

5 Description of the scope of the proposed KMR Expansion Project

This section outlines the proposed project changes and new developments that will be included in this integrated EA process for properties Hotazel, Devon and Kipling. These proposed project changes and new developments are indicated in Table 5-1. Appendix B provides information on the locality of each proposed change or new development in relation to KMR's Mining Right areas.

Table 5-1: Proposed activities to occur on each property

Kudumane Property	Activities to be undertaken
Devon 277	• Rehabilitation activities at the pit (historical pit) • Establishment of monitoring boreholes
Kipling 271	• Establishment of a new opencast Pits • Establishment of a new Waste rock dump • Establishment of a new RoM Stockpiles • Construction of haul road (approx. 1.2km) • Sewerage Treatment Facility • Potable water tank • Admin Offices • Diesel bay and fuel storage • Waste storage • Crushing facility • Pollution control dam • Ancillary infrastructure (e.g. Weighbridge) • Construction and upgrading of access gravel road to Kipling offices • Potable water pipeline from York to Hotazel to Kipling • Powerlines and associated infrastructure
Hotazel 280	• Run of Mine Stockpile • Waste Rock Dump North, South and East • Expansion of the Hotazel Pit • Attenuation dam within the Ga-Mogara River to allow for the expansion of the Hotazel Pit • Potable water tank • Proposed location • Sewage Treatment Plant Lilliput style • Rehabilitation of road due to construction of New Waste Rock Dump • Relocation of Admin offices

5.1 Listed and specified activities for the proposed KMR Expansion Project

The listed activities associated with the proposed KMR Expansion Project in respect of NEMA and NEM:WA are provided in Table 5-2. The location of the infrastructure that will trigger these listed activities is provided in Figure 5-1 and Appendix B respectively.

Figure 5-1 provides a map showing the location of the proposed infrastructure in relation to the two mining right areas of KMR (MR10053 & MR268), for a holistic overview of the entire proposed project.

Based on the nature and extent of the listed activities shown in Table 5-2, KMR will conduct an integrated EA process. It will include comprehensive Scoping and Environmental Impact Reporting (S&EIR), interchangeably referred to as a “full” EIA in terms of NEMA, NEM:WA and the MPRDA.

The proposed project will also require a Water Use Licence Application (WULA) in accordance with the NWA. The WULA process will be undertaken as part of the authorisation process.

Authorisation in terms of NEMA, NEM:WA and MPRDA will be applied for from the Northern Cape DMRE, whilst authorisation in respect of the NWA will be applied for from DWS.

Table 5-2: Listed activities triggered by the Expansion Project

Name of activity	Aerial extent of the activity	Listed activity	Applicable listing notice	Waste management authorisation
(E.g. For prospecting - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route etc…etc…etc *E.g. for mining,- excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and Boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc…etc…etc.)*	*Ha or m²*	*(Mark with an X where applicable or affected).*	*(GNR 983, GNR 984 or GNR 985)/ NOT LISTED*	*(Indicate whether an authorisation is required in terms of the Waste Management Act).* *(Mark with an X)*
Devon 227				
Rehabilitation activities at the pit	To be confirmed	X	GNR 983: Activity 22 and 31	
Establishment of monitoring boreholes	Less than 1 ha	None		
Kipling 271				
Two Opencast Pits	Combined 16 ha (5 ha and 11 ha)	X	GNR 983: Activity 21, 19 and 24	
			GNR 984: Activity 15, 17 and 19	
Waste rock dump	25 ha	X	GNR 983: Activity 12, 24 and 19	GNR 921: Category B – Activity 10 & 11
			GNR 984: Activity 15	
RoM Stockpiles	11 ha	X	GNR 983: Activity 12 and 27	
			GNR 984: Activity 19	
Haul road (approx. 1.2km)	1.6 ha	X	GNR 983: Activity 12, 24 and 27	
			GNR 984: Activity 27	
Sewerage Treatment Facility within the proposed new Kipling Office area	0.4 ha	X	GNR 983: Activity 10, 25 and 27	
Potable water tank within the proposed new Kipling Office area	0.3 ha	X	GNR 983: Activity 9 and 27	
			GNR 984: Activity 11	

Name of activity	Aerial extent of the activity	Listed activity	Applicable listing notice	Waste management authorisation
Potable water pipeline from York to Hotazel to Kipling	2.2 ha	X	GNR 983: Activity 9, 27 and 45	
New Kipling office area	20ha	X	GNR 983: Activity 27	
Diesel bay and fuel storage within the proposed new Kipling Office area	0.7 ha	X	GNR 983: Activity 27 GNR 984: Activity 4	
Waste storage facility within the proposed new Kipling Office area	0.8	X	GNR 983: Activity 27	GNR 921: Category A Activity 2, 3, 4
Crushing facility within the proposed new Kipling Office area	5.5 ha	X	GNR 983: Activity 12, 19, 19A and 24 GNR 984: Activity 15	
Pollution control dam	1.5 ha	X	GNR 983: Activity 10 and 12	
Ancillary infrastructure (e.g. Weighbridge)	1.2 ha	X	GNR 983: Activity 24 and 27	
Construction and upgrading of access gravel road to Kipling offices	2 ha	X	GNR 983: Activity 24 and 27	
Powerlines and associated infrastructure	Final routes to be determine during scoping	X	GNR 983: Activity 11, 12 and 47 GNR 984: Activity 9	
Hotazel 280				
Expansion of the Hotazel Pit	To be confirmed	X	GNR 983: Activity 12, 19 and 48 GNR 984: Activity 15	
Run of Mine Stockpile	36 ha	X	GNR 983: Activity 12, 19 and 48 GNR 984: Activity 15 and 19	
Waste Rock Dump North, South and East • North – 28 ha • South – 6 ha • East – 14.5 ha	48.5 ha in total	X	GNR 983: Activity 12, 24 and 19 GNR 984: Activity 15	GNR 921: Category B – Activity 10 & 11
Attenuation dam	20 ha	X	GNR 983: Activity 19	

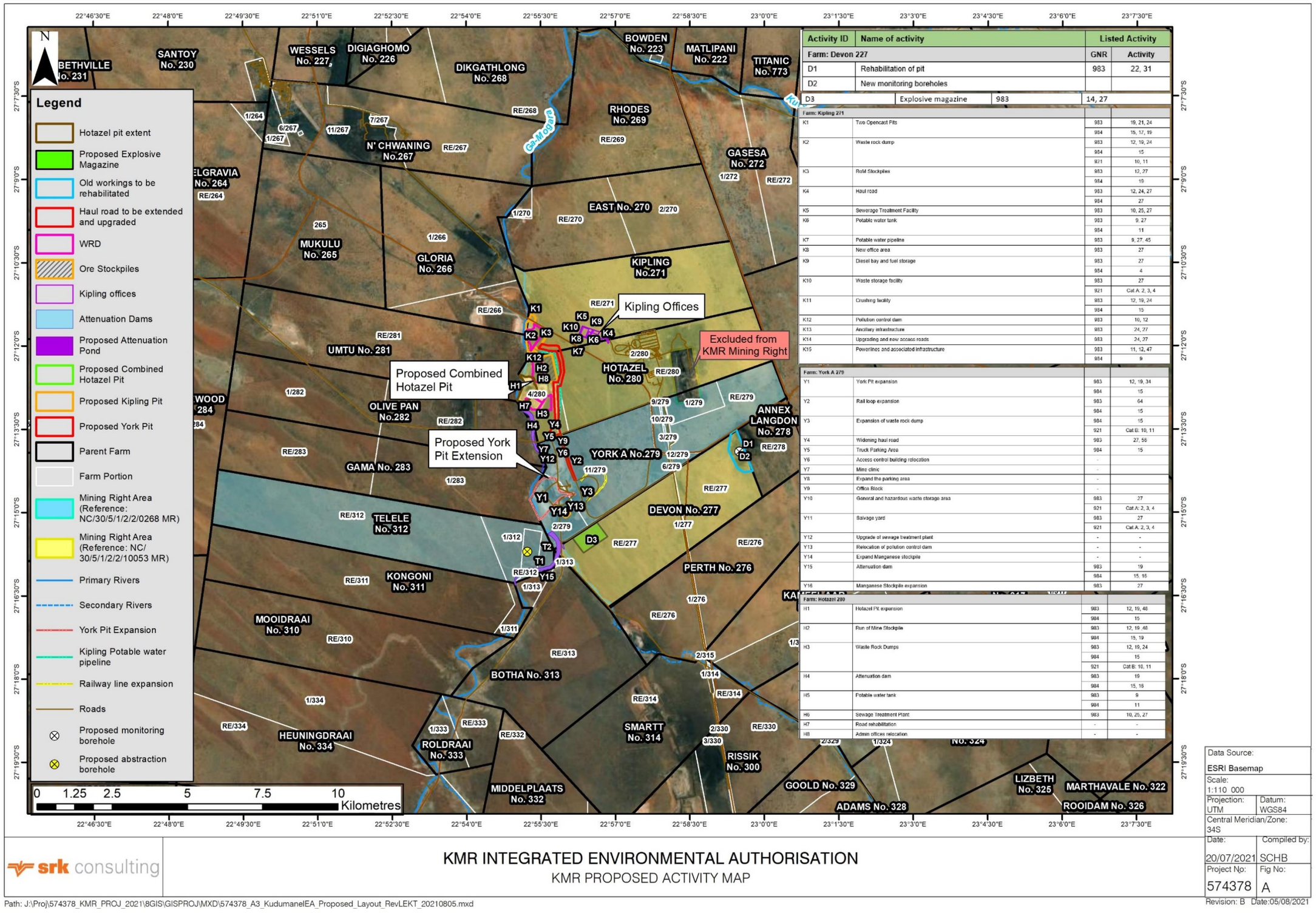
Name of activity	Aerial extent of the activity	Listed activity	Applicable listing notice	Waste management authorisation
			GNR 984: Activity 15 and 16	
Potable water tank	0.5 ha	X	GNR 983: Activity 9	
			GNR 984: Activity 11	
Sewage Treatment Plant Lilliput style	0.3 ha	X	GNR 983: Activity 10, 25 and 27	
Rehabilitation of road due to construction of New Waste Rock Dump	To be confirmed	Not Listed	No Listed activity, however, this is an EMPr amendment	
Relocation of Admin offices and security building.	Less than 1 ha	Not Listed	No Listed activity, however, this is an EMPr amendment	

5.2 Water uses associated with the proposed KMR Expansion Project

Table 5-3 lists the NWA Section 21 water uses that are proposed on properties Hotazel, Devon and Kipling as part of the Expansion Project and which will be applied for as part of the WULA process.

Table 5-3: NWA Water Uses based on the proposed project changes

Section 21 water use	Water Use Description	Mine Activity that may trigger the Water Use
a	Taking water from a water resource	Establishment of abstraction boreholes
b	Storing water	Attenuation dams
		Water tanks
c	Impeding or diverting the flow of water in a watercourse	Water pipelines Opencast pits Roads Bridge Powerlines Any infrastructure
i	Altering the beds, banks, course or characteristics of a water course	
g	Disposing of waste in a manner which may detrimentally impact on a water resource	Waste Rock Dumps including expansion RoM Stockpiles PCDs Crushing facility
j	Removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people	Removal of groundwater ingress from pits



Activity ID	Name of activity	Listed Activity	
Farm: Devon 227		GNR	Activity
D1	Rehabilitation of pit	983	22, 31
D2	New monitoring boreholes		
D3	Explosive magazine	983	14, 27
Farm: Kipling 271			
K1	Two Opencast Pits	983	19, 21, 24
		984	15, 17, 19
K2	Waste rock dump	983	12, 19, 24
		984	15
		921	10, 11
K3	RoM Stockpiles	983	12, 27
		984	19
K4	Haul road	983	12, 24, 27
		984	27
K5	Sewerage Treatment Facility	983	10, 25, 27
K6	Potable water tank	983	9, 27
		984	11
K7	Potable water pipeline	983	9, 27, 45
K8	New office area	983	27
K9	Diesel bay and fuel storage	983	27
		984	4
K10	Waste storage facility	983	27
		921	Cat A: 2, 3, 4
K11	Crushing facility	983	12, 19, 24
		984	15
K12	Pollution control dam	983	10, 12
K13	Ancillary infrastructure	983	24, 27
K14	Upgrading and new access roads	983	24, 27
K15	Powerlines and associated infrastructure	983	11, 12, 47
		984	9
Farm: York A 279			
Y1	York Pit expansion	983	12, 19, 34
		984	15
Y2	Rail loop expansion	983	64
		984	15
Y3	Expansion of waste rock dump	984	15
		921	Cat B: 10, 11
Y4	Widening haul road	983	27, 56
Y5	Truck Parking Area	984	15
Y6	Access control building relocation	-	
Y7	Mine clinic	-	
Y8	Expand the parking area	-	
Y9	Office Block	-	
Y10	General and hazardous waste storage area	983	27
		921	Cat A: 2, 3, 4
Y11	Salvage yard	983	27
		921	Cat A: 2, 3, 4
Y12	Upgrade of sewage treatment plant	-	-
Y13	Relocation of pollution control dam	-	-
Y14	Expand Manganese stockpile	-	-
Y15	Attenuation dam	983	19
		984	15, 16
Y16	Manganese Stockpile expansion	983	27
Farm: Hotazel 289			
H1	Hotazel Pit expansion	983	12, 19, 46
		984	15
H2	Run of Mine Stockpile	983	12, 19 ,46
		984	15, 19
H3	Waste Rock Dumps	983	12, 19, 24
		984	15
		921	Cat B: 10, 11
H4	Attenuation dam	983	19
		984	15, 16
H5	Potable water tank	983	9
		984	11
H6	Sewage Treatment Plant	983	10, 25, 27
H7	Road rehabilitation	-	-
H8	Admin offices relocation	-	-

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KMR INTEGRATED ENVIRONMENTAL AUTHORISATION
KMR PROPOSED ACTIVITY MAP

Data Source: ESRI Basemap
Scale: 1:110 000
Projection: UTM | Datum: WGS84
Central Meridian/Zone: 34S
Date: 20/07/2021 | Compiled by: SCHB
Project No: 574378 | Fig No: A
Revision: B Date:05/08/2021

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Figure 5-1: NEMA Listed activities associated with the proposed KMR Expansion Project

6 Policy and legislative context

This section provides an overview of the policy and legislative context associated with the proposed KMR Expansion Project (refer to Table 6-1). It identifies all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process, which may be applicable or have relevance to the proposed KMR Expansion Project.

In terms of Section 24 of NEMA, as amended, an application for EA must be submitted to the Competent Authority (CA) for activities listed in the 2014 EIA Regulations, as amended in 2017 and promulgated in terms of Section 24(5) of NEMA, and where authorisation was obtained prior to the commencement of listed activities. Listing Notices 1-3 in terms of NEMA list activities that require EA ("NEMA listed activities").

Activities listed in Listing Notice 1(GN 983) and Listing Notice 3(GN 985) require a Basic Assessment (BA) process, while activities listed in Listing Notice 2(GN 984) require S&EIR. A full Scoping/EIA process will therefore be conducted for the proposed KMR Expansion Project.

In terms of NEMA Government Notice (GN) No 982 (4 December 2014), as amended, the proposed KMR Expansion Project will trigger several Listing Notice 1 and Listing Notice 2 activities as detailed in Section 5.1.

6.1 Legislation, policies and guidelines applicable to the proposed KMR Expansion Project

Table 6-1 lists the applicable legislation, policies and guidelines identified as relevant to the proposed KMR Expansion Project. In addition, a description of how the proposed activity complies with and responds to the legislation and policy context is given. This list is not exhaustive but rather presents the most applicable legislation relevant to the proposed KMR Expansion Project.

Table 6-1: Policy and legislative context of the proposed Expansion Project

Applicable legislation and guidelines used to compile the report	Reference where applied	How does this development comply with and respond to the legislation and policy context	Authority
Constitution of the Republic of South Africa, (No. 108 of 1996).	Throughout the scoping and EIA process.	Chapter 2 – Bill of Rights. Section 24 – Environmental rights. The Constitution of South Africa is the overarching framework legalisation driving the NEMA principles and therefore EIA process. The right to a safe environment and the right to information are addressed in the EIA process through stakeholder engagement, where available information pertaining to the environment and proposed activities are disclosed. The proposed activities shall be conducted in such a manner that significant environmental impacts are avoided, where significant impacts cannot all together avoided be minimised and mitigated in order to protect the environmental rights of South Africans.	Government of the Republic of South Africa.
Minerals and Petroleum Resources Development Act 28 of 2002.	Throughout the scoping and EIA process.	KMR has been operational since 2012. The original EMPr was undertaken by Metago in 2011 in terms of NEMA and the MPRDA (Act No. 28 of 2002). In addition, a second EIA process was undertaken by SLR in 2013 and approved in 2015.	Department of Mineral Resources and Energy, Northern Cape.
National Environmental Management Act (No. 107 of 1998).	• Throughout the scoping report; • Section 5 of this report details the proposed project developments and associated listed activities triggered; and • Table 5-2 details the listed activities to be authorised according to NEMA.	Section 24 – Environmental Authorisation (control of activities which may have a detrimental effect on the environment). Section 28 – Duty of care and remediation of environmental damage. Environmental management principles.	Department of Mineral Resources and Energy, Northern Cape.
National Environmental Management Act, 1998 (Act 107 of 1998) and the EIA Regulations 2014 (Government Notice (GN) 984), as amended.		MM has EAs authorised under NEMA. The Expansion Project triggers activities listed in GNR 983 and 984 and will require an EA from the DMR. According to GNR 982 of the NEMA, activities listed in GNR 984 require that a full S&EIA be undertaken. **<u>Applicable Listing Notice 1 (GNR983) activities:</u>** **Activity 9** The development of infrastructure exceeding 1 000 metres in length for the bulk transportation of water or storm water; **Activity 10** The development and related operation of infrastructure exceeding 1 000 metres in length for the bulk transportation of sewage, effluent, process water, wastewater, return water, industrial discharge or slimes; **Activity 11:** The development of facilities or infrastructure for the transmission and distribution of electricity either outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts; or inside urban areas or industrial complexes with a capacity of 275 kilovolts or more; **Activity 12** The development of dams or weirs, where the dam or weir, including infrastructure and water surface area, exceeds 100 square metres; or infrastructure or structures with a physical footprint of 100 square metres or more, within 32m of a watercourse;	Department of Mineral Resources and Energy, Northern Cape.

Applicable legislation and guidelines used to compile the report	Reference where applied	How does this development comply with and respond to the legislation and policy context	Authority
		Activity 13: The development of facilities or infrastructure for the off-stream storage of water, including dams and reservoirs, with a combined capacity of 50 000 cubic metres or more, unless such storage falls within the ambit of activity 16 in Listing Notice 2 of 2014; **Activity 14:** The development of facilities or infrastructure for the storage, or for the storage and handling, of a dangerous good, where such storage occurs in containers with a combined capacity of 80 m^3 but not exceeding 500 m^3; **Activity 16**: The development of a dam where the highest part of the dam wall, as measured from the outside toe of the wall to the highest part of the wall, is 5 metres or higher or where the highwater mark of the dam covers an area of 10 hectares or more; **Activity 19** The infilling or depositing of any material of more than 10 cubic meters into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic meters from a watercourse; **Activity 21D** Any activity including the operation of that activity which requires an amendment or variation to a right or permit in terms of Section 102 of the Mineral and Petroleum Resources Development Act, as well as any other applicable activity as contained in this Listing Notice or in Listing Notice 3 of 2014, required for such amendment; **Activity 24:** The development of a road with a reserve wider than 13,5 meters, or where no reserve exists where the road is wider than 8 metres; **Activity 25:** The development and related operation of facilities or infrastructure for the treatment of effluent, wastewater or sewage with a daily throughput capacity of more than 2000m^3 but less than 15000m^3; **Activity 27** The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation; **Activity 34** The expansion of existing facilities or infrastructure for any process or activity where such expansion will result in the need for a permit or licence or an amended permit or licence in terms of national or provincial legislation governing the release of emissions, effluent or pollution; **Activity 45**: The expansion of infrastructure for the bulk transportation of water or storm water where the existing infrastructure has an internal diameter of 0.36m or more; or has a peak throughput of 120l/s or more; and where the facility or infrastructure is expanded by more than 1000m in length; or where the throughput of the facility or infrastructure will be increased by 10% or more; **Activity 47:**The expansion of facilities or infrastructure for the transmission and distribution of electricity where the expanded capacity will exceed 275 kilovolts and the development footprint will increase;	

Applicable legislation and guidelines used to compile the report	Reference where applied	How does this development comply with and respond to the legislation and policy context	Authority
		Activity 48: The expansion of infrastructure or structures where the physical footprint is expanded by 100 square metres or more; or dams or weirs, where the dam or weir, including infrastructure and water surface area, is expanded by 100 square metres or more within a watercourse; and **Activity 56** Widening of a road by more than 6 metres, or the lengthening of a road by more than 1 kilometre. **Applicable Listing Notice 2 (GNR984) activities:** **Activity 6** The development of facilities or infrastructure for any process or activity which requires a permit or licence or an amended permit or licence in terms of national or provincial legislation governing the generation or release of emissions, pollution or effluent; **Activity 11:** The development of facilities or infrastructure for the transfer of 50 000 cubic metres or more water per day, from and to or between any combination of water catchments, water treatment works or impoundments; **Activity 15** The clearance of an area of 20 hectares or more of indigenous vegetation; **Activity 16** The development of a dam where the highest part of the dam wall, as measured from the outside toe of the wall to the highest part of the wall, is 5 metres or higher or where the highwater mark of the dam covers an area of 10 hectares or more; **Activity 17** Any activity including the operation of that activity which requires a mining right as contemplated in section 22 of the MPRDA; and **Activity 27:** The development of a road with a reserve wider than 30 metres; or catering for more than one lane of traffic in both directions.	
Department of Environmental Affairs (DEA) Integrated Environmental Management Guideline Series, Guideline 5: Assessment of the EIA Regulations, 2012 (Government Gazette 805).	Throughout the authorisation process.	Environmental impacts will be generated primarily in the construction phase of this project with associated operational phase impacts. These will be assessed as part of the proposed project.	
Integrated Environmental Assessment Guideline Series 11, published by the DEA in 2004.		An Environmental Assessment is required for the proposed project as activities are triggered under GN R984.	
Review in Environmental Impact Assessment, Integrated Environmental			

Applicable legislation and guidelines used to compile the report	Reference where applied	How does this development comply with and respond to the legislation and policy context	Authority
Management, Information Series 13, Department of Environmental Affairs and Tourism (DEAT), Pretoria.			
DEA 2017, Public Participation guideline in terms of NEMA EIA Regulations, Department of Environmental Affairs, Pretoria, South Africa.	Throughout the authorisation process.	Public participation is a requirement of the scoping/EIA process and will be conducted for the proposed project.	
National Water Act, 1998 (Act 36 of 1998).	Throughout the scoping and EIA process, including the WULA – pertaining to all water related aspects	KMR water activities are authorised by a WUL (No: . 07/D41K/ABCFGIJ/4533) issued on 29 May 2016. This WUL was amended in 2018 to include additional activities. The KMR Expansion Project will require a Section 21 (a,b, c&I, j and g) WULA **21 (a):** taking water from a water resource via a borehole for potable and process water use; **21 (b):** Storing of water in an attenuation dams and water tanks; **21 (c)&(i):** Impeding, diverting and altering the flow of water in a watercourse; Altering the bed, banks, course or characteristics of a watercourse: All activities taking place within 500 m of a wetland or 100 m of a watercourse, including the attenuation ponds will be licensed under Section 21 c and I; **21(g):** Disposing of waste in a manner which may detrimentally impact on a water resource; and **21 (j):** Removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people.	Department of Water, Sanitation and Human Settlement, Kimberley
National Environmental Management Waste Act (Act No. 36 of 1998) (NEM:WA).	Throughout the scoping report Section 4 of this report details the proposed project developments and associated listed activities triggered Table 5-2 details the listed activities to be authorised.	It is expected that the following GNR 921 listed activities (Category B and C) will be triggered by the proposed Expansion Project and will require a waste management licence: • **Category A (2):** The sorting, shredding, grinding, crushing, screening or bailing of general waste at a facility that has an operational area in excess of 1000m$^{2;}$ • **Category A (3):** The recycling of general waste at a facility that has an operational area in excess of 500m^2, excluding recycling that takes place as an integral part of an internal manufacturing process within the same premises; • **Category A (4):** The recycling of hazardous waste in excess of 500kg but less than 1 ton per day calculated as a monthly average, excluding recycling that takes place as an integral part of an internal manufacturing process within the same premises;	Department of Mineral Resources and Energy, Northern Cape through the integrated application process.

Applicable legislation and guidelines used to compile the report	Reference where applied	How does this development comply with and respond to the legislation and policy context	Authority
		• **Category B (10):** The construction of a facility for a waste management activity listed in Category B of GNR 921; and • **Category B (11):** The establishment or reclamation of a residue stockpile or residue deposit resulting from activities which require a mining right, exploration right or production right in terms of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002).	
National Environmental Management Air Quality Act (Act No. 39 of 2004) (NEM:AQA).	Specialist studies, baseline description.	Air quality management: • Section 32 – Dust control; • Section 34 – Noise control; and • Section 35 – Control of offensive odours.	Department of Environmental Affairs.
The National Forestry Act, 1998 (Act No. 84 of 1998) (NFA).	Throughout the authorisation process Biodiversity assessment Baseline description section 12.	The NFA protects against the cutting, disturbance, damage, destruction or removal of protected trees. A biodiversity assessment will be conducted as part of the EIA, which will identify protected trees, which may be affected by the KMR Expansion Project. Should there be any protected trees that are affected by the project, KMR will apply for the required permit for the removal and/or relocation of the trees.	Department of Agriculture, Forestry and Fisheries (DAFF).
The National Environmental Management: Biodiversity Act (Act No. 10 of 2004) (NEM:BA).	Throughout the authorisation process Biodiversity Assessment Baseline description section 12.	The National Environmental Management: Biodiversity Act (Act No. 10 of 2004) (NEM:BA) provides for the management and conservation of South Africa's biodiversity within the framework of NEMA, as well as the protection of species and ecosystems that warrant national protection and the sustainable use of indigenous biological resources. The Act provides for listing of threatened or protected ecosystems, in one of four categories: critically endangered, endangered, vulnerable or protected. During the EIA process, biodiversity hotspots and bio-regions will be investigated to determine the potential impacts that the project may have on the receiving environment. The management and control of alien invasive species on the impacted areas during all the phases of the project will be governed by the NEM:BA. The NEM:BA ensures that provision is made by the site developer to remove any alien species, which have been introduced to the site or are present on the site.	Department of Environmental Affairs.
Mine Health Safety Act, 1996 (Act No. 29 of 1996) (MHSA).		The Mine Health and Safety Act (Act No. 29 of 1996) (MHSA) aims to provide for protection of the health and safety of all employees and other personnel at the mines of South Africa. The proposed project is located within a mining area and KMR will therefore need to ensure that employees, contractors, sub-contractors and visiting personnel, adhere to this Act and subsequent amendment regulations on site.	Department of Mineral Resources.

Applicable legislation and guidelines used to compile the report	Reference where applied	How does this development comply with and respond to the legislation and policy context	Authority
Environment Conservation Act, (Act No. 73 of 1989) (ECA).	Throughout the Scoping report Specialist studies.	The ECA (Act 73 of 1989) was, prior to the promulgation of the NEMA, the backbone of environmental legislation in South Africa. To date the majority of the ECA has been repealed by various other acts, however Section 25 of the Act and the noise regulations (GNR 154 of 1992) promulgated under this section are still in effect. These regulations serve to control noise and general prohibitions relating to noise impact and nuisance Requires the landowner to manage: • Agricultural resources i.e. the removal of invasive species; • Protection of soils against water and wind erosion; and • Management of water resources.	Department of Environmental Affairs.
Conservation of Agricultural Resources Act (Act No. 43 of 1983).	Throughout the authorisation process Biodiversity Assessment Baseline description section 12.	• Control measures for erosion; and • Control measures for alien and invasive plant species.	Department of Agriculture.
National Heritage Resources Act 25 of 1999 (NHRA).	Heritage assessment Baseline description section 12.	Heritage permit for structures 60 years or older. A heritage assessment will be conducted as part of the EIA to identify whether there are any areas of historical importance.	Northern Cape Heritage Resource Authority.
The World Heritage Convention Act, (Act No. 49 of 1999) (WHCA).	Heritage assessment Baseline description section 12.	South Africa became a signatory to and ratified the *World Heritage Convention*, 1972 (WHC) in 1997. It thereby voluntarily agreed to identify and conserve world heritage areas of universal value for the benefit of mankind. South Africa currently has eight world heritage sites (WHS) in its territory. Governance of these sites is regulated in terms of an extensive legal framework, mainly consisting of environmental and incidental laws. The primary act is the World Heritage Convention Act (WHCA) which incorporated the WHC into South African law. It provides for the recognition, establishment and management of WHS in South Africa. Baseline permits will be required for the destruction or removal of any heritage resources affected by the development; this will include all buildings and graves that will be impacted by this project.	
Spatial Planning and Land Use Management Act, (Act No. 16 of 2013) (SPLUMA).	Throughout the authorisation process.	The Spatial Planning and Land Use Management Act (Act 16 of 2013) (SPLUMA) was promulgated in May 2015. SPLUMA is a framework act for all spatial planning and land use management legislation in South Africa. It seeks to promote consistency and uniformity in procedures and decision-making in this field. SPLUMA will also assist municipalities to address historical spatial imbalances and the integration of the principles of sustainable development into land use and planning regulatory tools and legislative instruments. The need for SPLUMA authorisation will be determined during the EIA/EMPr process.	Municipality.

Applicable legislation and guidelines used to compile the report	Reference where applied	How does this development comply with and respond to the legislation and policy context	Authority
The Promotion of Administrative Justice Act, (Act No. 3 of 2000) (PAJA).	Throughout the authorisation process.	This Act gives effect to the constitutional right to administrative action that is lawful, reasonable and procedurally fair. It also gives effect to the right to written reasons for administrative action as contemplated in section 33 of the Constitution. The Act aims to promote an efficient administration and good governance and to create a culture of accountability, openness and transparency in the public administration or in the exercise of a public power or the performance of a public function by giving effect to the right to just administrative action. In terms of the Act, administrative action which materially and adversely affects the rights or legitimate expectations of any person must be procedurally fair. "Administrative action" as defined in section 1 of PAJA means any decision taken, or any failure to take a decision, by- (a) an organ of state, when (i) exercising a power in terms of the Constitution or a provincial constitution; or (ii) exercising a public power or performing a public function in terms of any legislation; or (b) a natural or juristic person, other than an organ of state, when exercising a public power or performing a public function in terms of an empowering provision, which adversely affects the rights of any person and which has a direct, external legal effect, excluding certain classes of executive, legislative and quasi-judicial functions set out in the act. The stakeholder engagement process will be undertaken in line with the NEMA requirements throughout the authorisation process to keep registered stakeholders notified of the process and any decisions taken by the competent authorities.	
The Promotion of Access to Information Act, (Act No. 2 of 2000) (PAIA).	Throughout the authorisation process.	This Act gives effect to Section 32 of the Constitution by providing mechanisms to ensure access to certain information held by a public body as well as to information held by private bodies (in the latter case, as long as this information is required in order to exercise or protect any rights). The act allows for access to records, regardless of when such records came into existence. The Act specifically retains Sections 31 (1) and (2) of NEMA which also deal with access to information from a public or private body. While the Act confers specific rights of access to information, I&APs should not forego the normal public participation process and only try to obtain information through the PAIA provisions. As registered I&APs, they have specific rights (and responsibilities) in terms of being afforded an opportunity to "access" all the information to provide comments and to be informed of the outcome. The stakeholder engagement process will be undertaken in line with the NEMA requirements throughout the authorisation process to keep registered stakeholders notified of the process and any decisions taken by the competent authorities.	
Noise standards.	Baseline description section 12.	There are a few South African Scientific Standards (SABS) relevant to noise from mines, industry and roads. They are:	Municipality

Applicable legislation and guidelines used to compile the report	Reference where applied	How does this development comply with and respond to the legislation and policy context	Authority
		• South African National Standard (SANS) 10103:2008. The measurement and rating of environmental noise with respect to annoyance and to speech communication; • SANS 10210:2004. Calculating and predicting road traffic noise; • SANS 10328:2008. Methods for environmental noise impact assessments; • SANS 10357:2004. The calculation of sound propagation by the concave method; • SANS 10181:2003. The measurement of noise emitted by road vehicles when stationary; and • SANS 10205:2003. 'The measurement of noise emitted by motor vehicles in motion. The relevant standards use the equivalent continuous rating level as a basis for determining what is acceptable. The levels may take single event noise into account, but single event noise by itself does not determine whether noise levels are acceptable for land use purposes. With regards to SANS 10103:2008, the recommendations are likely to inform decisions by authorities, but non-compliance with the standard will not necessarily render an activity unlawful per se.	

6.2 Municipal plans and corporate policies

6.2.1 John Taolo Gaetsewe Municipality Integrated Development Plan

The John Taolo Gaetsewe Municipal Area is mainly dominated by agricultural and mining activities with mining accounting for almost 65% of the local economy of the municipality. Majority of the job opportunities are created within the mining, agricultural and retail sectors with mining being the largest employer (JTGDM IDP, 2021).

Most of the mining activities within the municipality occur between Sishen and Hotazel. According to the John Taolo Gaetsewe Municipality Integrated Development Plan (IDP) (JTGDM IDP, 2021), there has been an increase in people within the municipality moving to mining area in search of employment opportunities. The IDP indicates that mining activities have an impact on the surrounding environment such as the loss of vegetation and soil quality.

6.3 KMR policies and guidelines

6.3.1 KMR environmental policy

KMR recognises that occupational health, safety, environmental, quality and railway safety and security is integral part of business success. Some of the key commitments outlined in the KMR SHERQ policy are to:

- Identifying and assessing environmental aspects and impacts, health and safety hazards and risks, railway operational and security hazards and risks and activities impacting the quality and quantity of our products and services;
- Eliminate, prevent or mitigate our impact on the environment and neighbouring communities through optimisation of resource consumption, protection of environmental biodiversity, minimisation of release of effluent and emissions, protection of cultural heritage, waste minimisation and rehabilitation of disturbed land;
- Comply with all applicable Occupational Health, Safety, Environmental and Railway Safety and Security legal requirements, and other requirements as determined by KMR and other industrial bodies that KMR subscribes to;
- Implement and maintain an effective and transparent stakeholder engagement process, where stakeholders are treated fairly and with dignity; and
- Support meaningful and sustainable local community development programmes, in line with relevant applicable legislation.

6.4 Other environmental planning and management guidelines

A number of planning and management guidelines have been developed that need to be considered as part of the process, including:

- DWS, 2010. Operational Guideline: Integrated Water and Waste Management Plan. Resource Protection and Waste;
- Department: Water Affairs and Forestry, 2007. Best Practice Guideline A2: Water Management for Mine Residue Deposits;
- Department: Water Affairs and Forestry, 2007. Best Practice Guideline A4: Pollution control dams;
- Department of Water Affairs and Forestry, 2008. Best Practice Guideline A6: Water Management for Underground Mines;
- Department of Water Affairs and Forestry, 2006. Best Practice Guideline G1 Storm Water Management;

- Department of Water Affairs and Forestry, 2006. Best Practice Guideline G2: Water and Salt Balances;
- Department of Water Affairs and Forestry, 2006. Best Practice Guideline G3. Water Monitoring Systems;
- Department of Water Affairs and Forestry, 2008. Best Practice Guideline G4: Impact Prediction;
- Department of Water Affairs and Forestry, 2008. Best Practice Guideline H1: Integrated Mine Water Management;
- Department of Water Affairs and Forestry, 2006. Best Practice Guideline H3: Water Reuse and Reclamation;
- DEAT. 2002. Integrated Environmental Management, Information series 2: Scoping. Department of Environmental Affairs and Tourism (DEAT. 2002);
- DEAT. 2002. Integrated Environmental Management, Information series 3: Stakeholder Engagement. Department of Environmental Affairs and Tourism (DEAT. 2002);
- DEAT. 2002. Integrated Environmental Management, Information series 4: Specialist Studies. Department of Environmental Affairs and Tourism (DEAT. 2002);
- DEAT. 2002. Integrated Environmental Management, Information series 12: Environmental Management Programmes. Department of Environmental Affairs and Tourism (DEAT. 2002);
- DEA. 2012. Companion to the EIA Regulations 2010, Integrated Environmental Management Guideline Series 7, Department of Environmental Affairs; and
- DEA. 2017. Guideline on Need and Desirability, Department of Environmental Affairs (DEA), Pretoria, South Africa.

7 Period for which the environmental authorisation is required

It is envisaged that the construction of the infrastructure associated with the proposed KMR Expansion Project will take approximately 2 to 3 years, with the expected operational, closure and post-closure timeframes associated with these project phases being in line with KMR's current Mining Right up to 2043.

8 Need and desirability of the proposed activities

The expansion of the opencast pit, the associated secondary infrastructure (such as waste rock dumps, attenuation ponds and ore stockpiles) and supporting services, will assist KMR to optimise the mineral extraction and processing of the manganese resources located within its Mining Rights areas.

8.1 Mining benefits

The mineral extraction at KMR is considered by the company to be in the best interest of the public at large as it will generate earning power both locally and internationally. These benefits should be viewed against the absence of significant alternative employment opportunities in the area.

Manganese is sold both locally and overseas and therefore, the mine is an earner of foreign exchange for South Africa. In addition, the mine also has a positive impact on the economic growth of the Northern Cape Province, particularly in the communities around the mine and through its rates and taxes to the National fiscus.

The current LoM is estimated to by 22 years (end 2043). During the EIA phase the number of months/years the LoM will be extended by will be calculated and provided to all stakeholders.

8.2 Environmental responsibility

KMR currently operates under two existing EMPrs under NEMA and the MPRDA. During this integrated EA process, the two approved EMPrs will be consolidated and amended to include the activities and infrastructure associated with the expansion of the KMR mining operations, as well as provide details of the current operations and the mitigation measures implemented on site.

The document will therefore contain management measures for the purpose to avoid, minimise and reduce the potential negative impacts on the environment, as a result of the current and proposed mining and processing operations at KMR. The consolidated EMPr will also provide KMR with a more effective environmental management tool to manage and monitor their current and proposed operations.

KMR is also operating under a WUL (No. 07/D41K/ABCFGIJ/4533) and WUL amendment. As part of these authorisations processes KMR is required to conduct monthly water quality monitoring against drinking water standards.

The EMPr, WUL and WUL amendment is subject to internal and external audits.

8.3 Socio-economic benefits

KMR is considered to have a positive socio-economic benefit through employment of locals. Unskilled and semi-skilled labour is sourced mainly from the local communities and surrounding areas and recruitment is in conjunction with the local unemployment forum. Specialist and skilled labour are recruited outside the local boundaries when required due to skills scarcity.

Mining is one of the major employers within the area with many other mining companies between the towns of Hotazel and Kathu. If the proposed KMR Expansion Project is authorised and implemented, it will extend the life of the operation, which will lead to direct and indirect benefits to society and the surrounding communities. Direct economic benefits may be derived from retaining and creating new employment opportunities, wages, taxes and profit. Indirect economic benefits may be associated with the procurement of goods and services.

8.4 Employment opportunities

All labour requirements associated with the proposed KMR Expansion Project will be prioritised for local temporary employment. External labour will only be sourced if semi-skilled and skilled positions are not available locally. The employment opportunities will be determined during the impact assessment phase, in respect of the construction, operational and closure/rehabilitation phases of the project

8.5 No-go option

The socio-economic impacts of cessation or curtailing of operations at KMR include the following local, regional and national impacts:

- Local and regional: planned socio-economic initiatives within the surrounding communities (refer Section 8.3 above) would not be able to go ahead and employees and contractors' workers would be impacted; more than half of whom are semi-skilled/unskilled and thus would not easily find alternative employment; and
- National: Reduction in foreign exchange for South Africa will be incurred due to the decrease in mine product sales internationally.

The cessation or curtailing of the KMR will also mean that ore reserves would remain underutilised, adding to the employment and local economic opportunities and revenue that would be lost.

9 Description of the process followed to reach the proposed preferred site

Project alternatives were considered during the compilation of the Hotazel operations' approved EMPr (SLR, 2014). Alternatives considered in the approved EMPr included:

- Mineral processing method;
- Surface infrastructure layout alternatives including the location of product stockpiling and dispatch facilities and site access alternatives;
- Water supply alternatives;
- Power supply alternatives;
- Waste management alternatives such as domestic and industrial waste, mining residue management and sewerage sludge alternatives;
- Air quality management alternatives including dust suppressions, dust extraction and a combination of the two alternatives; and
- The 'no-go' alternative

As the key infrastructure related to the KMR Expansion Project is an expansion of existing infrastructure and need to be positioned in close proximity, location alternatives were not considered.

The location of the various activities and infrastructure associated with the proposed KMR Expansion Project are constrained to the location of the mineral resource, existing infrastructure and practical operational requirements located on Hotazel, Devon and Kipling. As such, no property or site alternatives were deemed viable for the proposed KMR Expansion Project.

10 Details of alternatives considered

The location and mining method of the existing Hotazel pit operation and proposed Kipling pit operation are directly linked to the location and extent of the mineral reserve in the area. Therefore the only alternatives that will be considered as part of the KMR Expansion Project are the location of the project related infrastructure and the water management strategy that will be implemented to allow for the expansion of the Hotazel Pit into the Ga-Mogara River.

Engineering details associated with these alternatives are being refined and will be reported on in full detail during the impact assessment phase..

10.1 Property alternatives

The location of the proposed KMR Expansion Project components are constrained to the location of the existing infrastructure as well as the mineral resource. As such, no property alternatives were deemed viable.

The position of the proposed project required infrastructure was also influenced by the existing and future blasting zone associated with the Hotazel and Kipling pit operations.

10.2 Technology alternatives

Technological alternatives were considered for the proposed KMR Expansion Project. The existing technology utilised by KMR and their existing operations will be utilised for the expansion activities.

10.3 Operational alternatives

The only operational alternative that have been investigated is the way water will be managed in and around the proposed extended opencast pits. As indicated in Table 5-1, the Hotazel pit is proposed to

be expanded beyond the 1:100-year floodline of the Ga-Mogara River. The mine therefore had to determine whether the Ga-Mogara River would need to be diverted or altered to allow for the continuous and safe mining of the ore within the pit.

The alternatives that have been considered in respect of opencast mining alongside the Ga-Mogara River, consisted of the following options:

- Develop of two large ponds with higher dam bodies within the river system upstream and adjacent to the pits;
- Develop four smaller ponds with lower dam bodies within the river system upstream; and
- Various combinations of single or multiple diversion channels, without and with large ponds included.

Based on investigations, it was decided that two attenuation dams along the river course will be the best option, one along the York pit and one along the Hotazel Pit (this application). This will entail the construction of dams along the river course to attenuate the flow before it reaches the opencast pit areas. This option does not include any diversion channels.

Since the project area is located in the low-rainfall zone and the soil is very sandy, the rainfall-runoff is minimal in the vicinity of project area. However, in January 2021 a tropical storm (Eloise cyclone) reached the Northern Cape and as a result of this extreme weather feature, the Ga-Mogara River filled beyond its brim. But prior to the cyclone, the river was observed flowing in the late 1970s and 1980s. The capture and attenuation of flowing upstream ponds is technically a good option and if the ponds overflow, the open pit operation can be suspended until the storm has abated. Further details of the option analysis will be provided in the EIA phase, draft EIA and amended EMPr.

In summary, Table 10-1 provides a list of pros and cons that might be associated with the proposed attenuation dam option.

Table 10-1: Pros and cons associated with the attenuation dams option to allow for the expansion of the opencast pits into the Ga-Mogara River

Pros	Cons
• Less disturbance of biodiversity and environmental impact • Reduced erosion • Can be combined with the diversion channels • Since there is no diversion channel and excavation this is the cheapest option • Attenuating the flow will delay the flow into the open pit area and will give time to evacuate the pit if necessary • By reducing the amount of discharge, allows for smaller structures downstream	• Impact to downstream water users, as water will not flow in the river below the pits • Increased sedimentation due to ponding of water • Change in biodiversity due to increase ponding of water • During high rainfall events and flow rate above the thresholds mentioned above, the flow might end up at pit area and can cause a temporary closure of operations • Upstream of the pond area has private properties that are located within the river basin • Permissions required to authorise this option should be discussed and investigated for motivation with the relevant authority

10.4 No-Go alternative

Refer to Section 8.5 for details regarding the “No-Go option”. The project relates to the expansion activities to the existing KMR Mining Right and as such no alternatives were applicable.

11 Details of the public participation process followed to date

11.1 Objectives of public participation

The objectives of public participation for the various phases of the environmental authorisation process are presented in the sections below.

11.1.1 During pre-application

The objectives of the stakeholder engagement during pre-application phase are to introduce the project to stakeholders and to inform them that an environmental authorisation process will be followed. A pre-application meeting was held with the DMRE on 17 February 2021 with this objective in mine. The meeting was attended by representative from the DMRE, KMR and SRK. Appendix C contains the notes arising from the meeting with DMRE.

A meeting will be held with DWS once the Pre-application Enquiry has been submitted.

11.1.2 During scoping

The objectives of public participation during scoping phase is to provide sufficient and accessible information to Interested and Affected Parties (I&APs) in an objective manner to enable them to raise comments, issues of concern and suggestions for enhanced benefits. I&APs will also have an opportunity to provide input into the terms of reference (ToR) for the specialist studies, and to contribute relevant local and traditional knowledge to the environmental assessment.

11.1.3 During impact assessment

The objectives of public participation during the EIA phase are to verify that I&APs issues have been considered in the environmental assessment and to comment on the findings of the environmental assessment, including the potential negative and positive impacts and the proposed management measures.

11.1.4 During the decision-making phase

Following the outcome of the decision-making process by authorities, registered I&APs will be notified of the outcome and how and by when the decision may be appealed, should they wish to.

11.2 Stakeholder identification

The NEMA EIA Regulations (GN R 982 amended) require identification of and consultation with communities and interested and affected parties (I&APs). In terms of Section 24 0 (2) of NEMA, specific state departments were identified and recognised as commenting authorities on aspects of the proposed Expansion Project. Representatives from these departments are included in the stakeholder database.

I&APs identified in previous environmental authorisations processes, together with lists of stakeholders that MM has regular contact with, and networking and referral formed the basis for the development of the stakeholder database.

The stakeholder database will be reviewed and updated after each round of engagement during the environmental authorisation process. Box 1 provides more information regarding the distinction between I&APs and registered I&APs.

Box 1. Distinction between I&APs and Registered I&APs

The NEMA Regulations (GN 982 amended) distinguishes between I&APs and registered I&APs.

I&APs, as stated in Section 24(4)(d) of the NEMA include: (a) any person, group of persons or organisation interested in or affected by an activity; and (b) any organ of state that may have jurisdiction over any aspect of the activity.

In terms of the Regulations "***registered interested and affected parties"*** means:

An interested and affected party whose name is recorded in the register opened for that application.

For that purpose, an EAP managing an application must open and maintain a register which contains the names, contact details and addresses of:

(a) All persons who have submitted written comments or attended meetings with the applicant or EAP;

(b) All persons who have requested the applicant or EAP managing the application, in writing, for their names to be placed on the register; and

(c) All organs of state which have jurisdiction in respect of the activity to which the application relates.

11.2.1 Identification of landowners

Details of the landowners relating to the project affected properties were identified through a title deed search. Table 11-1 contains the details of the landowners of the farm portions that relates to KMR's mining right (MR10053).

Table 11-1: Properties associated with KMR's Mining Rights and proposed Expansion Project areas

Farm Name	Farm Portions	SG Code	Owner
Devon 277	Portion RE/277	C04100000000027700000	Kudumane Manganese Resources Pty Ltd
Hotazel 280	Portion RE/280	C04100000000028000002	Kudumane Manganese Resources Pty Ltd
	Portion 4/280	C04100000000028000004	Kudumane Manganese Resources Pty Ltd
Kipling 271	Portion RE/271	C04100000000027100000	ASSMANG LTD

11.2.2 Identification of district and local municipalities

The project area falls within the jurisdiction of the John Taolo Gaetsewe District Municipality and the Joe Morolong Local Municipality in the Northern Cape Province. Details of the relevant municipalities and respective ward councillors are provided in Table 11-2.

Table 11-2: District and Local Municipalities

Municipality	Contact Person	Designation	Contact details
John Taolo Gaetsene District Municipality	Mr Klaas Teise	Director Development Planning	053 712 8700 teisek@taologaetsewe.gov.za
Joe Morolong Local Municipality	Mr Kemothibile Phiri	Director Planning and Development	053 773 9300 bakangs@joemorolong.gov.za

11.2.3 Identification of competent authorities

The competent authority applicable to the EA process associated with the proposed KMR Expansion Project is the DMRE and contact details are provided in Table 11-3. Information of DWS is also provided in Table 11-3 as the competent authority in respect of the WULA process associated with the KMR Expansion Project.

Table 11-3: Contact details for the competent authority

Department	Contact Person	Office Telephone Number
DMRE - Northern Cape Office	Mr V Muila &Mr. J Nematatani	053 807 1716
DWS – Northern Cape	Mr A Abrahams	053 830 8803

11.3 Stakeholder engagement during scoping

Figure 11-1 summarises the integrated EA processes and public participation which will take place during the various phases of this process. The phases of public participation are described in more detail in the following sections.

11.3.1 Announcement

The project will be announced to the public from **18 June 2021**. I&APs will be notified of the opportunity to comment on the proposed KMR Expansion Project and to register as an I&AP via various engagement methods (see Appendix C for copies of all notification materials).

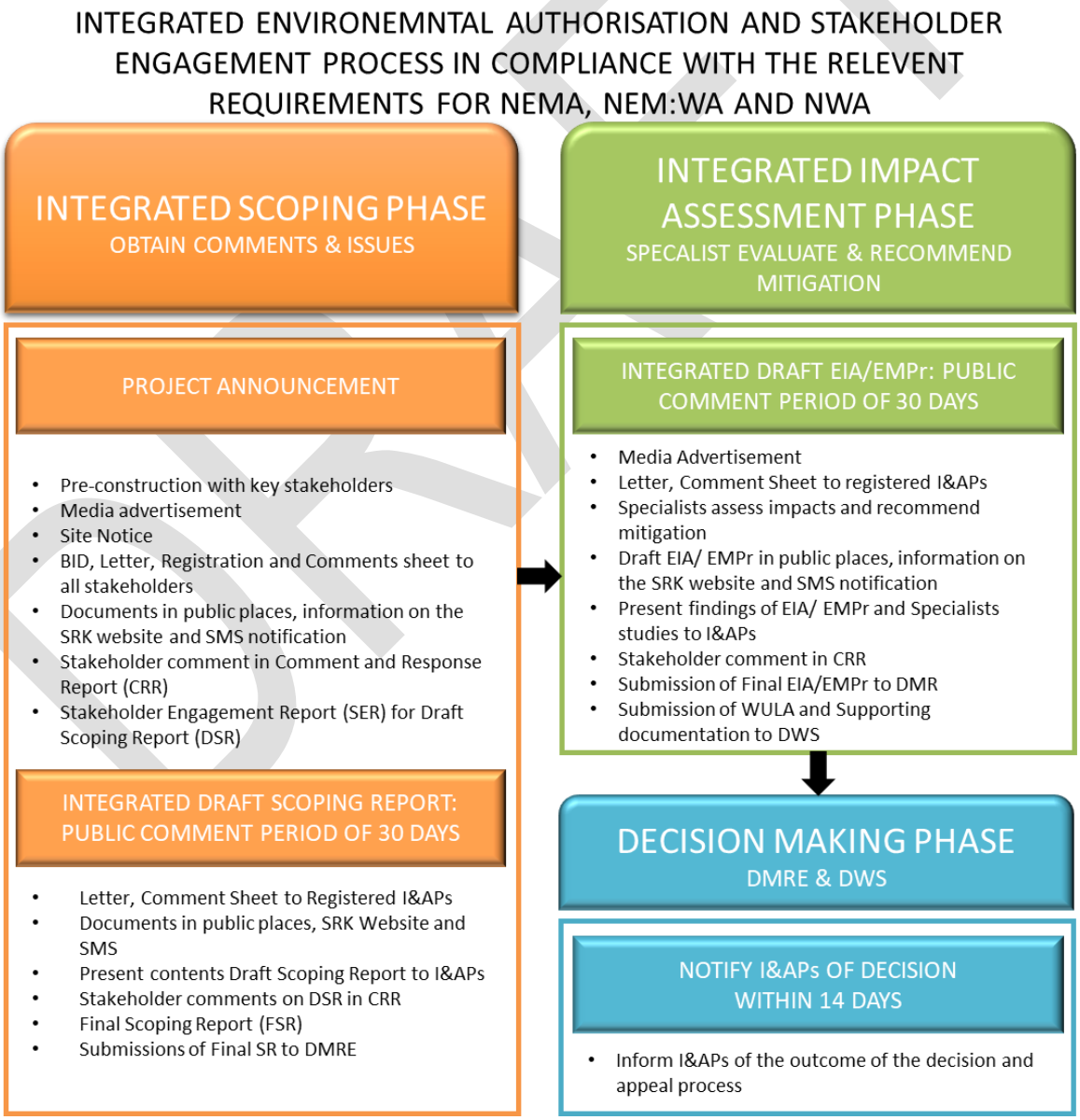

Figure 11-1: Public participation throughout the integrated environmental authorisation process

11.3.2 Meetings with local authorities

Details of meetings held with the authorities during project announcement are shown in Table 11-4.

Appendix C contains the notes arising from the meeting with DMRE.

Table 11-4: Meeting details with local authorities

Meeting details	Venue	Number of attendees
DMRE Pre-Application Meeting 17 February 2021	DMRE Offices, Northern Cape	4
DMRE Clarification Meeting 8 July 2021	DMRE Offices, Northern Cape	5
DWS Pre – Application Meeting TBC	DWS Offices, Kimberley	TBC

11.3.3 Opportunities to comment

I&APs are encouraged to submit their written comments to SRK's stakeholder engagement office through the contact details provided in the stakeholder letters, BIDs and comment sheets. I&APs can also fill in comment forms at one of the public places, contact the SRK stakeholder engagement team via telephone, email or fax to submit comments and to discuss any issues of concern.

All comments raised by I&APs throughout the process will be recorded and included in the FSR.

11.4 Availability of the draft scoping report for public comment

The DSR will be made available for public comment from 30 August to 29 September 2021. The availability of the DSR and details relating to the public engagement meetings will be announced as follows:

- Distribution of a letters to I&APs, accompanied by a registration and comment form (in English and Setswana), inviting I&APs to comment on the DSR and to register as an I&AP.
- Notification of I&APs regarding report availability via site notices, SMS, email and letters;
- Advertisement in the Noordkaap Bulletin (in English and Afrikaans); and
- Posting the DSR, announcement letter and comment form on the SRK website (https://docs.srk.co.za/en/za-kmr-expansion-project) and at public places.

Public meetings have been organised for the Scoping phase of this project in light of the current COVID health risks. However, should any stakeholders wish to raise queries or questions this can be discussed telephonically or an online meeting can be scheduled.

11.5 Comment and response report

A summary of the project related comments received to date have been included in the Comment and Response Report (CRR) in Appendix C. The CRR will be updated with comments received during the 30-day public review period of the DSR and included in the FSR to be submitted to the DMRE.

11.5.1 The Protection of Personal Information Act 4 of 2013 (POPIA)

The Protection of Personal Information Act 4 of 2013 (POPIA), which aims to promote protection of personal information, came into effect on 1 July 2021. The EIA Regulations, 2014 require, inter alia, transparent disclosure of registered stakeholders and their comments. In terms of the EIA Regulations, 2014, stakeholders who submit comment, attend a meeting or request registration in writing are deemed registered stakeholders who must be added to the project stakeholder database. By registering, stakeholders are deemed to give their consent for relevant information (including contact

details) to be processed and disclosed, in fulfilment of the requirements of the EIA Regulations, 2014 and the National Appeal Regulations, 2014.

12 Environmental attributes associated with the sites

This section provides a general overview of the status quo of the environmental and social context within which KMR is located. It is important to note, there have been extensive specialist studies conducted for the proposed site, thus, the baseline draws on data collected and analysed during specialist studies undertaken for various environmental authorisation processes.

All of the proposed activities will take place within the existing mining right areas of KMR. While most of the descriptions below are focused on the site itself, where necessary, the regional context of the environmental features is also explained.

More detail on certain aspects of the biophysical and socio-economic environment will be included in the EIA once the specialist investigations have been completed and inputs from I&APs have been considered during the public participation process. For each environmental aspect discussed below, potential environmental and social issues and impacts have been highlighted where applicable. The EIA will explore these issues and impacts following further investigation.

12.1 Geology

The proposed KMR Expansion Project is situated within the manganese mining district which is located on the eastern side of the Kalahari Manganese Field (KMF). The KMF is situated about 50km northeast of Kuruman within the Northern Cape (Metago, 2011). The KMF is comprised of five relic basins, namely Mamatwan-Wessels deposit (also known as the main Kalahari Basin), the Avontuur and Leinster deposits, and the Hotazel and Langdon Annex/Devon deposits (SLR, 2014).

KMR mines the manganese from the Hotazel Formation (Transvaal Supergroup). The Hotazel Formation consists mainly of Banded iron Formation which has three laterally continuous stratiform manganese. The lower ore body is the most economically layer with the middle and upper ore body being less economic grades (SLR, 2014).

12.2 Topography

KMR is situated within an area which is relatively flat which gradually slops towards the west where the Ga-Mogara river flows along the boundary of the Kipling, Hotazel, York and Devon properties. The proposed KMR Expansion Project is located as approximately 1040 meters above sea level (mamsl) (SLR, 2014).

There are a various other manganese and iron ore mines located between Hotazel and Kathu. Due to the mining activities creating waste rock dumps and opencast pits, the topography has already been altered and disturbed (SLR, 2014).

12.3 Climate

The KMR operations are situated within the northern climatic zone as defined by the South Africa Weather Bureau. The area can experience fairly extreme weather ranging from hot days to cold nights. As indicated in Figure 12-1, the average high temperature is about 31°C during the summer months and 17°C in winter months. The average low in summer is 20°C and 6°C in winter (worldweatheronline, 2021).

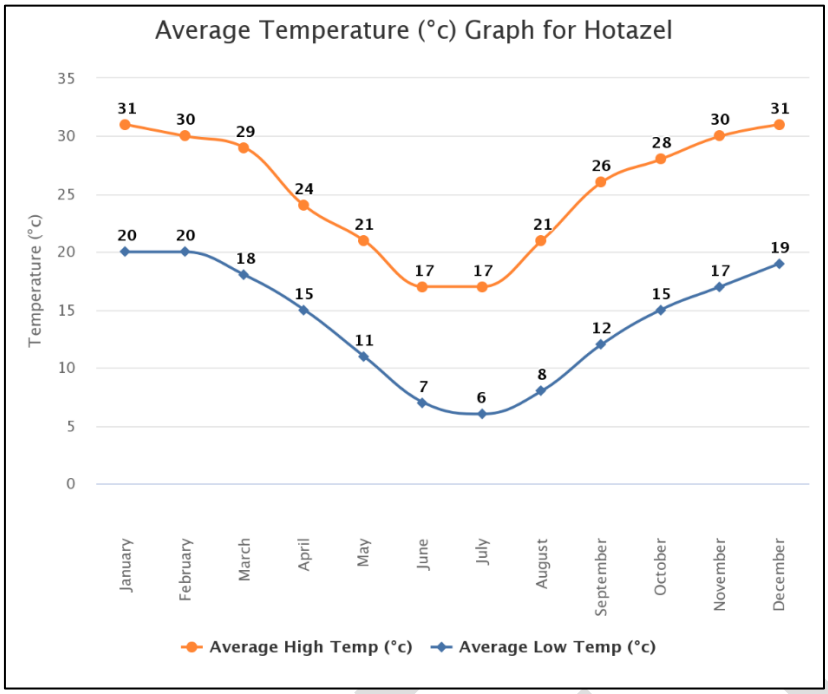

Figure 12-1: Average temperature for Hotazel (worldweatheronline,2021)

This area is a semi-arid region where majority of rainfall occurs within the summer months (January, February and March) and the lowest amount of rainfall within winter months (June, July and August). Figure 12-2 indicates the average high and low temperature through the year (worldweatheronline,2021).

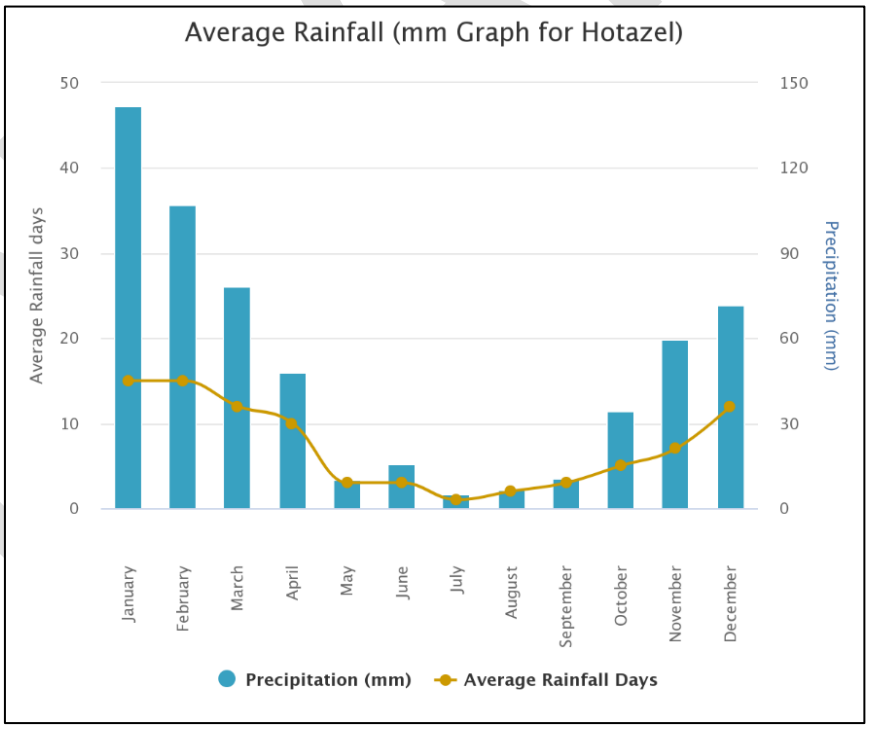

Figure 12-2: Average rainfall for Hotazel

12.4 Visual

The area where the proposed KMR Expansion Project will be located is fairly flat with some mountains to the west and east of the site. The main land uses are agriculture and mining. The KMR mining area is surrounded by other mining activities such as the Iron ore mine in Kathu (60km away) as well as the

Manganese mine such as the Mamatwan opencast mine and the deep mines at Nchwaning Wessels and Gloria with their associated tips and stock fields (SLR, 2014).

12.5 Soils

The area where the proposed KMR Expansion Project is to be located is flat and sandy with the thickness varying from 10cm to 50m. This area is underlain by calcrete and the Dwyke Formation sediments (Gibb, 2019).

The parent material, which was assessed as part of the EIA conducted in 2014, comprises of windblown red to yellow sand as well as surface limestone of a recent age. About 90% of the site is covered by deep Hutton and Clovelly soils. The remained of the area consist of Mispah soils and rock outcrops.

12.6 Biodiversity

12.6.1 Fauna

Based on the assessment conducted in 2014 for the previous EMPr, no red data reptiles were identified within the proposed area. In addition, no red data amphibian's species were observed within the proposed project area (Birch, 2014).

Various red data bird species were identified to occur within a 500m radius of the proposed project site. The species include:

- *Polemaetus bellicosus* (Martial Eagle);
- *Neotis ludwigii* (Ludwig's Bustard);
- Sagittarius serpentarius (Secretary bird);
- *Gyps africanus* (African White backed Vulture);
- *Ardeotis kori* (Kori Bustard);
- *Ciconia bigra* (Black stork);
- *Falco naumanni* (Lesser Kestrel);
- *Terathopius ecaudatus* (Bateleur); and
- *Torgos tracheliotos* (Lappetfaced Vulture).

A number of red data mammal species were also believed to occur on the KMR site. Of the mammal species identified, two mammal species were also determined to have a high likelihood to occur within the area due to the suitable habitat:

- *Rhinolophus denti* - Dent's Horseshoe Bat;
- Mellivora capensis - Honey badger;
- *Miniopterus schreibersii* Schreiber's long- fingered bat; and
- *Atelerix frontalis* - South African Hedgehog.

12.6.2 Flora

The proposed KMR Expansion Project is located within the Kathu Bushveld and Gordonia Duneveld (Mucina & Rutherford 2006 as sited in Birch, 2014). The prominent trees within the open savannah area are *Acacia erioloba* and *Boscia albitrunca.* The main shrubs found within this area are dominated by A. *mellifera, Diospyros lycioides* and *Lycium hirsutum* with the dominant grass layer being made up of a variety of species. Gordonia duneveld is typically found on undulating dunes with open area having grasslands and the dune slopes *gavinf Acacia haematoxylon.*

Six vegetation communities exist in the KMR project area, namely:

- ***Acacia erioloba* Savannah**: Prominent woody component which have a distinctive due to the height of the tree layer;
- **Mixed *acacia* Savannah**: Comprises mostly of tall *Acicia erioloba* trees, however, these are not as close together with some areas of open savannah;
- ***Acacia mellifera* mixed Woodland**: *Acacia mellifera* (Black thorn) is the prominent shrub species within the community;
- ***Acacia Haematoxylon* Savannah*:*** This community is moderately made up of grasses with a smaller shrub layer. There are some individual trees which scatter this community;
- ***Tarchonanthus camphoratus Scrub:*** This community occurs within shallow tony soils with underlaying calcrete; and
- ***Riverine vegetation:*** Vegetation type found within the Ga-Mogara non-perennial stream.

In terms of the Northern Cape Nature Conservations Act, one Schedule 1 listed species was identified, namely the *Harpagophytum procumbens*. In addition, three protected tree species were identified. These three species being *Acacia erioloba, Acacia haematoxylon* and *Boscia albitrunca*. Should it be necessary to remove any of these species, a permit needs to be applied for from the relevant authority.

Some areas within the property have already been disturbed by previous mining and prospecting activities. These disturbed areas are generally restricted to the western section of the KMR project area. There are also other types of disturbances such as overgrazing which is mainly around water points (Birch, 2014).

Alien invasive plants are grouped into three categories:

Category 1: Plants that must be removed and destroyed immediately. These plants serve no economic purpose and possess characteristics that are harmful to humans, animals and the environment;

Category 2: Plants that may only be grown under controlled conditions. These plants have certain useful qualities and are allowed in demarcated areas. In other areas they must be eradicated and controlled; and

Category 3: Plants that may no longer be planted. Mostly ornamental plants. These are alien plants that have escaped from or are growing in gardens but are proven to be invaders. No further planting is allowed. Existing plants may remain (except those within the flood line, 30 m from a watercourse or in a wetland) and must be prevented from spreading (Birch, 2014).

The following alien invasive species were identified on site during the 2014 flora investigation:

- *Argemone mexicana* (Mexican Poppy) – Category 1;
- *Argemone ochroleuca* (White Flowered Mexican Poppy) – Category 1;
- *Atriplex nummularia* (Old Man Salt Bush) – Category 2;
- *Pennisetum setaceum* (Fountain Grass) – Category 1;
- *Prosopis cf. glandulosa* (Mesquite) – Category 2;
- *Prosopis velutina* (Mesquite) – Category 2; and
- *Opuntia humifusa* (Prickly pear) – Category 1.

12.7 Surface water hydrology

Mine related activities have the potential to alter the drainage of surface water through the placement of both temporary and permanent infrastructure and could potentially /or result in the contamination of the surface water resources through seepage and/or spillage of process materials, non-mineralised and mineralised wastes.

The proposed KMR Expansion Project site is situated within the quaternary catchment D41K which falls within the Lower Vaal Water Management Area. The non-perennial Ga-Mogara river flows northwards along the western side of the KMR property boundary. This river is usually dry except for period of high rainfall. The project site drains into the Ga-Mogara river. Based on the surface water study conducted in 2014 (SLR, 2014), the estimated peak flow of the Ga-Mogara River was determined (Table 12-1).

The existing floodline of the Ga-Mogara River generally falls within the 100m buffer, with some small areas falling outside of the 100m buffer. While none of the previous infrastructure was within the Ga-Mogara River floodline, the proposed KMR Expansion Project will expand the existing opencast mines into the Ga-Mogara river.

The Ga-Mogara River is a non-perennial river where majority of the year the river does not flow. Hence surface water will not be used for the KMR operations. Water is currently pumped to the operations from Sedibeng via a pipeline (SLR, 2014).

Table 12-1: Regional maximum flood peak for the Ga-Mogara river (SLR, 2014)

Event	Peak Flo (m^3/s)
	K = 1.7
Regional Maximum Flood (RMF)	400
1: 200	251
1: 100	198
1: 50	154

12.8 Groundwater

There are two aquifer systems within the study area, namely an intergranular aquifer and a fractured aquifer.

The intergranular aquifer is a characterised by Kalahari sediments which is underlain by a calcrete layer. According to the drilling which was conducted by KMR the thickness is approximately 40m east of the Ga-Mogara River and increases west of the river to a maximum of approximately 110m.

The fractures aquifer has three formations within it, namely the Dwyka formation, the Hotazel Formation (BIF) and the Ongeluk Formation.

The aquifers are recharged directly through rainfall. Based on the groundwater model it was identified that the recharge rate was between 0.2% and 0.5% of MAP which is in the lower band for the Kalahari (DeltaH, 2021).

As indicated in the WUL, groundwater monitoring is required to understand whether groundwater contamination is occurring and to rectify this should contamination occur. Groundwater monitoring is undertaken at York, Hotazel and Telele.

Figure 12-3 shows location of existing groundwater monitoring points (DeltaH, 2021).

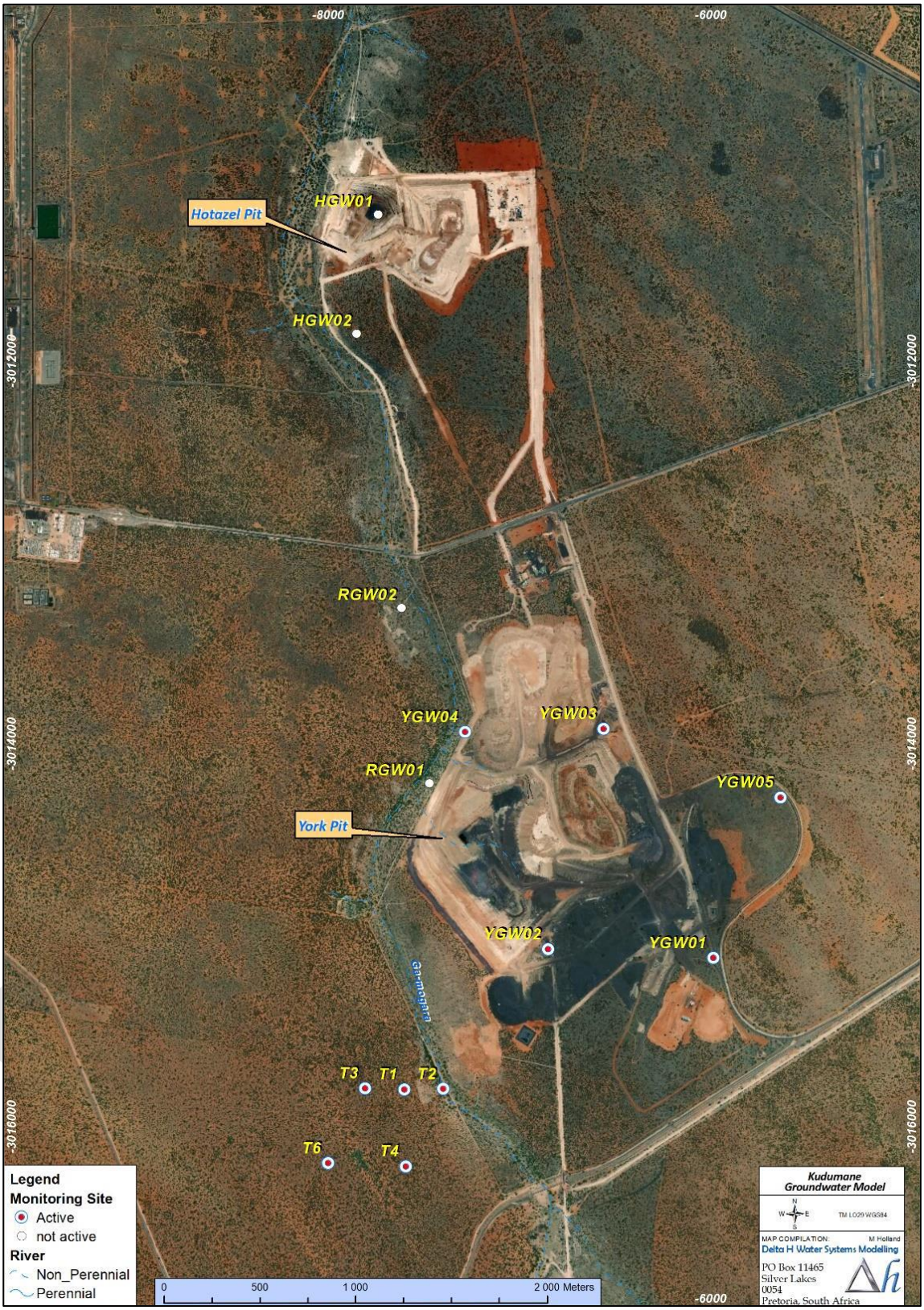

Figure 12-3: Location of the KMR groundwater monitoring boreholes in relation to the mine (DeltaH, 2021)

12.9 Air quality

During the air quality specialist study which was conducted as part of the 2010 EIA/EMPr, the following regional sources of emissions were identified:

- Fugitive dust;
- Existing mining operations;
- Vehicle tailpipe emissions;
- Household fuel combustion;
- Rail related emissions;
- Veld burning;
- Long-range transportation of aerosols; and
- Biomass burning.

The sources of atmospheric emissions at the KMR operation are located within the open pit operations during drilling and blasting, handling of ore and waste and vehicle entrainment from unpaved in-pit haul roads. In addition to this, sources also include materials handling of ore materials and products;

KMR currently conducts air quality monitoring at 13 locations around the mine: SDB(x4), Hotazel (x5), Devon (x2), Botha (x1) and DDB (x4). Dust buckets SDB(x4), Hotazel (x5), Devon (x2), Botha (x1) (Aquatico, 2020).

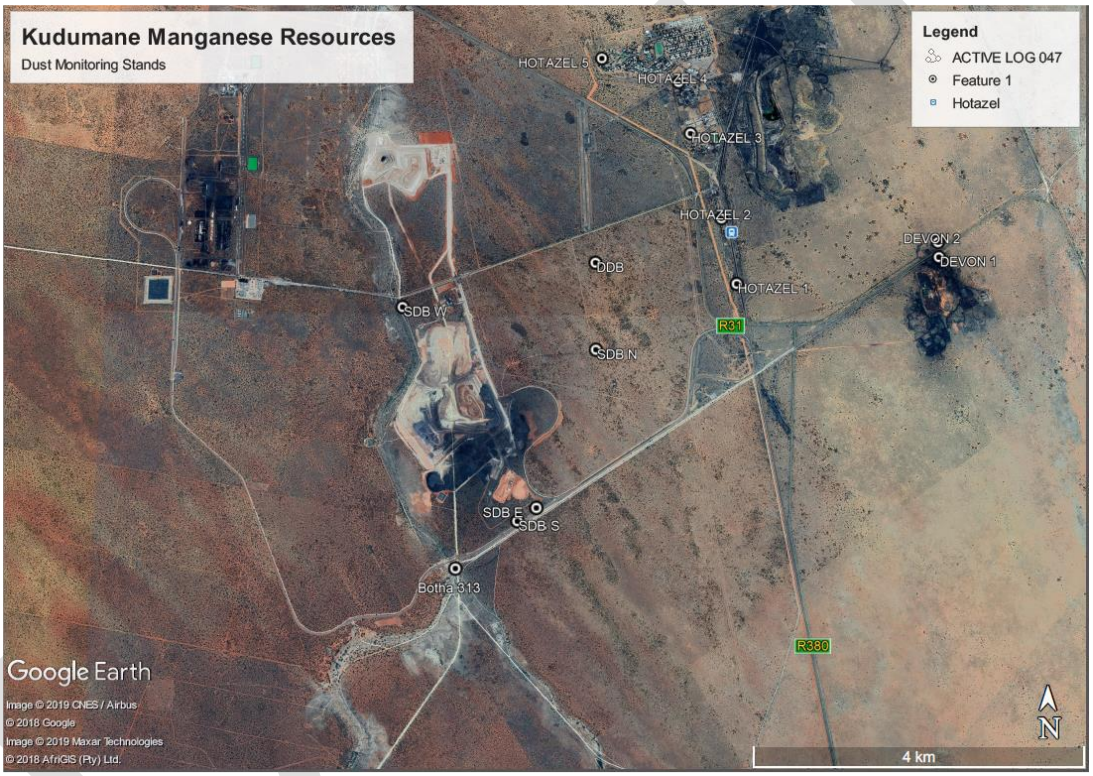

Figure 12-4: Dust fall out monitoring stations for the KMR mines (Aquatico, 2020)

12.10 Noise

The area where the proposed KMR Expansion Project will occur is within a rural area with no elevated noise levels. The main contributors to the noise levels within the area surrounding farming activities, localised traffic, rail activities and mining operations.

Based on the noise study undertake in 2014 (SLR, 2014), three noise receptors were identified as part of the baseline survey. These include Hotazel, Langdon and Devon/ Telele. Based on the baseline survey it was identified that the only exceedance in noise levels were due to local activities and the KMR operations were not audible from these points.

There is a potential that the KMR Expansion Project could contribute to increase noise levels within the area especially the proposed Kipling opencast mine as this is the closest to the town of Hotazel.

12.11 Sites of historical and cultural importance

The area where the KMR mining operations occur is relatively low in human presence due to the dryness of the area. Human settlement normally occurs along or near to watercourses.

Based on the heritage assessment conducted in 2014 (SLR, 2014), a small amount of stone tools was identified near Hotazel which is on the banks of the Ga-Mogara River.

The EIA conducted in 2011 reported that there was a single grave in the southern portion of York which is fenced (Metago, 2011).

The area , where the potential grave may be, was not previously affected by the KMR mining infrastructure as it was outside of the 100m floodline. However, it is anticipated that the expansion activities may have an impact on these areas of heritage and cultural importance (potential grave). Due to this, an assessment will be conducted and included as part of the EIA/EMPr.

12.12 Socio-economic structure

The proposed KMR Expansion Project is situated within the John Taolo Gaetsewe District Municipality (JTGDM) which is bordered by the ZF Mgcawu and Frances Baard District Municipalities. The JTGDM is the smallest district municipality in the Northern Cape. The JTGDM comprises of three local municipalities namely, The Gamagara Local Municipality; The Ga- Segonyana Local Municipality; and The Joe Morolong Local Municipality. The proposed project site falls within the Joe Morolong Local Municipality.

12.12.1 Population composition

The JTGDM had a population increase of 1.5% between 2011 and 2016, however, there has been a substantial decline in the Joe Morolong Local Municipality between 1996 and 2016. This is mainly due to job seekers leaving the local municipality for better job opportunities (Figure 12-5).

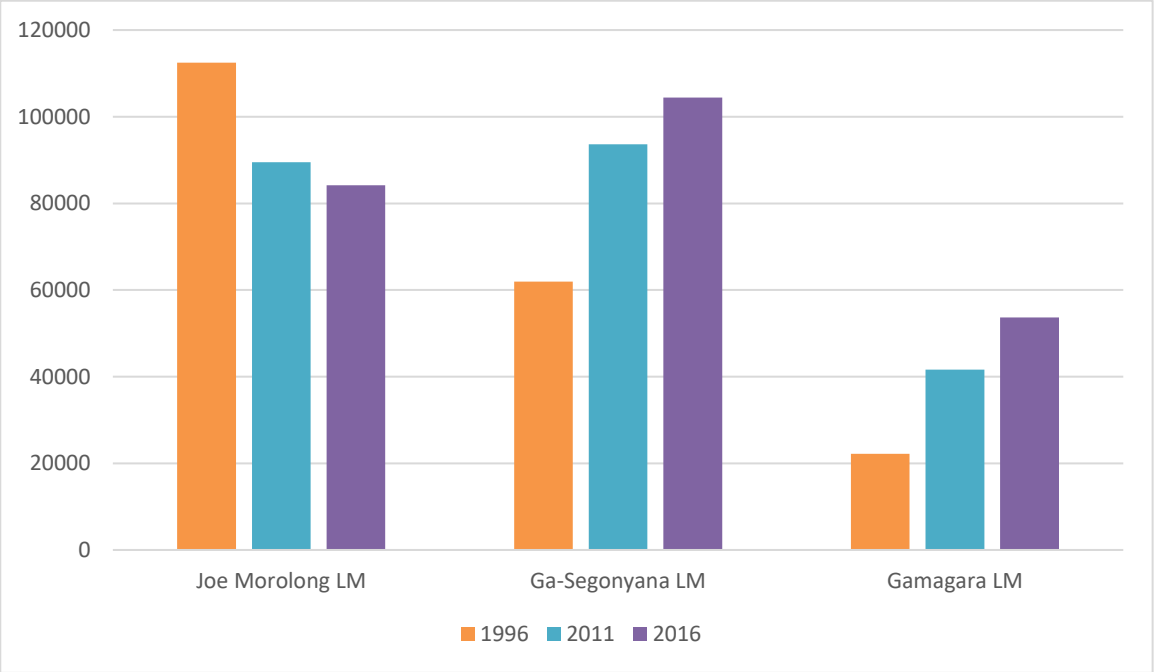

Figure 12-5: JTGDM population composition (JTGDM IDP, 2021)

12.12.2 Household size

There was a substantial decrease in household sizes between 2011 and 2016.This is mainly due to job seekers moving to areas where there are more job opportunities. In addition to this there has been an increase in households due to an increase in poverty within the area. This is especially relevant within the Joe Morolong LM as there has been an increase in outmigration in the area (Figure 12-6) (JTGDM IDP, 2021).

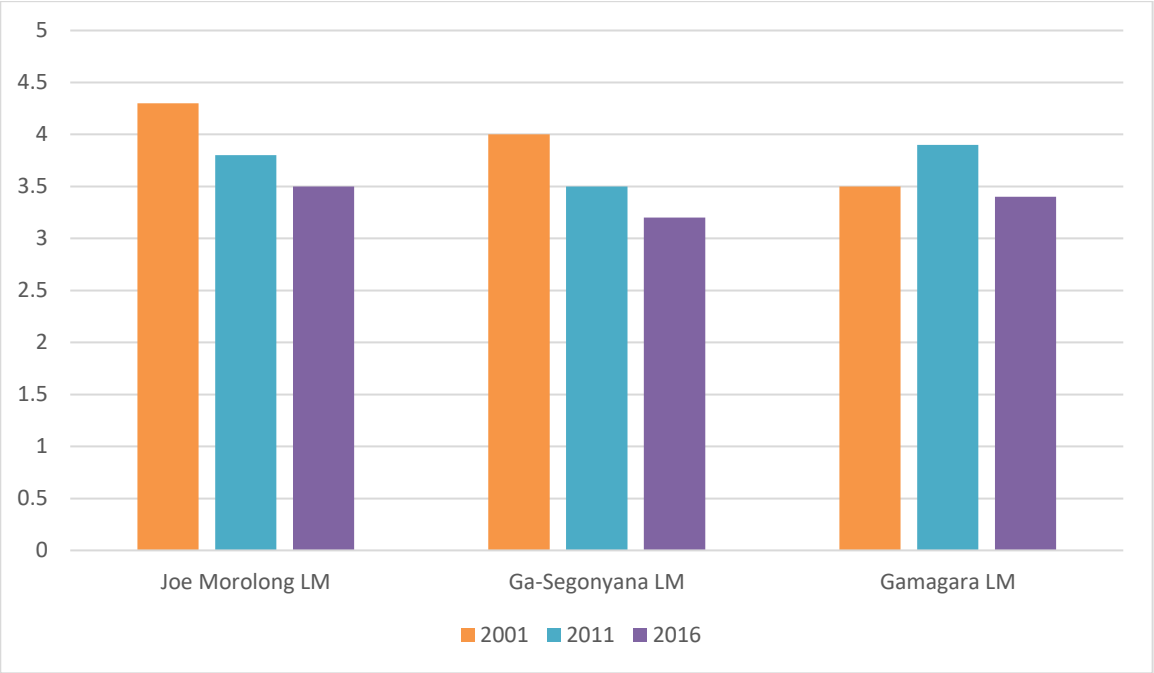

Figure 12-6: Household size within JTGDM

12.12.3 Age distribution

The age profile of the JTGDM is fairly dispersed with the largest age profile being between the age of 15 and 36. Within the Joe Morolong LM the highest age is between 0 and 14 years of age. It gradually decreases as there is an increase in age. The Ga-Segonyana and Gamagara LM both have larger amount of people between 15 and 34 as these are the age bracket which are predominantly looking for jobs (Figure 12-7) (JTGDM IDP, 2021).

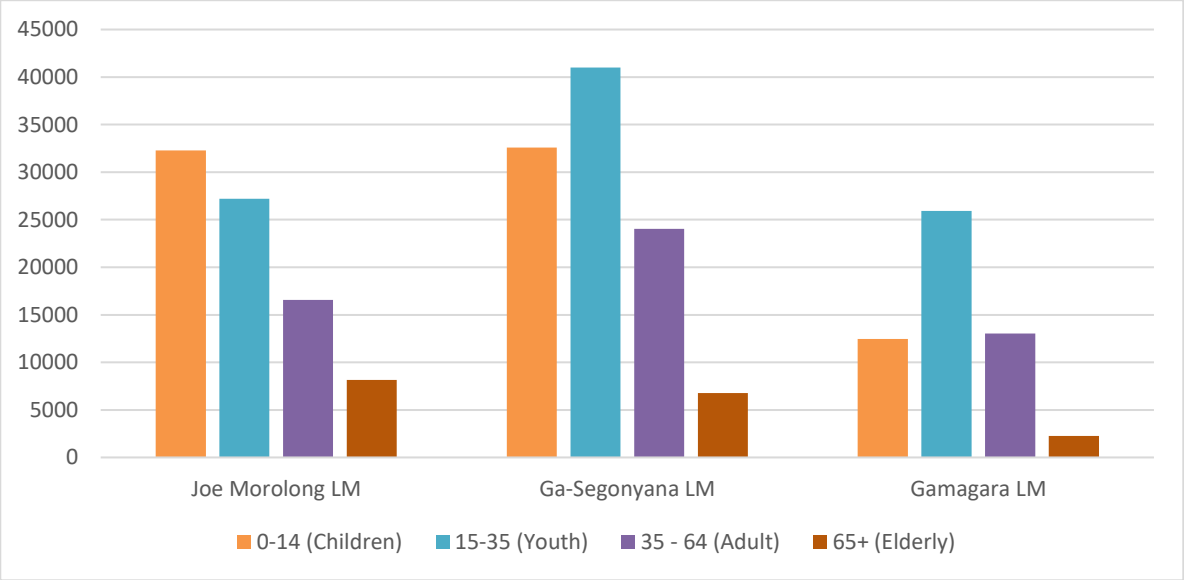

Figure 12-7: Age distribution within the JTGDM (JTGDM IDP, 2021)

12.13 Description of specific environmental features and infrastructure on site

The infrastructure and associated activities to be developed as part of the proposed KMR Expansion Project will be established in brownfield as well as greenfield areas within the current KMR mining right properties. The environmental features of the site have been presented in Section 12. Sensitive environmental and socio-economic features associated with the proposed KMR Expansion Project will be confirmed during the specialist investigation to be undertaken as part of this EA process.

12.14 Description of current land uses

The most common land use within the region consisting of grazing and/or game farms. The project area falls within a rural setting characterised by farms, mining. The land use in the vicinity of the project is similar to that found on the project site itself: namely grazing and mining.

The area along the sub-outcrop of the Hotazel Formation is dotted with closed and operational mines within a wider context of livestock and game farms. Associated communities and support networks/activities follow the mining belt spatial tend.

13 Impacts identified

13.1 Historical impacts and management measures

Impacts which were identified as part of the KMR existing mining activities and infrastructure are presenter in previous EMPrs. The management measures identified within these EMPrs will still need to be complied with in terms of NEMA.

13.2 Potential impacts as a result of the proposed Expansion Project

High-level potential environmental and social impacts for the proposed KMR Expansion Project and associated activities are indicated in Table 13-1.

The impact rating methodology for the magnitude, duration and spatial scale applied are provided for in Section 14. The impacts have been assumed and rated prior to any mitigation measures being put in place and these impacts will be confirmed through specialist investigations during the impact assessment phase.

Table 13-1: Potential impacts due to the proposed KMR Expansion Project

Aspect	Type of Impact
Topography	The topography of the area may be permanently altered due to the opencast mines as well as the Waste Rock Dumps and Ore Stockpiles.
Land use	Due to the change in the land use from open land to mining, there is a medium to long-term impact especially should there be any land contaminated due to mining activities.
Biodiversity	There may be a negative impact on the biodiversity of the area due to the fragmentation of habitats caused by mining operations as well as loss of vegetation.
Surface water	There may be a negative impact on surface water within the study area especially due to the expansion of the opencast pits into the Ga-Mogara River as well as the construction of the attention dams.
Groundwater	There may be a negative impact on groundwater in the proposed site area due to the construction of the additional opencast mine.

Aspect	Type of Impact
Air quality	The expansion of the existing mine operations and the addition of the new activities and infrastructure may increase dust within the area.
Noise and vibration	Blasting activities may increase the noise levels and vibration within the area and negatively impact sensitive receptors in the vicinity of the mine.
Cultural heritage	There is a possibility that cultural heritage sites may be impacted due to the expansion activities as well as surrounding sites.
Social	The proposed project expansion may have a positive impact on the socio-economic aspects of the area due to the creation of employment opportunities.

14 Methodology to be used in determining the significance of environmental and social impacts

This section presents the methodology that will be applied by SRK for determining the significance of potential environmental and social impacts during the EIA/EMPr phase.

The impact assessment methodology has been formalised to comply with Regulation 31(2)(l) of NEMA, which states:

> *(2) An environmental impact assessment report must contain all information that is necessary for the competent authority to consider the application and to reach a decision …, and must include –*
>
> *(l) an assessment of each identified potentially significant impact, including –*
>
> *(i) **cumulative impacts**;*
>
> *(ii) the **nature** of the impact;*
>
> *(iii) the **extent** and **duration** of the impact;*
>
> *(iv) the **probability** of the impact occurring;*
>
> *(v) the **degree** to which the impact can be **reversed**;*
>
> *(vi) the **degree** to which the impact may **cause irreplaceable loss of resources**; and*
>
> *(vii) the **degree** to which the impact can be **mitigated**.*

The EIA methodology will require that each potential impact identified is clearly described (providing the nature of the impact) and assessed in terms of the following factors:

- Extent (spatial scale) → will the impact affect the national, regional or local environment, or only that of the site?;
- Duration (temporal scale) → how long will the impact last?;
- Magnitude (severity) → will the impact be of high, moderate or low severity?; and
- Probability (likelihood of occurring) → how likely is it that the impact may occur?

To enable the scientific approach for the determination of the environmental and/or social significance (importance) of each identified potential impact, a numerical value has been linked to each factor. Table 14-1 presents the applicable ranking scales.

Table 14-1: Ranking scales for environmental significance

Occurrence	**Duration:** 5 – Permanent 4 – Long-term (ceases with the operational life) 3 – Medium-term (5-15 years) 2 – Short-term (0-5 years) 1 – Immediate	**Probability:** 5 – Definite/don't know 4 – Highly probable 3 – Medium probability 2 – Low probability 1 – Improbable 0 – None
Severity	**Extent/scale:** 5 – International 4 – National 3 – Regional 2 – Local 1 – Site only 0 – None	**Magnitude:** 10 – Very high/uncertain 8 – High 6 – Moderate 4 – Low 2 – Minor

Once the above factors had been ranked for each identified potential impact, the environmental and/or social significance of each impact was calculated using the following formula:

Significance *= (duration + extent + magnitude) x probability*

The maximum value that can be calculated for the environmental significance of any impact is 100. The environmental significance of any identified potential impact is then rated as either: high, moderate or low on the following basis:

- More than 60 significance value indicates a high (H) environmental significance impact;
- Between 30 and 60 significance value indicates a moderate (M) environmental significance impact; and
- Less than 30 significance value indicates a low (L) environmental significance impact.

In order to assess the degree to which the potential impact can be reversed, cause irreplaceable loss of resources and be mitigated, each identified potential impact was assessed twice:

- Firstly, the potential impact was assessed and rated prior to implementing any mitigation and management measures; and
- Secondly, the potential impact was assessed and rated after the proposed mitigation and management measures have been implemented.

The purpose of this dual rating of the impact before and after mitigation is to indicate that the significance rating of the initial impact is and should be higher in relation to the significance of the impact after mitigation measures have been implemented. Table 14-2 provides an example of an impact assessment before and after mitigation using the SRK methodology.

The rating of the identified impact and mitigation and management proposed will be based on sound, validated scientific information and professional judgement in the context of the specific project and site conditions, and not emotion.

Table 14-2: Example of EIA Table

Nature of the impact	**Significance of potential impact *before* mitigation**						**Mitigation measure**	**Significance of potential impact *after* mitigation**					
	P	**D**	**E**	**M**	**Significance**			**P**	**D**	**E**	**M**	**Significance**	
Construction Phase													
Description	3	4	3	6	39	**Moderate**	*Description*	1	4	3	6	13	**Low**
Operational Phase													
Description	5	4	3	6	65	**High**	*Description*	3	4	3	6	39	**Moderate**
Rehabilitation and Decommissioning Phase													
Description	3	4	3	6	39	**Moderate**	*Description*	1	4	3	6	13	**Low**

15 The positive and negative impacts that the proposed activity and alternatives

Refer to Section 12.1 for the preliminary positive and negative impacts identified for the proposed KMR Expansion Project. Also refer to Section 8.3 for further information on the direct and indirect socio-economic benefits that may be associated with the proposed KMR Expansion Project. A detailed assessment of the potential positive and negative environmental and social impacts associated with the proposed KMR Expansion Project will be developed and included in the EIA and EMPr.

16 Possible mitigation measures that could be applied and the level of risk

The proposed KMR Expansion Project will occur within the KMR mining right area (NC 30/5/1/2/2/10053 MR), which has already been affected by current mining activities. The specialist studies will assess potential environmental and social impacts that may occur as a result of the proposed KMR Expansion Project. Appropriate mitigation and management measures to avoid and /or minimise the identified impacts associated with the project will be developed and included in the EIA/EMPr report Refer to Section 12.1 for the potential key positive and negative impacts identified for the proposed KMR Expansion Project.

17 Motivation where no alternatives were considered

Alternatives relating to location, infrastructure and transportation were considered in the previous EMPrs compiled for KMR. The location of the proposed KMR Expansion Project, on properties Hotazel, Devon and Kipling, is constrained to the location of the existing infrastructure which has been positioned based on the location of the mineral resource, and proven reserve. As such, no property alternatives were considered for the proposed KMR Expansion Project. Existing technologies will also be applied to the expansion activities and therefore no technology alternatives have been identified at this stage of the study. Engineering design studies will take place in parallel with the Scoping/EIA process. If alternatives are identified as part of the specialist and engineering studies, these will be included in the Draft EIA/EMPr report.

18 Statement motivation the preferred site

Alternatives relating to location, infrastructure and transportation were considered for the authorisation of the previous KMR EMPrs. The location of the proposed project is therefore constrained to the location of the existing infrastructure which has been positioned based on the location of the mineral resource, and proven reserve. As such, property alternatives were not considered for the proposed KMR Expansion Project. For this reason, no site selection was undertaken. The additional infrastructure will assist KMR in mining their existing and future reserves.

19 Plan of study for the environmental impact assessment process

19.1 Description of alternatives to be considered including the option of not going ahead with the activity

Refer to Section 10 for consideration of alternatives.

19.2 Description of aspects to be assessed as part of the environmental impact assessment process

Different impacts can occur during the different phases of a project, from pre-construction to final rehabilitation and closure phase. For this reason, project specific activities that will be undertaken during each project phase will need to be assessed in light of the methodology detailed in Section 14.

Table 19-1 list the main project related activities that will be undertaken during the different phases of the proposed project, and which will need to be assessed as part of the EIA process.

Table 19-1: Proposed project related activities during different project phases

Pre-construction	Site clearing and grubbing of the footprint areas.
	Relocation of plant species of conservation concern (if found on site).
	Relocation of sensitive heritage sites (if found on site).
Construction	Construction of new access / haul roads to new pit areas, as well as the reticulation of electricity to new infrastructures that require power to operate.
	Construction of the pipeline system.
	Diverting surface flow around the project footprint area.
	Preparation of the box cut.
	Construction of PCDs and water management systems to separate clean and dirty water.
Operation	Utilisation of haul roads and other services.
	Deposition of material on the respective stockpiles.
	Opencast mining operation.
	Utilisation of pipeline systems.
Closure / Rehabilitation	Decommissioning of the offices and workshops.
	Demolition of general mining and project related infrastructure, i.e. roads, electrical service infrastructure, pipelines, etc.
	Handling of potential contaminated soils.
	Final backfilling and shaping of the pit area in preparation.
	Aftercare monitoring.
Post-closure	This is a period of maintenance and monitoring of the various structures and infrastructure closed during the time of rehabilitation. The activities are limited to monitoring activities and maintenance or repairing of erosion and vegetation if necessary.

19.3 Description of aspects to be assessed by specialists

The following aspects will be assessed as part of the EIA process for the proposed KMR Expansion Project for Hotazel, Devon and Kipling properties:

- Closure and liability;
- Socio-economic;
- Noise and vibration;
- Blasting and vibration;
- Surface water;
- Air quality;
- Heritage and paleontology;
- Traffic;
- Freshwater;
- Terrestrial biodiversity; and
- Soils, land use and land capability.

All specialists will assess the impact (including cumulative effects) of each proposed activity/aspect in relation to the construction, operational, closure and decommissioning phases. They will develop appropriate and implementable mitigation measures to avoid, reduce and/or mitigate the potential impacts that have been identified. The specialists will make use of the impact assessment methodology described in Section 14.

Recommendations from the historic specialist studies will be summarised and included with the EIA/EMPr report.

Table 19-2: Specialist studies to be undertaken for the proposed Expansion Project

Specialist Study	Specialists	Qualifications/registrations
Closure and lability Shangoni Management Services	Emma Fourie	BSc. (Hons) Environmental Management LaRSSA
Socio-economic SRK Consulting (Pty) Ltd	Vassie Maharaj	BSc, Biochemistry and Physiology International Association of Public Participation International Association of Impact Assessment SA Institute of Directors of Southern Africa
	Anton Hough	MA, Sociology, University of Stellenbosch, 2011
	Karabo Maruapula	MSc, Environmental Management, University of Johannesburg, 2020 IAIA
Noise and vibration Acusolv	Ben van Zyl	MSc (Eng) PhD FSAAI
Blasting and vibration Blast Management and Consulting (Pty) Ltd	JD Zeeman	To be provided on request.
Surface water SRK Consulting (Pty) Ltd	Peter Shepherd	BSc (Hons), Hydrology, University of Natal, 1990 Pr Sci Nat (South Africa), 400104/95
	Natasha Ramdass	MBA, University of KwaZulu Natal, 2019 Pr Eng, ECSA, 202001465 PMP, PMI, 2648066 Member, SAICE, 201500843
	Mehmetcan Ozkadioglu	MSc, Hydrogeological Engineering, Hacettepe University, Ankara, Turkey, 2018 Cand.Sci.Nat., SACNASP, Water Resource Science, 120662/19
Air quality AirShed	Nick Grobler	BEng (Hons): (Environmental Engineering) 2010, (with Distinction) University of Pretoria.
	Hanlie Liebenberg-Enslin	MSc
Heritage and palaeontology PGS Heritage	Polke Birkholtz	BA Hons (Archaeology) (cum laude)
	Cherene de Bruyn	MA in Archaeology 2016/2017. University College London, United Kingdom
Traffic Siyazi Consulting Services (Pty) Ltd	Paul Chris van der Westhuizen	Civil Engineering Diploma (Unisa)
	Leon Roets	B Eng. (Civil Eng) University of Pretoria,1988 Engineering Council of South Africa (ECSA)
Freshwater Scientific Aquatic Services	Stephen van Staden	MSc Environmental Management SACNASP, SASSO, LARSA and IAIA
	Christel du Preez	MSc Environmental Sciences SACNASP
	Amanda Mileson	Advanced Diploma: Nature Conservation South African Wetland Society, the International Society of Wetland Scientists and the Gauteng and Northern Cape Wetland Forums
Terestrial Biodiversity Scientific Terestrial Services	Nelanie Cloete	MSc Botany and Biotechnology SACNASP
	Christien Steyn	MSc SACNASP

Specialist Study	Specialists	Qualifications/registrations
	Christopher Hooton	Btech Nature Conservation
Soils, land use and land capability Zimpande Research Collaborative	Stephen van Staden	MSc Environmental Management SACNASP, SASSO, LARSA and IAIA
	Braveman Mzila	BSc Hons Environmental Hydrology
	Tshiamo Setsipane	MSc Soil Science SACNASP

19.4 Proposed method of assessing the environmental aspects including the proposed method of assessing alternatives

The EIA will be undertaken according to a standardised methodology, which is detailed in Section 14. The methodology is compliant with the NEMA Regulations.

Generally, the impact assessment is divided into three parts:

- Issue identification – each specialist will be asked to evaluate the 'aspects' arising from the project description and ensure that all issues in their area of expertise have been identified;
- Impact definition – positive and negative impacts associated with these issues (and any others not included) then need to be defined – the definition statement should include the activity (source of impact), aspect and receptor as well as whether the impact is direct, indirect or cumulative. Fatal flaws should also be identified at this stage; and
- Impact evaluation – this is not a purely objective and quantitative exercise. It has a subjective element, often using judgement and values as much as science-based criteria and standards. The need therefore exists to clearly explain how impacts have been interpreted so that others can see the weight attached to different factors and can understand the rationale of the assessment.

In order to understand the impact evaluation, the sensitivity of the receiving environment, the effect on the receiving environment and the significance of the impacts need to be clearly described.

19.5 The proposed method of assessing duration significance

The duration significance of identified impacts will be assessed using the established criteria, where the duration of time relates to how long that impact will occur for during that phase of the project. Specific durations will be allocated to each project phase in the EIA/EMPr document where the detailed impact assessment rating will be undertaken. For example, for the operation phase criteria are:

- Short term: Up to 18 months;
- Medium term: 18 months to 5 years; and
- Long term: Longer than 5 years.

Refer to Section 14 for the significance assessment, which includes duration.

19.6 The stages at which the Competent Authority will be consulted

Pre-Application consultation with the CA (the DMRE Northern Cape) was undertaken on 17 February 2021. During this meeting the process for the proposed KMR Expansion Project, including the update and incorporation of previous EMPrs into the 2019 EMPr, was discussed and agreed upon.

Subsequent to this, another meeting was held between the DMRE on 8 July 2021 which outlined the process which will be required in order to expand the York and Hotazel open pits. Due to this, two separated Environemntal Authorisation Process are being undertaken, one for the York and Telele properties and one for the Hotazel, Devon and Kipling Properties.

The CA will be consulted throughout the application process via email, phone calls and potential meetings during the:

- Final Scoping Phase;
- Draft EIA/EMPr Phase; and
- Final EIA/EMPr Phase.

20 Particulars of the public participation process with regard to the impact assessment process that will be conducted

The public participation process (PPP) will be ongoing throughout the project phases. The stakeholder engagement proposed for the impact assessment phase is presented in Figure 11-1.

20.1 Stakeholder engagement during impact assessment phase

Registered I&APs will be informed once the CA (DMRE) have accepted the Scoping Report and given permission for the commencement of the impact assessment phase of the S&EIR process.

Stakeholder engagement during the impact assessment phase will focus on providing information and opportunity for public comment on the findings of the specialist studies, recommendations, impacts identified and the proposed management measures. The draft findings will be presented in the draft EIA / EMPr report to be commented on by the public.

Registered I&APs will be informed throughout the process using preferred communication channels/methods to be identified during the PPP. Registered I&APs will be invited to engagement meetings where the contents of the Draft EIA/EMPr will be presented and Registered I&APs will have the opportunity to comment. Registered I&APs will be invited to comment on the Draft EIA/EMPr report in any of the following ways:

- By raising comments during meetings where the content of the Draft EIA/EMPr Report will be presented;
- By completing comments forms available with the report at public places, and by submitting additional written comments, by email or fax, or by telephone, to SRKs stakeholder engagement office;
- The Draft EIA/EMPr report will be available for comment for a period of 30 days at public places in the project area as per the announcement and scoping phase, sent to everyone who requests a copy, and placed on the SRK website; and
- All comments and issues raised during the comment period will be added to the CRR that will accompany the final EIA/EMPr report.

All stakeholder engagement will be conducted in line with the most relevant Covid-19 regulations as NEMA requirements as well as the POPIA.

20.2 Notification of authority decision

Registered I&APs will be notified of the authority decision on the EIA/EMPr via mail, email, fax and SMS and by advertisements in the local newspapers.

Notification to registered I&APs will summarise the authorities' decision and provide information according to legal requirements about how to lodge an appeal should they wish to do so.

20.3 Description of the tasks that will be undertaken during the environmental impact assessment process

The following activities will take place as part of the planned EA process going forward:

- Develop the FSR once comments and feedback have been received from I&APs and authorities;

- Submit the FSR to DMRE for decision-making;
- Undertake specialist studies of the proposed KMR Expansion Project;
- Assess potential impacts using SRK's impact assessment methodology;
- Develop an EMPr which will include management measures to avoid and/or mitigate and manage the potential impacts identified in the impact assessment;
- Provide registered I&APs feedback on the impact assessment phase;
- Submit the draft EIA/EMPr for I&AP and authority comment;
- Submit the final EIA/EMPr to the relevant authorities following the incorporation of I&APs comments; and
- Communicate the decision of the DMRE and DWS to registered I&APs (refer to Box 1).

21 Measures to avoid, reverse, mitigate or manage identified impacts and to determine the extent of the residual risks that need to be managed and monitored

The proposed KMR Expansion Project, for properties Hotazel, Devon and Kipling, will incorporate measures aimed at mitigating and managing impacts in to the 2021 EIA/EMPr report. This will assist in the development of a more effective environmental management tool for KMR's current operations. The updated EIA/EMPr will allow for a greater level of alignment between the different EMPrs in terms of management measures and monitoring reporting requirements. Detailed mitigation and management measures for identified positive and negative impacts associated with the proposed KMR Expansion Project will be developed and included in the EIA/EMPr report.

Each impact identified within the impact assessment process will be evaluated in terms of whether a mitigation measure can be applied or not, and what kinds of mitigation measures can be applied. This will be reported in a detailed impact assessment table (see example Table 14-2) that will be completed for the EIA/EMPr. Therefore, each impact, whether the significance is low or high, will have a mitigation measure stipulated where applicable. Furthermore, a post-mitigation assessment of the significance of the impact will also be completed, which will provide an indication of the effectiveness of said mitigation measure.

22 Other information required by the Competent Authority

22.1 Impact on the socio-economic conditions of any directly affected person

Detailed mitigation and management measures of potential positive and negative impacts associated with the proposed KMR Expansion Projects will be developed and included in the EIA/EMPr report. Extensive specialist work has already been conducted as part of the previous EIA/EMPr processes for KMR and there is a good understanding of the socio-economic environment within the area. This aspect will be further investigated by the appointed socio-economic specialist in the EIA phase of the study for activities and infrastructure associated with the proposed KMR Expansion Project.

22.2 Impact on any national estate referred to in section 3(2) of the National Heritage Resources Act.

A detailed assessment of sites of historical and cultural importance has been conducted on several occasions throughout the life of the mine. An update to the heritage assessment will be conducted as

part of the EIA/EMPr phase for activities and infrastructure associated with the proposed KMR Expansion Projects.

23 Other matters required in terms of Sections 24(4)(a) and (b) of the Act

Not Applicable.

24 Undertaking regarding correctness of information

I Selma Nel herewith undertake that the information provided in the foregoing report is correct, and that the comments and inputs from stakeholders and I&APs has been correctly recorded in the report.

25 Undertaking regarding level of agreement

I, Selma Nel herewith undertake that the information provided in the foregoing report is correct, and that the level of agreement with Interested and Affected Parties and stakeholders has been correctly recorded and reported herein.

26 Statement of SRK independence

Neither SRK nor any of the authors of this report have any material present or contingent interest in the outcome of this report, nor do they have any pecuniary or other interest that could be reasonably regarded as being capable of affecting their independence or that of SRK.

SRK has no prior association with KMR in regard to the mineral assets that are the subject of this report. SRK has no beneficial interest in the outcome of the technical assessment being capable of affecting its independence.

SRK's fee for completing this report is based on its normal professional daily rates plus reimbursement of incidental expenses. The payment of that professional fee is not contingent upon the outcome of the report.

27 Conclusion

This report has provided a detailed description of the proposed KMR Expansion Project, which includes:

- The proposed locality of the new infrastructure;
- Alternatives considered;
- The baseline environmental conditions from previous EMPrs conducted for KMR area;
- The public participation process undertaken so far; and
- A summary of potential environmental and social impacts.

The following activities will take place as part of the planned EA process going forward:

- Develop the FSR once comments and feedback have been received from I&APs and authorities;
- Submit the FSR to DMRE for decision-making;
- Undertake specialist studies of the proposed KMR Expansion Project;
- Assess potential impacts using SRK's impact assessment methodology;
- Develop an EMPr which will include management measures to avoid and/or mitigate and manage the potential impacts identified in the impact assessment;
- Provide registered I&APs feedback on the impact assessment phase;
- Submit the draft EIA/EMPr for I&AP and authority comment;

- Submit the final EIA/EMPr to the relevant authorities following the incorporation of I&APs comments; and
- Communicate the decision of the DMRE and DWS to registered I&APs.

Signature of the EAP

DATE: 30 August 2021

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.

28 References

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DeltaH Water Systems Modelling (2021). Kudumane Groundwater Model Update – York and Hotazel Pits, Pretoria.

Ecological Management Services (2014). Biodiversity Survey for the Proposed Kudumane Manganese Mine, Hotazel Northern Cape, Kimberley.

GIBB (Pty) Ltd (2019). Environmental Impact Assessment and Management Programme Report for Kalagadi Manganese (Pty) Ltd – Kalagadi Manganese Mine, Pertoria.

John Taolo Gaetsewe District Municipality (JTGDM) (2021). John Taolo Gaetsewe District Municipality : Integrated Development Plan 2021-2022 (Draft), Northern Cape

Metago Environmental Engineers (Pty) Ltd (2010). Environmental Impact Assessment and Management Programme Report for a Manganese Mine, Johannesburg.

SLR (2014). Environmental Impact Assessment and Management Programme Report for the Additional Planned Mining Areas at Kudumane Manganese Mine, Johannesburg.

Worldweatheronline (2021). https://www.worldweatheronline.com/hotazel-weather-averages/north-western-province/za.aspx

Appendices

Appendix A: EAP CVs and qualifications

Selma Nel

Principal Scientist

Profession	Scientist
Education	MA, Environmental Management, University of Johannesburg, 2007 BA (Hons), Geography and Environmental Management, Rand Afrikaanse Universiteit, 2004 BA, Geography and Environmental Management, Rand Afrikaanse Universiteit, 2003
Registrations/ Affiliations	Member, IAIAsa
Awards	None

Specialisation

Environmental impact assessments, basic assessments, environmental management plans/programmes, environmental due diligence auditing, project management, environmental, management assessments, specialist coordination, stakeholder engagement.

Expertise

Selma Nel has been involved in the field of environmental management for the past 14 years. Her expertise includes:

- project management and coordination of integrated environmental impact assessments, environmental management programmes;
- environmental impact assessments and basic assessments for mining and energy related projects in South Africa;
- specialist team co-ordination and drafting Terms of Reference (ToR);
- compliance audits in respect of environment, waste and water as well as international standards;
- analysis of environmental and social impacts assessment (ESIA) and environmental and social management plan/programmes (ESMP) prepared by other consultancies (outside South Africa) for African projects to determine level of upgrading required to meet international standards;
- compilation of technical environmental documents, programmes and reports;
- conducting environmental control officer work environmental projects;
- environmental pre-feasibility and feasibility assessment input;
- site selection assessment input;
- environmental compliance audits in terms of NEMA, MPRDA, NEM: WA and NWA;
- stakeholder engagement; and
- vendor due diligence.

Employment

2010 – present	SRK Consulting (Pty) Ltd, Principal Scientist, Water Department, Johannesburg
2007 – 2010	GCS Consulting, Environmental Scientist, Environmental Department, Rivonia
2003 – 2007	University of Johannesburg, Academy for Information Technology, Administration Assistant
1999 – 2000	ABSA (Rivonia), Client Services Administrator

Publications

None

Languages

English – read, write, speak

Afrikaans – read, write, speak

Selma Nel

Principal Scientist

Key Experience: Project management: impact assessment projects

Location:	Emalahleni, Limpopo
Project duration & year:	June 2020
Client:	Anglo American Coal South Africa
Name of Project:	Greenside Colliery Dewatering Project
Project Description:	Basic Assessment and Water Use Licence for the dewatering of underground mining areas relating to the Greenside Colliery for continuation of the underground mining operation.
Job Title and Duties:	Principal Scientist - Project Manager • Project management • Coordination and management of specialists • Technical review of project against current environmental related legislation • Compilation of technical environmental document and public participation documentation • Stakeholder engagement • Client liaison
Value of Project:	R 430 000

Location:	Emalahleni, Limpopo
Project duration & year:	March 2020
Client:	Anglo American Coal South Africa
Name of Project:	SACE Complex – Clydesdale Pit Project
Project Description:	Pre-Feasibility study in terms of Anglo's IDM requirement
Job Title and Duties:	Principal Scientist - Project Manager • Project management • Coordination and management of specialists • Technical review of project against client document requirements • Compilation of technical documentation aligned with certain IDM Chapter requirements • Stakeholder engagement • Client liaison
Value of Project:	R 500 000

Location:	Steelpoort, Limpopo
Project duration & year:	January 2020
Client:	Anglo American Platinum – Rustenburg Platinum Mines Limited: Der Brochen and Mototolo Complex
Name of Project:	Der Brochen and Mototolo Mine Consolidation
Project Description:	Consolidation of Der Brochen Mine's and Mototolo Mine's EMPrs
Job Title and Duties:	Principal Scientist - Project Manager & EAP • Project management • Technical review of project against current environmental related legislation • Compilation of technical environmental document and public participation documentation • Stakeholder engagement • Client liaison
Value of Project:	R 390 000

Selma Nel

Principal Scientist

Key Experience: Project management: impact assessment projects

Location:	Lebowakgomo, Limpopo
Project duration & year:	July 2019
Client:	Sibanye Stillwater – Lonmin Operations
Name of Project:	Research Crusher Plant Project Extension
Project Description:	Extension of Environmental Authorisation process in terms of a temporary research crusher plant project
Job Title and Duties:	Principal Scientist - Project Manager & EAP • Project management • Technical review of project against current environmental related legislation • Compilation of technical environmental document and public participation documentation • Stakeholder engagement • Client liaison
Value of Project:	R 40 000

Location:	Steelpoort, Limpopo
Project duration & year:	July 2018
Client:	Anglo American Platinum – Rustenburg Platinum Mines Limited: Der Brochen Mine
Name of Project:	Der Brochen Amendment Project
Project Description:	Integrated Environmental Authorisation process in terms of the proposed amendment to the Der Brochen Mine Project
Job Title and Duties:	Principal Scientist - Project Manager & EAP • Project coordination and management • Technical review of project against current environmental related legislation • Compilation of technical environmental documents, programmes and reports; • Coordination and management of specialists • Authority and Stakeholder consultation • Client liaison
Value of Project:	R 1 500 000

Selma Nel

Principal Scientist

Key Experience: Project management: impact assessment projects

Location:	Lebowakgomo, Limpopo
Project duration & year:	April 2017
Client:	Anglo American Platinum – Rustenburg Platinum Mines Limited: Rustenburg Section – Mogalakwena Mine
Name of Project:	Research Crusher Plant Project
Project Description:	Environmental Authorisation process in terms of a temporary research crusher plant project
Job Title and Duties:	Senior Environmental Scientist - Project Manager & EAP • Project coordination and management • Technical review of project against current environmental related legislation • Compilation of technical environmental documents, programmes and reports; • Coordination and management of specialists • Authority consultation • Client liaison
Value of Project:	R 250 000

Location:	Mokopane, Limpopo Province
Project duration & year:	March 2016, 6 months
Client:	Anglo American Platinum – Rustenburg Platinum Mines Limited: Rustenburg Section – Mogalakwena Mine
Name of Project:	Mogalakwena Mine: Environmental Authorisation Amendment
Project Description:	Amendment of Mogalakwena Mine's approved Environmental Authorisation for the inclusion of an additional pebble storage area, through the undertaking of a NEMA EIA Regulation 29 amendment process
Job Title and Duties:	Senior Environmental Scientist - Project Manager & EAP • Project coordination and management • Compilation of technical environmental documents, programmes and reports
Value of Project:	R 135 000

Location:	Mokopane, Limpopo Province
Project duration & year:	April 2016
Client:	Anglo American Platinum – Rustenburg Platinum Mines Limited: Rustenburg Section – Mogalakwena Mine
Name of Project:	Mogalakwena Mine: Environmental Authorisation Amendment
Project Description:	Amendment of Mogalakwena Mine's approved Environmental Authorisation in respect of prospecting rights acquired, through the undertaking of a NEMA EIA Regulation 31 amendment process
Job Title and Duties:	Senior Environmental Scientist - Project Manager & EAP • Project coordination and management • Compilation of technical environmental documents, programmes and reports
Value of Project:	R 345 000

Selma Nel

Principal Scientist

Key Experience: Project management: impact assessment projects

Location:	Mokopane, Limpopo Province
Project duration & year:	June 2015
Client:	Anglo American Platinum – Rustenburg Platinum Mines Limited: Rustenburg Section – Mogalakwena Mine
Name of Project:	Tailings Scavenger Plant
Project Description:	The authorisation of a new Tailings Scavenger Plant in terms of NEMA and MPRDA
Job Title and Duties:	Senior Environmental Scientist – Project Manager • Project coordination and management • Compilation of technical environmental documents, programmes and reports • Coordinate and facilitate public participation activities • Client liaison • Authority consultation
Value of Project:	R 270 000

Location:	Rustenburg, North West Province
Project duration & year:	June 2014
Client:	Anglo American Platinum – Rustenburg Platinum Mines: Rustenburg Section
Name of Project:	Domestic Waste Recycling Facility
Project Description:	The licensing of the new Domestic Waste Recycling Facility for the sorting and recycling of general waste in terms of NEM: WA
Job Title and Duties:	Senior Environmental Scientist – Project Manager • Project coordination and management • Compilation of technical environmental documents, programmes and reports • Coordinate and facilitate public participation activities • Authority consultation • Client liaison
Value of Project:	R 200 000

Location:	Mokopane, Limpopo Province
Project duration & year:	March 2014
Client:	Anglo American Platinum – Mogalakwena Platinum Mine
Name of Project:	Blinkwater Tailings Storage Facility Extension and Attenuation Dam
Project Description:	EMP Amendment to include the extension of the Blinkwater Tailings Storage Facility as well as the construction and operation of a new attenuation dam
Job Title and Duties:	Senior Environmental Scientist – Project Manager • Project coordination and management of integrated environmental impact assessment • Coordination and management of multi-disciplinary specialists • Coordinate public participation activities • Compilation of technical environmental documents, programmes and reports • Authority consultation • Client liaison
Value of Project:	R 4 150 000

Selma Nel

Principal Scientist

Key Experience: Project management: impact assessment projects

Location:	Mokopane, Limpopo Province
Project duration & year:	January 2014
Client:	Anglo American Platinum – Mogalakwena Platinum Mine
Name of Project:	Environmental Impact Assessment for the infill drilling operation on the farms Drenthe and Witrivier including a waste rock dump on the farm Witrivier
Project Description:	Section 102 Application and EMPr Amendment to include the farms Drenthe and Witrivier into the Mining Right as well as the construction and operation of a new waste rock dump
Job Title and Duties:	Senior Environmental Scientist – Project Manager • Project coordination and management of integrated environmental impact assessment • Coordination and management of multi-disciplinary specialists • Coordinate public participation activities • Compilation of technical environmental documents, programmes and reports • Authority consultation • Client liaison
Value of Project:	R 3 900 000

Location:	Mokopane, Limpopo Province
Project duration & year:	October 2013
Client:	Anglo American Platinum – Mogalakwena Platinum Mine
Name of Project:	Mogalakwena Platinum Mine's Environmental Management Programmes (EMPrs) Consolidation and Alignment
Project Description:	Consolidation and alignment of the Mogalakwena Platinum Mine's EMPrs
Job Title and Duties:	Senior Environmental Scientist – Project Manager • Project coordination and management • Environmental compliance audit in terms of NEMA, MPRDA, NEM:WA and NWA • Compilation of technical environmental documents, programmes and reports; • Authority consultation • Client liaison
Value of Project:	R 4 200 000

Selma Nel

Principal Scientist

Key Experience: Project management: impact assessment projects

Location:	Rustenburg, North West Province
Project duration & year:	May 2013
Client:	Anglo American Platinum – Rustenburg Platinum Mine: Kwezi & K6 Operations
Name of Project:	Addendum to Anglo American Platinum's Rustenburg Platinum Mine's EMP – to include additional ventilation shafts at the Kwezi and K6 Shaft Operations
Project Description:	Addendum to the Rustenburg Platinum Mine's EMP to include the construction and operation of additional ventilation shafts at the Kwezi and K6 Shaft Operations
Job Title and Duties:	Senior Environmental Scientist – Project Manager • Project coordination and management • Compilation of technical environmental documents, programmes and reports; • Coordination and management of multi-disciplinary specialists • Coordinate and facilitate public participation activities • Authority consultation • Client liaison
Value of Project:	R 175 000

Location:	Hattingspruit, KwaZulu Natal
Project duration & year:	October 2009
Client:	Shanduka Coal
Name of Project:	Springlake Colliery
Project Description:	Environmental Risk Assessment
Job Title and Duties:	Environmental Project Manager • Project coordination and management • Compilation of technical environmental documents, programmes and reports; • Coordination and management of multi-disciplinary specialists • Authority consultation • Client liaison
Value of Project:	R 350 000

Location:	Hattingspruit, KwaZulu Natal
Project duration & year:	October 2009
Client:	Shanduka Coal
Name of Project:	Springlake Colliery
Project Description:	Environmental Impact Assessment and Environmental Management Programme for additional conveyors and ventilation shafts
Job Title and Duties:	Environmental Project Manager • Project coordination and management of integrated environmental impact assessments • Coordination and management of multi-disciplinary specialists • Compilation of technical environmental documents, programmes and reports • Coordinate and facilitate public participation activities • Authority consultation • Client liaison
Value of Project:	R 980 000

Selma Nel

Principal Scientist

Key Experience: Project management: impact assessment projects

Location:	Black Rock, Northern Cape
Project duration & year:	April 2009
Client:	Eskom & Assmang Limited: Black Rock Mine
Name of Project:	Construction of a 132kV Power line for the Black Rock Mine
Project Description:	Environmental Impact Assessment and Environmental Management Programme for the construction of a 132kV Power line for the Black Rock Mine
Job Title and Duties:	Environmental Scientist - Project Manager • Project coordination and management • Site selection assessment input • Coordination and management of multi-disciplinary specialists • Coordinate and facilitate public participation activities • Compilation of technical environmental documents, programmes and reports; • Authority consultation • Client liaison
Value of Project:	R 1 200 000

Location:	Kendal, Mpumalanga
Project duration & year:	February 2009
Client:	Shanduka Coal
Name of Project:	Lakeside and Leeuwfontein Colliery
Project Description:	Environmental Impact Assessment and Environmental Management Programme for new opencast mining operations at Lakeside and Leeuwfontein Colliery
Job Title and Duties:	Environmental Project Manager • Project coordination and management • Coordination and management of multi-disciplinary specialists • Coordinate and facilitate public participation activities • Compilation of technical environmental documents, programmes and reports; • Authority consultation • Client liaison
Value of Project:	R 1 200 000

Selma Nel

Principal Scientist

Key Experience: Project management: impact assessment projects

Location:	Middelburg, Mpumalanga
Project duration & year:	February 2009
Client:	Shanduka Coal
Name of Project:	Middelburg Townlands Colliery
Project Description:	Environmental Impact Assessment and Environmental Management Programme for new opencast mining operation at Middelburg Townlands Colliery
Job Title and Duties:	Environmental Project Manager • Project coordination and management • Coordination and management of multi-disciplinary specialists • Coordinate and facilitate public participation activities • Compilation of technical environmental documents, programmes and reports; • Authority consultation • Client liaison
Value of Project:	R 1 500 000

Location:	Middelburg, Mpumalanga
Project duration & year:	March 2008
Client:	Londani Coal
Name of Project:	Nndanganeni Colliery
Project Description:	Environmental Impact Assessment and Environmental Management Programme for the new Nndanganeni Colliery
Job Title and Duties:	Environmental Scientist - Project Manager • Project coordination and management • Coordination and management of multi-disciplinary specialists • Coordinate and facilitate public participation activities • Compilation of technical environmental documents, programmes and reports; • Authority consultation • Client liaison
Value of Project:	R 1 200 000

Location:	Delmas, Mpumalanga
Project duration & year:	November 2007
Client:	Umthombo Resources
Name of Project:	Schoongezicht Colliery
Project Description:	Environmental Impact Assessment and Environmental Management Programme for the new Schoongezicht Colliery
Job Title and Duties:	Environmental Scientist - Project Manager • Project coordination and management • Compilation of technical environmental documents, programmes and reports; • Coordination and management of multi-disciplinary specialists • Coordinate and facilitate public participation activities • Authority consultation • Client liaison
Value of Project:	R 950 000

Selma Nel

Principal Scientist

Key Experience: Project manager: Gap analysis projects

Location:	Zimbabwe
Project duration & year:	April – May 2019
Client:	Prospect Lithium Zimbabwe (Pvt) Limited
Name of Project:	Gap Analysis of Environmental & Social Impact Assessments for Arcadia Lithium Mining Project in Zimbabwe
Project Description:	Reviewed of the Zimbabwean ESIAs to determine level of information to meet the required international standards Compiled Gap Analysis Report including an action plan outlining the way forward to address any identified gaps in meeting international environmental and social requirement.
Job Title and Duties:	Principal Scientist – Project Manager • ESIAs review • Compilation of Gap Analysis Report including action plan • Client liaison
Value of Project:	R 90 000

Location:	Steelpoort, Limpopo
Project duration & year:	August – October 2017
Client:	Anglo American Platinum – Rustenburg Platinum Mines: Der Brochen Section
Name of Project:	Gap Analysis for environmental authorisation of proposed Der Brochen Expansion Project
Project Description:	Review of proposed project against South African legislation to determine level and number of authorisations required and preliminary authorisation timeframes. Conduct key specialist studies to determine areas of concern in terms of the placement of proposed project related infrastructure and activities.
Job Title and Duties:	Senior Scientist – Project Manager • Specialist coordinating • Compilation of technical report including sensitivity maps • Client liaison
Value of Project:	R 380 000

Key Experience: Project manager: Gap analysis projects

Location:	Kriel, Mpumalanga
Project duration & year:	March 2013
Client:	Eskom
Name of Project:	Kriel and Matla Power Stations Integrated Water and Waste Management Programmes
Project Description:	Compilation of Kriel and Matla Power Stations Integrated Water and Waste Management Programmes in accordance with the National Water Act, Act 36 of 1998, requirements.
Job Title and Duties:	Environmental Scientist – Project Coordinator and Assisting Project Manager • Environmental and Water Site Assessor and Advisor • Compilation of technical programmes • Client liaison
Value of Project:	R 380 000

Selma Nel
Principal Scientist

Key Experience:	**Project manager: Gap analysis projects**
Location:	Marikana, North West
Project duration & year:	January 2011
Client:	Aquarius Platinum South Africa
Name of Project:	Environmental Authorisation for the Marikana Open Pit Rehabilitation and Surface Tailings Storage Facility
Project Description:	Environmental Impact Assessment and Environmental Management Programme for the Marikana Open Pit Rehabilitation and Surface Tailings Storage Facility
Job Title and Duties:	Environmental Scientist – assisting project manager • Coordination and management of multi-disciplinary specialists • Site selection assessment input • Coordinate and facilitate public participation activities • Compilation of technical environmental documents, programmes and reports • Authority consultation • Client liaison
Value of Project:	R 5 000 000
Location:	Mafikeng, Limpopo
Project duration & year:	June 2008
Client:	Bigen Africa
Name of Project:	Maandagshoek Road Upgrade
Project Description:	Environmental Impact Assessment and Environmental Management Programme for the Maandagshoek Road Upgrade
Job Title and Duties:	Environmental Scientist – assisting project manager • Project coordination and management • Authority consultation • Client liaison • Compilation of technical environmental documents, programmes and reports
Value of Project:	R 350 000
Location:	Mokopane, Limpopo
Project duration & year:	February 2008
Client:	Londmin Akanani Platinum Mine
Name of Project:	Lonmin Akanani Platinum Mine – Mine Facilities Site Selection
Project Description:	Site Selection for Mine Facilities
Job Title and Duties:	Environmental Scientist • Coordination and management of multi-disciplinary specialists • Site selection assessment • Compilation of technical environmental documents, programmes and reports • Client liaison
Value of Project:	R 280 000

Selma Nel

Principal Scientist

Key Experience: Environmental advisory projects

Location:	Lebowakgomo, Limpopo
Project duration & year:	January 2018, 3 months
Client:	DRA Global
Name of Project:	Baobab Mine Pilot Crusher Plant Environmental Protection and Response Plan
Project Description:	Development of the construction phase's Environmental Protection and Response Plan in respect of Baobab Mine Pilot Crusher Plant
Job Title and Duties:	Senior Environmental Scientist – Project Manager • Compilation of an Environmental Protection and Response Plan
Value of Project:	R 380 000

Location:	Steelpoort, Limpopo
Project duration & year:	2016-2017
Client:	Anglo American Platinum: Der Brochen Mine
Name of Project:	Execution of the approved Der Brochen Project EMPr
Project Description:	Providing environmental advice in terms of the execution of the approved Der Brochen Project EMPr, with specific reference to the tailings storage facility
Job Title and Duties:	Environmental Advisor and Environmental Control Officer • Compilation of environmental and social execution procedures • Conducting site inspections and environmental audits against EMPr
Value of Project:	n/a

Location:	Mokopane, Limpopo
Project duration & year:	2016-2017
Client:	Anglo American Platinum – Mogalakwena Platinum Mine
Name of Project:	Blinkwater Tailings Storage Facility Expansion
Project Description:	Pre-feasibility assessment of the proposed Blinkwater Tailings Storage Facility Expansion Project
Job Title and Duties:	Senior Environmental Scientist – Environmental Advisor • Technical review of project against current environmental related legislation • Compilation of technical environmental documents
Value of Project:	n/a

Location:	Johannesburg, Gauteng
Project duration & year:	October 2016
Client:	Amalgamated Beverage Industries
Name of Project:	Community Water Initiatives towards the aid of the Water Crisis
Project Description:	Identify and develop implementation plan for community water initiatives in aid of the water crisis
Job Title and Duties:	Senior Environmental Scientist – Environmental Advisor • Identify and develop community initiatives implementation plan • Trade off study inputs • Compilation of technical environmental documents • Client liaison
Value of Project:	n/a

Selma Nel

Principal Scientist

Key Experience: Environmental advisory projects

Location:	Richards Bay, KwaZulu Natal Province
Project duration & year:	August 2015
Client:	Elegant Line Chemicals (Pty) Ltd
Name of Project:	Pre-feasibility assessment of a proposed Chlor-alkali Plant
Project Description:	Chlor-alkali Plant Pre-feasibility Study and guidelines for preparation of Feasibility Study
Job Title and Duties:	Senior Environmental Scientist – Environmental Advisor • Technical review of project against current environmental related legislation • Compilation of technical environmental documents
Value of Project:	n/a

Key Experience: Audits, ECO and due diligence projects

Location:	Hitosa, Ethiopia
Project duration & year:	December 2020 - Current
Client:	Tulu Moye Geothermal Operations PLC
Name of Project:	TMGO Environmental and Social Audit
Project Description:	Environmental and Social audit in respect of TMGO's E&S Management Plan and international standards
Job Title and Duties:	Lead Environmental Auditor • Coordination with in-country consultants • Client liaison • Compilation of audit report
Value of Project:	R 780 000

Location:	Steelpoort, Limpopo
Project duration & year:	June 2017 - Current
Client:	Anglo American Platinum – Der Brochen Project
Name of Project:	Mareesburg Tailings Storage Facility
Project Description:	Execution of the Mareesburg Tailings Storage Facility
Job Title and Duties:	Senior Environmental Scientist • Environmental Control Officer during construction phase • Compilation of ECO compliance report
Value of Project:	R 280 000

Location:	Mokopane, Limpopo
Project duration & year:	July 2014, Sept 2015, Nov 2016, Oct 2017 & Nov 2018
Client:	Anglo American Platinum – Mogalakwena Mine
Name of Project:	Annual External Performance Assessment on Mogalakwena Mine's EMPr's
Project Description:	External EMPr Performance and Compliance assessment of Mogalakwena Mine
Job Title and Duties:	Senior Environmental Scientist - Lead Auditor • Project coordination and management • Compilation of audit report • Environmental compliance audit in terms of NEMA, MPRDA and NEM:WA • Training and mentoring
Value of Project:	R 200 000

Selma Nel

Principal Scientist

Key Experience: Audits, ECO and due diligence projects

Location:	Middelburg, Mpumalanga
Project duration & year:	May 2016
Client:	Clewer Sand and Stone Quarry
Name of Project:	EMPr Compliance Audit of Clewer Sand and Stone Quarry
Project Description:	EMPr Compliance Audit of Clewer Sand and Stone Quarry as part of the quarry's mining right renewal process
Job Title and Duties:	Environmental Scientist – Lead Auditor • Compliance audit in terms of the NWA • Compilation of report on audit findings
Value of Project:	R 128 000

Location:	Phalaborwa, Limpopo
Project duration & year:	May 2012
Client:	Rio Tinto
Name of Project:	Palabora Mining Company - Water Use License Compliance Audit
Project Description:	Water Use License Compliance Audit
Job Title and Duties:	Environmental Scientist – Assisting Auditor • Project coordination and management • Environmental compliance audit in terms of MPRDA • Compilation of report on audit findings
Value of Project:	R 128 000

Location:	Rustenburg, North West
Project duration & year:	February 2012
Client:	Royal Bafokeng Platinum
Name of Project:	Styldrift & Frischgewaagd Mines - Prospecting EMPs Compliance Audit
Project Description:	External Prospecting Right EMPs Compliance Audit
Job Title and Duties:	Environmental Scientist - Lead Auditor • Project coordination and management • Environmental compliance audit in terms of MPRDA • Training and mentoring
Value of Project:	R 280 000

Location:	Kroondal, North West
Project duration & year:	October 2011
Client:	Aquarius Platinum South Africa
Name of Project:	Kroondal and K5 Water Use License Audit
Project Description:	Water Use License Compliance Audit
Job Title and Duties:	Environmental Scientist - Assisting Auditor • Compliance audit in terms of the NWA • Compilation of report on audit findings
Value of Project:	R 400 000

Selma Nel

Principal Scientist

Key Experience: Audits, ECO and due diligence projects

Location:	Roossenekal, Mpumalanga Province
Project duration & year:	July 2011
Client:	Aquarius Platinum South Africa
Name of Project:	Walhalla and Chieftains Plain –Prospecting EMPr audit and consolidation under MPRDA
Project Description:	Amendment of Prospecting EMP under MPRDA
Job Title and Duties:	Environmental Scientist – Project Coordinator • Project coordination and management • Environmental compliance audit in terms of MPRDA • Compilation of technical environmental documents, programmes and reports; • Coordinate and facilitate public participation activities • Client liaison
Value of Project:	R 350 000

Location:	Lydenburg & Delmas (Mpumalanga) & Bronkhortspruit (Gauteng)
Project duration & year:	November 2010
Client:	Aquarius Platinum South Africa
Name of Project:	AQPSA Prospecting EMPs Compliance Audit
Project Description:	External Prospecting Right EMPs Compliance Audit
Job Title and Duties:	Environmental Scientist - Auditor • Project coordination and management • Environmental compliance audit in terms of MPRDA • Compilation of report on audit findings
Value of Project:	R 400 000

Location:	Cairo, Egypt, Africa
Project duration & year:	February 2010
Client:	Cadbury Africa
Name of Project:	Cadbury Africa: Health, Safety and Environmental Audit
Project Description:	Health, Safety and Environmental Audit
Job Title and Duties:	Environmental Scientist – Assisting Auditor • Compliance audit in terms company procedures, international standards and relevant legislation • Compilation of report on audit findings
Value of Project:	R 600 000

Location:	Tanzania, Africa
Project duration & year:	January 2010
Client:	RSK
Name of Project:	ETANA BP Environmental Site Assessment and Vendor Due Diligence
Project Description:	Environmental Site Assessment and Vendor Due Diligence
Job Title and Duties:	Environmental Scientist • Project coordination and management • Compilation of technical environmental documents and reports; • Client liaison
Value of Project:	R 3 800 000

Selma Nel

Principal Scientist

Key Experience: Bio-monitoring projects

Location:	Steelpoort, Mpumalanga
Project duration & year:	Since July 2017
Client:	Anglo American Platinum: Twickenham Mine
Name of Project:	Twickenham Mine: Bio-monitoring and Toxicity monitoring programme
Project Description:	Biannual Bio-monitoring and toxicity sampling in and around the Twickenham Mine Complex (Motse & Moopetsi Rivers)

Job Title and Duties:	SASS Practitioner – Project manager
	• Project coordination and management
	• Bio-monitoring
	  ○ Training and mentoring
	  ○ Conducting aquatic invertebrate and habitat assessment surveys
	  ○ Conducting aquatic invertebrate, habitat assessment and toxicity surveys
	• Compilation of report on findings

Value of Project:	R 120 000

Project duration & year:	Since February 2013
Client:	Sonae Novoboard
Name of Project:	Sonae Novoboard: Bio-monitoring
Project Description:	Biannual Bio-monitoring (Tributary of the Sand River)

Job Title and Duties:	SASS Practitioner – Project manager
	• Project coordination and management
	• Bio-monitoring
	  ○ Training and mentoring
	  ○ Conducting aquatic invertebrate and habitat assessment surveys
	  ○ Conducting aquatic invertebrate, habitat assessment and toxicity surveys
	• Compilation of report on findings

Value of Project:	R 120 000

Location:	Steelpoort, Limpopo
Project duration & year:	Since July 2011
Client:	Impala Platinum's Marula Mine
Name of Project:	Marula Platinum Mine's: Bio-monitoring
Project Description:	Biannual Bio-monitoring (Moopetse & Tshwenyane Rivers)

Job Title and Duties:	SASS Practitioner – Project manager
	• Project coordination and management
	• Bio-monitoring
	  ○ Training and mentoring
	  ○ Conducting aquatic invertebrate and habitat assessment surveys
	  ○ Conducting aquatic invertebrate, habitat assessment and toxicity surveys
	• Compilation of report on findings

Value of Project:	R 140 000

Selma Nel
Principal Scientist

Key Experience: Bio-monitoring projects

Location: Bethal, Mpumalanga
Project duration & year: June 2009 till Oct 2010
Client: Total Coal
Name of Project: Total Coal Springbok Siding: Bio-monitoring
Project Description: Biannual Bio-monitoring (Tributaries of the Olifants River)
Job Title and Duties: SASS Practitioner – Project manager

- Project coordination and management
- Bio-monitoring
  - Training and mentoring
  - Conducting aquatic invertebrate and habitat assessment surveys
  - Conducting aquatic invertebrate, habitat assessment and toxicity surveys
- Compilation of report on findings

Value of Project: R 62 000

Location: Bethal, Mpumalanga
Project duration & year: June 2009 till Oct 2010
Client: Total Coal
Name of Project: Total Coal Forzando Coal Mine: Olifants River Bio-monitoring
Project Description: Biannual Bio-monitoring (Olifants River and tributaries)
Job Title and Duties: SASS Practitioner – Project manager

- Project coordination and management
- Bio-monitoring
  - Training and mentoring
  - Conducting aquatic invertebrate and habitat assessment surveys
  - Conducting aquatic invertebrate, habitat assessment and toxicity surveys
- Compilation of report on findings

Value of Project: R 62 000

Location: Kriel, Mpumalanga
Project duration & year: June 2009 till Oct 2010
Client: Total Coal
Name of Project: Total Coal Dorstfontein East Coal Mine: Olifants River Bio-monitoring
Project Description: Biannual Bio-monitoring
Job Title and Duties: SASS Practitioner – Project manager

- Project coordination and management
- Bio-monitoring
  - Training and mentoring
  - Conducting aquatic invertebrate and habitat assessment surveys
  - Conducting aquatic invertebrate, habitat assessment and toxicity surveys
- Compilation of report on findings

Value of Project: R 62 000

Selma Nel

Principal Scientist

Key Experience: Bio-monitoring projects

Location:	Mtubatuba, Kwa-Zulu Natal
Project duration & year:	December 2009
Client:	Tendele Coal
Name of Project:	Teldele Somkele Mine: Bio-monitoring - Umfolozi, Kwaluhlanga and Nkolokotho Rivers.
Project Description:	Biannual Bio-monitoring

Job Title and Duties:	SASS Practitioner – Project manager
	• Project coordination and management
	• Bio-monitoring
	  ○ Conducting aquatic invertebrate and habitat assessment surveys
	  ○ Conducting aquatic invertebrate, habitat assessment and toxicity surveys
	• Compilation of report on findings

Value of Project:	R 52 000

Location:	Pilgrims Rest, Limpopo
Project duration & year:	February 2009
Client:	Assmang
Name of Project:	Assmang Dwars River Chrome Mine: Groot Dwars River Bio-monitoring
Project Description:	Summer Survey Bio-monitoring Blyde River

Job Title and Duties:	SASS Practitioner Specialist
	• Project coordination and management
	• Bio-monitoring
	  ○ Conducting aquatic invertebrate and habitat assessment surveys
	  ○ Conducting aquatic invertebrate, habitat assessment and toxicity surveys
	• Compilation of report on findings

Value of Project:	R 20 000

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The Council and the Senate of the RAND AFRIKAANS UNIVERSITY hereby certify that the degree

BACCALAUREUS ARTIUM

met studierigting **with field of study**

Geografie en Omgewingsbestuur
Geography and Environmental Studies

met al die regte en voorregte daaraan verbonde kragtens die Statuut van die Universiteit toegeken is aan

with all its associated rights and privileges in accordance with the Statute of the University has been awarded to

SELMA ROODE

by geleentheid van 'n kongregasie van die Universiteit

at a congregation of the University

Rektor/Rector

Viserektor (Navorsing en Akademiese Bestuur)
Vice-Rector (Research and Academic Management)

19 APRIL/APRIL 2004
Johannesburg
ID 8010110014082

RITESHA DHRONEY
Commissioner of Oaths
HR Professional (HRA)
Member number: 11128
14 Klaat Street
Midrand
1685
13/12/2019

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The Council and the Senate of the RAND AFRIKAANS UNIVERSITY hereby certify that the degree

BACCALAUREUS ARTIUM CUM HONORIBUS

met studierigting / **with field of study**

Geografie en Omgewingsbestuur
Geography and Environmental Management

met al die regte en voorregte daaraan verbonde kragtens die Statuut van die Universiteit toegeken is aan

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UNIVERSITY
OF
JOHANNESBURG

The Council and the Senate of the
UNIVERSITY OF JOHANNESBURG
hereby certify that the degree

MAGISTER ARTIUM

with field of study

Environmental Management

with all its associated rights and privileges
in accordance with the Statute of the
University has been awarded to

SELMA NEL

at a congregation of the University

Vice-Chancellor

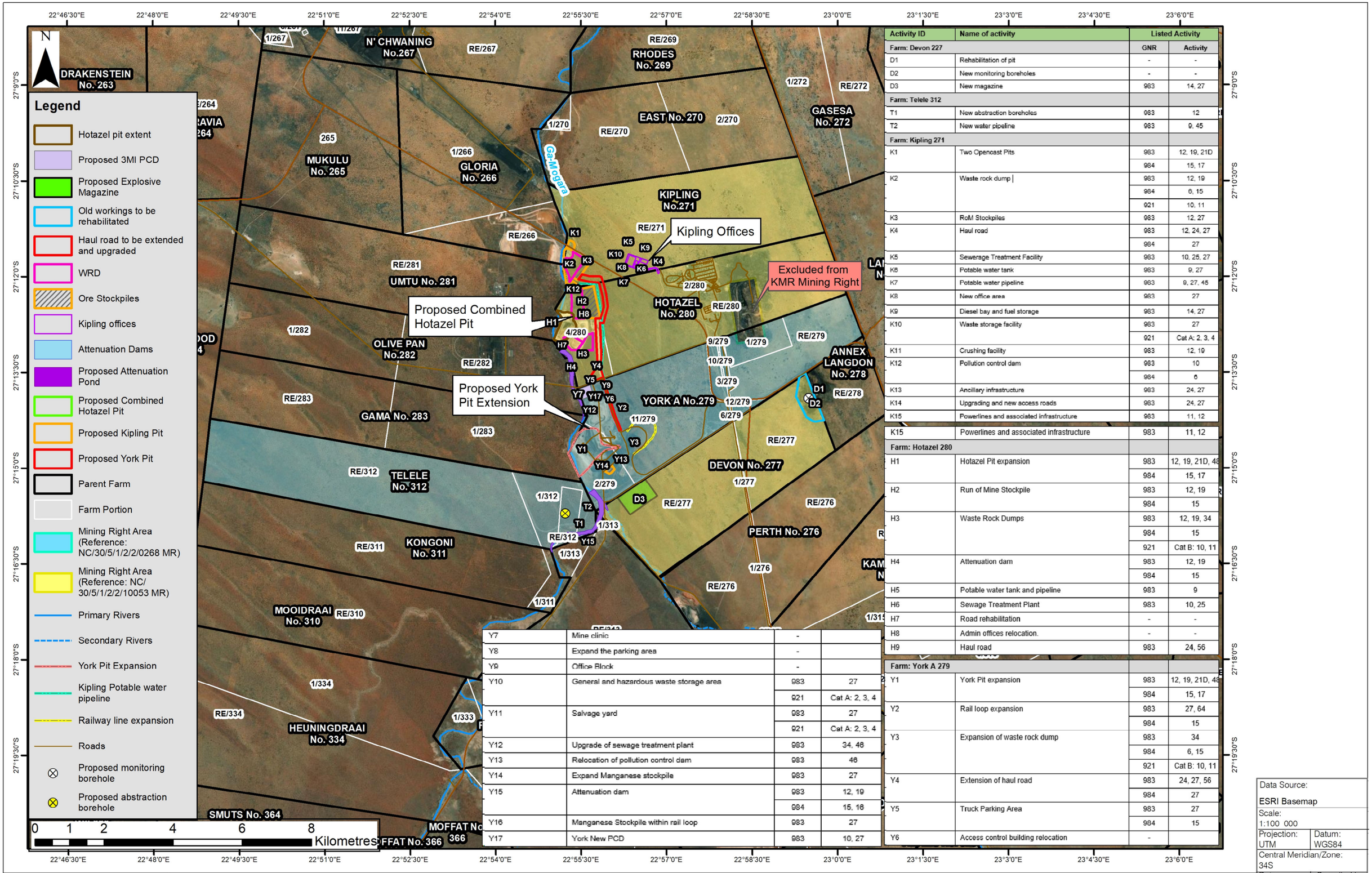
Registrar

06 MARCH 2008
Johannesburg
ID 8010110014082

UNIVERSITY OF JOHANNESBURG
UNIVERSITEIT VAN JOHANNESBURG

23984

Appendix B: Listed Activities Map



Activity ID	Name of activity	Listed Activity	
Farm: Devon 227		**GNR**	**Activity**
D1	Rehabilitation of pit	-	-
D2	New monitoring boreholes	-	-
D3	New magazine	983	14, 27
Farm: Telele 312			
T1	New abstraction boreholes	983	12
T2	New water pipeline	983	9, 45
Farm: Kipling 271			
K1	Two Opencast Pits	983	12, 19, 21D
		984	15, 17
K2	Waste rock dump	983	12, 19
		984	6, 15
		921	10, 11
K3	RoM Stockpiles	983	12, 27
K4	Haul road	983	12, 24, 27
		984	27
K5	Sewerage Treatment Facility	983	10, 25, 27
K6	Potable water tank	983	9, 27
K7	Potable water pipeline	983	9, 27, 45
K8	New office area	983	27
K9	Diesel bay and fuel storage	983	14, 27
K10	Waste storage facility	983	27
		921	Cat A: 2, 3, 4
K11	Crushing facility	983	12, 19
K12	Pollution control dam	983	10
		984	6
K13	Ancillary infrastructure	983	24, 27
K14	Upgrading and new access roads	983	24, 27
K15	Powerlines and associated infrastructure	983	11, 12
K15	Powerlines and associated infrastructure	983	11, 12
Farm: Hotazel 280			
H1	Hotazel Pit expansion	983	12, 19, 21D, 48
		984	15, 17
H2	Run of Mine Stockpile	983	12, 19
		984	15
H3	Waste Rock Dumps	983	12, 19, 34
		984	15
		921	Cat B: 10, 11
H4	Attenuation dam	983	12, 19
		984	15
H5	Potable water tank and pipeline	983	9
H6	Sewage Treatment Plant	983	10, 25
H7	Road rehabilitation	-	-
H8	Admin offices relocation.	-	-
H9	Haul road	983	24, 56
Farm: York A 279			
Y1	York Pit expansion	983	12, 19, 21D, 48
		984	15, 17
Y2	Rail loop expansion	983	27, 64
		984	15
Y3	Expansion of waste rock dump	983	34
		984	6, 15
		921	Cat B: 10, 11
Y4	Extension of haul road	983	24, 27, 56
		984	27
Y5	Truck Parking Area	983	27
		984	15
Y6	Access control building relocation	-	
Y7	Mine clinic	-	
Y8	Expand the parking area	-	
Y9	Office Block	-	
Y10	General and hazardous waste storage area	983	27
		921	Cat A: 2, 3, 4
Y11	Salvage yard	983	27
		921	Cat A: 2, 3, 4
Y12	Upgrade of sewage treatment plant	983	34, 46
Y13	Relocation of pollution control dam	983	46
Y14	Expand Manganese stockpile	983	27
Y15	Attenuation dam	983	12, 19
		984	15, 18
Y16	Manganese Stockpile within rail loop	983	27
Y17	York New PCD	983	10, 27

Data Source: ESRI Basemap
Scale: 1:100 000
Projection: UTM
Datum: WGS84
Central Meridian/Zone: 34S
Date: 20/07/2021
Compiled by: SCHB
Project No: 574378
Fig No: A
Revision: C Date:12/08/2021

srk consulting

KMR INTEGRATED ENVIRONMENTAL AUTHORISATION

KMR PROPOSED ACTIVITY MAP

Path: J:\Proj\574378_KMR_PROJ_2021\8GIS\GISPROJ\MXD\574378_A3_KudumanelEA_Proposed_Layout_RevLEKT_20210805.mxd

Appendix C: Proof of consultation to date

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Northlands 2116
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E: johannesburg@srk.co.za
www.srk.co.za

Kudumane Mineral Resources (Pty) Ltd (KMR)

Minutes for the Meeting: DMRE Pre-Application Meeting

Held: Via Microsoft Teams, 17 February 2021 at 10h00

Attendees: Vincent Muila (DMRE)
Tshifhiwa Nemakhavhani (KMR)
Natasha Anamuthoo (SRK)
Megan Kim Govender (SRK)

Action

1 Welcome

Megan Kim Govender (MKG) welcomed everyone to the meeting and introduced attendees.

The presentation for the meeting is attached in Appendix A.

2 Confirmation of agenda

The agenda was confirmed with no additional topics added.

3 Welcome and opening

MKG introduced the project. The purpose of the meeting is to introduce the proposed project to the Department of Mineral Resources and Energy.

Kudumane Mineral Resources (Pty) Ltd (KMR) is an existing opencast manganese mine that wants to apply for a new Environmental Authorisation (EA). KMR currently has two approved Environmental Management Programmes (EMPrs) that require amendment and consolidation. The project will therefore entail applying for new activities and the amendment and consolidation of the existing EMPrs.

The consultant on the project is SRK Consulting.

4 Current authorisations

KMR has two mining rights; one for York and Telele (Mining right NC/30/5/1/2/2/0268 MR) and one for Deon, Hotazel and Kipling (Mining Right NC/ 30/5/1/2/2/10053 MR). There are two approved EAs both issued from the Northern Cape Province Department of Environment and Nature Conservation. The first EA was approved in June 2013 for the EMPr associated with opencast activities on York and future underground mining operations on Telele. The second EA was approved in October 2015 for the Devon, Hotazel and Kipling mining right and additional activities on York and Telele.

KMR also has a Water Use Licence (WUL) that was issued in 2016 and amended under the same name in 2018.

Action

5 Overview of proposed project

In order to ensure the continuation of mining KMR proposes to:

- extend the existing York Pit;
- combine the existing Hotazel Pit with the neighbouring Kalagadi Mine;
- add two new pits (Kipling Pit 1 and 2); and
- mine underground on the farm Telele.

Telele already has authorisation for underground mining however new activities will be added.

The extension of the existing York and Hotazel Pits is restricted by the Ga-Mogara River on the western side. The recommended option is to construct attenuation ponds along the Ga-Mogara River upstream of the York and Hotazel Pits to capture and store a certain portion of the flood water. An investigation was done by SRK in 2020 to determine what would be the best option in terms of extending the pit and diverting the river. The recommended option that came out of the study was to construction attenuation ponds to hold back the water. This option was sent to the Department of Water and Sanitation (DWS) for comment. DWS have confirmed that SRK can commence with the Water Use Licence Application (WULA) (Confirmation received 18 November 2020).

There are several proposed key project activities that will require environmental, water and waste authorisations. These include:

- Extension of the York Pit and Hotazel Pit
- Construction of two new pits on Kipling
- Construction of two in-stream attenuation ponds which is related to the river diversion
- The stockpiling of overburden material; manganese ore; and low-grade ore
- Crushing and screening of high-grade manganese ore
- Conveyor systems
- Storage and handling of spares and dangerous goods (fuel, lubricants, explosives, etc)
- Temporary storage of domestic, industrial and hazardous waste
- Workshop, lay-down, wash bay and diesel bay areas
- Staff commuting and parking
- Change houses and ablution facilities
- First aid clinic
- Sewage treatment facilities
- Settlement ponds
- Pollution control dams
- Road and rail weigh bridges, powerlines and roads

MKG presented a layout of the proposed project indicating the approved mining rights areas and the proposed project activities. The York pit will be extended in a westerly direction and an attenuation pond will be constructed to hold back the water from the Ga-Mogara River. The pit will be mined out and rehabilitated. The same will happen for the Hotazel pit but a portion of the Hotazel pit will be mined out on Kalagadi's property. KMR is currently in negotiations with Kalagadi's management. An agreement will be in place for mining on Kalagadi's property prior to any mining activities being undertaken. The Telele property is earmarked for future underground mining.

6 Environmental authorisation requirements

The environmental authorisation requirements include an EA in terms of the National Environmental Management Act (Act No. 107 of 1998) for any project related listed activities. A waste management licence will also be required in terms of the National Environmental Management: Waste Act (Act No. 59 of 2008). The EMPrs will have to

Action

be amended in terms of Section 102 of the Mineral and Petroleum Resources Development Act (Act No. 28 of 2002). A WUL will be required in terms of the National Water Act (Act No. 36 of 1998) for water uses associated with the project.

6.1 Potential listed activities

The project activities trigger several activities from Listing Notice 2 therefore a Scoping and Environmental Impact Assessment (EIA) will be applied for.

6.2 Specialists studies

The following specialist studies were identified to support the application:

- Geology
- Topography
- Soils, land use and land capability
- Biodiversity
- Surface water
- Air Quality
- Noise
- Visual
- Wetlands
- Aquatic ecology
- Groundwater
- Cultural and heritage resources
- Socio-economics
- Closure

No other specialist studies were asked to be included.

7 Stakeholder engagement

The stakeholder engagement process will be undertaken in terms of NEMA 2014 Regs. It will be a consolidation process and will include the consultation with the following:

- Land owners;
- Interested and affected parties; and
- Government departments

The key stakeholder engagement process for the per-application phase will involve pre-application authority meetings which has been done with DWS and now the meeting we're having with DMRE; identification of stakeholders; introductory meeting with key stakeholders; and project announcement and I&AP registration. The Scoping and EIA phase will involve the distribution of the draft scoping report for public comment and public meetings if required; and the distribution of the Draft EIA report for public comment and public meetings if required.

8 Integrated authorisation process

An integrated environmental authorisation process will be followed. SRK will SRK will apply for a Scoping and EIA for new activities and for the amendment and consolidation of KMR's current EMPrs. A WUL will be applied for and will run concurrently with the Scoping and EIA process. The public participation process will be an integrated process to include both the Scoping and EIA and WULA.

The WULA and Scoping and EIA process will follow an aligned 300 day process to ensure that we try and get both authorisations at the same time.

9 Discussion

Vincent Muila (VM): What is the arrangement between Kalagadi Mine and KMR for the mining of the Hotazel Pit. Tshifhiwa Nemakhavhani: An agreement is currently being discussed with Kalagadi and KMR. The agreement will be signed by both parties.

Action

VM: When are you planning on submitting this application? MKG: The application will be submitted in approximately two months around June or July. VM: The application will be lodged in terms of Section 102? MKG: Yes.

VM: There are no issues, you can submit the application and of there is any information outstanding DMRE will request this. MKG: Thank you. Do we have DMRE's permission to continue? VM: Yes. But also note that because of Covid-19 there might be delays. When does KMR expect the environmental authorisation? MKG: We want to try and get the approved authorisations as soon as possible, taking Covid-19 into consideration and DMRE's commitments. VM: Will that be this year? MKG: It won't be possible this year in terms of legislated timelines, therefore the EA is expected early next year. VM: Yes, we are already in February so early next year is fine.

VM: DMRE will wait for the application and take it from there. If a pre-inspection meeting is required DMRE will be in contact.

VM: Will there be two applications for the two mining rights? MKG: It will a consolidation, amendment and the addition of new activities.

MKG: Meeting minutes will be distributed to ensure everything discussed was interpreted correctly.

Minutes taken by: Megan Kim Govender, SRK Consulting

Appendix A: Presentation

Integrated Environmental Authorisation Process for Kudumane Mineral Resources Pit Expansion and River Diversion

DMRE Pre-Application Meeting

0

Agenda

01	Welcome and Opening
02	Project Location
03	Overview of Proposed Project
04	Environmental Authorisation Requirements
05	Summary of Potential Listed Activities
06	Identified Specialist Studies
07	Stakeholder Engagement
08	Integrated Environmental Authorisation Process
09	Discussion and Questions

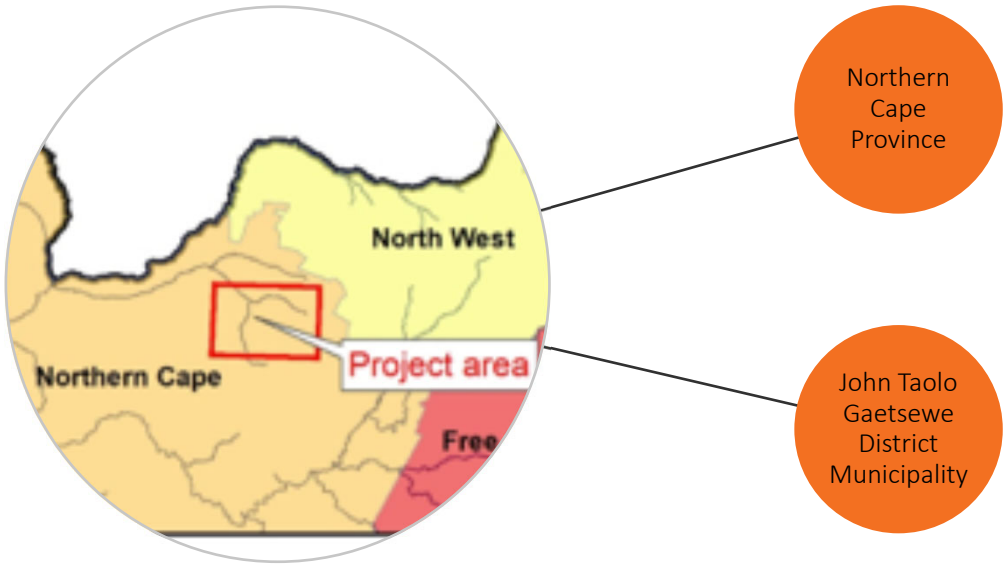
1

Welcome and Opening

- Purpose: Introduce the proposed project
- Applicant: Kudumane Manganese Resources (Pty) Ltd (KMR)
- KMR is an existing opencast manganese mine that wants to apply for a new Environmental Authorisation
- KMR has two approved Environmental Management Programmes (EMPrs) that requires amendment and consolidation
- Consultant: SRK Consulting (Pty) Ltd (SRK)

2

Project Location



3

Current Authorisations

Two mining rights

- NC/30/5/1/2/2/0268 MR for York and Telele; and
- NC/ 30/5/1/2/2/10053 MR for Devon, Hotazel and Kipling.

Two approved Environmental Authorisations (EA)

- EA from the Northern Cape Province Department of Environment and Nature Conservation (DENC) (Reference Number: NC/KGA/JTG/HOT-KUR/16/2009 approved on 13 June 2011) for approved EMPr (DMR Reference: NC/30/5/1/2/2/0268 MR) for opencast (York) and future underground mining operations (Telele), associated residue handling and disposal facilities, crushing and screening plant, water management facilities, rail and road transport infrastructure and various support infrastructure and services.
- EA from DENC (Reference Number: NC/EIA/05/JTG/HOT/KUD/2013 approved on 21 October 2015) for approved EMPr (DMR Reference: NC/ 30/5/1/2/2/10053 MR) added MR for Devon, Hotazel and Kipling with additional infrastructure to the York /Telele operation and additional activities to the new MR areas.

4

Current Authorisations

Water Use Licence (WUL) and Amended WUL

- WUL No. 07/D41K/ABCFGIJ/4533 issued on 29th May 2016; and
- Amended WUL (Issued under the same WUL No.) issued on 23 July 2018.

5

Overview of Proposed Project

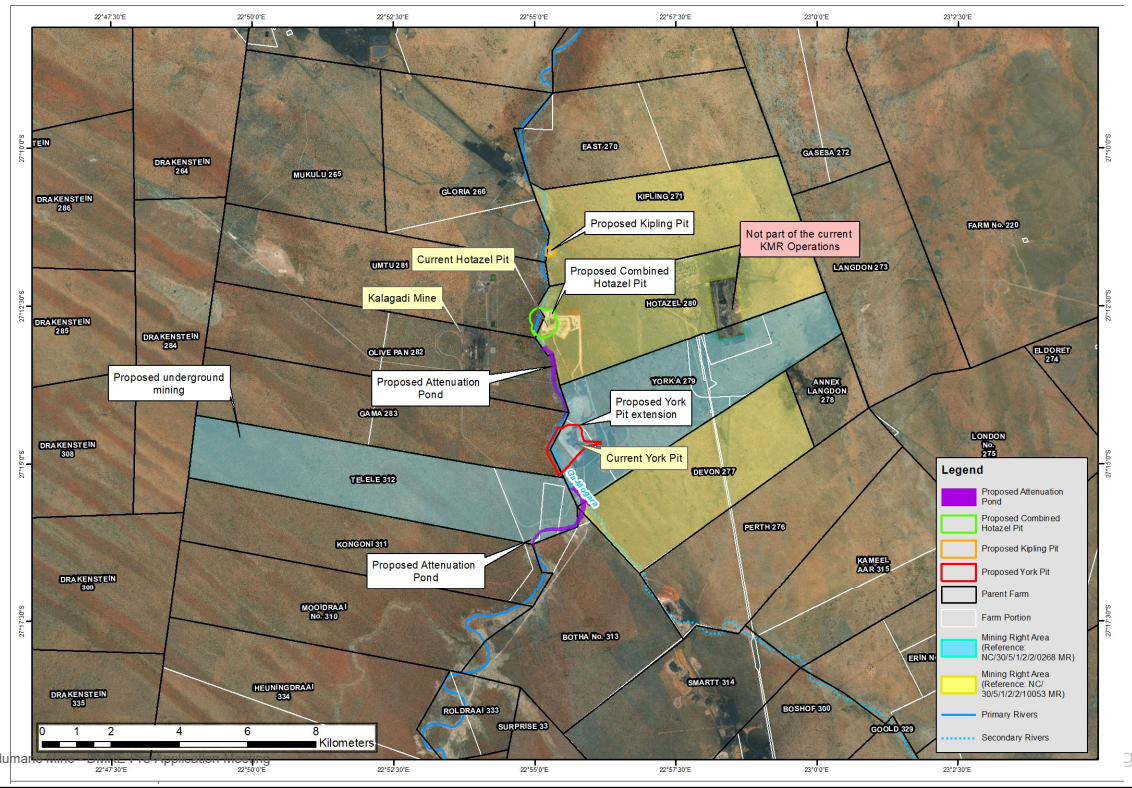
- To ensure the continuation of mining KMR proposes to:
  - Extend the existing York Pit
  - Combine the existing Hotazel Pit with the neighbouring Kalagadi Mine
  - Add two new pits (Kipling Pit 1 and 2)
  - Mine underground on the farm Telele.
- The extension of the existing York and Hotazel Pits is restricted by the Ga-Mogara River on the western side
- The recommended option is to construct attenuation ponds along the Ga-Mogara River upstream of the York and Hotazel Pits to capture and store a certain portion of the flood water.

6

Overview of Proposed Project

- The proposed key project activities that will require environmental, water and waste authorisations include:
  - Extension of the York Pit and Hotazel Pit
  - Construction of new Kipling Pits 1 and 2
  - Construction of two in-stream attenuation ponds (related to the river diversion)
  - Blasting, loading, hauling and stockpiling of overburden material
  - Blasting, loading, hauling and stockpiling of manganese ore
  - Stockpiling of low-grade ore
  - Crushing and screening of high-grade manganese ore
  - Conveyor systems
  - Storage and handling of spares and dangerous goods (fuel, lubricants, explosives, etc)
  - Temporary storage and handling of domestic, industrial and hazardous waste
  - Workshop, lay-down, wash bay and diesel bay areas
  - Staff commuting and parking
  - Change houses and ablution facilities
  - First aid clinic
  - Sewage treatment facilities
  - Settlement ponds
  - Pollution control dams
  - Road and rail weigh bridges, powerlines and roads

7



8

Environmental Authorisation Requirements

Applicable legislation	Authorisation required	Competent Authority
National Environmental Management Act (Act No. 107 of 1998) (NEMA)	EA for any project related listed activities stipulated in the NEMA Environmental Impact Assessment (EIA) Regulations of 2014, as amended in 2017	DMRE Kimberley
National Environmental Management: Waste Act (Act No. 59 of 2008) (NEM:WA)	WML for any project related waste activities stipulated in NEM:WA GNR 291 of November 2013	DMRE Kimberley
Mineral and Petroleum Resources Development Act (Act No. 28 of 2002) (MPRDA)	Amended EMPr for any amendments the proposed project will have on the Mining Work Programme and the EMPr in accordance with Section 102 of the MPRDA	DMRE Kimberley
National Water Act (Act No. 36 of 1998) (NWA)	WUL for any project related water uses stipulated under Section 21 of NWA	DWS Kimberley

9

Summary of Potential Listed Activities

NEMA	
Listing Notice 1 (GNR983) Requiring a Basic Assessment	**Listing Notice 2 (GNR 984) Requiring a Scoping and Environmental Impact Assessment**
Activity 9: The development of infrastructure exceeding 1000 meters in length for the bulk transportation of water or storm water	Activity 6: The development of facilities or infrastructure for any process or activity which requires a permit or license or an amended permit or licence in terms of national or provincial legislation governing the generation or release of emissions, pollution or effluent
Activity 12: The development of dams or weirs, where the dam or weir, including infrastructure and water surface area, exceeds 100 square metres; or infrastructure or structures with a physical footprint of 100 square metres or more; where such development occurs within a watercourse;	Activity 15: The clearance of an area of 20ha or more of indigenous vegetation
Activity 19: The infilling or depositing of any material of more than $10m^3$ into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than $10m^3$ from a watercourse	Activity 16: The development of a dam, where the highest part of the dam wall, as measured from the outside toe of the wall to the highest part of the wall, is 5 meters or higher or where the high-water mark of the dam covers an area of 10 hectares or more
Activity 27: The clearance of an area of 1 ha or more, but less than 20ha of indigenous vegetation	Activity 19: The removal and disposal of minerals contemplated in terms of section 20 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), including

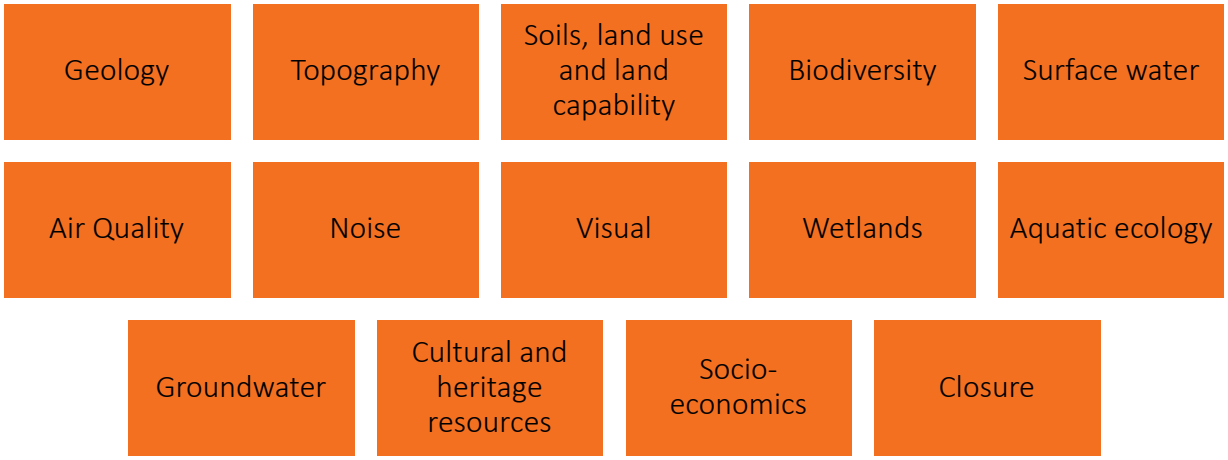
10

Summary of Potential Listed Activities

NEM:WA
Environmental Impact Assessment (NEM:WA) GNR 921 of 29 November 2013 - Category B - Activities requiring an environmental authorisation subject to a EIA
Activity 11: The establishment or reclamation of a residue stockpile or reside deposit resulting from activities which require a mining right, exploration right or production right in terms of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002).

11

Identified Specialist Studies



12

Stakeholder Engagement

Stakeholder engagement will be undertaken in terms of the NEMA EIA 2014 Regulations and will include consultation with the following:

- Land owners;
- Interested and affected parties; and
- Government departments:
  - Department of Agriculture;
  - Department of Rural Development and Land Reform;
  - Cooperative Governance, Human Settlements /and Traditional Affairs;
  - Northern Cape Department of Economic Development, Environment and Tourism;
  - Department of Water and Sanitation;
  - John Taolo Gaetsewe District Municipality; and
  - South African Heritage Resources Agency

13

Stakeholder Engagement

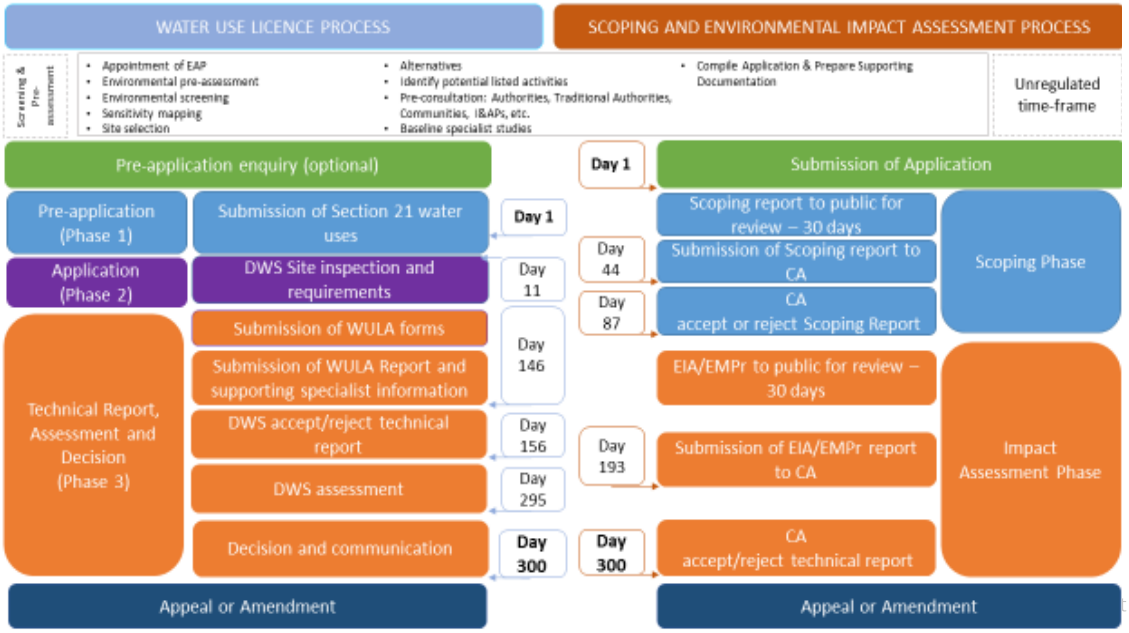
Key Stakeholder Engagement Processes

- Pre application phase
  - Pre-application authority meetings;
  - Identification of stakeholders;
  - Introductory meeting with key stakeholders; and
  - Project announcement and I&AP registration.
- Scoping & EIA/EMPr Phase
  - Draft Scoping Report public comment and public meeting; and
  - Draft EIA/EMPr public comment and public meeting.

Integrated Environmental Authorisation Process

- SRK will apply for a Scoping and Environmental Impact Assessment for new activities and for the amendment and consolidation of KMR's current EMPrs
- A WUL will be applied for and will run concurrently with the Scoping and Environmental Impact Assessment process
- An integrated public participation process will be undertaken

Integrated Environmental Authorisation Process



16

16

Discussion and Questions

Thank You

17