CHANGES TO THE INFRASTRUCTURE LAYOUT AND ACTIVITIES AT THE MAMATWAN MINE

SCOPING REPORT NON-TECHNICAL SUMMARY

MARCH 2021

INTRODUCTION

Hotazel Manganese Mines (Pty) Ltd (HMM), a subsidiary of South32, is the holder of a Mining Right (MR) (Ref No.: NC 256 MR) for the Mamatwan Mine (MMT). The mine is operated by South32 and is located 25 km to the south of the town Hotazel, in the John Taolo Gaetsewe District Municipality and Joe Morolong Local Municipality in the Northern Cape Province (see Figure 1). The MMT is bordered to the West by the Tshipi Borwa Mine, and to the North by the United Manganese of Kalahari (UMK) Mine.

MMT is now making an application to the Department of Mineral Resources and Energy (DMRE) for an Integrated Environmental Authorisation (EA) and update to the mine's Environmental Management Programme (EMPr) to address numerous layout and activity changes that have already taken place at the MMT, as well as proposed layout and activity changes.

Layout/activity changes that have already taken place

- Expansion of the north and south eastern waste rock dumps;
- Changes to the rehabilitation criteria of waste rock dumps;
- Expansion of the product stockyard;
- Establishment of potable and process water storage facilities;
- Expansion of an existing road; and
- Irrigation using treated sewage effluent.

Proposed layout/activity changes

- Establishment of a top-cut stockpile and associated mobile crushing and screening plant.
- Establishment of stormwater management infrastructure.
- Changes to all waste rock dump heights (excluding rehabilitated waste rock dumps).
- Establishment of a pipeline to transfer water abstracted from the decommissioned Middelplaats Mine to the MMT.
- Upgrading the railway and railway loadout station;
- Sale of waste rock as aggregate.
- Re-processing of material loaded in the Adams pit.
- Optimization of water recovery within the plant area.

PURPOSE OF THE SCOPING NON-TECHNICAL SUMMARY

This Non-Technical Summary provides a synopsis of the Scoping Report compiled and distributed for review and comment as part of the environmental authorisation process that is being undertaken for an integrated Environmental Authorisation process at the MMT.

SUMMARY OF AUTHORISATIONS REQUIRED

The project includes activities listed under the National Environmental Management Act (No. 107 of 1998) (NEMA) and waste management activities listed under the National Environmental Management: Waste Act, 2008 (No. 59 of 2008) (NEM:WA), which require authorisation from the DMRE. In terms of the Section 102 of the Mineral and Petroleum Resources Development Act (No. 59 of 2002) (MPRDA), an EMPr may not be amended without the written consent of the Minister of Mineral Resources. The MPRDA, NEMA and NEM:WA require that an applicant submit the relevant environmental reports required in terms of NEMA. For the purpose of this project, an integrated environmental authorisation process will be undertaken and will meet the requirements of Regulation 31 (substantive amendment process) to cater for changes to the approved 2005 EMPr and Regulation 21 and 23 (Scoping & EIA) to cater for listed activities in terms of the NEMA EIA Regulations (GNR 982 of 2014), as amended.

The project also requires authorisation from the Department of Human Settlement, Water and Sanitation for specific water uses listed under Section 21 of the National Water Act, 1998 (No. 36 of 1998) (NWA).

SLR Consulting South Africa (Pty) Ltd (SLR) has been appointed by MMT as the Environmental Assessment Practitioner to manage the Scoping and Environmental Impact Assessment (S&EIA) process required to inform the Integrated Environmental Authorisation and EMPr amendment applications.

OPPORTUNITY TO COMMENT

This Scoping Report is available for a 30-day comment period from 29 March to 3 May 2021 in order to provide Interested and Affected Parties (I&APs) with an opportunity to comment on any aspect of the project and the findings of the S&EIA process to date.

Copies of the full report are available on the SLR website (at https://slrconsulting.com/public-documents) and the SLR data free website (at slrpublicdocs.datafree.co/public-documents).

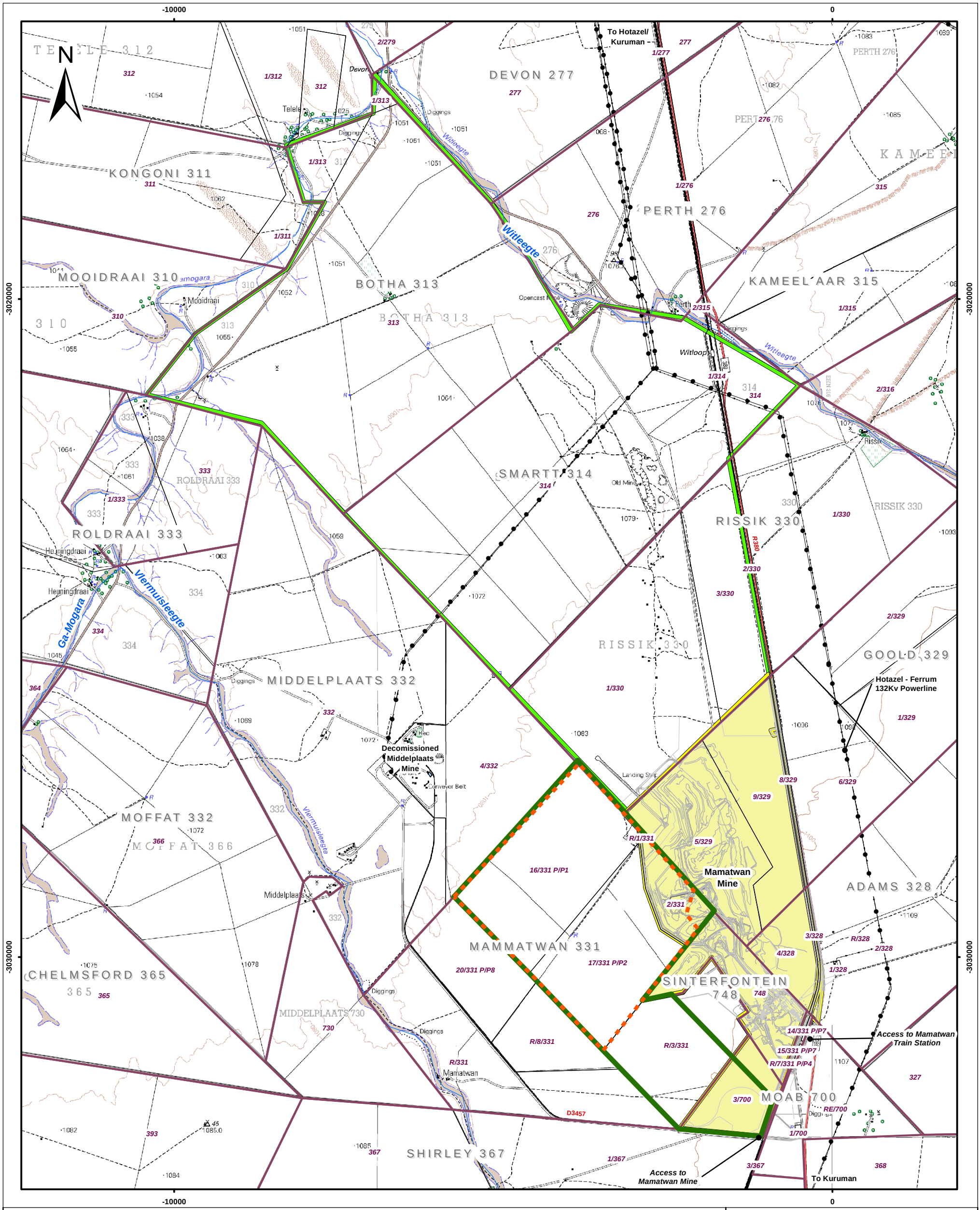
Please send your comments to SLR by no later than 3 May 2021 for them to be included in the updated Scoping Report. All comments received during the review process will be included in the Scoping Report. The updated Scoping Report will be made available to the DMRE for decision-making purposes.

Please send your comments to:

Natasha Smyth

Tel: (011) 467 0945 or E-mail: nsmyth@slrconsulting.com

DMRE Reference number: NC-00198-MR/102



Legend

- Mamatwan Mining Right Area
- Current Mamatwan Infrastructure
- UMK Mining Right Area
- Tshipi Surface Use Area
- Tshipi Mining Right Area
- Main Roads
- Power Line
- Rivers and Streams
- 20m Contour Lines

0 1 000 2 000 Meters

Scale: 1:55 500 @ A3
Projection: Transverse Mercator
Datum: WGS1984, Lo23

Mamatwan Mine

Figure 1

Local Setting

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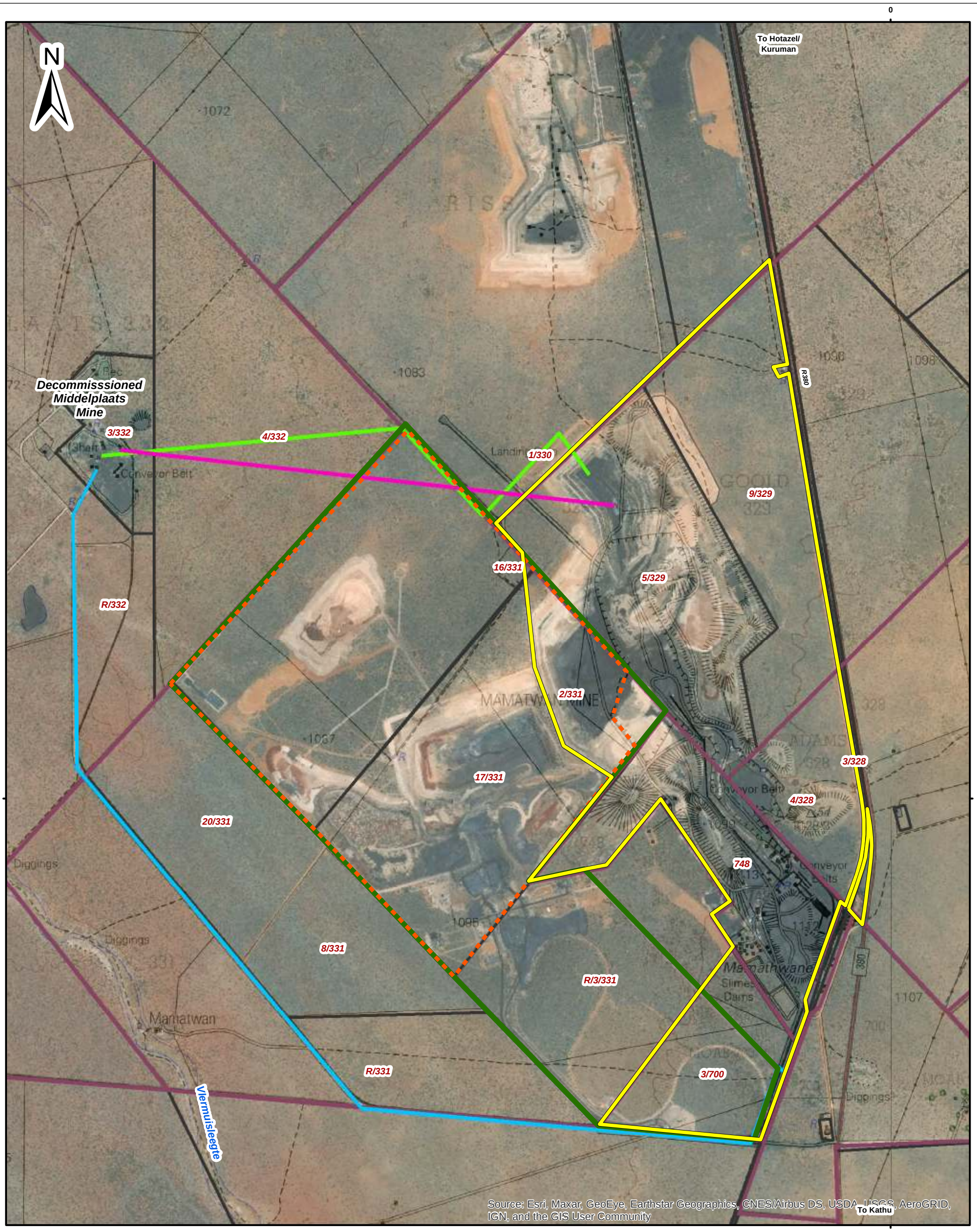
OVERVIEW OF PROJECT COMPONENTS

	Project component	Overview
Layout/activity changes that have already taken place	Expansion of the north and south eastern waste rock dumps	MMT is committed to undertake rehabilitation concurrent with mining operations as per the approved 2005 EMPr. As part of rehabilitation the north waste rock dump and the south eastern waste rock dump footprints were extended to accommodate a reduction in slope steepness.
	Changes to the rehabilitation criteria of waste rock dump	MMT is committed to rehabilitate the waste rock dumps to 1:3 slopes. Based on rehabilitation trials, a slope of this gradient results in the development of erosion gulley's. It is proposed to change the rehabilitation criteria to reduce the slope steepness to 1:5.
	Expansion of the product stockyard	The approved product stockyard area has been extended and caters for the storage of various grades of product ore.
	Establishment of potable and process water storage facilities	Potable and process water storage facilities are catered for in the approved 2005 EMPr, however, the EMPr does not provide specifics pertaining to the number of tanks, location and quantities.
	Expansion of an existing road	An internal road located along the eastern side of the open pit area has been widened and lengthened.
	Irrigation using treated sewage effluent	The use of treated sewage effluent for irrigation purposes is catered for in the approved 2005 EMPr but needs to be incorporated into the existing IWUL.
Proposed layout/activity changes	Establishment of a top-cut stockpile and associated mobile crushing and screening plant	Top-cut is low grade ore that is currently discarded onto the waste rock dumps. Based on recent investigations, this material is viable for sale to third parties. The sale of top-cut material is likely to extend the life of mine by 15 years. Additional storage space is required to stockpile top-cut material prior to processing at the sinter plant. The top-cut material will be subjected to crushing and screening prior to the material being sent to the sinter plant.
	Establishment of stormwater management infrastructure	Investigations are being undertaken to determine the adequacy of the current stormwater management system. As part of detailed design work the stormwater management system will be refined.
	Changes to all waste rock dump heights (excluding rehabilitated waste rock dumps)	MMT is proposing on increasing the height of the waste rock dumps, as indicated in the approved 2005 EMPr, from 50 m to 80 m.
	Establishment of a pipeline to transfer water abstracted from the decommissioned Middelplaats Mine to MMT	MMT is proposing to abstract water from the decommissioned Middelplaats Mine when water is not available from open pit dewatering activities or from the Vaal Gamagara Water Pipeline. Water will be abstracted via two proposed boreholes. A pipeline to transfer the water from the decommissioned Middelplaats Mine to the MMT will need to be established. Alternative routes for the dewatering pipeline are being considered (Figure 2). Once the pipeline enters the MMT, the pipeline will either connect to existing water storage facilities or a new storage facility will be established. Further to this, depending on the quality of water from Middelplaats a water treatment facility may be required.
	Upgrading the railway and railway loadout station	Transnet Freight Rail (TFR) plans to increase the capacity of the Manganese rail line. In order to meet the TFR expansion requirements the loading rate of trains at the MMT needs to be increased. This can be achieved by upgrading the existing loadout station and related railway (refer to Figure 2 for alternatives railway loops being considered).
	Sale of waste rock as aggregate	MMT is proposing on selling some of the waste rock that would have remained on surface in perpetuity as aggregate to third parties. The material will be subjected to crushing and screening prior to sale to third parties.
	Re-processing of material located in Adams pit	As part of rehabilitation, MMT is proposing to re-process material located within Adams pit, for sale to third parties. This material includes the tailings (M1FT), DMS grit, sinter de-dust and plant spillages. This material will be screened using mobile screens prior to sale to third parties. Screened waste (conveyors and metal) will be removed from Adams pit and deposited at the designated waste disposal area at the MMT.
	Optimization of water recovery within the plant area.	As part of the ore washing, slurry (sludge) material is generated (known as slimes) and is pumped to Adams pit. MMT is investigation alternative methods for the disposal of the slimes material and alternatives to maximise water recovery within the plant area. These include optimising the existing thickener set-up at the plant with the resulting disposal of slimes into a slimes dam or optimising the existing thickener set-up through the installation of a filter press with the disposal of the dried filter cake in a handling facility (dry staking facility) or blending the material within the existing process.



Legend

- Mamatwan Mining Right Area
- Alternative Pipeline Route 1
- Alternative Pipeline Route 2
- Alternative Pipeline Route 3
- Tshipi Surface Use Area
- Tshipi Mining Right Area
- Farm Boundaries
- Farm Portions

0 300 600 Meters

Scale: 1:30 000 @ A3

Projection: Transverse Mercator

Datum: WGS1984, Lo23

Mamatwan Mine

Figure 2

Site Layout

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2021/03/11

NEED AND DESIRABILITY OF THE PROPOSED PROJECT

Promoting justifiable economic and social development

Mining is a necessary activity in order to extract natural resources necessary for manufacturing and development.

The Kalahari Manganese Field contains approximately 80 % of the world's known high – grade manganese ore reserves. Mining of manganese ore results in the production of ore for sale, creates sustainable jobs and supports economic activity, and the export of the ore generates foreign income. Direct and indirect economic benefits derived from the MMT include wages, taxes, profits, procurement of goods and services and the spending power of employees. The operation of the MMT further contributes to the Gross Domestic Products of the Joe Morolong Local Municipality, Northern Cape Province and South Africa.

Community/society priorities are officially expressed through public documents including the provincial growth and development strategy and spatial development framework documents. In this regard, the priorities of the Joe Morolong Local Municipality's Integrated Development Framework (IDP) and the John Taolo Gaetsewe District Municipality's Spatial Development Framework (SDF) are mainly focused around the reduction of unemployment and halving poverty, as well as establishing affordable accommodation in towns experiencing rapid expansion by investing in key sectors and developing and upgrading basic service delivery and infrastructure. In order to achieve this, development must be channelled into specific nodes and corridors (John Taolo Gaetsewe District Municipality, 2016). One of the Key Focus Areas for economic growth is the Gamagara Development Corridor, within which the MMT is located.

The proposed Project aligns with the Integrated Development Plan (IDP) of the Joe Morolong Local Municipality and the Spatial Development Framework (SPDF) of the John Taolo Gaetsewe District Municipality which provide strategic objectives towards the reduction of poverty, unemployment as well as upgrading basic service delivery and infrastructure. Taking the above into consideration, the proposed project will support and enable continuation of the MMT, which will in turn sustain economic and social development within the area.

Ensuring ecological sustainable development and use of natural resources

Due to the nature of mining projects, impacts on biodiversity and the role that it plays in the ecosystem are inevitable. The MMT has been in operation since the 1960s and biodiversity across the site has been substantially transformed. Previous studies have identified habitats of intermediate importance for floral communities around the perimeter of the MMT. The proposed layout and activity changes at the MMT largely fall within the current, ongoing operations and would likely not constitute a significant, new disturbance to biodiversity. The biophysical impacts of the proposed project will be further investigated in the EIA phase.

PROJECT ALTERNATIVES BEING CONSIDERED

The section below provides a summary of the alternatives being considered as part of the proposed project. The preferred alternatives will be confirmed as part of the EIA phase with input from specialists and I&APs. Criteria pertaining to environmental, heritage/cultural, socio-economic, commercial, and technical aspects will be taken into consideration during the assessment of alternatives.

Stormwater Management Infrastructure

Investigation are being undertaken to determine the adequacy of the current stormwater management system. In this regard, additional stormwater management system infrastructure, such as a pollution control dam and/or evaporation channel to either transfer process water from the pollution control dam to the plant for re-use or evaporation is being investigated.

Middelplaats water supply pipeline

Three alternative routes are being considered for the pipeline that will be established from the Middelplaats Mine to transfer water to MMT. Refer to Figure 2 for the location of the three alternative pipeline routes.

Upgrading the railway loadout station

MMT currently loads 104 waggons over a period of 13 hours. In order to meet the future TFR's loading rate of trains three, alternatives are being considered by MMT as part of upgrading the railway:

- **Option 1:** Reduce loading times to 12 hours which requires the reconfiguration of the train station.
- **Option 2:** Reduce loading times to 8 hours. The existing load out station and conveyor system will be upgraded.
- **Option 3:** Reduce loading time to 4 hours which requires the establishment of a new railway loop, new loadout station, product stockpile areas, stackers and reclaimers and the clearance of vegetation of undisturbed areas for the establishment of new infrastructure (Figure 2).

Optimization of water recovery within the plant area

South32 is investigating alternative means to manage the disposal of slimes together with the intention to maximise water recovery within the plant area:

- **Option 1:** Optimising the existing thickener set-up through the installation of a new thickener or automating the current thickener. This will continue to produce slimes material that may need to be disposed into a slimes dam;
- **Option 2:** Optimising the existing thickener set-up through the installation of a filter press system which eliminates the need for a slimes dam. The dried filter cake can be disposed in a handling facility (dry stacking) and the filtrate can be reused in the plant.
- **Option 3:** Optimising the existing thickener set-up through the installation of a filter press system which eliminates the need for a slimes dam. The dried filter cake can be blended within the existing process.

POTENTIAL IMPACTS IDENTIFIED TO DATE

The potential biophysical, cultural and social impacts that have been identified to date are tabulated below. Where specialist input will be obtained to inform the assessment of the potential impacts, this has been indicated in the table below.

Potential impacts	Specialist input
Biophysical impacts	
Loss of soil resource and land capability through physical disturbance and contamination	Soil and Land Capability Study
Physical and general destruction of biodiversity	Biodiversity Study
Contamination of surface water resources affecting third party use and alteration of natural drainage patterns affecting flow of water in downstream systems	Surface Water Study
Contamination of groundwater resources and dewatering that can affect third party use and supply	Groundwater Study and Waste Assessment
Increase in ambient air concentrations	Air Quality Study
Increase in disturbing noise levels affecting potential human receptors	Noise Study
Cultural impacts	
Loss of heritage / cultural and palaeontological resources	Heritage/Cultural and Palaeontological Study
Socio-economic impacts	
Alteration of the visual environment affecting sense of place	Visual Study
Disturbance to third party road users	Qualitative assessment
Positive socio-economic impacts (Economic impact)	Economic Study
Negative socio-economic impact (inward migration)	Qualitative assessment
Safety to third parties and animals	Qualitative assessment
Sterilisation of mineral resources	Qualitative assessment
A change in land use	Qualitative assessment

In addition to the above, a Financial Provision Study in terms of the NEMA Financial Provision Regulations, No. 1147 of 2015, as amended will also be compiled.

ISSUES AND CONCERNS RAISED TO DATE

Issues and concerns raised to date have been limited to a request from the South African Heritage Resources Agency for a Heritage/cultural and Palaeontological Study.

WHAT WILL HAPPEN NEXT?

The following will happen next in the process:

- The Scoping Report will be updated to include comments received during the public review period and will be submitted to the DMRE for consideration.
- The DMRE will then have 44 days to either approve or decline the Scoping Report. The Scoping Report will precede the EIA and EMPr.
- Should the Scoping Report be accepted, the EIA and EMPr phase will be undertaken. This will include the assessment of impacts with input from specialists (where applicable) including the development of the management programme. The EIA and EMPr will be made available for a 30-day public review period.
- The EIA and EMPr will be updated based on the comments received during the public review period and will be submitted to the DMRE for consideration.
- The DMRE will have a period of up to 107 days to either grant or refuse the application for the project.
- Once the DMRE has issued a decision, you as a registered I&AP will be notified about the DMRE's decision on the project within 14 days of receipt of the DMRE's decision.

PARTIES INVOLVED IN THE ENVIRONMENTAL ASSESSMENT PROCESS

I&APs

* Surrounding landowners, land users and community forums
* Surrounding mines and industries
* Parastatals

COMPETENT AUTHORITIES

* Northern Cape DMRE
* Northern Cape Department of Human Settlement, Water and Sanitation

COMMENTING AUTHORITIES

* Northern Cape Department of Agriculture, Forestry and Fisheries
* Provincial South Africa Heritage Resource Agency
* Northern Cape Department of Rural Development and Land Reform – inclusive of the Land Claims Commissioner
* Northern Cape Department of Environment and Nature Conservation

LOCAL AUTHORITIES

* Joe Morolong Local Municipality (includes ward councillor – ward 4)
* John Taolo Gaetsewe District Municipality

Please let us know if there are any additional parties that should be involved.