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BASIC ASSESSMENT REPORT

PROPOSED WESTERN LIMB TAILINGS RETREATMENT (WLTR) PLANT
RETROFITTING AND ASSOCIATED INFRASTRUCTURE



DOCUMENT DETAILINGS

EIMS REFERENCE: 1577

DOCUMENT CONTROL

| | <u>NAME</u> | <u>SIGNATURE</u> | <u>DATE</u> |
|-------------|----------------|---------------------|-------------|
| COMPILED: | Qaphela Magaqa | Sent electronically | 2023/10/16 |
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REVISION AND AMENDMENTS

| <u>REVISION DATE:</u> | <u>REV #</u> | <u>DESCRIPTION</u> |
|-----------------------|-------------------|---|
| 2023/11/21 | ORIGINAL DOCUMENT | Basic Assessment Report for Public Review |



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Abbreviations

| | |
|-------------------|--|
| BAR | : Basic Assessment Report |
| CR | : Critically Endangered |
| DALRRD | : Department of Agriculture, Land Reform and Rural Development |
| DWS | : Department of Water and Sanitation |
| DFFE | : Department of Forestry, Fisheries and the Environment |
| DMRE | : Department of Mineral Resources and Energy |
| EA | : Environmental Authorisation |
| EAP | : Environmental Assessment Practitioner |
| EAPASA | : Environmental Assessment Practitioners Association of South Africa |
| EIA | : Environmental Impact Assessment |
| EIMS | : Environmental Impact Management Services |
| EMPr | : Environmental Management Programme |
| EN | : Endangered |
| E&I | : Electrical and Instrumentation |
| GIS | : Geographic Information System |
| GSW | : Gland Service Water |
| HDPE | : High Density Polyethylene |
| I&AP | : Interest and Affected Party |
| ktpd | : Kilo tons per day |
| kg | : Kilogram |
| km | : Kilometre |
| LC | : Least Concern |
| LOM | : Life of Mine |
| LT | : Least Threatened |
| M | : Metre |
| mm | : Millimetre |
| m ³ /h | : Cubic metres per hour |
| MPRDA | : Mineral and Petroleum Resources Development Act |
| NEMA | : National Environmental Management Act |
| NEMBA | : National Environmental Management: Biodiversity Act |
| NEMWA | : National Environmental Management Waste Act |
| NWA | : National Water Act |
| PGM | : Platinum Group Minerals |
| PPP | : Public Participation Process |
| SACNASP | : South African Council Natural and Scientific Professions |
| SANS | : South African National Standards |



| | |
|------|-------------------------------------|
| SCC | : Species of Conservation Concern |
| SIBX | : Sodium Isobutyl Xanthate |
| SPD | : Sulphur Pay Dam |
| SRPM | : Sibanye Rustenburg Platinum Mines |
| TPH | : Tons per Hour |
| TSF | : Tailings Storage Facility |
| UVB | : Unchanneled Valley Bottom |
| VU | : Vulnerable |
| WLTR | : Western Limb Tailings Retreatment |
| WULA | : Water Use License Application |



PART A: SCOPE OF ASSESSMENT AND BASIC ASSESSMENT REPORT

1 INTRODUCTION

Sibanye Rustenburg Platinum Mine (SRPM) (hereafter referred to as the applicant) has appointed EcoPartners (Pty) Ltd as the Environmental Assessment Practitioner (EAP) for the undertaking of the required authorisation processes. Environmental Impact Management Services (Pty) Ltd (EIMS) has been appointed to compile and submit the required documentation and for undertaking the associated statutory public participation processes in support of the following applications:

- Environmental Authorisation (EA) in accordance with the National Environmental Management Act – NEMA (Act 107 of 1998) to be submitted to the Regional Manager of the North West region of the Department of Mineral Resources & Energy (DMRE) for the following listed activities:
 - GNR983 Listing Notice 1, Activity 10, 12, 14, 19, 34, and 46;
 - GNR985 Listing Notice 3, Activity 12, 14 and 23.
- Water Use Licence (WUL) in accordance with the National Water Act – NWA (Act 36 of 1998) to be submitted to the Department of Water and Sanitation for the following listed activities:
 - Section 21 (c), (i) and (g).

The applicant is applying for the retrofitting of the existing Western Limb Tailings Retreatment Plant (WLTR) which is on SRPM whose Life of Mine (LOM) is expected to be complete near the close of 2025. The project aims to extend the LOM by processing new feed sources. The project will also involve the construction of new infrastructure such as an expansion to its existing bulk chemicals, a new loading bay, chrome stockpile, pipelines, a booster pump station, a hydro mining/repulping plant, a workshop, offices, powerlines, and associated service roads. Linear infrastructure will cross the mining right boundaries of Sibanye Rustenburg Platinum Mines (SRPM) (DMRE Ref: NW 30/5/1/2/2/ 82 MR) and Western Platinum (Pty) Ltd (WPL) mining operations (DMRE Ref: NW/30/5/1/2/3/2/2/106 EM). This application only relates to the construction of infrastructure associated with the retrofitting of the WLTR and remining but not the remining activity itself.

The following infrastructure is proposed:

- | | |
|---|--|
| • Above ground tailings pipelines (Steel High Density Polyethylene (HDPE) Lined). | • A new loading bay and chrome stockpile area. |
| • Above ground return water pipelines (HDPE). | • Roads |
| • Hydro mining/repulping plant. | • Powerlines |
| • A new booster pumpstation. | • Bulk chemicals |
| | • Offices and a workshop |

The proposed project is located approximately 15km east of Rustenburg and approximately 6km west of Marikana within the Rustenburg Local Municipality, Bojanala Platinum District, North West Province. It extends over various portions of the following farms: Rooikoppies 297; Bokfontein 296; Buffelshoek 298; Anglo Tailings 942; and Lonmin Tailings 943.

The Basic Assessment Report (BAR) was made available to Interested and Affected Parties (I&APs) for comment for a minimum period of 30 days from the 29th of November 2023 to the 19th of January 2024. All comments received during this period will be included in the BAR for submission to the DMRE for their decision-making process.



1.1 REPORT STRUCTURE

This report has been compiled in accordance with the EIA Regulations, 2014 (Government Notice (GN) R982). A summary of the report structure, and the specific sections that correspond to the applicable regulations, is provided in Table 1 below.

Table 1: Report Structure

| Environmental Regulation | Description | Section in Report |
|-----------------------------------|--|----------------------------|
| NEMA EIA Regulations, 2014 | | |
| Appendix 1(3)(1)(a): | Detailings of – <ul style="list-style-type: none"> i) The EAP who prepared the report; and ii) The expertise of the EAP, including a curriculum vitae; | Section 1.2 Section 1.3 |
| Appendix 1(3)(1)(b): | The location of the activity, including: <ul style="list-style-type: none"> i) The 21-digit Surveyor General code of each cadastral land parcel; ii) Where available, the physical address and farm name; and iii) Where the required information in items (i) and (ii) is not available, the coordinates of the boundary of the property or properties; | Section 1.4 |
| Appendix 1(3)(1)(c): | A plan which locates the proposed activity or activities applied for as well as the associated structures and infrastructure at an appropriate scale, or, if it is – <ul style="list-style-type: none"> i) A linear activity, a description, and coordinates of the corridor in which the proposed activity or activities is to be undertaken; ii) On land where the property has not been defined, the coordinates within which the activity is to be undertaken; | Section 1.4 |
| Appendix 1(3)(1)(d): | A description of the scope of the proposed activity, including – <ul style="list-style-type: none"> i) All listed and specified activities triggered and being applied for; and ii) A description of the activities to be undertaken including associated structures and infrastructure; | Section 2 |



| Environmental Regulation NEMA EIA Regulations, 2014 | Description | Section in Report |
|--|---|---|
| Appendix 1(3)(1)(e): | A description of the policy and legislative context within which the development is proposed including – <ul style="list-style-type: none"> i) An identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks, and instruments that are applicable to this activity and have been considered in the preparation of the report; and ii) How the proposed activity complies with and responds to the legislation and policy context plans, guidelines, tools frameworks, and instruments; | Section 3 |
| Appendix 1(3)(1)(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 4 |
| Appendix 1(3)(1)(g): | A motivation for the preferred site, activity, and technology alternative; | Section 5 |
| Appendix 1(3)(1)(h): | A full description of the process followed to reach the proposed alternative within the site, including: <ul style="list-style-type: none"> i) Detailings of all the alternatives considered; ii) Detailings of the public participation process undertaken in terms of regulation 41 of the Regulations, including copies of the supporting documents and inputs; 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; iv) The environmental attributes associated with the alternatives focusing on the geographical, physical, biological, social, economic, heritage, and cultural aspects; v) The impacts and risks identified for each alternative including the nature, significance, consequence, extent, duration, and probability of the impacts, including the degree to which these impacts – <ul style="list-style-type: none"> aa) Can be reversed; bb) May cause irreplaceable loss of resources; and cc) Can be avoided, managed, or mitigated; | Section 6 Section 6.1 Section 6.7 Section 6.8 Section 6.9 Section 6.10 Section 6.11 |



| Environmental Regulation NEMA EIA Regulations, 2014 | Description | Section in Report |
|--|---|--|
| | <p>The methodology used in determining and ranking the nature, significance, consequences, extent duration and probability of potential environmental impacts and risks associated with the alternatives;</p> <p>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;</p> <p>The possible mitigation measures that could be applied and level of residual risk;</p> <p>The outcome of the site selection matrix;</p> <p>If no alternatives, including alternative locations for the activity were investigated, the motivation for not considering such; and</p> <p>A concluding statement indicating the preferred alternatives, including preferred location of the activity;</p> | <p>Section 6.12</p> <p>Section 6.13</p> |
| <p>Appendix 1(3)(1)(i):</p> | <p>A full description of the process undertaken to identify, assess and rank the impacts the activity will impose on the preferred location through the life of the activity, including –</p> <ul style="list-style-type: none"> i) A description of all environmental issues and risks that were identified during the environmental impact assessment process; and ii) An assessment of the significance of each issue and risk and an indication of the extent to which the issue and risk could be avoided or addressed by the adoption of mitigation measures; | <p>Section 6.5</p> <p>Section 6.6</p> <p>Section 6.7</p> <p>Section 6.8</p> <p>Section 8</p> |
| <p>Appendix 1(3)(1)(j):</p> | <p>An assessment of each identified potentially significant impact and risk, including –</p> <ul style="list-style-type: none"> i) Cumulative impacts; ii) The nature, significance and consequence of the impact and risk; iii) The extent and duration of the impact and risk; iv) The probability of the impact and risk occurring; v) The degree to which the impact and risk can be reversed; vi) The degree to which the impact and risk may cause irreplaceable loss of resources; and | <p>Section 8</p> |



| Environmental Regulation NEMA EIA Regulations, 2014 | Description | Section in Report |
|--|---|-------------------|
| | vii) The degree to which the impact and risk can be mitigated; | |
| Appendix 1(3)(1)(k): | Where applicable, a summary of the findings and impact management measures identified in any specialist report complying with Appendix 6 to these Regulations and an indication as to how these findings and recommendations have been included in the final report; | Section 9 |
| Appendix 1(3)(1)(l): | An environmental impact statement which contains – <ul style="list-style-type: none"> i) A summary of the key findings of the environmental impact assessment; ii) A map at an appropriate scale which superimposes the proposed activity and its associated structures and infrastructure on the environmental sensitivities of the preferred site indicating any areas that should be avoided, including buffers; and iii) A summary of the positive and negative impacts and risks of the proposed activity and identified alternatives; | Section 10 |
| Appendix 1(3)(1)(m): | Based on the assessment, and where applicable, impact management measures from specialist reports, the recording of proposed impact management objectives, and the impact management outcomes for the development for inclusion in the EMPr; | Section 11 |
| Appendix 1(3)(1)(n): | Any aspects which were conditional to the findings of the assessment either by the EAP or specialist which are to be included as conditions of authorisation; | Section 12 |
| Appendix 1(3)(1)(o): | A description of any assumptions, uncertainties and gaps in knowledge which relate to the assessment and mitigation measures proposed; | Section 13 |
| Appendix 1(3)(1)(p): | A reasoned opinion as to whether the proposed activity should or should not be authorised, and if the opinion is that it should be authorised, any conditions that should be made in respect of that authorisation; | Section 14 |



| Environmental Regulation NEMA EIA Regulations, 2014 | Description | Section in Report |
|--|--|---|
| Appendix 1(3)(1)(q): | Where the proposed activity does not include operational aspects, the period for which the environmental authorisation is required, and the date on which the activity will be concluded, and the monitoring requirements finalised; | Section 15 |
| Appendix 1(3)(1)(r): | An undertaking under oath or affirmation by the EAP in relation to: <ul style="list-style-type: none"> i) The correctness of the information provided in the reports; ii) The inclusion of comments and inputs from stakeholders and I&Ps; iii) The inclusion of inputs and recommendations from the specialist reports where relevant; and iv) Any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested and affected parties; | Section 16 |
| Appendix 1(3)(1)(s): | Where applicable, detailings of any financial provisions for the rehabilitation, closure, and ongoing post decommissioning management of negative environmental impacts; | Section 17 |
| Appendix 1(3)(1)(t): | Any specific information that may be required by the competent authority; and | Section 18 |
| Appendix 1(3)(1)(u): | Any other matters required in terms of section 24(4)(a) and (b) of the Act. | Section 18 |
| Appendix 4(1)(1)(c): | A map at an appropriate scale which superimposes the proposed activity, its associated structures, and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that should be avoided, including buffers; | Section 6.9.2 Section 10.2 |
| Appendix 4(1)(1)(d): | A description of the impact management outcomes, including management statements, identifying the impacts and risks that need to be avoided, managed, and mitigated as identified through the environmental impact assessment process for all phases of the development including – <ul style="list-style-type: none"> i) Planning and design; ii) Construction activities; | Section 6.13 Section 8 Section 11 |



| Environmental Regulation | Description | Section in Report |
|-----------------------------|--|-------------------|
| NEMA EIA Regulations, 2014 | | |
| | iii) Rehabilitation of the environment; and v) Where relevant, operation activities; | |
| Appendix 4(1)(1)(f): | A description of proposed impact management actions, identifying the manner in which the impact management contemplated in paragraphs (d) will be achieved, and must, where applicable, include actions to – i) Avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation; ii) Comply with any prescribed environmental management standards or practices; iii) Comply with any applicable provisions of the ac regarding closure, where applicable; and iv) Comply with any provisions of the Act regarding financial provisions for rehabilitation, where applicable; | Section 11 |



1.2 DETAILINGS OF THE EAP

EcoPartners was appointed by the Applicant to fulfil the role of Independent Environmental Assessment Practitioner (EAP) and to assist in submitting the Environmental Authorisation application and Water Use License (WUL) applications to compile and submit the required documentation in support of the necessary applications and undertaking the associated statutory public participation processes. The contact detailings of the EAP are as follows:

Name of Practitioner: San Oosthuizen

E-mail address: sibanyeWLTR@eims.co.za

1.3 EXPERTISE AND QUALIFICATIONS OF THE EAP

In terms of Regulation 13 of the EIA Regulations (GNR. 982) as amended, an independent EAP, must be appointed by the applicant to manage the application. EcoPartners has been appointed by the Applicant as the EAP and is compliant with the definition of an EAP as defined in Regulations 1 and 13 of the EIA Regulations and Section 1 of the NEMA. This includes, inter alia, the requirement that EcoPartners is:

- Objective and independent;
- Has expertise in conducting EIA's;
- Comply with the NEMA, the Regulations and all other applicable legislation;
- Takes into account all relevant factors relating to the application; and
- Provides full disclosure to the applicant and the relevant environmental authority.

EIMS was appointed by EcoPartners to assist with the compilation, submission of the required documentation and for undertaking the associated statutory public participation processes. The declaration of independence of the EAP and the Curriculum Vitae (indicating the experience with environmental impact assessment and relevant application processes) of the consultants that were involved in the BAR process and the compilation of this report are attached as Appendix A.

1.4 LOCATION OF THE OVERALL ACTIVITY

The table below provides details on the properties that fall within the EA Application Area. The proposed project footprint for the retrofitting of the SRPM Western Limb Tailing Retreatment (WLTR) plant and installation of new infrastructure such as a new loading bay, chrome stockpile pad, pipelines, a booster pump station, a hydro mining/repulping plant, a workshop, offices, powerlines, bulk chemicals and associated service roads on which the activity will take place is located across several farm portions for which EA is required. Refer to Table 2 for the locality detailings and Figure 1 below for the locality map for the proposed activity.

Table 2: Locality Detailings

| Farm Name (s) | |
|---------------|--|
| | The SRPM WLTR Plant retrofitting and new infrastructure will be located on farms: Rooikoppies 297 (portions 42, 43, 158, 156, 227, 155, 154, 153, 169, 116, 171, 170, 164, 135, 226, 223, 224, 189, 168, 225, 185, 123, 370, 276, 277, 279, 217, 218, 219, 220, 114, 124, 136) Bokfontein 296 (portions 13, 68, 106, 102, 116) Buffelshoek 298 (portions 0, 19) Brakspruit 299 (23) Anglo Tailings 942 (0) Lonmin Tailings 943 (0) |

| | | | |
|--|---|----------------------|----------------------|
| Application Area (Ha) | The properties that form part of the application area for the proposed Sibanye Stillwater WLTR plant retrofitting and new infrastructure cover an extent of approximately 2870.74 ha. | | |
| Magisterial District | Bojanala District Municipality | | |
| Distance and direction from nearest town | Approximately 15km east of Rustenburg, and approximately 6km west of Marikana. The approximate centre point of the site is 25°40'53.56"S, 27°25'39.72"E | | |
| 21-digit Surveyor General Code for each Portion | TOJQ0000000029700043 | TOJQ0000000029700223 | TOJQ0000000029700276 |
| | TOJQ0000000029700042 | TOJQ0000000029700224 | TOJQ0000000029700277 |
| | TOJQ0000000029700158 | TOJQ0000000029700189 | TOJQ0000000029700279 |
| | TOJQ0000000029700156 | TOJQ0000000029700168 | TOJQ0000000029700217 |
| | TOJQ0000000029700227 | TOJQ0000000029700225 | TOJQ0000000029700218 |
| | TOJQ0000000029700155 | TOJQ0000000029700185 | TOJQ0000000029700219 |
| | TOJQ0000000029700154 | TOJQ0000000029700123 | TOJQ0000000029700220 |
| | TOJQ0000000029700153 | TOJQ0000000029600106 | TOJQ0000000029700114 |
| | TOJQ0000000029700169 | TOJQ0000000029600102 | TOJQ0000000029700124 |
| | TOJQ0000000029700116 | TOJQ0000000029600116 | TOJQ0000000029700136 |
| | TOJQ0000000029700171 | TOJQ0000000029800000 | TOJQ0000000094300000 |
| | TOJQ0000000029700170 | TOJQ0000000094200000 | TOJQ0000000029600013 |
| | TOJQ0000000029700164 | TOJQ0000000029800019 | TOJQ0000000029900023 |
| | TOJQ0000000029700135 | TOJQ0000000029600068 | |
| | TOJQ0000000029700226 | TOJQ0000000029700370 | |

1.4.1 SPECIFIC LOCATION OF PROPOSED DEVELOPMENTS AND INFRASTRUCTURE.

This section provides details on the location of the proposed developments. Kindly refer to Table 3 for the start, mid-point and end points of the proposed linear infrastructure. For a plan of the proposed development, refer to

Table 3: Start, mid and endpoint locations of proposed linear infrastructure.

| Infrastructure Description | Starting Point | Midpoint | End Point |
|--|-----------------------|-----------------------|-----------------------|
| K4 tailings pipeline | 27°27'50"E 25°40'49"S | 27°25'52"E 25°41'9"S | 27°23'44"E 25°41'19"S |
| K3 tailings pipeline | 27°27'1"E 25°41'32"S | 27°25'27"E 25°41'6"S | 27°23'44"E 25°41'19"S |
| KTD1 tailings pipeline | 27°27'10"E 25°40'52"S | 27°25'36"E 25°41'7"S | 27°23'44"E 25°41'19"S |
| Hoedspruit Return Water Dam (RWD) to K3 RWD | 27°25'37"E 25°40'21"S | 27°26'40"E 25°40'20"S | 27°27'36"E 25°40'29"S |
| Hoedspruit RWD to K4 RWD | 27°25'37"E 25°40'21"S | 27°26'20"E 25°39'48"S | 27°26'23"E 25°38'42"S |

| | | | |
|---|--|-----------------------|-----------------------|
| Hoedspruit RWD to the M2 Process Water Dams | 27°25'37"E 25°40'21"S | 27°24'35"E 25°40'54"S | 27°23'56"E 25°41'9"S |
| WLTR Process Water Dams to the Hydro mining Plant (1 Running, 1 standby) | 27°23'56"E 25°41'9"S | 27°25'35"E 25°41'6"S | 27°26'59"E 25°41'15"S |
| In the Meccano 2 plant around the coarse and fine chrome recovery sections | 27°23'46"E 25°41'20"S | 27°23'47"E 25°41'18"S | 27°23'46"E 25°41'20"S |
| In the Meccano 2 plant delivery trucks to collect chrome at the stockpile pad, | 27°23'48"E 25°41'24"S | 27°23'56"E 25°41'19"S | 27°23'49"E 25°41'25"S |
| Pipeline access road spanning from the Hoedspruit RWD to the KTD3 TSF road (approx. 700m), | 27°25'33"E 25°40'28"S | 27°25'44"E 25°40'31"S | 27°25'56"E 25°40'34"S |
| Pipeline access road spanning from the K3 RWD to the Hydro mining/repulp area (approx. 600m). | 27°27'41"E 25°40'43"S | 27°27'35"E 25°40'51"S | 27°27'28"E 25°40'59"S |
| Powerline from WLTR to the Repulping Areas | 27°23'45"E 25°41'12"S | 27°25'29"E 25°41'5"S | 27°26'53"E 25°41'16"S |
| T-Off line above to the Hoedspruit return water dam | 27°24'51"E 25°41'1"S | 27°25'18"E 25°40'52"S | 27°25'38"E 25°40'22"S |
| Line from the Repulping Plant to the K3 RWD pumps. | 27°27'E 25°41'16"S | 27°27'39"E 25°41'2"S | 27°27'48"E 25°40'27"S |
| Line from the K3 Minisub station or the K3 Main sub station (options instead of the line from WLTR). | 27°26'58"E 25°41'31"S/ 27°27'6"E 25°41'25"S | 27°27'1"E 25°41'22"S | 27°27'1"E 25°41'16"S |

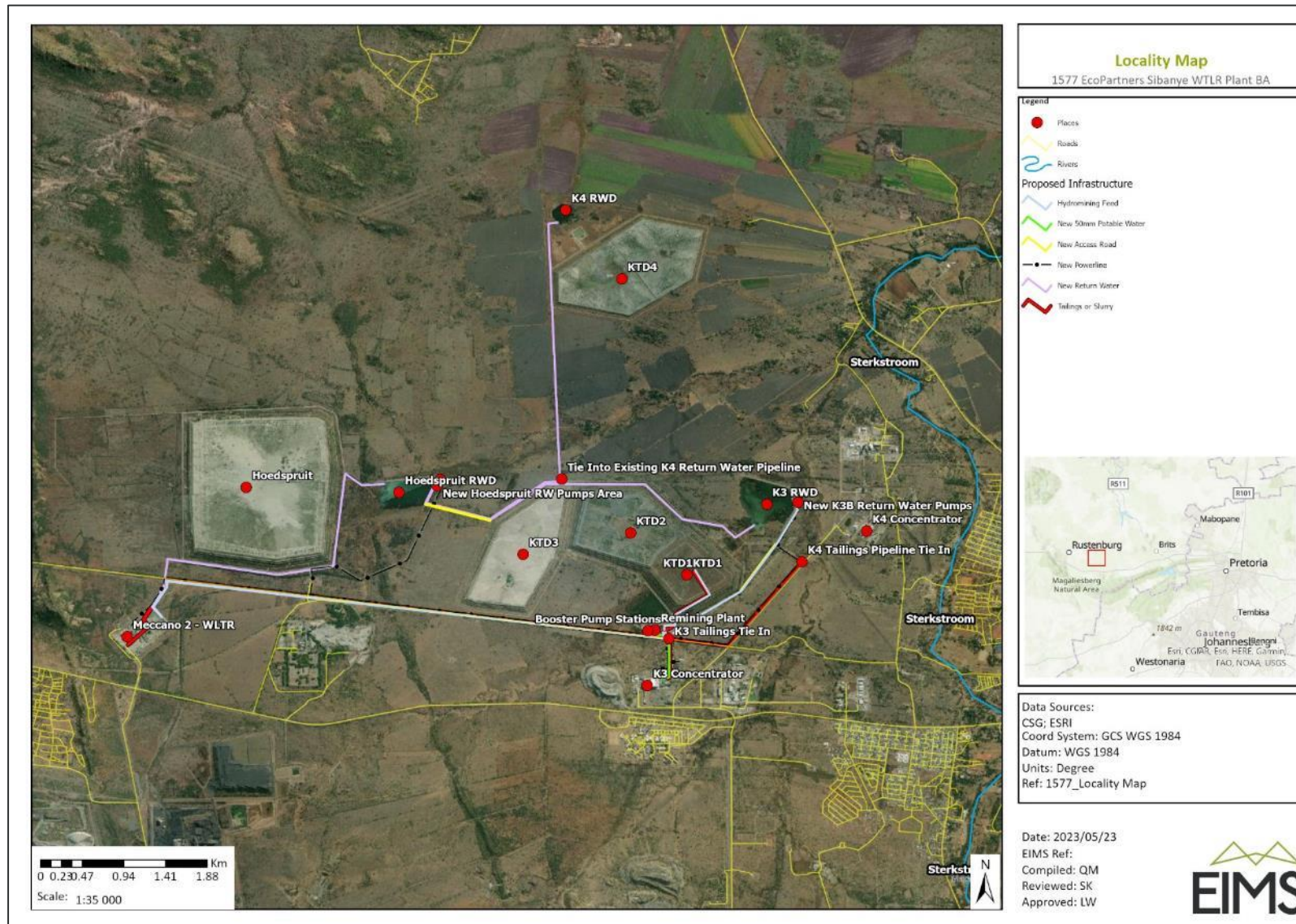


Figure 1: Locality Map for the proposed project infrastructure

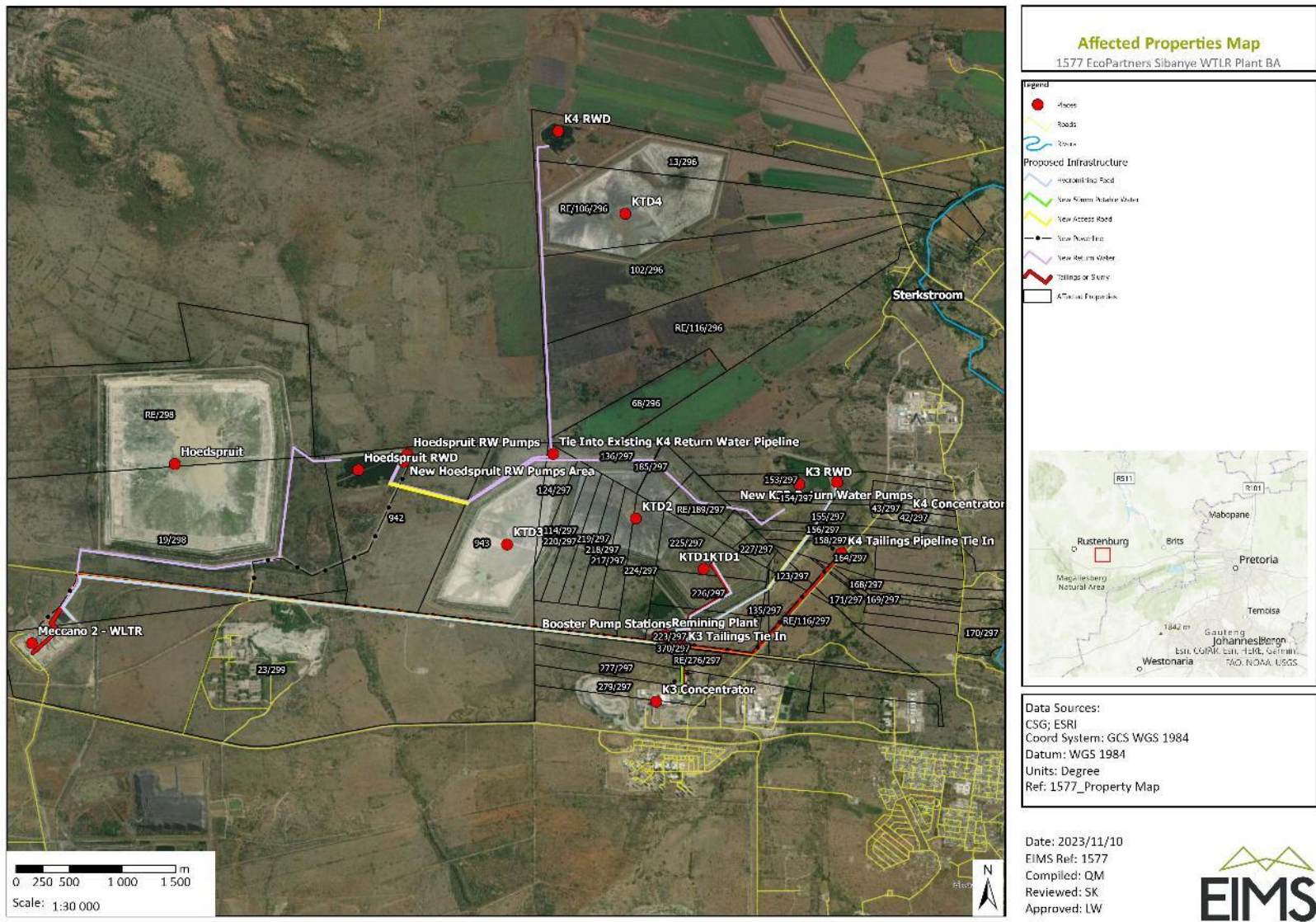


Figure 2: Plan of proposed development



2 SCOPE OF THE PROPOSED ACTIVITY

The section below provides a detailed project description for the proposed WLTR retrofitting project. The aim of the project description is to indicate the proposed activities to take place. Furthermore, the detailed project description below is designed to facilitate the understanding of the proposed project related activities which are anticipated to lead to the preliminary impacts identified and assessed in this Basic Assessment Report, and for which management measures have been, or will be designed.

SRPM wishes to retrofit the WLTR which is located on SRPM whose Life of Mine (LOM) is expected to be complete near the close of 2025. The project aims to extend the LOM by processing new feed sources. The project will also involve the construction of new infrastructure. Detailings of the proposed activities and infrastructure are discussed in the subsequent subsections.

2.1 OVERVIEW OF PROPOSED ACTIVITIES

The applicant wishes to retrofit the existing WLTR and construct new remining infrastructure. The proposed works include a new loading bay, chrome stockpiles pad, pipelines, a booster pump station, a hydro mining/repulping plant, a workshop, offices, powerlines, and associated service roads. Linear infrastructure will cross the mining right boundaries of SRPM (DMRE Ref: NW 30/5/1/2/2/ 82 MR) and WPL mining operations (DMRE Ref: NW/30/5/1/2/3/2/2/106 EM). The following infrastructure is proposed:

- Above ground tailings pipelines (Steel HDPE Lined).
- Above ground return water pipelines (HDPE).
- Repulping/Remining plant.
- Hydro mining plant.
- New booster pumpstations.
- A new loading bay and chrome stockpile area.
- Roads.
- Bulk chemicals.
- Powerlines.
- Offices and workshop areas.



A detailed overview of the proposed activities and infrastructure required is outlined in the subsequent subsections.

2.1.1 PROCESS FLOW OF PLANNED ACTIVITIES

2.1.1.1 TAILINGS BOOSTER PUMP STATIONS, REMINING AND REPULPING PLANT

The planned infrastructure is proposed to enable the applicant to remine/recover fine chrome and platinum group metals (PGM's) from various tailings from various tailings streams and deposits from Sibanye-Stillwater operations in the region. The currently identified sources include the dormant Karee Tailings Dam 1 (KTD1), and live tailings from K3 concentrator and K4 Concentrator. The KTD1 will be remined using mechanical remining and hydromining (It is noteworthy that this application only relates to the construction and related operation of remining infrastructure and not the activity of remining as this is covered under a separate application).

Live tailings arising from the K4 Concentrator are currently being pumped to the Karee Tailings Dam 4 (KTD4). These tailings will be diverted to a booster station that will pump the tailings to the WLTR (to be retrofitted, upgraded and referred to as the Meccano 2 Plant). The expected feed rate of the tailings from the K4 concentrator to the Meccano 2 concentrator will be approximately 165 dry tons per hour to be transported via a 200mm HDPE lined steel pipeline over a distance of 8 km. The proposed pipeline will run from the K4 tailings pipeline tie in to the proposed booster station through to the Meccano 2 concentrator. Live tailings arising from the K3 Concentrator are currently being pumped to the KTD3 and will be diverted at the proposed K3 Tailings tie in to a new booster pumpstation located next to the KTD1 via a 200mm HDPE lined steel pipeline. The proposed pipeline will connect into the booster pump and will run for 4 km into the Meccano 2 plant. The booster station will pump tailings from the K3 concentrator and the KTD1 to the Meccano 2 Concentrator at a rate of 515 dry tons per hour.

The KTD1 will be remined via mechanical remining and hydro mining. As such a re-pulping plant with an attrition scrubber will be constructed next to the KTD1 to allow historical tailings from the KTD1 to be mechanically re-mined and repulped. A hydro mining plant will be constructed adjacent to the repulp plant to enable hydro mining of the KTD1. A 4 km 350mm HDPE lined steel pipeline with a flow rate of 235 l/s will be constructed from the remining and repulping plant to the Meccano 2 concentrator and will connect to the booster station through which the remined/re-pulped slurry will be transported to the Meccano 2 plant.

2.1.1.2 MECCANO 2 CONCENTRATOR/PLANT

At the Meccano 2 Concentrator, KTD1, K4 and K3 Concentrator live tailings K3 will report to a linear screen to remove any oversize tramp material from the Meccano 2 plant feed prior to reporting via a head sampler to an agitated surge tank. Tailings from the surge tank will be pumped to a primary de-sliming cyclone cluster to remove fine particles which negatively affect spiral performance and consume reagents in the fine chrome circuit. The cyclone overflow fines will report directly to the PGM circuit, and the cyclone underflow will report to a conventional rougher and cleaner spiral circuit for recovery of coarse chrome. Coarse chrome concentrate is pumped to the combined concentrate tank, where it combines with the fine chrome concentrate before being pumped to stacker cyclones for de-watering. Coarse rougher spiral and coarse cleaner spiral middlings and tailings reports to the PGM recovery circuit.

Sodium Isobutyl Xanthate (SIBX) collector is added to the rougher, cleaner and re-cleaner feed tanks, a frother is added to the rougher feed box and a depressant is added to the cleaner and re-cleaner feed tanks. Flocculent is added to the PGM concentrate thickener feed box.

The rougher tailings will undergo secondary de-sliming and chrome recovery process. The PGM rougher tailings will be pumped to a secondary de-sliming cyclone cluster to further remove fine particles that negatively affect spiral performance and consume reagents in the fine chrome circuit. The cyclone overflow fines will report directly to the final tailings thickener to remove the fines from the circuit, and the cyclone underflow will report to the agitated fine chrome rougher feed surge tank where Flotator chrome collector is added and Sulphuric acid is added to obtain a pH of 2.50. From this tank, the slurry will be pumped to the chrome rougher float cell. The chrome rougher float tailings are pumped to guard cyclones ahead of the final tailings thickener. The chrome rougher float concentrate reports to the fine chrome cleaner spiral feed tank, where it combines with the chrome cleaner scavenger concentrate and the fine chrome cleaner spiral middlings before being pumped to the fine chrome cleaner spiral bank. Fine chrome cleaner spiral middlings are circulated back to the fine chrome cleaner spirals. Fine chrome cleaner concentrate is pumped to the combined concentrate tank, where it combines with the coarse chrome concentrate before being pumped to stacker cyclones for de-watering. Fine chrome cleaner spiral tailings are pumped to the chrome cleaner scavenger float cell. The chrome cleaner scavenger float tailings are circulated back to the chrome rougher feed surge tank and the chrome cleaner scavenger float concentrate is circulated back to the fine chrome cleaner spirals. (As part of the Meccano 2 plant, there will be a requirement for a chemical stores area to be constructed and three (3) new reagent plants to be constructed, kindly refer to subsection 2.1.2.2 for details of the proposed chemical stores area and reagent plants).

2.1.1.3 CHROME STOCKPILES

Coarse chrome concentrate from the coarse spiral circuit and fine chrome concentrate from the fine chrome recovery circuit are sampled prior to depositing into the agitated combined chrome concentrate surge tank. From this tank, the chrome concentrate slurry will be pumped to stacker cyclones, with the cyclone overflow reporting to a thickener and the cyclone underflow, together with the thickener underflow depositing onto a concrete stockpile pad for natural de-watering prior to loading onto trucks by Front End Loader (FEL) for transport to the end user.

2.1.1.4 FINAL TAILINGS DEWATERING AND DISPOSAL

PGM concentrate and chrome concentrate thickener overflows report to a spray water tank with pumps to supply spray water to the linear screen and float cell launders.

Chrome rougher float tails reports to guard cyclones ahead of the tailings thickener. The guard cyclone overflow reports to the tailings thickener feed box, where it combines with the PGM cleaner tails, primary desliming cyclone overflow, secondary desliming cyclone overflow and flocculent before feeding into the tailings thickener. Tailings thickener underflow combines with the guard cyclone underflow through a sampler before depositing into the final tails disposal tank from where it is pumped to Hoedspruit TSF. Tailings thickener overflow reports to the process water tank and excess process water is stored in the process water dams.

Final tailings slurry from the Meccano Concentrator will be pumped to the Hoedspruit TSF. The solids will remain in the TSF and water will be recovered from TSF using the existing Hoedspruit return water dam. From the Hoedspruit return water dam, water will be pumped back to the K3 and K4 Return Water Dam, refer to subsection 2.1.2.3 for details of the pipeline infrastructure required for the transportation of tailings and return water.

2.1.2 DETAILS OF PLANNED INFRASTRUCTURE

2.1.2.1 MECCANO 2 BOOSTER PUMPS, HYDROMINING AND REMINING PLANT

An area of approximately 3.2 ha located on portion 223 of Farm Rooikoppies 297, located directly south of the KTD1 has been earmarked for the development of a repulping plant, K3/KTD1 Booster Pump Station, K4 Booster Pump Station. This area will also include offices, stores and work shop, ablutions, tea room and change houses. Kindly refer to Figure 6 below for a block layout of the proposed Meccano 2 booster pumps, hydromining and remining plant. Materials to be reprocessed at the proposed Meccano 2 concentrator will be pumped from this area as described in Subsection 2.1.1.

2.1.2.1.1 REPULPING PLANT

The proposed repulping plant consists of a FEL feed bin in which mechanically remined tailings will be pulled out using vibratory feeders. The feeders discharge onto a conveyor which feeds a scrubber. The scrubber will utilise process water to wash the material. The process water to be utilised during this process will be pumped from the Hoedspruit return water dam, where all excess water from the Meccano 2 plant process will be pumped. The undersize reports to an agitated surge tank fitted with slurry pumps. The oversize reports to a bunker. A preliminary 3D Model layout of the proposed repulping plant is indicated in Figure 3 below.

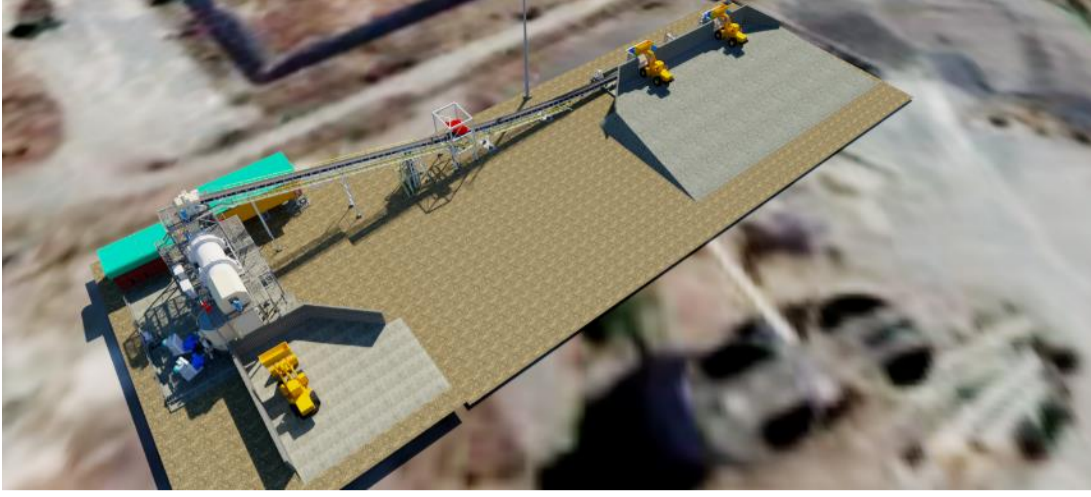


Figure 3: Preliminary 3D model of the proposed repulping plant (Sibanye Stillwater, 2023)

2.1.2.1.2 BOOSTER PUMPSTATIONS AND HYDROMINING BOOSTER PUMP

A total of three (3) new booster pump stations will be constructed within the hydro mining repulping and screening plant. The new tailings booster pumpstations will consist of an agitated surge tank, standby and duty centrifugal pump trains, Gland Service Water pumps and all associated Electrical and Instrumentation (E&I) equipment to support the new facility. The proposed booster stations will be connected to various tailings/slurry pipelines. The various pump stations will be responsible for the pumping of live tailings from the K4 and K3 concentrators and hydro-mined mechanically and/or mechanically mined and repulped KTD1 tailings to the proposed Meccano 2 concentrator for processing. The booster pump stations are as follows:

- K3/KTD1 Remining tailings booster pump station
- K4 pump station
- hydro mining pumping and screening plant

The K3/KTD1 and K4 pumpstations will have a similar design as depicted in 3D model layout below.

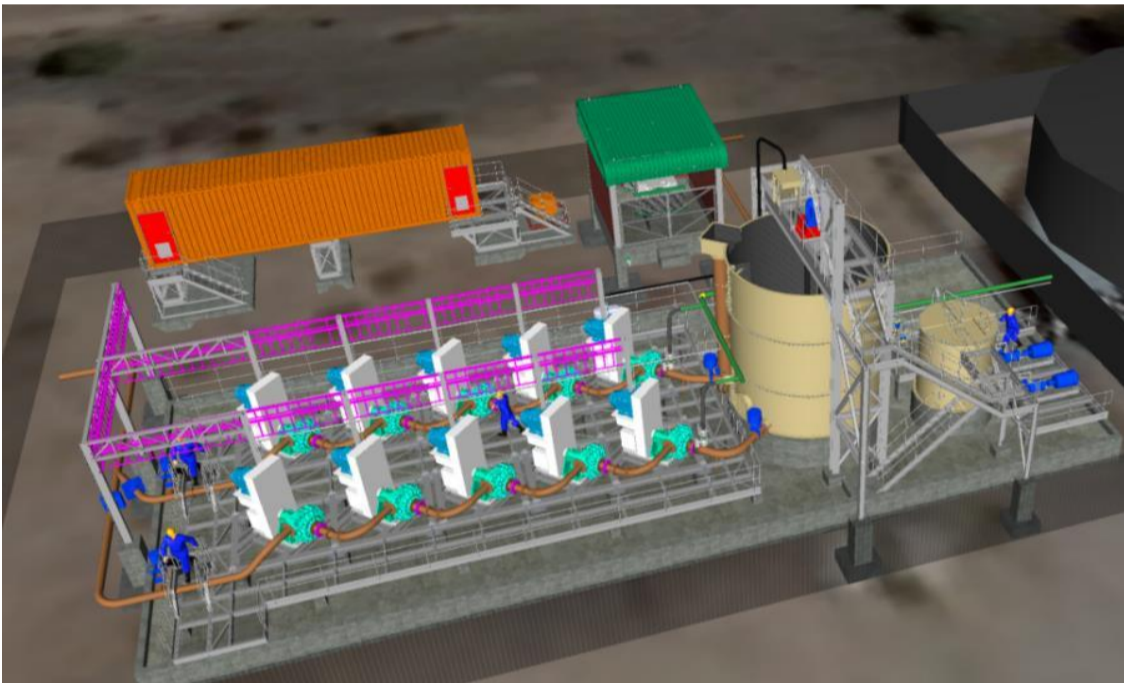


Figure 4: 3D Model layout of booster pumpstations K3/KTD1 and K4 (Sibanye Stillwater, 2023)

A hydro mining pumping and screening plant will also be established adjacent to the KTD1. Figure 5 presents a preliminary 3D model layout of the proposed hydro mining pumping and screening plant.

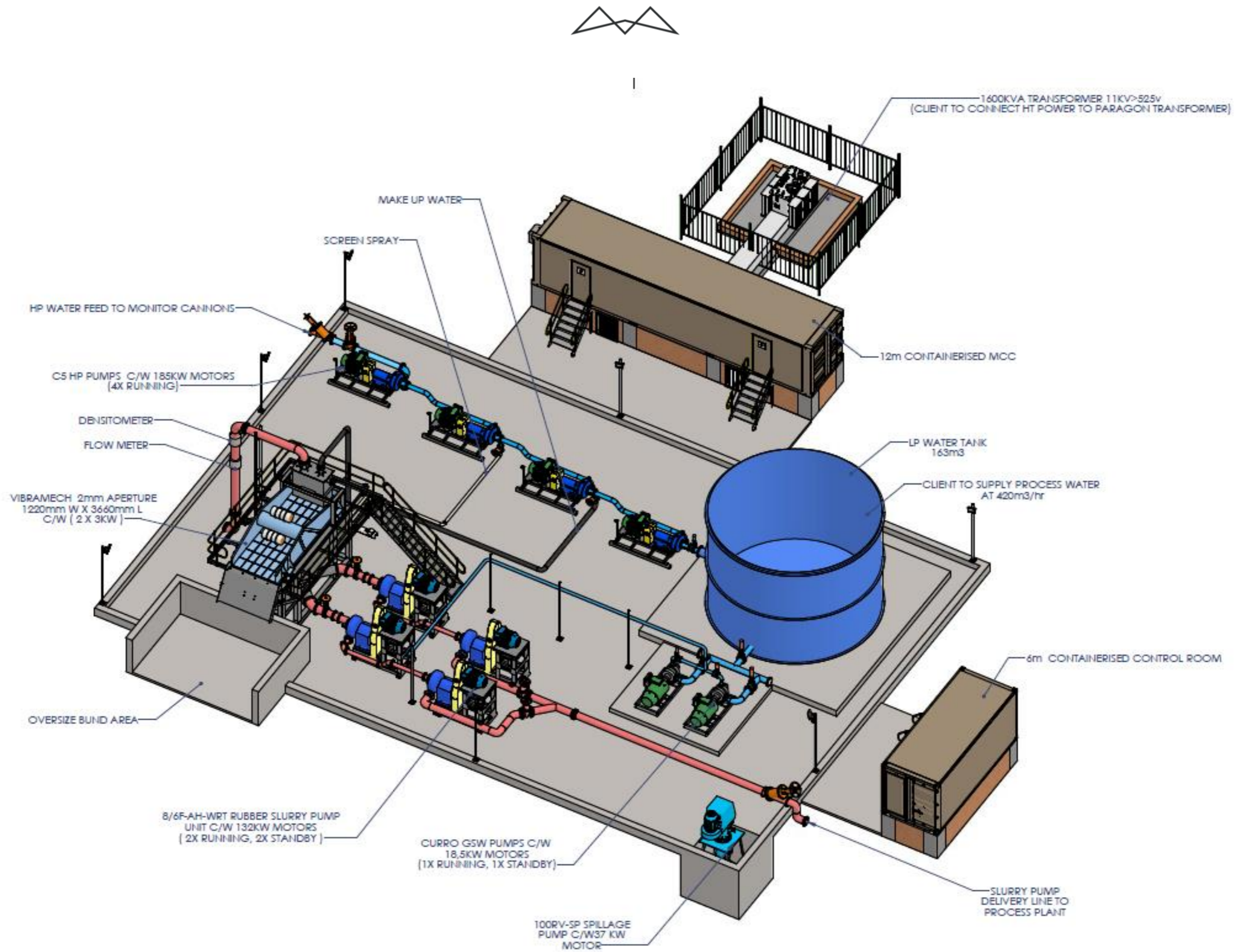


Figure 5: Preliminary 3D layout model of the proposed hydro mining pumping and screening plant (Sibanye Stillwater, 2023).



Figure 6: Proposed hydro mining, repulping plant and screening plant layout (Sibanye Stillwater, 2023)



2.1.2.2 MECCANO 2 RECOVERY PLANT

The Meccano 2 processing plant will be located at the existing WLTR plant. The Meccano 2 plant will be utilised for the recovery of fine chrome and PGM's from various tailings streams and deposits from Sibanye-Stillwater operations in the region. The Meccano 2 recovery plant aims to match the feed rate of the existing WLTR at 680 tons per hour (tph) (nominal) and 820 tph (design) dry head feed. The plant will extract chrome and PGM concentrate from an initial combination of live tailings from K3K3 and Karee K4 Concentrator, as well as historic concentrator tailings material situated on the KTD1 residue stockpile. Kindly refer to Figure 7 for the proposed layout of the Meccano 2 plant.

As part of the proposed upgrades to the WLTR, the following structures and infrastructure will be constructed to form part of the Meccano 2 plant;

- Coarse chrome area;
- Fine chrome area;
- Chemical stores;
- Change rooms;
- Tea room;
- Offices;
- Chrome reagents area;
- Chrome Stockpile Pad;
- Bulk chemical stores and reagent plants
- Weighbridge;
- Loading bay; and
- Control room



Figure 7: Proposed Mecanno 2 plant layout (Sibanya Stillwater, 2023).



2.1.2.2.1 COURSE CHROME AND FINE CHROME AREAS

At the Meccano 2 plant, chrome tailings from the various feed sources described in subsections above are to report to a linear screen to remove any oversize tramp material from the Meccano 2 plant feed prior to reporting via a head sampler to an agitated surge tank. A course chrome plant will be established at the Meccano 2 Plant. The course chrome spiral plant consists of desliming cyclones, spirals, tanks and pumps. At the coarse chrome area the tailings will undergo primary de-sliming through the cyclone cluster to remove fine particles which negatively affect spiral performance and consume reagents in the fine chrome circuit. The cyclone overflow fines will report directly to the PGM circuit, and the cyclone underflow will report to a conventional rougher and cleaner spiral circuit for recovery of coarse chrome. Coarse chrome concentrate is pumped to the combined concentrate tank, where it combines with the fine chrome concentrate before being pumped to stacker cyclones for de-watering.

A fine chrome recovery plant consisting of desliming cyclones, floatation cells, spiral tanks and pumps will also be constructed at the Meccano 2 plant. The tailings will undergo a secondary desliming and fine chrome recovery. The PGM rougher tails will be pumped to a secondary de-sliming cyclone cluster to further remove fine particles that negatively affect spiral performance and consume reagents in the fine chrome circuit. The cyclone overflow fines will report directly to the final tails thickener to remove the fines from the circuit, and the cyclone underflow will report to the agitated fine chrome rougher feed surge tank where Flotinator chrome collector is added and Sulphuric acid is added to obtain a pH of 2.50. From this tank, the slurry will be pumped to the chrome rougher float cell. The chrome rougher float tails are pumped to guard cyclones ahead of the final tails thickener. The chrome rougher float concentrate reports to the fine chrome cleaner spiral feed tank, where it combines with the chrome cleaner scavenger concentrate and the fine chrome cleaner spiral middlings before being pumped to the fine chrome cleaner spiral bank. Fine chrome cleaner spiral middlings are circulated back to the fine chrome cleaner spirals. Fine chrome cleaner concentrate is pumped to the combined concentrate tank, where it combines with the coarse chrome concentrate before being pumped to stacker cyclones for de-watering. Fine chrome cleaner spiral tails are pumped to the chrome cleaner scavenger float cell. The chrome cleaner scavenger float tails are circulated back to the chrome rougher feed surge tank and the chrome cleaner scavenger float concentrate is circulated back to the fine chrome cleaner spirals.

2.1.2.2.2 BULK CHEMICAL STORES AREA

A bulk chemical stores area will be constructed at the Meccano 2 plant where chemicals including Sulphuric acid (with up to 98% concentration), frother, flotinator, SIBX, and depressant chemicals will be received and stored on site. The proposed bulk chemicals storage area will consist of silos with a combined capacity of 450 cubic metres. The required chemicals will be used at the three new reagent plant areas to be constructed as part of the WLTR plant retrofitting. The proposed reagent plants are as follows:

- Hydrated Lime Neutralisation Plant
- Sulphuric Acid Dosing Plant
- Flotinator Dosing Plant

2.1.2.2.3 CHROME STOCKPILE AREA

The course chrome concentrate and fine chrome concentrate from the chrome recovery circuit will be sampled prior to deposition into the agitated combined chrome concentrate surge tank. From this tank, the chrome concentrate slurry will be pumped to stacker cyclones, with the cyclone overflow reporting to a thickener and the cyclone underflow, together with the thickener underflow depositing onto a chrome stockpile pad for natural de-watering prior to loading onto trucks by FEL for transport to the end user.

A chrome stockpile pad will be established adjacent to the current WLTR plant area where natural dewatering will occur and a loading bay for trucks will be established. The proposed chrome stockpiles pad will be a concrete slab on which the water/ PGM concentrate and chrome concentrate thickener overflows resulting from the dewatering will be collected into a spray water tank with pumps to supply the spray water to the linear screen and float cell launders. The chrome stockpiles area will be fenced off onto to be part of the Mecanno 2 plant and

will consist of stacker cyclones and a concrete pad, a weighbridge as well as security office and ablutions. Refer to Figure 8 for a preliminary / representative 3D Model layout of the proposed new chrome stockpile area.

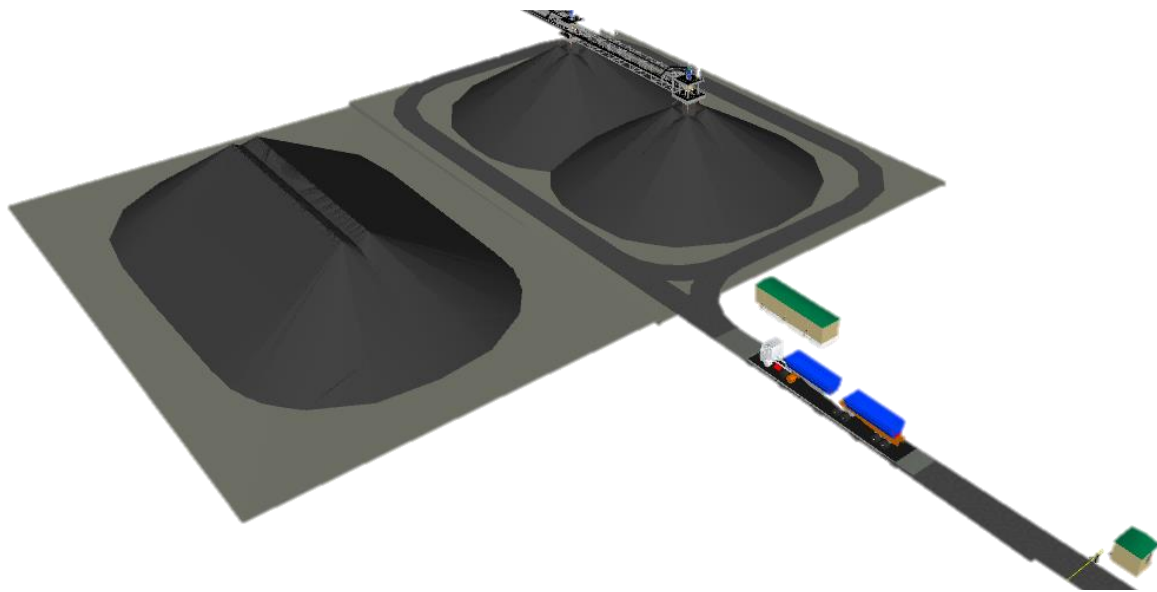


Figure 8: A preliminary 3D model of the chrome stockpile area (Sibanye Stillwater, 2023).

2.1.2.3 OVERLAND PIPELINE INFRASTRUCTURE

The proposed development includes the construction of tailings pipelines, return water pipelines and hydro mining pipelines. All proposed pipelines will be constructed above ground. The new pipelines entail three (3) new steel HDPE lined tailings pipelines, three (3) new HDPE return water pipelines and two new HDPE hydro mining pipelines from the KTD1 through the Hydromining plant to the Meccano 2 plant (one (1) running, one (1) standby). Detailings on the proposed pipelines are listed in the table below.

Table 4: Proposed overland pipelines design specifications.

| Description of proposed pipeline | Flow rate (l/s) | Pipeline Diameter (mm) | Pipeline Length (km) |
|--|-----------------|------------------------|----------------------|
| K4 tailings pipeline | 75 | 200 | 8 |
| K3 tailings pipeline | 75 | 200 | 4 |
| KTD1 tailings pipeline | 235 | 350 | 4 |
| Hoedspruit Return Water Dam (RWD) to K3 RWD | 50 | 280 | 4.1 |
| Hoedspruit RWD to K4 RWD | 50 | 280 | 4.8 |
| Hoedspruit RWD to the M2 Process Water Dams | 50 | 280 | 2 |
| WLTR Process Water Dams to the Hydro mining Plant (1 Running, 1 standby) | 116 | 400 | 5.7 |

2.1.2.4 ACCESS ROADS

The proposed infrastructure will be constructed along pre-existing access roads, however there will be requirements to construct new roads or upgrade existing dirt roads. New access roads clearance required will be a maximum of 4 m wide. The proposed new roads are listed as follows:

- In the Meccano 2 plant around the coarse and fine chrome recovery sections,

- In the Meccano 2 plant delivery trucks to collect chrome at the stockpile pad,
- Pipeline access road spanning from the Hoedspruit RWD to the KTD3 road (approx. 700m),
- Pipeline access road spanning from the K3 RWD to the Hydro mining/repulp area (approx. 600m).

2.1.2.5 POWER LINES

New powerlines will be required to distribute power to the repulping plant and return water dam pumps. A summary of the required powerlines is presented in the table below.

Table 5: Detailings of proposed power lines

| Description of proposed power line | Line Length (km) | Estimated Size (kV) |
|--|------------------|---------------------|
| Line from WLTR to the Repulping Areas | 5.6 | 11 |
| T-Off line above to the Hoedspruit return water dam | 2.3 | 11 |
| Line from the Repulping Plant to the K3 RWD pumps. | 2.7 | 11 |
| Line from the K3 Minisub station or the K3 Main sub station (options instead of the line from WLTR). | 0.6 | 11 |

2.2 LISTED AND SPECIFIED ACTIVITIES

The proposed retrofitting of the WLTR plant and associated remaining infrastructure as specified in sections 2.1.2 to 2.1.2.5 require environmental authorisation prior to the commencement of the construction and development. Table 6 below outlines the anticipated activities applied for in terms of the NEMA for the proposed installation of the return water and slurry pipelines.



Table 6: Listed and Specified Activities

| Legislation / Regulation | Listed Activity | Activity Description | Applicability |
|--------------------------|---------------------------|--|--|
| NEMA GNR 983 | 10 | <p>The development and related operation of infrastructure exceeding 1 000 metres in length for the bulk transportation of sewage, effluent, process water, waste water, return water, industrial discharge or slimes-</p> <p>(i) with an internal diameter of 0,36 metres or more; or</p> <p>(ii) with a peak throughput of 120 litres per second or more;</p> <p>excluding where-</p> <p>(a) such infrastructure is for the bulk transportation of sewage, effluent, process water, waste water, return water, industrial discharge or slimes inside a road reserve or railway line reserve; or</p> <p>(b) where such development will occur within an urban area.</p> | <p>The planned development of return water pipelines, tailings/slurry pipelines, and hydro mining pipelines exceed the 1000 m length.</p> <p>The planned 2 HDPE hydro mining pipelines from the Meccano 2 plant to the hydro mining plant have a diameter of 0.4 metres and a throughput of 116 l/s</p> <p>The KTD1 tailings pipeline has a diameter of 0.35 metres and a throughput of 235 l/s.</p> |
| NEMA GNR 983 | 12 (ii) (a) and (c) | <p>The development of-</p> <p>(ii) infrastructure or structures with a physical footprint of 100 square metres or more; where such development occurs-</p> <p>(a) within a watercourse;</p> <p>(c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse;-</p> <p>excluding-</p> <p>(aa) the development of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour;</p> <p>(bb) where such development activities are related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies;</p> | <p>The proposed powerline, and pipeline infrastructure cross through watercourses. The combined footprints of the proposed developments exceed 100 square metres in these regulated areas.</p> |

| Legislation / Regulation | Listed Activity | Activity Description | Applicability |
|--------------------------|-----------------|---|--|
| | | <p>(cc) activities listed in activity 14 in Listing Notice 2 of 2014 or activity 14 in Listing Notice 3 of 2014, in which case that activity applies;</p> <p>(dd) where such development occurs within an urban area;</p> <p>(ee) where such development occurs within existing roads, road reserves or railway line reserves; or</p> <p>(ff) the development of temporary infrastructure or structures where such infrastructure or structures will be removed within 6 weeks of the commencement of the development and where indigenous vegetation will not be cleared.</p> | |
| NEMA GNR 983 | 14 | The development and related operation 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 cubic metres or more but not exceeding 500 cubic metres. | A bulk chemical stores area will be constructed on site with a combined storage volume of 450 cubic metres. This facility will handle Sulphuric acid (with up to 98% concentration), frother, flotator, SIBX, and depressant chemicals utilised as part of the tailings retreatment process. |
| NEMA GNR 983 | 19 | <p>The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from a watercourse;</p> <p>but excluding where such infilling, depositing, dredging, excavation, removal or moving-</p> <p>(a) will occur behind a development setback;</p> <p>(b) is for maintenance purposes undertaken in accordance with a maintenance management plan;</p> <p>(c) falls within the ambit of activity 21 in this Notice, in which case that activity applies;</p> <p>(d) occurs within existing ports or harbours that will not increase the development footprint of the port or harbour; or</p> <p>(e) where such development is related to the development of a port or harbour, in which</p> | Development is to be undertaken within watercourses. Pipelines and powerlines will be required to cross watercourse and may require excavation or deposition of material exceeding 10 cubic metres. |

| Legislation / Regulation | Listed Activity | Activity Description | Applicability |
|--------------------------|-----------------|---|--|
| | | case activity 26 in Listing Notice 2 of 2014 applies | |
| NEMA GNR 983 | 34 | <p>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, excluding-</p> <p>(i) where the facility, infrastructure, process or activity is included in the list of waste management activities published in terms of section 19 of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) in which case the National Environmental Management: Waste Act, 2008 applies;</p> <p>(ii) the expansion of existing facilities or infrastructure for the treatment of effluent, wastewater, polluted water or sewage where the capacity will be increased by less than 15 000 cubic metres per day; or</p> <p>(iii) the expansion is directly related to aquaculture facilities or infrastructure where the wastewater discharge capacity will be increased by 50 cubic meters or less per day.</p> | <p>The Meccano 2 plant Chrome Stockpile pad requires a WUL (Section 21 (g) listed water use activity in terms of the National Water Act (NWA).</p> <p>An expansion of the existing pipelines is required where the extension activity of the pipelines require a NEMA authorisation and has been applied for under this application.</p> |
| NEMA GNR 983 | GNR 46 | <p>The expansion and related operation of infrastructure for the bulk transportation of sewage, effluent, process water, waste water, return water, industrial discharge or slimes where the existing infrastructure-</p> <p>(i) has an internal diameter of 0,36 metres or more; or</p> <p>(ii) has a peak throughput of 120 litres per second or more; and</p> <p>(a) where the facility or infrastructure is expanded by more than 1 000 metres in length; or</p> <p>(b) where the throughput capacity of the facility or infrastructure will be increased by 10% or more;</p> <p>excluding where such expansion-</p> <p>(aa) relates to the bulk transportation of sewage, effluent, process water, waste water, return water, industrial discharge or slimes within a road reserve or railway line reserve; or</p> | <p>The proposed development entails expansion of existing return water pipelines, tailings/slurry pipelines, the proposed expansions exceed the 1000 m length.</p> <p>Detailings of activity 10 in terms of diameter and throughput</p> |

| Legislation / Regulation | Listed Activity | Activity Description | Applicability |
|--------------------------|-----------------|---|---|
| | | (bb) will occur within an urban area. | |
| NEMA 985 | GNR | 4 (h) (iv) The development of a road wider than 4 metres with a reserve less than 13,5 metres. h. North West iv. Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority; | As part of the proposed development the applicant wishes to construct two (2) new access roads where one is a 3m wide pipeline access road spanning from the K3 RWD to the Hydro mining/repulp area (approx. 600m) located within a CBA 2 area. |
| NEMA 985 | GNR | 12 (h) (iv), and (vi) The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan h. North West iv. Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority; vi. Areas within a watercourse or wetland, or within 100 metres from the edge of a watercourse or wetland. | The proposed development of structures and infrastructure occur across areas classified as Critical Biodiversity Areas (CBA), Ecological Support Areas (ESA) and wetland areas and may require clearance of vegetation exceeding 300 square metres. It is further noteworthy that various portions of the development are located in close proximity to watercourses and linear infrastructure crosses through watercourses and drainage lines. |
| NEMA 985 | GNR | 14 (ii) (a) and (c) (h) (iv) The development of- (ii) infrastructure or structures with a physical footprint of 10 square metres or more; where such development occurs- (a) within a watercourse; (c) if no development setback has been adopted, within 32 metres of a watercourse, measured from the edge of a watercourse; excluding the development of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour h. North West iv. Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority; | The proposed project has infrastructure and structures located within 32 m of a watercourse or crossing through watercourses with combined footprints exceeding 10 square metres in these regulated areas. Part of the development may occur within CBAs and ESAs. |

| Legislation / Regulation | | Listed Activity | Activity Description | Applicability |
|--------------------------|------------|-----------------|---|---|
| NEMA 985 | GNR | 18 (h) (v) | <p>The widening of a road by more than 4 metres, or the lengthening of a road by more than 1 kilometre.</p> <p>h. North West</p> <p>v. Critical Biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority;</p> | The applicant also wishes to construct a terraced road for chrome at the stockpile pad located next to the WLTR plant, in an area demarcated as a CBA area. |



3 POLICY AND LEGISLATIVE CONTEXT

This section provides an overview of the governing legislation and policies identified which relates to the proposed project. Table 7 below describes the applicable policy and legislative context used to compile the BAR.

Table 7: Applicable Policy and Legislative Context

| Applicable Legislation and Guidelines | Reference Where Applied (i.e., where in this document has it been explained how the development complies with and responds to the legislation and policy context) | How does this Development Comply with and Respond to the Legislation and Policy Context |
|---|---|---|
| National Environmental Management Act (Act No. 107 of 1998) (NEMA) and the EIA Regulations, 2014, as amended | This Basic Assessment Report is prepared as in support of the Application for Environmental Authorisation under the NEMA. | In terms of the NEMA an Application for EA subject to a Basic Assessment Process has been applied for. Activities applied for: <ul style="list-style-type: none"> • GNR 983 Activities 10, 12, 19, 34 and 46. • GNR 985 Activities 12 and 14 |
| Minerals and Petroleum Resources Development Act (Act No. 28 of 2002) (MPRDA) | The applicant is required to obtain an Environmental Authorisation in terms of Section 5A(b) of the MPRDA. | An application for Environmental Authorisation has been submitted to the DMRE. |
| National Water Act (Act No. 36 of 1998) (NWA): | This report provides detailings on the proposed activities to be authorised in Section 2, Listed and specified activities under NEMA are included in this report under Section 2.2, these also provide an outlook on the activities occurring within watercourses or in close proximity. | A WULA has been submitted in terms of Section 21 of the NWA. The applicable listed water uses are: Section 21 (c): Impeding or diverting the flow of water in a watercourse; and Section 21 (i): Altering the bed, banks, courses or characteristics of a watercourse. Section 21 (g) Disposing of waste in a manner which may detrimentally impact on a water resource. |
| The National Environmental Management: Biodiversity Act (Act No. 10 of 2004 – NEMBA) | Regulations published under NEMBA provides a list of protected species (flora and fauna), according to the Act (GN R. 151 dated 23 February 2007, as amended in GN R. 1187 dated 14 December 2007) which require a permit in order to be disturbed or destroyed. Further regulations published under NEMBA relate to the management of Alien Invasive Species published in GN | Vegetation and wetland assessment were undertaken for the proposed activities. Mitigations to control invasive alien species have been included in this report and the EMPr. |

| Applicable Legislation and Guidelines | Reference Where Applied (i.e., where in this document has it been explained how the development complies with and responds to the legislation and policy context) | How does this Development Comply with and Respond to the Legislation and Policy Context |
|---|---|--|
| | <p>43735 and a comprehensive list of Alien Invasive Species (GN 43726 dated 18 September 2020).</p> <p>A list of alien invasives identified in site was provided and has been included in this report under Section 6.9.2.4.1.</p> | |
| <p>National Environmental Management: Waste Act (No. 59 of 2008)</p> | <p>Residue/tailings to be produced from this process will be deposited at the Hoedspruit TSF. It is noteworthy that this application is only for the retrofitting of the existing WLTR plant, construction of a remining plant, and associated infrastructure and does not relate to the temporary/permanent storage of residue stockpiles.</p> <p>Waste generation and management during construction is dealt with in Section 8 of this report.</p> | <p>The proposed activities will not trigger a listed activity in terms of GN 921, Category A, B or C, hence no Waste Management Licence will be applied for. However, general duty in respect of waste management applies.</p> |
| <p>National Heritage Resources Act (No. 25 of 1999) and Regulations</p> | <p>Section 6.4 Description of the receiving environment including sensitive heritage features as identified by the specialist.</p> | <p>A Heritage and Archaeological specialist study were undertaken, and sensitive sites recorded on the sensitivity map.</p> <p>A SAHRA SAHRIS case has been created in terms of S38 of NHR Act and the BAR has been submitted for comment.</p> |
| <p>National Environmental Management: Air Quality Act (No. 39 of 2004) and National Dust Control Regulations (2013)</p> | <p>Section 8 assesses the impact of the generation of dust during construction activities.</p> | <p>Mitigation measures relating to the management of dust impacts are included in Part B: EMPr of this report.</p> |
| <p>SANS 10103 (Noise Regulations)</p> | <p>Section 8 assesses the impact of noise impacts during construction and operational phases of the proposed activities.</p> | <p>Mitigation measures relating to the management of noise impacts are included in Part B: EMPr of this report.</p> |
| <p>Occupational Health and Safety Act (No. 85 of 1993)</p> | <p>General duties of employers to their employees</p> | <p>Mitigation measures ensuring the health and safety of employees are included in Part B: EMPr of this report.</p> |



4 NEED AND DESIRABILITY OF THE PROPOSED ACTIVITIES

Table 8: Need and desirability analysis of the WLTR retrofitting and associated remining infrastructure project.

| Ref No. | Question | Answer |
|------------|---|--|
| 1 | Securing ecological sustainable development and use of natural resources | |
| 1.1 | How were the ecological integrity considerations taken into account in terms of: Threatened Ecosystems, Sensitive and vulnerable ecosystems, Critical Biodiversity Areas, Ecological Support Systems, Conservation Targets, Ecological drivers of the ecosystem, Environmental Management Framework, Spatial Development Framework (SDF) and global and international responsibilities. | <p>The proposed project is for the retrofitting of the existing WLTR plant and associated remining infrastructure. The proposed development is located along sections of Threatened Marikana Thornveld Ecosystems, CBA2 and ESA areas and watercourse areas.</p> <p>The locations of the proposed developments were determined by the existing mining infrastructure, TSFs and WLTR plant. The proposed developments have been also aligned to the WLTR, existing infrastructure, and KTD1 dormant TSF to be remined. The proposed project will play a role in the rehabilitation of the landscape as a result of mining activities through enabling the remining of dormant TSFs located in the area and thereby continuous contribution to the Bojanala District's GDP through extension of the LOM of the WLTR.</p> <p>The potential benefits and motivation for the project is presented in Sections 5 where in different motivation of the preferred alternatives has been included and the option of not implementing the project was evaluated.</p> |
| 1.2 | How will this project disturb or enhance ecosystems and / or result in the loss or protection of biological diversity? What measures were explored to avoid these negative impacts, and where these negative impacts could not be avoided altogether, what measures were explored to minimise and remedy the impacts? What measures were explored to enhance positive impacts? | Refer to baseline ecological information in Section 6.9.2, and the impact assessment and mitigation measures in Section 8 of this Basic Assessment Report. Efforts will be made to avoid disturbance to sensitive biodiversity as far as possible. Where impacts cannot be avoided mitigation measures to reduce and control the impacts have been put in place in as stipulated in this report and Appendix H of this report, the EMPr. |
| 1.3 | How will this development pollute and / or degrade the biophysical environment? What measures were explored to either avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise | <p>For a detailed overview of the biophysical environment on which this project is proposed Refer to baseline ecological information in Section 6.9.2.</p> <p>Refer to the impacts identified and mitigation measure that have been put in place in Section 8 of this BAR.</p> |

| Ref No. | Question | Answer |
|---------|--|--|
| | and remedy the impacts? What measures were explored to enhance positive impacts? | |
| 1.4 | What waste will be generated by this development? What measures were explored to avoid waste, and where waste could not be avoided altogether, what measures were explored to minimise, reuse and / or recycle the waste? What measures have been explored to safely treat and/or dispose of unavoidable waste? | The proposed project is only anticipated to generate waste during construction phase where the waste streams include general waste, garden waste/construction and demolition waste. Section 8 of this BAR outlines the waste management practices that should be followed during construction phase of the proposed development to ensure protection of natural resource and good housekeeping practices. |
| 1.5 | How will this project disturb or enhance landscapes and / or sites that constitute the nation's cultural heritage? What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy the impacts? What measures were explored to enhance positive impacts? | The proposed project is not anticipated to have impacts on Heritage Resources as per the Heritage Specialist findings where the summary of key findings has been outlined in Section 9. It is understood that Archaeological and Heritage sites are located within close proximity of the development footprint and recommendations have been made on possible mitigation measures to be employed to avoid impacts on these sites. It should also be noted that Section 8 provides mitigations for any chance finds on site. |
| 1.6 | How will this project use and / or impact on non-renewable natural resources? What measures were explored to ensure responsible and equitable use of the resources? How have the consequences of the depletion of the non-renewable natural resources been considered? What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy the impacts? What measures were explored to enhance positive impacts? | Refer to the identified impacts, their assessment and recommended mitigation measures in Section 8 of this Basic Assessment Report. It should be noted that this project is for the retrofitting of the WLTR and construction of associated remining infrastructure and will not contribute to the depletion of non-renewable natural resources. Furthermore, as highlighted in the process description, the proposed project will mainly use return water as process water and water collected from the dewatering process of Chrome stockpiles will be reused at the Meccano 2 plant to reduce the need for use of potable water in the remining process. |
| 1.7 | How will this project use and / or impact on renewable natural resources and the ecosystem of which they are part? Will the use of the resources and / or impacts on the ecosystem jeopardise the integrity of the resource and / or system taking into account carrying capacity restrictions, limits of acceptable change, and thresholds? What measures were explored to firstly avoid the use of resources, or if avoidance is not | Refer to the identified impacts, their assessment and recommended mitigation measures in Section 8 of this Basic Assessment Report and the EMPr. |

| Ref No. | Question | Answer |
|---------|--|--|
| | possible, to minimise the use of resources? What measures were taken to ensure responsible and equitable use of the resources? What measures were explored to enhance positive impacts? | |
| 1.7.1 | Does the proposed project exacerbate the increased dependency on increased use of resources to maintain economic growth or does it reduce resource dependency (i.e. de-materialised growth)? | The proposed project will rely on / depend on the extraction of a natural, non-renewable resource however the resource is to be extracted from existing residue stockpiles and live tailings resulting from mining activities. It should be noteworthy that the project will not contribute in any significant way to any resource dependency but will assist in maximising mineral tenure from historic mining activities. |
| 1.7.2 | Does the proposed use of natural resources constitute the best use thereof? Is the use justifiable when considering intra- and intergenerational equity, and are there more important priorities for which the resources should be used? | The proposed project will extend the life of the mine in an area where mineral reserves have already been identified and are already being mined. Refer to Section 5 for the alternatives considered in this Basic Assessment Report. The project extends the life of mine, forms part of the business model and plans to reduce the mining footprint. |
| 1.7.3 | Do the proposed location, type and scale of development promote a reduced dependency on resources? | The remaining is already within existing mining area and the proposed project will be an addition to the existing mine processes and infrastructure. The proposed project also intends to repurpose existing WLTR, thus reducing the development footprint in the area. Furthermore, the proposed infrastructure is planned mainly along existing disturbed areas and servitudes with a minimal section located on intact Marikana Thornveld vegetation. |
| 1.8 | How were a risk-averse and cautious approach applied in terms of ecological impacts | |
| 1.8.1 | What are the limits of current knowledge (note: the gaps, uncertainties and assumptions must be clearly stated)? | Kindly refer to Section 13 for a detailed description of gaps, uncertainties and assumptions. |
| 1.8.2 | What is the level of risk associated with the limits of current knowledge? | The level of risk is low as previous specialist studies have been conducted in the areas surrounding the proposed project location, and therefore some information is already available. The proposed project is located along existing disturbances where development has occurred before and impacts on the biophysical environment as a result of the limitations in knowledge are low. |

| Ref No. | Question | Answer |
|---------|---|--|
| 1.8.3 | Based on the limits of knowledge and the level of risk, how and to what extent was a risk-averse and cautious approach applied to the development? | Sufficient information was gathered prior to the onset of this process to indicate that the potential remaining is feasible. In addition, the proposed project aims to extend the LOM of the WLTR. |
| 1.9 | How will the ecological impacts resulting from this development impact on people's environmental right in terms following? | |
| 1.9.1 | Negative impacts: e.g. access to resources, opportunity costs, loss of amenity (e.g. open space), air and water quality impacts, nuisance (noise, odour, etc.), health impacts, visual impacts, etc. What measures were taken to firstly avoid negative impacts, but if avoidance is not possible, to minimise, manage and remedy negative impacts? | Refer to the identified impacts, their assessment and recommended mitigation measures in Section 8 of this Basic Assessment Report and the EMPr. |
| 1.9.2 | Positive impacts: e.g. improved access to resources, improved amenity, improved air or water quality, etc. What measures were taken to enhance positive impacts? | Refer to the identified impacts, their assessment and recommended mitigation measures in Section 8 of this Basic Assessment Report and the EMPr. |
| 1.10 | Describe the linkages and dependencies between human wellbeing, livelihoods and ecosystem services applicable to the area in question and how the development's ecological impacts will result in socio-economic impacts (e.g. on livelihoods, loss of heritage site, opportunity costs, etc.)? | Refer to baseline ecological and socio-economic information in Section 6.9, and the impact assessment and mitigation measures in Section 8 of this Basic Assessment Report and the EMPr. |
| 1.11 | Based on all of the above, how will this development positively or negatively impact on ecological integrity objectives / targets / considerations of the area? | Refer to the identified impacts, their assessment and recommended mitigation measures in Section 8 of this Basic Assessment Report and the EMPr. |
| 1.12 | Considering the need to secure ecological integrity and a healthy biophysical environment, describe how the alternatives identified (in terms of all the different elements of the development and all the different impacts being proposed), resulted in the selection of the "best practicable environmental option" in terms of ecological considerations? | Refer to Section 5 for details of the alternatives considered, as well as this section of the of the Basic Assessment Report for the advantages and disadvantages of the proposed activity. |

| Ref No. | Question | Answer |
|---------|--|---|
| 1.13 | Describe the positive and negative cumulative ecological / biophysical impacts bearing in mind the size, scale, scope and nature of the project in relation to its location and existing and other planned developments in the area? | Refer to the identified impacts, their assessment and recommended mitigation measures in Sections 6.10, 6.11, 6.12, 7 and 8 of this Basic Assessment Report and the EMPr. |
| 2 | Promoting justifiable economic and social development | |
| 2.1 | What is the socio-economic context of the area, based on, amongst other considerations, the following: | |
| 2.1.1 | The IDP (and its sector plans' vision, objectives, strategies, indicators and targets) and any other strategic plans, frameworks or policies applicable to the area, | <p>According to the Rustenburg IDP 2022 – 2027; in 2020, the mining sector is the largest within Rustenburg Local Municipality accounting for R 52.1 billion or 76.6% of the total Gross Value Added (GVA) in the local municipality's economy. The sector that contributes the second most to the GVA of the Rustenburg Local Municipality is the community services sector at 6.4%, followed by the finance sector with 5.2%. The sector that contributes the least to the economy of Rustenburg Local Municipality is the agriculture sector with a contribution of R 383 million or 0.56% of the total GVA.</p> <p>The mining sector is estimated to be the largest sector within the Rustenburg Local Municipality in 2025, with a total share of 65.3% of the total GVA (as measured in current prices), growing at an average annual rate of 3.9%. The sector that is estimated to grow the slowest is the mining sector with an average annual growth rate of 3.93%.</p> <p>The proposed project will extend the LOM of the WLTR whose current LOM is 2025 allowing the mine to continue supplying jobs at that mine for a longer time period. The surrounding communities will also continue to benefit through direct and indirect income, as well as the mine's use of local contractors and suppliers.</p> <p>According to the Bojanala District Municipality IDP: Bojanala PDM is blessed with mineral deposits and currently there are no signs that these mineral reserves will be depleted. The mining sector has been on upward trend specifically from 2002 onwards, this was due to the increase in demand for platinum which exceeded supply, resulting in a deficit and thus causing an increase in the price.</p> <p>Economic linkages Most of the mining products extracted from BPDM are beneficiated elsewhere. The local mining produce presents opportunities for forward linkages such as the processing and beneficiation of mining products such as the refining of minerals, manufacture</p> |

| Ref No. | Question | Answer |
|---------|---|--|
| | | <p>of jewellery etc. Mining inputs, such as machinery, piping, tubing, chemicals, mining timber, iron and steel products, explosives, electrical machinery, cables and wiring and foodstuffs are sourced from outside the North West, resulting in a massive income leakage out of the area.</p> <p>The mines potentially represent a substantial local market for these manufactured products and by strengthening the local backward linkages, the manufacturing sector can be stimulated. The mines also provide a market for local SMME's, which act as service providers to the mines, incl. brick making, gearbox repair, general repairs, welding, office cleaning, catering, dry cleaning, laundry services, etc. Technology change – The cost of extraction Overall extraction costs are determined by a combination of variables such as grade of ore, mining depth, geology, labour efficiency and technology. More efficient technology and improved labour productivity can therefore increase the profitability of the mines.</p> <p>Small Scale Mining of Construction Minerals (i.e. small-scale mining of Tin, Chrome, Slate, Lead and Granite) provides an opportunity to second economy players to engage in first economy activities thus narrowing the gap between the two.</p> |
| 2.1.2 | Spatial priorities and desired spatial patterns (e.g. need for integrated of segregated communities, need to upgrade informal settlements, need for densification, etc.), | <p>No SDF is in place for the district municipality at this stage. According to the 2018 Rustenburg Local Municipality SDF the development of Rustenburg over the past 20 – 25 years is closely linked with the development of platinum mining in the region. Rustenburg has benefitted greatly from the rise in platinum output between 1994 and 2009 in South Africa, which grew by 67% over that period. Before 2012, Rustenburg had the third fastest growing economy of metropolitan cities in South Africa.</p> <p>As further urban and mining expansion is anticipated, the continuous loss of high potential agricultural land is evident. As the proposed WLTR retrofitting and associated infrastructure project is located in an existing mining area and mainly along pipeline, road and other infrastructure servitudes, no further loss of agricultural land is expected as a result of the project and it can be seen to be in line with the SDF.</p> |
| 2.1.3 | Spatial characteristics (e.g. existing land uses, planned land uses, cultural landscapes, etc.), and | Refer to the baseline environment in Section 6.9 of this Basic Assessment Report and the EMPr. |
| 2.1.4 | Municipal Economic Development Strategy ("LED Strategy"). | The proposed project will promote and support the sustainability of existing business, as well as assist in increasing local beneficiation and shared economic growth. |

| Ref No. | Question | Answer |
|---------|--|---|
| 2.2 | Considering the socio-economic context, what will the socio-economic impacts be of the development (and its separate elements/aspects), and specifically also on the socio-economic objectives of the area? | Refer to the identified impacts, their assessment and recommended mitigation measures in Sections 6.10, 6.11, 6.12, 7 and 8 of this Basic Assessment Report and the EMPr. |
| 2.2.1 | Will the development complement the local socio-economic initiatives (such as local economic development (LED) initiatives), or skills development programs? | The proposed project will increase the LOM of the WLTR plant, which will ensure that the community projects initiated by the mine will have an increased life. This will complement the local socio-economic initiatives identified for the area. |
| 2.3 | How will this development address the specific physical, psychological, developmental, cultural and social needs and interests of the relevant communities? | Refer to the public participation process undertaken to date in Section 6.7 of this Basic Assessment Report. Public participation and consultation will continue as planned for the duration of the Basic Assessment review period. Furthermore, refer to the identified impacts, their assessment and recommended mitigation measures in Sections 6.10, 6.11, 6.12, 7 and 8 of this Basic Assessment Report and the EMPr. |
| 2.4 | Will the development result in equitable (intra- and inter-generational) impact distribution, in the short- and long-term? Will the impact be socially and economically sustainable in the short- and long-term? | Refer to the identified impacts, their assessment and recommended mitigation measures in Sections 6.10, 6.11, 6.12, 7 and 8 of this Basic Assessment Report and the EMPr. |
| 2.5 | In terms of location, describe how the placement of the proposed development will: | |
| 2.5.1 | Result in the creation of residential and employment opportunities in close proximity to or integrated with each other. | Refer to the identified impacts, their assessment and recommended mitigation measures in Sections 6.10, 6.11, 6.12, 7 and 8 of this Basic Assessment Report and the EMPr. |
| 2.5.2 | Reduce the need for transport of people and goods. | Refer to Sections 5.1, 5.2, 5.3, 5.4, 5.5, 5.6 for details of the alternatives considered, as well as this section of the of the Basic Assessment Report for the advantages and disadvantages of the proposed activity |
| 2.5.3 | Result in access to public transport or enable non-motorised and pedestrian transport (e.g. will the development result in | Refer to Section 5 for details of the alternatives considered, as well as this section of the of the Basic Assessment Report for the advantages and disadvantages of the proposed activity |

| Ref No. | Question | Answer |
|---------|---|---|
| | densification and the achievement of thresholds in terms public transport), | |
| 2.5.4 | Compliment other uses in the area, | As described in items above (of this table) the proposed project entails the retrofitting of an existing WLTR and construction of associated remaining infrastructure. The existing land use, which is mining, will therefore be complimented by the continuation of the project. |
| 2.5.5 | Be in line with the planning for the area. | Refer to item 2.2.1 of this table (above). |
| 2.5.6 | For urban related development, make use of underutilised land available with the urban edge. | Not applicable. The proposed project area is outside an urban area. |
| 2.5.7 | Optimise the use of existing resources and infrastructure. | This project is for the retrofitting of an existing retreatment plant to allow for use of this facility for the extraction of PGM from residue stockpiles. This project has been planned to utilise existing infrastructure as far as possible and additional infrastructure planned is to compliment existing infrastructure through additional infrastructure where required. |
| 2.5.8 | Opportunity costs in terms of bulk infrastructure expansions in non-priority areas (e.g. not aligned with the bulk infrastructure planning for the settlement that reflects the spatial reconstruction priorities of the settlement). | Refer to Section 2 of this Basic Assessment Report. The proposed project is located within a historic mining area with existing infrastructure. This project aims to utilise existing infrastructure as far as possible. |
| 2.5.9 | Discourage "urban sprawl" and contribute to compaction / densification. | It is anticipated that the project will increase the LOM of the current WLTR plant through the processing of residue stockpiles for PGM allowing for continued job security for those currently employed by the mine without a need to relocate or induce settlements in other areas. It is therefore not anticipated that the proposed development will result in an influx of additional workers. |
| 2.5.10 | Contribute to the correction of the historically distorted spatial patterns of settlements and to the optimum use of existing infrastructure in excess of current needs. | Refer to items 2.5.7 to 2.5.9 of this table (above). |
| 2.5.11 | Encourage environmentally sustainable land development practices and processes. | One of the key aspects to ensuring long terms land sustainability will be to ensure successful rehabilitation and post mining land-use capability. |

| Ref No. | Question | Answer |
|---------|---|---|
| 2.5.12 | Take into account special locational factors that might favour the specific location (e.g. the location of a strategic mineral resource, access to the port, access to rail, etc.). | Refer to item 1.7.3 of this table (above). |
| 2.5.13 | The investment in the settlement or area in question will generate the highest socio-economic returns (i.e. an area with high economic potential). | The proposed project will allow the mine to continue contributing to the local, regional and national Gross Domestic Product (GDPs), and also to the local communities through continued employment of workers and local contractors, as well as other influences and community upliftment programmes that are undertaken by the mine through their Social & Labour Plan (SLP). |
| 2.5.14 | Impact on the sense of history, sense of place and heritage of the area and the socio-cultural and cultural-historic characteristics and sensitivities of the area. | Refer to the identified impacts, their assessment and recommended mitigation measures in Section 6.10, 6.11, 6.12, 7, and 8 of this Basic Assessment Report. No heritage impacts are expected as a result of the proposed development. |
| 2.5.15 | In terms of the nature, scale and location of the development promote or act as a catalyst to create a more integrated settlement? | The proposed project will ensure continued employment in the area, as well as programmes implemented from the mine's SLP. The project extends the life of mine, forms part of the business model and plans to reduce the mining footprint in terms of residue stockpiles. |
| 2.6 | How was a risk-averse and cautious approach applied in terms of socio-economic impacts | |
| 2.6.1 | What are the limits of current knowledge (note: the gaps, uncertainties and assumptions must be clearly stated)? | No knowledge gaps – the project will have limited socio-economic impacts. |
| 2.6.2 | What is the level of risk (note: related to inequality, social fabric, livelihoods, vulnerable communities, critical resources, economic vulnerability and sustainability) associated with the limits of current knowledge? | The level of risk is low as the project is not expected to have far reaching impacts on socio-economic conditions should the recommended mitigation and management measures be implemented and adhered to. |
| 2.6.3 | Based on the limits of knowledge and the level of risk, how and to what extent was a risk-averse and cautious approach applied to the development? | This project is part of a current mining operation. A cautious approach has been applied. |
| 2.7 | How will the socio-economic impacts resulting from this development, impact on people's environmental right in terms following: | |

| Ref No. | Question | Answer |
|---------|--|---|
| 2.7.1 | Negative impacts: e.g. health (e.g. HIV-Aids), safety, social ills, etc. What measures were taken to firstly avoid negative impacts, but if avoidance is not possible, to minimise, manage and remedy negative impacts? | Refer to the identified impacts, their assessment and recommended mitigation measures in Section 6.10, 6.11, 6.12, 7, and 8 of this Basic Assessment Report and EMPr. |
| 2.7.2 | Positive impacts. What measures were taken to enhance positive impacts? | Refer to the identified impacts, their assessment and recommended mitigation measures in Section 6.10, 6.11, 6.12, 7, and 8 of this Basic Assessment Report and EMPr. |
| 2.8 | Considering the linkages and dependencies between human wellbeing, livelihoods and ecosystem services, describe the linkages and dependencies applicable to the area in question and how the development's socioeconomic impacts will result in ecological impacts (e.g. over utilisation of natural resources, etc.)? | Refer to the identified impacts, their assessment and recommended mitigation measures in Section 6.10, 6.11, 6.12, 7, and 8 of this Basic Assessment Report and EMPr. |
| 2.9 | What measures were taken to pursue the selection of the "best practicable environmental option" in terms of socio-economic considerations? | Refer to the identified impacts, their assessment and recommended mitigation measures in Section 6.10, 6.11, 6.12, 7, and 8 of this Basic Assessment Report and EMPr. |
| 2.10 | What measures were taken to pursue environmental justice so that adverse environmental impacts shall not be distributed in such a manner as to unfairly discriminate against any person, particularly vulnerable and disadvantaged persons (who are the beneficiaries and is the development located appropriately)? Considering the need for social equity and justice, do the alternatives identified, allow the "best practicable environmental option" to be selected, or is there a need for other alternatives to be considered? | Refer to the identified impacts, their assessment and recommended mitigation measures in Section 6.10, 6.11, 6.12, 7, and 8 of this Basic Assessment Report and EMPr. |
| 2.11 | What measures were taken to pursue equitable access to environmental resources, benefits and services to meet basic human needs and ensure human wellbeing, and what special measures were taken to ensure access thereto by categories of persons disadvantaged by unfair discrimination? | By conducting Basic Assessment process, the applicant ensures that equitable access to the environment has been considered. Refer to the identified impacts, their assessment and recommended mitigation measures in Section 6.10, 6.11, 6.12, 7, and 8 of this Basic Assessment Report and EMPr. |

| Ref No. | Question | Answer |
|---------|---|---|
| 2.12 | What measures were taken to ensure that the responsibility for the environmental health and safety consequences of the development has been addressed throughout the development's life cycle? | Refer to the identified impacts, their assessment and recommended mitigation measures in Section 6.10, 6.11, 6.12, 7, and 8 of this Basic Assessment Report and EMPr. |
| 2.13 | What measures were taken to: | |
| 2.13.1 | Ensure the participation of all interested and affected parties. | Refer to the public participation process undertaken to date in Section 6.7 of this Basic Assessment Report. Public participation and consultation will continue as planned for the duration of the Basic Assessment review period. |
| 2.13.2 | Provide all people with an opportunity to develop the understanding, skills and capacity necessary for achieving equitable and effective participation, | Refer to the public participation process undertaken to date in Section 6.7 of this Basic Assessment Report. Public participation and consultation will continue as planned for the duration of the Basic Assessment review period. |
| 2.13.3 | Ensure participation by vulnerable and disadvantaged persons, | Advertisements, and site notices were distributed in and around the project area in English, Afrikaans and Setswana to assist in understanding the project. |
| 2.13.4 | Promote community wellbeing and empowerment through environmental education, the raising of environmental awareness, the sharing of knowledge and experience and other appropriate means, | |
| 2.13.5 | Ensure openness and transparency, and access to information in terms of the process, | |
| 2.13.6 | Ensure that the interests, needs and values of all interested and affected parties were taken into account, and that adequate recognition were given to all forms of knowledge, including traditional and ordinary knowledge, | |
| 2.13.7 | Ensure that the vital role of women and youth in environmental management and development were | |

| Ref No. | Question | Answer |
|---------------|--|---|
| | recognised and their full participation therein will be promoted? | |
| 2.14 | Considering the interests, needs and values of all the interested and affected parties, describe how the development will allow for opportunities for all the segments of the community (e.g. a mixture of low-, middle-, and high-income housing opportunities) that is consistent with the priority needs of the local area (or that is proportional to the needs of an area)? | Refer to the public participation process undertaken to date in Section 6.7 of this Basic Assessment Report. Public participation and consultation will continue as planned for the duration of the Basic Assessment review period. Furthermore, refer to the identified impacts, their assessment and recommended mitigation measures in Section 6.10, 6.11, 6.12, 7, and 8 of this Basic Assessment Report and EMPr. The mine's SLP must also be updated on a regular basis. |
| 2.15 | What measures have been taken to ensure that current and / or future workers will be informed of work that potentially might be harmful to human health or the environment or of dangers associated with the work, and what measures have been taken to ensure that the right of workers to refuse such work will be respected and protected? | Workers at the mine are educated on a regular basis through toolbox talks on the environmental risks that may occur within their work environment, and adequate measures have been taken to ensure that the appropriate personal protective equipment is issued to workers based on the areas that they work in as well as the requirements of their job. |
| 2.16 | Describe how the development will impact on job creation in terms of, amongst other aspects: | |
| 2.16.1 | The number of temporary versus permanent jobs that will be created. | It is estimated that this project will assist in increasing the life of mine and maintain a contribution of approximately R2BN per annum. The proposed remaining project will result in the continued employment of approximately 92 permanent employees and approximately 346 permanent contractors. 6 new employment opportunities will be created (cleaning crew). Employment from the surrounding communities is recommended where possible, such that there will be no significant influx of additional workers to the area as a direct result of the proposed project. Labourers will mostly be sourced from surrounding towns such as Marikana which is located 2km from the mine itself. It should be noted that this application relates to the construction of the associated remaining infrastructure and not the remaining itself. |
| 2.16.2 | Whether the labour available in the area will be able to take up the job opportunities (i.e. do the required skills match the skills available in the area). | |
| 2.16.3 | The distance from where labourers will have to travel. | |
| 2.16.4 | The location of jobs opportunities versus the location of impacts. | |
| 2.16.5 | The opportunity costs in terms of job creation. | |

| Ref No. | Question | Answer |
|---------------|---|--|
| 2.17 | What measures were taken to ensure: | |
| 2.17.1 | That there were intergovernmental coordination and harmonisation of policies, legislation and actions relating to the environment. | The Basic Assessment process requires governmental departments to communicate regarding any application. In addition, all relevant Departments and key stakeholders have been notified about the project by the EAP and registered as Interested and Affected Parties who will continue to be notified and engaged with regarding the project throughout the Basic Assessment process. |
| 2.17.2 | That actual or potential conflicts of interest between organs of state were resolved through conflict resolution procedures. | The Basic Assessment process requires governmental departments to communicate regarding any application. In addition, all relevant Departments and key stakeholders have been notified about the project by the EAP and registered as Interested and Affected Parties who will continue to be notified and engaged with regarding the project throughout the Basic Assessment process. |
| 2.18 | What measures were taken to ensure that the environment will be held in public trust for the people, that the beneficial use of environmental resources will serve the public interest, and that the environment will be protected as the people's common heritage? | Refer to the identified impacts, their assessment and recommended mitigation measures in Section 6.10, 6.11, 6.12, 7, and 8 of this Basic Assessment Report. No heritage impacts are expected as a result of the proposed development. |
| 2.19 | Are the mitigation measures proposed realistic and what long-term environmental legacy and managed burden will be left? | Refer to the identified impacts, their assessment and recommended mitigation measures in Section 6.10, 6.11, 6.12, 7, and 8 of this Basic Assessment Report and EMPr. |
| 2.20 | What measures were taken to ensure that the costs of remedying pollution, environmental degradation and consequent adverse health effects and of preventing, controlling or minimising further pollution, environmental damage or adverse health effects will be paid for by those responsible for harming the environment? | The applicant has financial provisions in place. The amount is calculated using the published DMRE guideline document as required by section 54 (1) of the regulations <i>"Guideline Document for the evaluation of Quantum of Closure Related Financial Provision Provided by a Mine"</i> . Furthermore, in accordance with the NEMA Regulations Pertaining to the Financial Provision for Prospecting Exploration, Mining or Production Operations, an applicant or holder of a right or permit must determine and make financial provision to guarantee the availability of sufficient funds to undertake rehabilitation and remediation of the adverse environmental impacts of prospecting, exploration, mining or production operations. In this regard, the applicant, needs to include such financial provisions and this is already being undertaken by the mine. |
| 2.21 | Considering the need to secure ecological integrity and a healthy bio-physical environment, describe how the alternatives identified (in terms of all the different elements of | Refer to Section 5 for details of the alternatives considered, as well as this section of the of the Basic Assessment Report for the advantages and disadvantages of the proposed activity |

| Ref No. | Question | Answer |
|-------------|---|---|
| | the development and all the different impacts being proposed), resulted in the selection of the best practicable environmental option in terms of socio-economic considerations? | |
| 2.22 | Describe the positive and negative cumulative socio-economic impacts bearing in mind the size, scale, scope and nature of the project in relation to its location and other planned developments in the area? | Refer to the identified impacts, their assessment and recommended mitigation measures in Section 6.10, 6.11, 6.12, 7, and 8 of this Basic Assessment Report and EMPr. |



5 MOTIVATION FOR THE OVERALL PREFERRED SITE, ACTIVITIES AND TECHNOLOGY ALTERNATIVE

The proposed project entailing the retrofitting of the WLTR, construction of remining infrastructure and other related remining structures. The preferred alternatives considered were evaluated in terms of the development footprints, property, type of activity, technology and the no-go option (which is the option of not implementing, meaning the status quo is maintained).

No design or layout alternatives were considered for the proposed activities due to the nature of the proposed project. The proposed project is mainly planned along linear disturbances and/or pipeline, road and railway servitudes as well as the existing WLTR, KTD1 and Hoedspruit TSF and RWD.

5.1 DEVELOPMENT FOOTPRINT

The development footprint was assessed, and it has been determined that most of the proposed linear developments are planned to occur within disturbed areas or along existing infrastructure and therefore no further assessments of footprints were assessed.

5.2 PROPERTY ALTERNATIVES

The properties considered for this development belong to the applicant, and are predominantly characterised by open areas, mining, and industrial areas such that the proposed development would have minimal impacts on the properties and current land uses within these properties. The design and layout options were determined based on the nature of linear developments the proposed properties were chosen due to the locations of the existing K3 and K4 concentrators, KTD1, Hoedspruit return water dam and WLTR as the linear infrastructure proposed will service these areas. Furthermore, the proposed Remining and Repulping Plant location is based on the proximity of the KTD1 to be remined.

5.3 DESIGN OR LAYOUT ALTERNATIVES

No alternative design or layout alternatives were considered.

5.4 ACTIVITY ALTERNATIVE

The preferred activity alternative was assessed, and it was noted that the remining activity is required to assist as a long term rehabilitation process to remove the dormant tailings in the area and rehabilitate the ground and no other activity alternatives were considered in relation to this application.

5.5 TECHNOLOGY ALTERNATIVES

Technology alternatives considered include mechanical remining (phase 1) and hydro mining (phase 2). Both technology alternatives relating to the mining method were considered and have been assessed, both technologies were preferred for this study. The proposed infrastructure entailing steel HDPE lined tailings pipelines, HDPE return water pipeline and hydro mining pipeline to be placed over ground (on concrete plinths) no technology alternatives were considered in this assessment as this technology is considered standard practice for tailings and return water pipelines in the area.

5.6 NO-GO ALTERNATIVE

The no-go alternative was assessed which meant that the proposed development is abandoned and the status quo remains. The no-go alternative implies that the positive economic and visual and topographic benefits that could be as a result of this project would not be realised as the TSF would remain visible and no economic value would be realised by the applicant and those who stand to benefit job security from the continuation of this project and all negative environmental impacts that could result from this project would not occur, however, the no-go alternative was not identified as a feasible alternative for this project.

Consultation with adjacent landowners and other stakeholders is ongoing in order to keep them informed about the proposed project activities as well as to capture any comments and concerns they may have regarding the proposed project.

6 FULL DESCRIPTION OF THE PROCESS FOLLOWED TO REACH THE PROPOSED PREFERRED ALTERNATIVES WITHIN THE SITE

This section describes the specific site area and the location of site features, having taken into consideration the proposed development activities, footprints and alternatives.

In terms of Section 24(4)(b)(i) of the NEMA, the Environmental Impact Assessment Regulations (2014, as amended), requires the application to identify alternatives for the proposed project in terms of:

- Location of the development;
- The type of activity to be undertaken;
- Design or layout of the development;
- The technology to be used;
- The operational aspects of the activity; and
- The option of not implementing the activity.

6.1 DETAILINGS OF DEVELOPMENT FOOTPRINT ALTERNATIVES

The proposed project is proposed on properties with a combined footprint of 2870.74 ha. Due to the nature of linear developments such as pipelines, powerlines and access roads it is noteworthy footprint alternatives were limited as their footprints are determined by the start and end point of the proposed development. The proposed pipeline developments are located between the existing WLTR, return water dams and the proposed remining and repulping plants (which is located next to the KTD1 that is to be remined) and traverse mainly along routes of existing pipelines, road servitudes and other linear infrastructure on site. The proposed powerline developments will tie into existing substations to the various proposed return water pumpstations, remining and repulping plants and will mostly follow existing linear disturbances such as road servitudes and pipeline servitudes. The proposed powerline to the Hoedspruit return water pump stations will traverse through a section with minimal disturbance due to the location of the WLTR and the proposed Hoedspruit return water pumpstation location. A new access road is required for access to the Hoedspruit return water pumpstation, as no access road/route is available to this area on site. The proposed road is to be utilised during construction and for maintenance purposes of the return water pipeline infrastructure and planned pumpstation whilst other areas will be accessed via existing routes on site.

The planned remining and repulping plant area cover an approximate development area of 30 500 m² (combined area of the proposed area to be fenced).

Chrome stockpile area?

6.2 PROPERTY

The properties comprising the installation of the proposed infrastructure are predominantly characterised by open areas, mining and industrial areas. Should the proposed development be approved, it will mainly occur within mine access road reserves and existing pipeline servitudes with the chrome stockpile pad being adjacent the existing WLTR. The proposed linear alignments are mainly located in a heavily disturbed and highly modified environment, as such no further assessment of alternative properties were undertaken. It is also noteworthy that the proposed developments are planned in relation to the location of the KTD1 to be remined, existing K3 and K4 concentrators, existing WLTR plant, and locations of return water dams.

Furthermore, the proposed activities fall within the mine owned properties. It is not anticipated that the proposed retrofitting of the WLTR and associated infrastructure will affect the continuation of the long-term land uses of these properties.

6.3 TYPE OF ACTIVITY

The current land use within and around the WLTR and proposed remining and repulping plant project area comprises almost entirely of mining activities. The BAR process that has been undertaken includes the assessment of potential impacts and the identification of environmental sensitivities within and in the vicinity of the proposed project area thereby allowing for the recommendation of mitigation measures towards the avoidance, minimisation and / or management of the anticipated impacts. Since the area has already been utilized for mining activities (i.e. residue stockpiles, return water dams etc.), this application forms part of the long term environmental rehabilitation plan in the retreatment of tailings in the area . The proposed retreatment of tailings will entail hydromining, repulping and transportation of material to the Meccano 2 plant for retreatment. This process will utilise an existing plant/technology (which requires slight modification) and thus no activity alternatives that have been identified to achieve the proposed activities.

6.4 DESIGN OR LAYOUT

The proposed designs and layouts have been based on the existing infrastructure (e.g. WLTR plant) and proximity to the KTD1, K3 and K4 concentrators that will provide live tailings to be remined. The linear infrastructure required has been designed to follow existing roads, pipelines and railway infrastructure. Due to the nature of the project being designed to utilise the existing WLTR, return water dams, KTD1, K3 and K4 concentrators and thus providing limited opportunity to identify and possible layout and design alternatives. No design/layout alternatives were considered for this project.

6.5 TECHNOLOGY ALTERNATIVES

This application is for the infrastructure required to achieve the proposed remining of the KTD1 and live tailings from the K3 and K4 concentrator. The applicable technology alternatives for this application relate to the proposed mining process. There are two technically feasible options for the remining of tailings:

- Mechanical remining (Phase 1); and
- Hydro remining (Phase 2).

Mechanical remining of the tailings residue stockpile via bench mining using excavators. The aim is to commence with the Phase 1 remining in 2025. Phase 2 of the remining project will be done via hydro-mining to Western Limb Tailings Retreatment, where various pipelines will be required. **This application is for the construction of the remining and repulping infrastructure, pipeline infrastructure, powerlines and the retrofitting of the WLTR. It should be noted that both technology alternatives considered have been assessed as part of this application and the infrastructure to be constructed will enable the execution of the proposed technology alternatives for the remining project. It should be further noted that this application is not for the proposed remining activities but only for the required infrastructure and the application for the remining activity will be undertaken as a separate application to this.**

The proposed infrastructure entailing steel HDPE lined tailings pipelines, HDPE return water pipeline and hydro mining pipeline to be placed over ground (on concrete plinths) no technology alternatives were considered in this assessment as this technology is considered standard practice for tailings and return water pipelines in the area.

Powerlines are the only technology alternative considered as a power source. Alternative technologies that were considered for the supply of power are diesel generators, which, due to the nature of this application would be required at the various pumpstation areas, remining and repulping plants were not deemed as a viable option due to their vulnerability to theft, refuelling requirements and maintenance. The use of existing substations has been considered as the only viable technology for power supply as this is standard practice for mining operations and has more benefits.

- National Department of Water and Sanitation
- North West Department of Minerals and Energy
- North West Department Public Works and Roads
- North West Provincial Government: Department of Economic Development, Environment, Conservation and Tourism
- North West Provincial Government: Department of Social Development
- Rustenburg Local Municipality
- South African Civil Aviation Authority
- South African Heritage Resources Agency (SAHRA)
- South African National Parks (SanParks)
- South African National Roads Agency Limited (SANRAL)
- Transnet SOC Limited.

6.7.3 LIST OF KEY STAKEHOLDERS IDENTIFIED AND NOTIFIED

The following key stakeholders have been identified and notified of the proposed WLTR retrofitting and associated remaining infrastructure project:

- North West Wetland Forum
- North West Parks Board
- Transnet Soc Ltd
- Endangered Wildlife Trust
- Birdlife South Africa
- WESSA
- Council of Geoscience
- Magalies Water
- Western Platinum Ltd
- Rustenburg Platinum Mines
- Glencore Operations South Africa (Pty) Ltd
- Bapo ba Mogale Tribal Authority



Refer to Appendix B for the full list of I&AP's.

6.7.4 NOTIFICATION OF I&AP'S

The PPP commenced on the 3rd of July 2023 with an initial notification and call to register for a period of 30 days. Initial call to register notifications were conducted as presented below.

E-mails, SMS's and facsimiles (faxes) were prepared and distributed to the identified relevant authorities, affected and adjacent landowners and legal occupiers, ward councillors and other pre-identified key stakeholders. The notification documents included the following information:

- The purpose of the proposed project;
- Detailings of the NEMA Regulations that are anticipated to be applicable and must be adhered to;
- List of anticipated activities to be authorised;
- Location and extent of activities to be authorised;
- Detailings of the affected properties (including a locality map or an indication of where the locality map may be viewed or obtained);
- Brief but sufficient detail of the intended operation to enable I&APs to assess / surmise what impact the project will have on them or on the use of their land (if any);
- Initial call to register duration; and
- Contact detailings of the EAP.

Refer to Appendix B for proof of notification sent to I&AP's and for proof of correspondence with I&AP's.

10 Site notices were placed along the perimeter of the proposed project area and its surroundings on 4 July 2023. Furthermore, A3 posters (English and Afrikaans and Setswana) were placed at three public areas / venues in the vicinity of the proposed project area. The on-site notices and posters included the following information:

- Project name;
- Applicant name;
- Project location;
- Description of the environmental authorisation application process;
- Legislative requirements; and
- Relevant EAP contact person detailings for the project.

I&AP's were provided an opportunity to register for the proposed project from the 03rd of July 2023. I&AP's have been notified of the availability of the BAR which has been made available for 30 days from the 29th November 2023 to 19th January 2023, for public review and comment. Comments obtained during the BAR public review and comment period and the responses will be included in the final submission to the DMRE.

6.8 SUMMARY OF ISSUES RAISED BY I&AP'S

Any comments received during the PPP to date will be included in Appendix B. To date, no comments have been received. Refer to the I&AP database in Appendix B for a full list of pre-identified and registered interested and affected parties. This section will be updated post the review of the BAR and associated appendices for submission to the DMRE.

6.9 THE ENVIRONMENTAL ATTRIBUTES ASSOCIATED WITH THE ALTERNATIVES

6.9.1 SOCIO-ECONOMIC CONTEXT

The North West Province's economy is derived from a variety of sectors, of which mining and agriculture are the main contributors. The mining sector is the lead supplier to the Province's economy both financially and by its labour absorption capacity (35.5% contribution to the domestic economy in 1996).

The Bojanala Platinum District Municipality (Bojanala) is one of four district municipalities in the Northwest Province. Bojanala takes up 18 332 square kilometres or 17% of the province's land area. In Bojanala District, 94% of the population is black African, 5% is white and 1% is coloured. Bojanala Platinum District Municipality's male/female split in population was 111.6 males per 100 females in 2018. In 2008, the unemployment rate for Bojanala Platinum was 25% and increased overtime to 27.6% in 2018 (Bojanala Municipality IDP 2022 – 2027).

Mining and quarrying industry in the province and certainly in the district remains the backbone of the district's economic output. It is said 94% of the country's platinum is found in the Rustenburg and Brits areas which areas are also said to produce more platinum than any other single area in the world. Agricultural activities account for 19% of the district's land area and are mainly geared towards commercial dry-land farming, commercially irrigated farming and subsistence dry-land activities. Mixed-crop farming and in the areas of Rustenburg and Brits, maize and sunflower are in abundance in the district. The manufacturing and tourism sectors make up most of the remainder of the district's economic output.

Rustenburg Local Municipality is located in the centre of the Bojanala Platinum District with Madibeng Local Municipality (Brits area) to the east, Moses Kotane Local Municipality (Mankwe/Madikwe area) to the north, Kgetleng River Local Municipality (Swartruggens/Koster area) to the west, and the province of Gauteng to the south. There are 48 towns and settlements situated within Rustenburg Local Municipality. The town of Rustenburg, known as the Platinum Capital, and Thlabane are the main economic centres of the municipality. Mining and agriculture are the predominant land uses within the Rustenburg Local Municipality.

For the Rustenburg local municipal area, 266 471 people are economically active (employed or unemployed but looking for work), and of these, 26,4% are unemployed. 34,7% of the 142 219 economically active youth (15 – 34 years) in the Rustenburg Local Municipality are unemployed (Bojanala Municipality IDP 2022 – 2027).

6.9.2 TYPE OF ENVIRONMENT AFFECTED BY THE PROPOSED ACTIVITY

This section of the report has been compiled with input from various specialists that were appointed to undertake the specialist assessments for the application area. Refer to Appendix D for a copy of the specialist reports undertaken. The following specialist studies were undertaken:

- Vegetation and Wetland Assessment – Kyllinga Consulting; and
- Heritage Impact Assessment (Phase I) - Apelser Archaeological Consulting.

6.9.2.1 CLIMATE

The climate of the North West Province is characterized by hot summers and cool sunny winters, with the rainy season usually occurring from October through to March. Temperature and precipitation vary from the eastern and mountainous areas receiving a rainfall of between 600-700 mm per annum to the drier western areas receiving less than 300 mm per annum.

The climate in the region is a Highveld climate, characterized by hot summers during the months of September to March and cold winters starting from April to August, with thunderstorms occurring in the late afternoons of the summers and with frontal rain occurring in the winter months.

The summers are humid and hot, the minimum temperatures are relatively high with high maximums that can reach 39°C (Klipfontein Station). In the summer months there is a low pressure cell over the inland which brings in winds from a South Easterly to Easterly direction (138° - according to the Rustenburg station), and the low

pressure cell moves North as the winter months start to arrive, bringing a high pressure cell over the whole country, with a wind speed average of 3 m/s.

The winters are dry and cold with the cold fronts coming over the country, bringing in cold air from the Antarctic. In the interior (Highveld) the air is cold as a cold front move through. The winds come from a South to Westerly direction with average wind speeds of 1.5 m/s. The temperatures are cool during the day and cold at night, the minimum can reach -1°C. The wind speeds increase as spring approaches in September, with wind speeds peaking in the month of August but it decreases as the month passes, and the wind speed stabilizes till the next winter months, arriving in April to May.

In Rustenburg, the summers are long, warm, and mostly clear and the winters are short, cold, dry, and clear. Over the course of the year, the temperature typically varies from 2,7 °C to 28 °C and is rarely below -10,5 °C or above 32 °C. The warm season lasts for 6.0 months, from September 24 to March 22, with an average daily high temperature above 27°C. The hottest month of the year in Rustenburg is January, with an average high of 28 °C and low of 17 °C. The cool season lasts for 2.1 months, from May 29 to August 2, with an average daily high temperature below 21 °C. The coldest month of the year in Rustenburg is July, with an average low of 3 °C and high of 20 °C – Refer to Figure 9 (weatherspark.com/ accessed 23 October 2023).

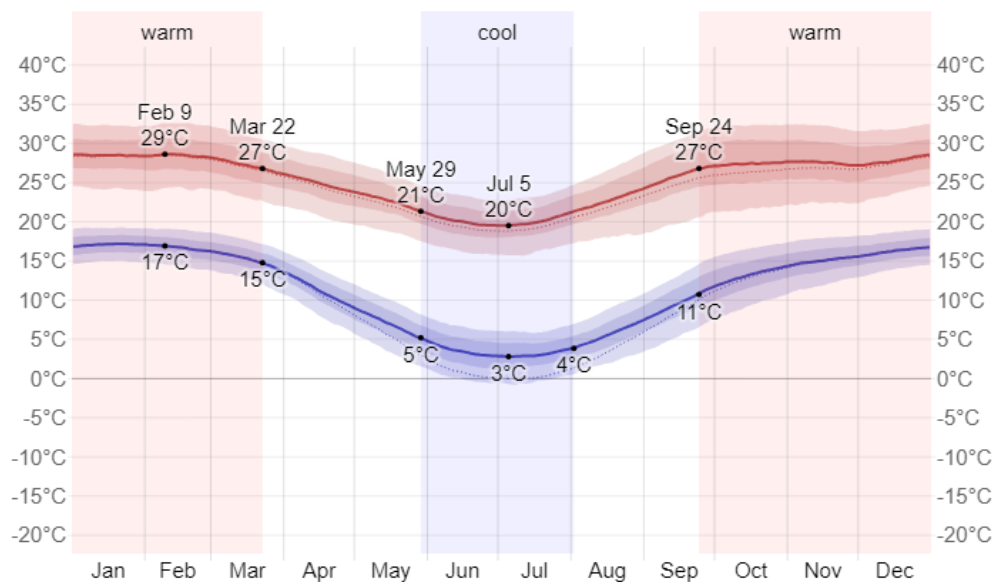


Figure 9: Graph showing average annual temperatures for Marikana (weatherspark.com, 2023)

6.9.2.2 GEOLOGY AND SOILS

The geological composition of the region encompasses the Rustenburg Layered Suite within the Bushveld Complex, which is believed to be the largest known mafic-ultramafic layered intrusion globally, spanning an approximate area of 66,000 km². Notably recognized for its extensive deposits of platinum and palladium, the Bushveld Complex is composed of three distinct ore bodies:

- Merensky Reef;
- Chromitite of the Upper Group (U2); and
- Platreef.

Western Platinum Limited (WPL) undertakes underground mining operations focused on the UG2 Reef, while the EP-Opencast operations target the Merensky and UG2 Reefs situated within the Upper Critical Zone.

The operational site of WPL is positioned in the western limb of the Bushveld Complex, as indicated in Figure 10. The Rustenburg Layered Suite encompasses the mafic-ultramafic rocks present in the Bushveld Complex and is categorized into distinct zones: Marginal, Lower, Critical, Main, and Upper Zones. These zones span from the

base to the summit of the Suite. The Critical Zone, of particular significance, houses chromium and PGMs within the Bushveld Complex.

Within the Critical Zone, both the Merensky Reef and UG2 Reef are located in the upper sub-zone. Positioned above the UG2 Reef (roughly 130 m to 210 m higher), the Merensky Reef and UG2 Reef exhibit an east to west strike trend. Dip angles range from approximately 12 degrees in the southern region to around 10 degrees in the northern expanse. In the deepest sections of the mining area, the Merensky Reef and UG2 Reef are anticipated to be situated at depths of 1,250 m and 1,400 m, respectively. WPL's underground mining activities are concentrated on the UG2 Reef, while the Merensky and UG2 Reefs of the Upper Critical Zone are the focal points of EP-Opencast operations (Final WPL EMPr, 2012)

The site is located on a single soil type as indicated in Figure 11. This soil form is naturally fertile, with high cation exchange capacities and high organic carbon contents.

6.9.2.3 WETLANDS

The topography of the site and the associated wetland units are highly impacted by the current and historical mining activities on site. Due to the various impacts on site, several artificial wetland units are present, including clean and dirty water mine dams, clean and dirty water canals and artificial seepage from mine dams. The tailings facilities have also been constructed in some of the watercourses, which resulted in a diversion of the watercourses into the clean water canals around the sites.

Wetlands on site and in the surrounding areas were originally delineated in 2022 by WCS Scientific in 2022. The assessment covered the entire study area and included the assessment of the wetlands along all the routes. Kyllinga Consultants conducted a desktop analysis of the wetlands on site.

The natural and artificial wetland areas on site have a very similar species composition. The wetland areas are mainly dominated by *Cyperus sexangularis*, (Biesiesgras) which often forms a monostand in the wetland areas. Several other sedge species and other wetland species are also present in lower dominance, mainly along the outer edges of the wetland areas and along road crossings. The proposed pipeline and powerline crossings are therefore mainly located along the edges with a greater species diversity. In the artificial seep wetland areas, a wider zone of grass and forb species are present and the dominance of Biesiesgras is lower. The vegetation diversity in both the natural and artificial wetland units are low.

The delineated wetlands were evaluated in terms of their Present Ecological Status (PES) and Ecological Importance and Sensitivity (EIS). Of the wetland units on site drainage lines to be affected by the proposed project have a PES score of C – moderately modified and a Low EIS and Channelled Valley Bottom (CVB) units with a PES score ranging from D – largely modified to E – Seriously modified but some remaining natural features are still recognisable. Refer to Figure 12 for the delineated wetlands map.

6.9.2.4 VEGETATION TYPE ASSESSMENT

The project area is situated within the Marikana Thornveld (SVcb6) vegetation type as shown in Figure 13, as described by Mucina & Rutherford (2006) (SANBI, 2018). A vegetation study was conducted by a terrestrial ecologist on site to identify and investigate the current state of the vegetation on the proposed development routes.

The Terrestrial Ecology report states that four sub-units of the terrestrial vegetation are present on site, namely:

- Marikana Thornveld;
- Modified Marikana Thornveld;
- Disturbances; and
- Rocky Outcrops.

The Marikana Thornveld vegetation unit most closely resembles the Marikana Thornveld vegetation type as described in Musina and Rutherford (2006). Although this vegetation unit has the second highest species diversity, most of it indigenous, the diversity is relatively low. The low diversity may be due to the season of the

site assessment, or the relatively small area visited. A greater diversity of forbs and geophytes are expected earlier in the growing season. The low species diversity may also be a function of the high grazing pressures in the area. Only a small section of Marikana Thornveld vegetation unit is affected by the proposed activities, with the vegetation unit only present at the proposed stockpile pad and loading area (Kyllinga Consulting, 2023).

The Modified Marikana Thornveld vegetation unit has a higher species diversity than the Marikana Thornveld vegetation unit, mainly due to the higher number of alien and invasive plant species. This vegetation unit is present in areas where some disturbance took place in the past, including ploughing or heavy grazing, and the vegetation has recovered to resemble the Marikana Thornveld vegetation type, but with several indicators of disturbance present. Indicators of disturbance include a higher density of pioneer species, alien and invasive plant species or higher densities of bush encroachers such as *Dichrostachys lycoides* (sickle bush). Species such as *Ziziphus mucronata* (buffalo thorn) and *Searcia leptodictya* (mountain karee) is also present in much lower densities and individuals of *Vachellia karroo* (sweet thorn) and *Vachellia tortillis* (umbrella thorn acacia) are all of similar age and size. The vegetation unit is dominant at the proposed remining and booster pump area and along most of the routes away from the existing roads and pipelines. This is also the dominant vegetation type along the proposed access road 2 (Kyllinga Consulting, 2023).

Numerous disturbances are present in the area, mainly associated with the mining activities. This includes existing dams and pump stations, several pipelines and powerlines, roads, tailings facilities, clean water canals and other infrastructure. These disturbances result in patches bare of vegetation and allow for the establishment of pioneer vegetation in the disturbed areas. Most of the proposed pipelines and powerlines are along disturbed areas, which significantly decreases the impact of the proposed activities on the environment.

The Rocky Outcrop vegetation type is less common in the area and is present along the proposed New Access Route from KTD3 to Hoedspruit Return Water Dam and in the south-western corner of the Remining and booster pump area. The soil in these areas is very rocky and more sandy, as opposed to the dark turf present throughout the rest of the site. These areas have a greater woody component, with a small herbaceous component. The species observed in the unit is fairly common and widespread and nothing of particular conservation importance were noted.

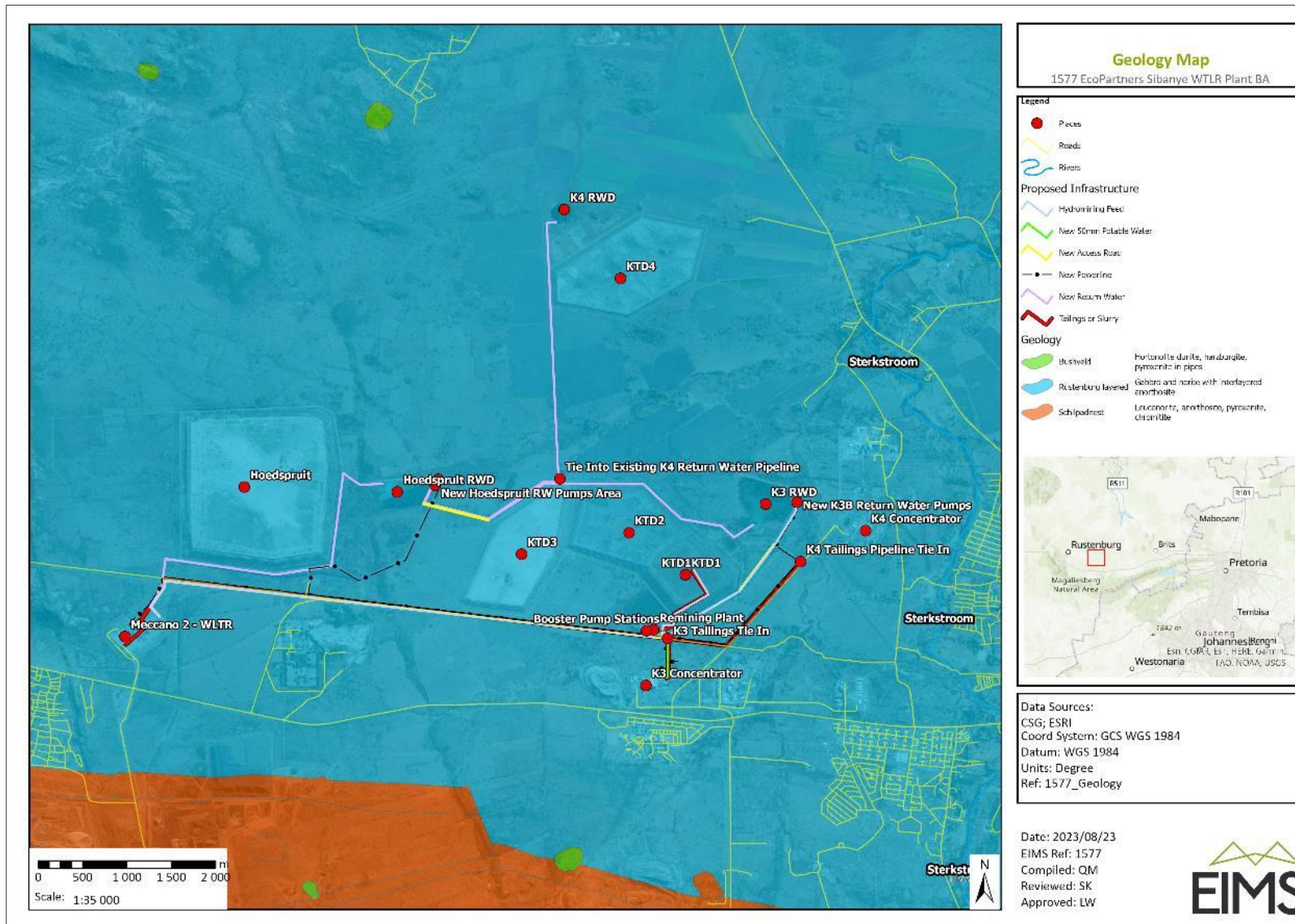


Figure 10: Simplified Geological Map (Council for Geoscience, 2022)

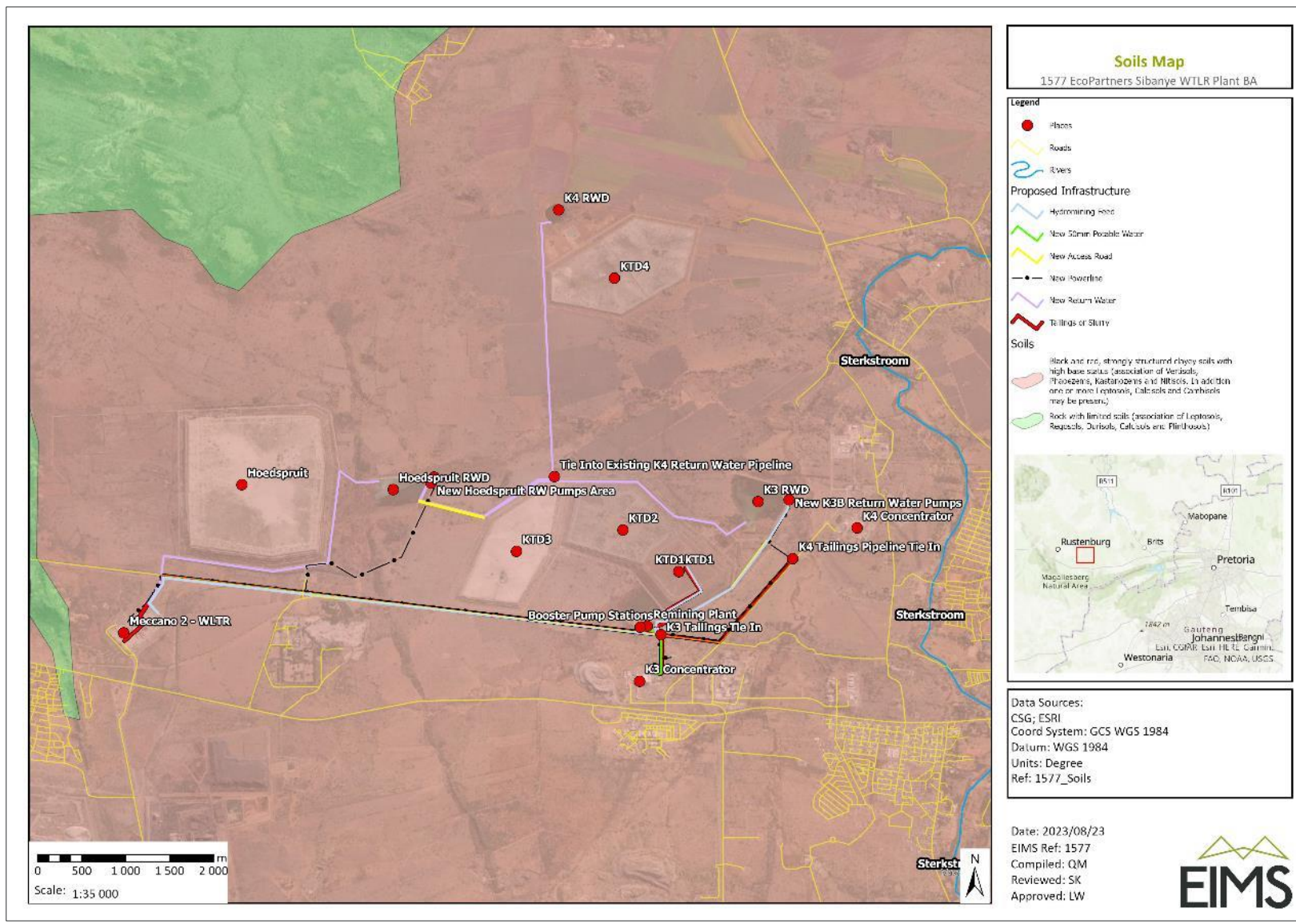


Figure 11: Simplified Soils Map (SORTER Soils Map, 2008)

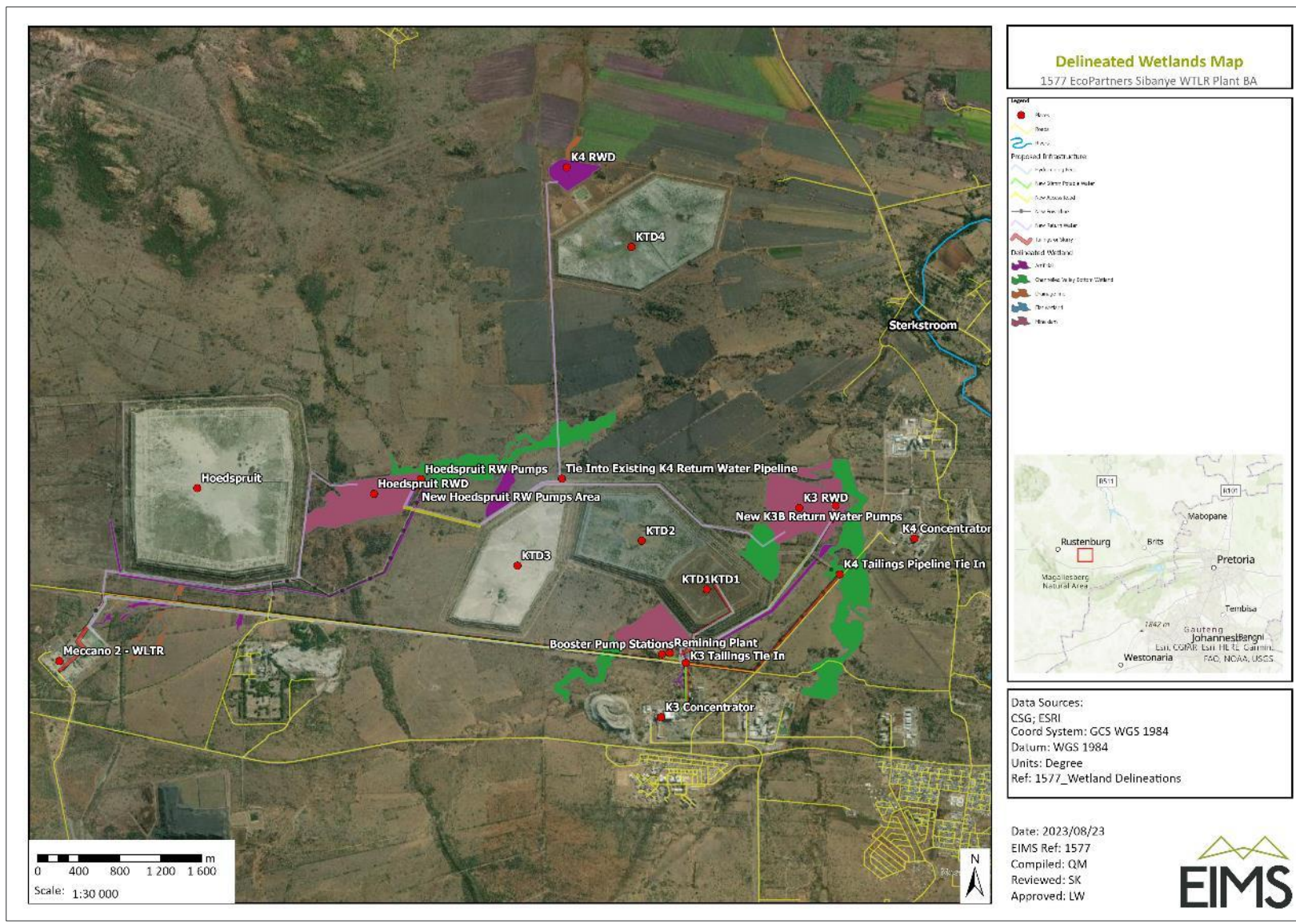


Figure 12: Delineated Wetlands Map (Kyllinga Consulting, 2023)

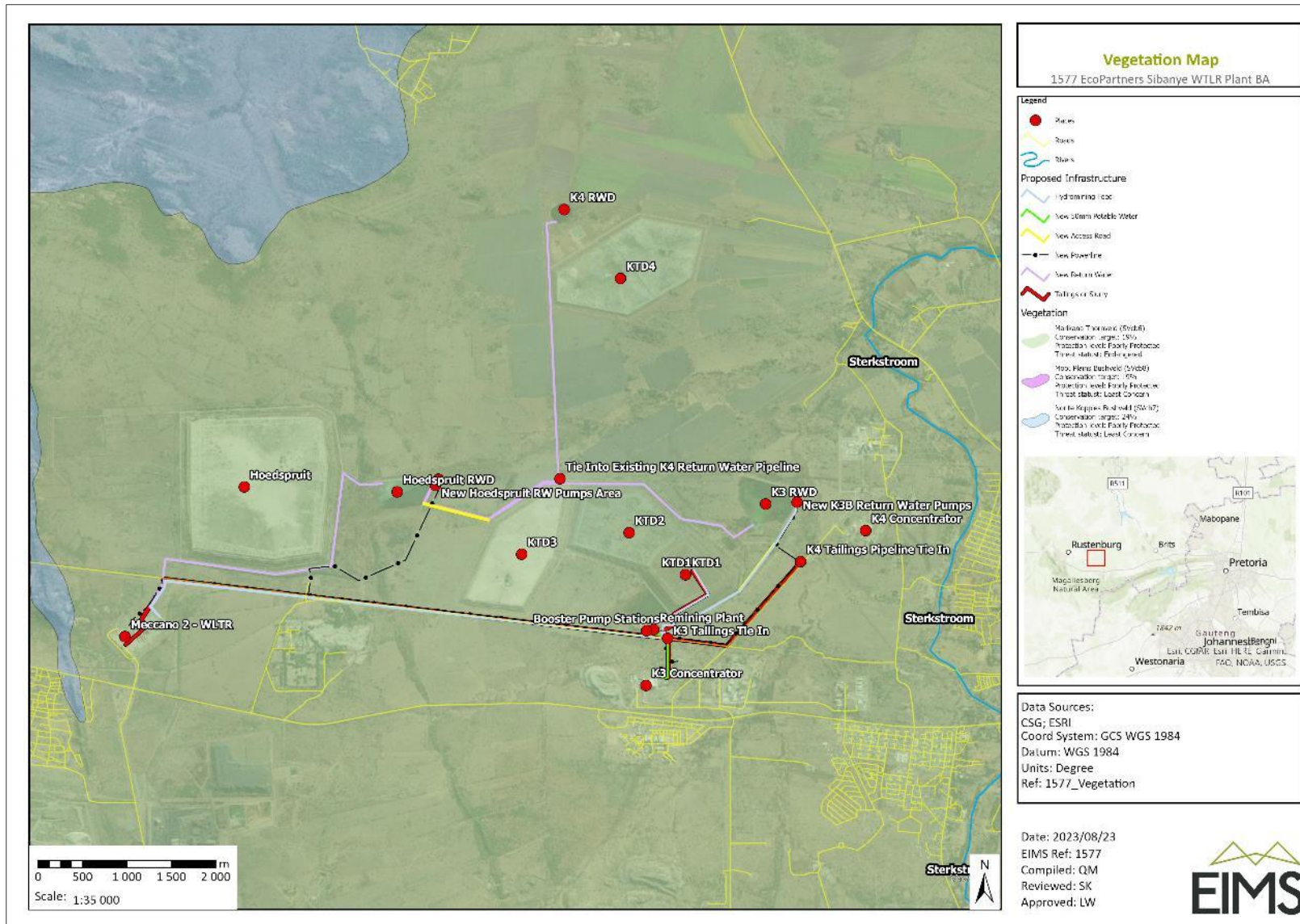


Figure 13: Vegetation Map (SANBI, 2018)

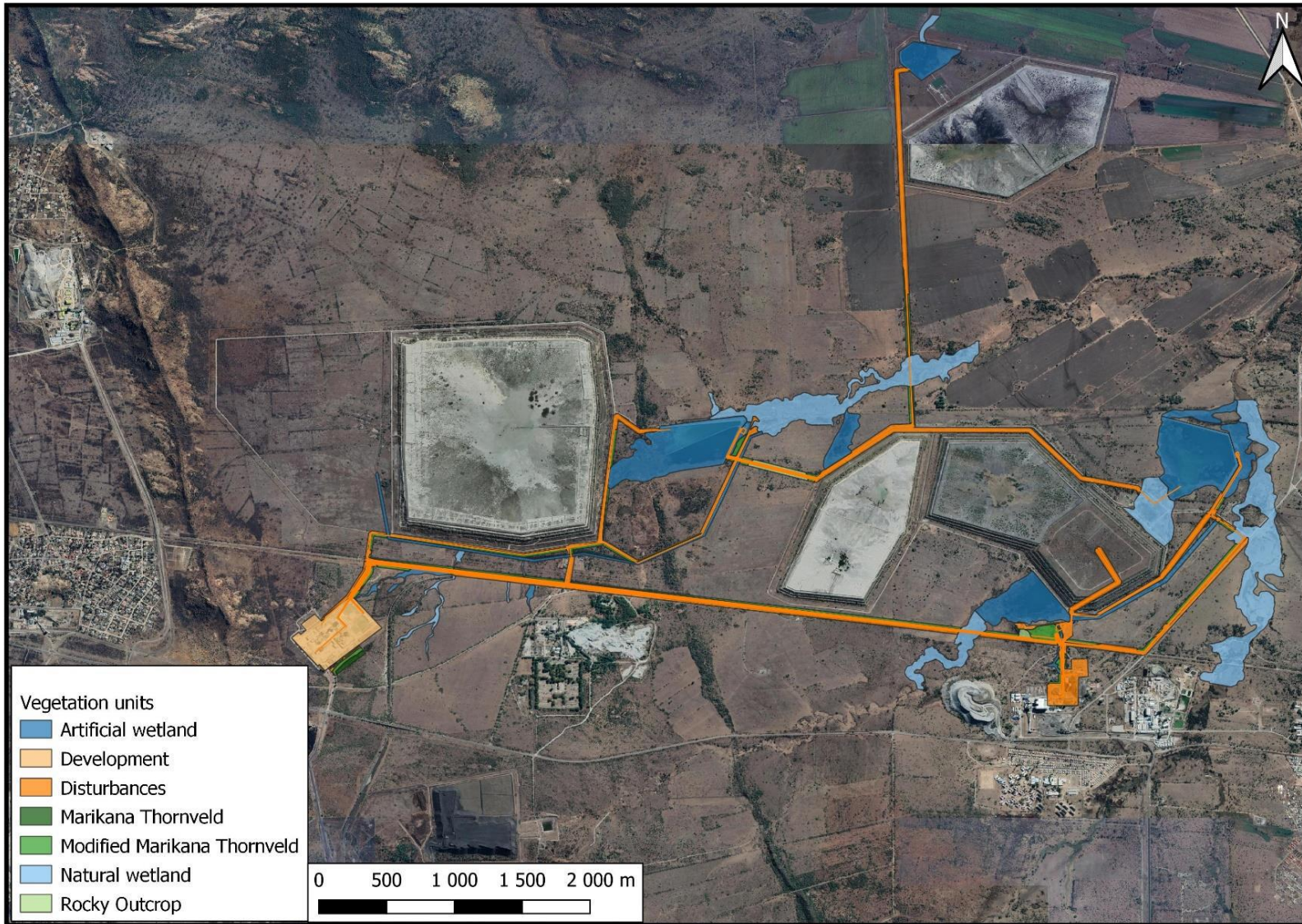


Figure 14: Delineated vegetation units (Kallinga Consulting, 2023)



Figure 15: Vegetation units present at the proposed stockpile pad and loading area (Kallinga Consulting, 2023)



6.9.2.4.1 ALIEN AND INVASIVE PLANTS

Invasive Alien Plants (IAPs) tend to dominate or replace indigenous flora, thereby transforming the structure, composition and functioning of ecosystems. Therefore, these plants must be controlled through an eradication and monitoring programme. Some invader plants may also degrade ecosystems through superior competitive capabilities to exclude native plant species.

NEMBA is the most recent legislation pertaining to alien invasive plant species. In August 2014, the list of Alien Invasive Species was published in terms of the NEMBA. The Alien and Invasive Species (AIS) Regulations were published in Government Gazette No. 43726, 18 September 2020. The legislation calls for the removal and/or control of IAP species (Category 1 species). In addition, unless authorised thereto in terms of the NWA, no land user shall allow Category 2 plants to occur within 30 meters of the 1:50 year flood line of a river, stream, spring, natural channel in which water flows regularly or intermittently, lake, dam or wetland. Category 3 plants are also prohibited from occurring within proximity to a watercourse. Below is a brief explanation of the three categories in terms of the NEMBA:

- Category 1a: Invasive species requiring compulsory control. Remove and destroy. Any specimens of Category 1a listed species need, by law, to be eradicated from the environment. No permits will be issued.
- Category 1b: Invasive species requiring compulsory control as part of an invasive species control programme. Remove and destroy. These plants are deemed to have such a high invasive potential that infestations can qualify to be placed under a government-sponsored invasive species management programme. No permits will be issued.
- Category 2: Invasive species regulated by area. A demarcation permit is required to import, possess, grow, breed, move, sell, buy or accept as a gift any plants listed as Category 2 plants. No permits will be issued for Category 2 plants to exist in riparian zones.
- Category 3: Invasive species regulated by activity. An individual plant permit is required to undertake any of the following restricted activities (import, possess, grow, breed, move, sell, buy or accept as a gift) involving a Category 3 species. No permits will be issued for Category 3 plants to exist in riparian zones.
- Note that according to the Alien and Invasive Species Regulations, a person who has under his or her control a category 1b listed invasive species must immediately:
 - Notify the competent authority in writing
 - Take steps to manage the listed invasive species in compliance with:
 - Section 75 of the NEMBA;
 - The relevant invasive species management programme developed in terms of regulation 4; and
 - Any directive issued in terms of section 73(3) of the NEMBA.

Nine (9) invasive alien plant species were recorded by Kyallinga Consulting (2023) within the study area. These species are listed under the Alien and Invasive Species List 2020, Government Gazette No. GN1003 as Category 1b AIP species. These IAP species must be controlled by implementing an IAP Management Programme, in compliance with section 75 of the NEMBA, as stated above.

Table 9: Invasive Alien Species recorded on site.

| Species | Growth Form | Class | Natural Wetlands | Artificial Wetlands | Marikana Thornveld | Modified Marikana Thornveld | Disturbances | Rocky Outcrop |
|--|-------------|-------------|------------------|---------------------|--------------------|-----------------------------|--------------|---------------|
| <i>Araujia sericifolia</i> (Bladderflower) | Forb | Category 1b | | | X | X | | X |
| <i>Cirsium vulgare</i> (Spear thistle) | Forb | Category 1b | X | X | | | | |
| <i>Ricinus communis</i> (Castor oil plant) | Shrub | Category 1b | X | | | X | | |
| <i>Tamarix chinensis</i> (Saltcedar) | Shrub | Category 1b | | X | | | | |
| <i>Tecoma stans</i> (Golden bells) | Tree | Category 1b | | | | X | | |
| <i>Verbena bonariensis</i> (Purpletop vervain) | Forb | Category 1b | | X | | X | | |
| <i>Verbena braziliensis</i> (Brazilian vervain) | Forb | Category 1b | | | | | X | |
| <i>Xanthium spinosum</i> (Spiny cocklebur) | Shrub | Category 1b | | | | X | | |
| <i>Xanthium strumarium</i> (Common cocklebur) | Shrub | Category 1b | X | | | X | X | |

6.9.2.5 ECOSYSTEM PROTECTION LEVEL AND THREAT STATUS

Ecosystem threat status outlines the degree to which ecosystems are still intact or alternatively losing vital aspects of their structure, function, and composition, on which their ability to provide ecosystem services ultimately depends (Skowno et al., 2019). Ecosystem types are categorised as Critically Endangered (CR), Endangered (EN), Vulnerable (VU) or Least Threatened (LT), based on the proportion of each ecosystem type that remains in good ecological condition (Skowno et al., 2019). The project areas were superimposed on the terrestrial ecosystem threat status as shown in Figure 13 above. The new proposed infrastructure and structures are located on the Marikana Thornveld vegetation (SANBI, 2018), This vegetation type is listed as EN. The Terrestrial Ecology findings state that the site is heavily modified and little of the Marikana Thornveld remains intact in the proposed project footprint, where it was noted that it would be disturbed was within the proposed chrome stockpiles pad.

Ecosystem protection level tells us whether ecosystems are adequately protected or under protected. Ecosystem types are categorised as not protected, poorly protected, moderately protected, or well protected, based on the proportion of each ecosystem type that occurs within a protected area recognised in the Protected Areas Act (Skowno et al., 2019). The project areas were assessed in terms of the vegetation unit it occurs on. According to this, the proposed WLTR project is located in a 'Poorly Protected' ecosystem.

6.9.2.6 RAMSAR SITES & WORLD HERITAGE SITES

No Ramsar sites or World heritage sites are located within the project area.

6.9.2.7 CULTURAL AND HERITAGE

A heritage assessment was undertaken in 2005 by Frans Roodt (Cultural Resource Consultants) where heritage sites found at Lonmin Project Area (now Sibanye-Stillwater Marikana Operations) were documented. A registry of heritage sites, which denote approximately 80% of the heritage sites within the mining complex, has been developed, identifying the various types of heritage sites and graves on site. These have been marked up on maps and plans of the area.

An assessment conducted by Apelser Archaeological Consulting in September 2023 focused on new water/slurry pipeline routes & connections, new (potential) overhead pPowerlines, access roads, remining and booster pump area, as well as a new stockpile pad and loading area. Most of the areas that had to be assessed is located in areas that had already been extensively impacted by mining-related activities, earlier agricultural developments and others such as Eskom powerlines and servitudes, railway line and roads. The potential of finding intact and undisturbed cultural heritage (archaeological and/or historical) sites, features or material is therefore deemed low. However, a number of previously recorded archaeological and historical sites are located in close proximity to the areas that had to be assessed in 2023. None of these will however be directly impacted by the proposed mining-related development actions. These sites include some Iron Age sites – mainly in the form of pottery scatters – as well as the remains of historical structures (farmsteads/farmworker homesteads) that were deemed of fairly low significance at the time.

6.9.2.8 PALAEOLOGY

It is noteworthy that the Sibanye-Stillwater WPL lies on the Transvaal Complex Western Limb and is characterized with igneous rock formations and thus is of no paleontological significance.

6.9.3 DESCRIPTION OF CURRENT LAND USES AND SPECIFIC ENVIRONMENTAL FEATURES AND INFRASTRUCTURE ON SITE

The WLTR plant is located approximately 6 km west of Marikana and approximately 15 km east of Rustenburg. The proposed WLTR project area is located within an existing mining area with majority of the proposed infrastructure following existing mining related infrastructure. Other dominant land uses in the project area include the tailings residue stockpiles, mine shafts, access roads, railway infrastructure servitudes, powerline and pipeline servitudes. The properties on which the proposed infrastructure is to be constructed on are expected to be generally flat, with a few steep tailings residue stockpiles in adjacent properties. The area is predominantly characterised by tailings residue stockpiles and other infrastructure related to the mining activities from the Western Platinum Limited mining operations

6.10 IMPACTS AND RISKS IDENTIFIED

In order to calculate the significance of an impact the probability, duration, extent, and magnitude will be assessed. The pre- and post-mitigation scores will provide an indication of the extent to which an impact can be successfully mitigated. The potential impacts that may occur as a result of the proposed WLTR Plant Retrofitting and associated remining infrastructure are listed on Table 17 below.

6.11 THE IMPACT ASSESSMENT METHODOLOGY

The impact significance rating methodology, as provided by EIMS, is guided by the requirements of the NEMA EIA Regulations, 2014. The broad approach to the significance rating methodology is to determine the environmental risk (ER) by considering the consequence (C) of each impact (comprising Nature, Extent, Duration, Magnitude, and Reversibility) and relate this to the probability/ likelihood (P) of the impact occurring. This determines the environmental risk. In addition, other factors, including cumulative impacts, public concern, and potential for irreplaceable loss of resources, are used to determine a prioritisation factor (PF) which is applied to the ER to determine the overall significance (S).

The significance (S) of an impact is determined by applying a prioritisation factor (PF) to the environmental risk (ER). The environmental risk is dependent on the consequence (C) of the particular impact and the probability (P) of the impact occurring. Consequence is determined through the consideration of the Nature (N), Extent (E), Duration (D), Magnitude (M), and reversibility (R) applicable to the specific impact.

For the purpose of this methodology the consequence of the impact is represented by:

$$C = \frac{(E + D + M + R) * N}{4}$$

Each individual aspect in the determination of the consequence is represented by a rating scale as defined in Table 10.

Table 10: Criteria for determination of impact consequence

| Aspect | Score | Definition |
|-------------------------|-------|--|
| Nature | - 1 | Likely to result in a negative/ detrimental impact |
| | +1 | Likely to result in a positive/ beneficial impact |
| Extent | 1 | Activity (i.e., limited to the area applicable to the specific activity) |
| | 2 | Site (i.e., within the development property boundary) |
| | 3 | Local (i.e., the area within 5 km of the site) |
| | 4 | Regional (i.e., extends between 5 and 50 km from the site) |
| | 5 | Provincial / National (i.e., extends beyond 50 km from the site) |
| Duration | 1 | Immediate (<1 year) |
| | 2 | Short term (1-5 years) |
| | 3 | Medium term (6-15 years) |
| | 4 | Long term (15-65 years, the impact will cease after the operational life span of the project) |
| | 5 | Permanent (>65 years, no mitigation measure of natural process will reduce the impact after construction) |
| Magnitude/ Intensity | 1 | Minor (where the impact affects the environment in such a way that natural, cultural, and social functions and processes are not affected) |
| | 2 | Low (where the impact affects the environment in such a way that natural, cultural, and social functions and processes are slightly affected) |
| | 3 | Moderate (where the affected environment is altered but natural, cultural, and social functions and processes continue albeit in a modified way, moderate improvement for +ve impacts) |

| Aspect | Score | Definition |
|----------------------|-------|--|
| | 4 | High (where natural, cultural, or social functions or processes are altered to the extent that it will temporarily cease, high improvement for +ve impacts) |
| | 5 | Very high / do not know (where natural, cultural or social functions or processes are altered to the extent that it will permanently cease, substantial improvement for +ve impacts) |
| Reversibility | 1 | Impact is reversible without any time and cost. |
| | 2 | Impact is reversible without incurring significant time and cost. |
| | 3 | Impact is reversible only by incurring significant time and cost. |
| | 4 | Impact is reversible only by incurring prohibitively high time and cost. |
| | 5 | Irreversible Impact. |

Once the C has been determined the ER is determined in accordance with the standard risk assessment relationship by multiplying the C and the P. Probability is rated/scored as per Table 11.

Table 11: Probability scoring

| | | |
|--------------------|---|--|
| Probability | 1 | Improbable (the possibility of the impact materialising is very low as a result of design, historic experience, or implementation of adequate corrective actions; <25%), |
| | 2 | Low probability (there is a possibility that the impact will occur; >25% and <50%), |
| | 3 | Medium probability (the impact may occur; >50% and <75%), |
| | 4 | High probability (it is most likely that the impact will occur- > 75% probability), or |
| | 5 | Definite (the impact will occur), |

The result is a qualitative representation of relative ER associated with the impact. ER is therefore calculated as follows:

$$ER = C \times P$$

Table 12: Determination of environmental risk

| | | | | | | |
|--------------------|---|---|----|----|----|----|
| Consequence | 5 | 5 | 10 | 15 | 20 | 25 |
| | 4 | 4 | 8 | 12 | 16 | 20 |
| | 3 | 3 | 6 | 9 | 12 | 15 |
| | 2 | 2 | 4 | 6 | 8 | 10 |

| | | | | | | |
|--|--------------------|---|---|---|---|---|
| | 1 | 1 | 2 | 3 | 4 | 5 |
| | | 1 | 2 | 3 | 4 | 5 |
| | Probability | | | | | |

The outcome of the environmental risk assessment will result in a range of scores, ranging from 1 through to 25. These ER scores are then grouped into respective classes as described in Table 13.

Table 13: Significance classes

| ER Score | Description |
|----------|---|
| <9 | Low (i.e., where this impact is unlikely to be a significant environmental risk/ reward). |
| ≥9 ≤17 | Medium (i.e., where the impact could have a significant environmental risk/ reward), |
| >17 | High (i.e., where the impact will have a significant environmental risk/ reward). |

The impact ER will be determined for each impact without relevant management and mitigation measures (pre-mitigation), as well as post implementation of relevant management and mitigation measures (post-mitigation). This allows for a prediction in the degree to which the impact can be managed/ mitigated.

In accordance with the requirements of Appendix 13. (1) of the EIA Regulations, 2014, and further to the assessment criteria presented above it is necessary to assess each potentially significant impact in terms of:

- Cumulative impacts; and
- The degree to which the impact may cause irreplaceable loss of resources.

To ensure that these factors are considered, an impact prioritisation factor (PF) will be applied to each impact ER (post-mitigation). This prioritisation factor does not aim to detract from the risk ratings but rather to focus the attention of the decision-making authority on the higher priority/significance issues and impacts. The PF will be applied to the ER score based on the assumption that relevant suggested management/mitigation impacts are implemented.

Table 14: Criteria for Determining Prioritisation

| | | |
|--------------------------------------|------------|---|
| Cumulative Impact (CI) | Low (1) | Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is unlikely that the impact will result in spatial and temporal cumulative change. |
| | Medium (2) | Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change. |
| | High (3) | Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is highly probable/definite that the impact will result in spatial and temporal cumulative change. |
| Irreplaceable loss of resources (LR) | Low (1) | Where the impact is unlikely to result in irreplaceable loss of resources. |

| | | |
|--|------------|---|
| | Medium (2) | Where the impact may result in the irreplaceable loss (cannot be replaced or substituted) of resources but the value (services and/or functions) of these resources is limited. |
| | High (3) | Where the impact may result in the irreplaceable loss of resources of high value (services and/or functions). |

The value for the final impact priority is represented as a single consolidated priority, determined as the sum of each individual criteria represented in Table 14. The impact priority is therefore determined as follows:

$$\text{Priority} = PR + CI + LR$$

The result is a priority score which ranges from 2 to 6 and a consequent PF ranging from 1 to 1.5 (refer to Table 15).

Table 15: Determination of prioritisation factor

| Priority | Prioritisation Factor |
|----------|-----------------------|
| 2 | 1 |
| 3 | 1.125 |
| 4 | 1.25 |
| 5 | 1.375 |
| 6 | 1.5 |

In order to determine the final impact significance, the PF is multiplied by the ER of the post mitigation scoring. The ultimate aim of the PF is an attempt to increase the post mitigation environmental risk rating by a factor of 0.5, if all the priority attributes are high (i.e., if an impact comes out with a high medium environmental risk after the conventional impact rating, but there is significant cumulative impact potential and significant potential for irreplaceable loss of resources, then the net result would be to upscale the impact to a high significance).

Table 16: Environmental Significance Rating

| Significance Rating | Description |
|---------------------|--|
| <-17 | High negative (i.e., where the impact must have an influence on the decision process to develop in the area). |
| ≥-17, ≤-9 | Medium negative (i.e., where the impact could influence the decision to develop in the area). |
| >-9, <0 | Low negative (i.e., where this impact would not have a direct influence on the decision to develop in the area). |
| 0 | No impact |

| Significance Rating | Description |
|---------------------|--|
| >0, <9 | Low positive (i.e., where this impact would not have a direct influence on the decision to develop in the area). |
| ≥9, ≤17 | Medium positive (i.e., where the impact could influence the decision to develop in the area). |
| >17 | High positive (i.e., where the impact must have an influence on the decision process to develop in the area). |

6.12 ANTICIPATED IMPACTS OF THE PROPOSED ACTIVITY

The proposed Meccano 2 plant will be constructed via the retrofitting of the existing WLTR plant and associated infrastructure will traverse several properties, whilst the remining and repulping plant will be constructed adjacent to the KTD1 to be remined. The proposed development covers a large area, which could result in a loss of vegetation, an increase in erosion and silt deposition, a loss of functionality of the directly impacted wetlands from the construction activities and could negatively impair the surface. Furthermore, the proposed project could result in compaction of soils; altering hydromorphic soils; drainage patterns change; altering surface hydrological characteristics; noise and deposition of dust.

A positive impact associated with the proposed activity is that the proposed Meccano 2 plant and its associated remining infrastructure will allow for the extension of the WLTR plant (currently 2025) through enabling the remining of old dormant Tailings residue stockpiles. This will have a positive impact through ensuring continued job security, skills development and poverty alleviation through local employment and contributions to the local economies. Furthermore, the remining of old tailings residue stockpile is part of Sibanye-Stillwater's long term rehabilitation plan of old tailings residue stockpiles which will have indirect positive impacts to the environment.

It should be noted that this report has been made available to I&AP's for review and comment and their comments and concerns will be taken into account in the final BAR. Refer to Section 6.11 for the Methodology used in determining and ranking the nature, significance, consequence, extent, duration and probability of potential environmental impacts and risks.

The following section provides a description and assessment of the potential impacts identified in the impact assessment process. Refer to Appendix E for the full impact scoring calculations. A summary of the positive and negative impacts of the proposed activity are provided in Section 6.12 and Table 17.

Table 17: Positive and Negative Impacts of The Proposed Activity

| Impact | Positive or Negative | Phase |
|--|----------------------|--------------|
| Linear developments excl access road - Loss of primary vegetation | Negative | Construction |
| Linear developments excl access road - Loss of wetland habitat | Negative | Construction |
| Linear developments excl access road - Ecological corridors | Negative | Construction |
| Linear developments excl access road - Infestation by alien invasive plant species | Negative | Construction |
| Linear developments excl access road - Erosion and Sedimentation | Negative | Construction |

| | | |
|--|----------|--------------|
| Linear developments excl access road - Infestation by alien invasive plant species | Negative | Operation |
| Linear developments excl access road - Erosion and Sedimentation | Negative | Operation |
| Access roads - Loss of primary vegetation | Negative | Construction |
| Access roads - Loss of wetland habitat | Negative | Construction |
| Access roads - Ecological corridors | Negative | Construction |
| Access roads - Infestation by plant species | Negative | Construction |
| Access roads - Erosion and sedimentation | Negative | Construction |
| Access roads - Infestation by alien invasive plant species | Negative | Operation |
| Access roads - Erosion and sedimentation | Negative | Operation |
| Chrome stockpile pad and loading area - Loss of primary vegetation | Negative | Construction |
| Chrome stockpile pad and loading area - Loss of wetland habitat | Negative | Construction |
| Chrome stockpile pad and loading area - Ecological corridors | Negative | Construction |
| Chrome stockpile pad and loading area - Infestation by invasive plant species | Negative | Construction |
| Chrome stockpile pad and loading area - Erosion and sedimentation | Negative | Construction |
| Chrome stockpile pad and loading area - Infestation by invasive plant species | Negative | Operation |
| Chrome stockpile pad and loading area - Erosion and sedimentation | Negative | Operation |
| Remining pump station - Loss of primary vegetation | Negative | Construction |
| Remining pump station - Loss of wetland habitat | Negative | Construction |
| Remining pump station - Ecological corridors | Negative | Construction |
| Remining pump station - Infestation by invasive plant species | Negative | Construction |
| Remining pump station - Erosion and sedimentation | Negative | Construction |
| Remining pump station - Infestation by invasive plant species | Negative | Operation |
| Remining pump station - Erosion and sedimentation | Negative | Operation |
| Increased dust generation PM 10 and PM 2.5 because of bulk earthworks, operation of heavy machinery, and material movement | Negative | Construction |
| Poor waste management will result in the contamination of surface runoff resulting in the deterioration of water quality of the watercourse. | Negative | Construction |

| | | |
|---|----------|--------------|
| Stochastic spills and leaks from plant and vehicles may result in impaired soil and water quality | Negative | Construction |
| Impacts on existing infrastructure | Negative | Construction |
| Job creation during construction phase | Positive | Construction |
| Impacts on recorded and known heritage sites | Negative | Construction |

6.13 THE POSSIBLE MITIGATION MEASURES THAT COULD BE APPLIED AND THE LEVEL OF RISK

The following sections provide a description and assessment of the mitigation measures for each potential impact identified in the impact assessment process. The impact scores below are reflective of the impacts before the implementation of mitigation measures. A second score indicating the final significance of each potential impact is also reflected below. This score indicates the degree of potential loss of irreplaceable resources and the cumulative nature of the impact. It should be noted that this report has been made available to I&AP's for review and comment and their comments and concerns will be addressed in the final report to be submitted to the DMRE for adjudication. Furthermore, it should be noted that the impact scores themselves will include the results of the aforementioned public response and comment. The results of the public consultation will be used to update the impact scores upon completion of the public review period, where after the finalised report will be submitted to the DMRE for adjudication. Please refer to Appendix E for the full impact scoring calculations. The mitigation hierarchy proposed by Macfarlane et al., (2016) was considered for this study (Figure 16).

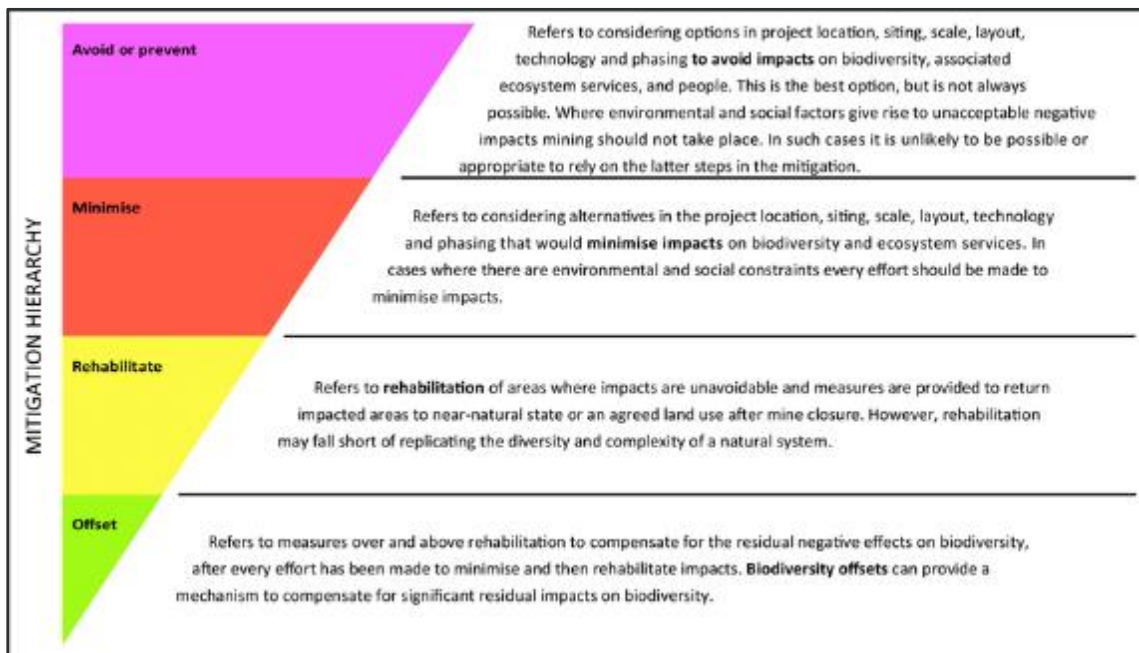


Figure 16: Mitigation hierarchy (Research Gate, 2019)

Please refer to Section 8 for the detailed mitigation measures associated with each aspect and impact. The Pre-mitigation significance and final significance for each impact are identified in Table 18 below.

Table 18: Pre- Mitigation Significance and Final Significance

| Impact | Positive or Negative | Pre-mitigation Significance | Final Significance |
|--|----------------------|-----------------------------|--------------------|
| Linear developments excl access road - Loss of primary vegetation | Negative | -7.5 | -6.75 |
| Linear developments excl access road - Loss of wetland habitat | Negative | -5.5 | -5.625 |
| Linear developments excl access road - Ecological corridors | Negative | -6 | -5.625 |
| Linear developments excl access road - Infestation by alien invasive plant species | Negative | -16 | -8.4375 |
| Linear developments excl access road - Erosion and Sedimentation | Negative | -10.5 | -5 |
| Linear developments excl access road - Infestation by alien invasive plant species | Negative | -14 | -8.4375 |
| Linear developments excl access road - Erosion and Sedimentation | Negative | -10.5 | -5 |
| Access roads - Loss of primary vegetation | Negative | -7.5 | -6.75 |
| Access roads - Loss of wetland habitat | Negative | -5.5 | -5.625 |
| Access roads - Ecological corridors | Negative | -6 | -5.625 |
| Access roads - Infestation by plant species | Negative | -14 | -7.59375 |
| Access roads - Erosion and sedimentation | Negative | -9.75 | -5 |
| Access roads - Infestation by plant species | Negative | -13 | -7.59375 |
| Access roads - Erosion and sedimentation | Negative | -9.75 | -5 |
| Chrome stockpile pad and loading area - Loss of primary vegetation | Negative | -8.25 | -7.5 |
| Chrome stockpile pad and loading area - Loss of wetland habitat | Negative | -5 | -4.5 |
| Chrome stockpile pad and loading area - Ecological corridors | Negative | -5.5 | -4.5 |
| Chrome stockpile pad and loading area - Infestation by invasive plant species | Negative | -16 | -6.75 |
| Chrome stockpile pad and loading area - Erosion and sedimentation | Negative | -10.5 | -3.5 |

| Impact | Positive or Negative | Pre-mitigation Significance | Final Significance |
|--|----------------------|-----------------------------|--------------------|
| Chrome stockpile pad and loading area - Infestation by invasive plant species | Negative | -16 | -6 |
| Chrome stockpile pad and loading area - Erosion and sedimentation | Negative | -10.5 | -4.5 |
| Remining pump station - Loss of primary vegetation | Negative | -8.25 | -7.5 |
| Remining pump station - Loss of wetland habitat | Negative | -7.5 | -5.625 |
| Remining pump station - Ecological corridors | Negative | -5.5 | -4.5 |
| Remining pump station - Infestation by invasive plant species | Negative | -16 | -6.75 |
| Remining pump station - Erosion and sedimentation | Negative | -10.5 | -3.5 |
| Remining pump station - Infestation by invasive plant species | Negative | -16 | -6 |
| Remining pump station - Erosion and sedimentation | Negative | -10.5 | -4.5 |
| Increased dust generation PM 10 and PM 2.5 because of bulk earthworks, operation of heavy machinery, and material movement | Negative | -9 | -7.875 |
| Poor waste management will result in the contamination of surface runoff resulting in the deterioration of water quality of the watercourse. | Negative | -12 | -5.90625 |
| Stochastic spills and leaks from plant and vehicles may result in impaired soil and water quality | Negative | -10 | -7.5 |
| Impacts on existing infrastructure | Negative | -5.5 | -3 |
| Job creation during construction phase | Positive | 6 | 11 |
| Impacts on recorded and known heritage sites | Negative | -2 | -2.25 |

7 ASSESSMENT METHODOLOGY OF IMPACTS

The impact assessment process is broken down as follows:

1. Identification of proposed activities including their nature and duration: Impacts were identified through various methods including a desktop analysis; specialist studies (Heritage and Wetlands) and the public participation process;
2. Screening of activities likely to result in impacts or risks;
3. Utilisation of the above mentioned EIMS methodology to assess and score preliminary impacts and risks identified. Refer to section 6.11 above for the full methodology used;
4. Inclusion of I&AP comments received through the public participation process regarding impact identification and assessment; and
5. Finalisation of impact identification and scoring.



8 IMPACT ASSESSMENT OF EACH IDENTIFIED POTENTIALLY SIGNIFICANT IMPACT AND RISK

Several potential impacts were identified during the impact assessment process. Table 19 provides a breakdown of the identified potential impacts associated with the activity and provides the associated proposed mitigation measures to minimise the potential impact. Refer to Appendix E for the impact assessment.

Table 19: Potential impacts Identified and associated mitigation measures.

| Name of activity | Potential impact | Aspects affected | Phase in which impact is anticipated | Significance if not mitigated | Mitigation type | Significance if mitigated |
|---|----------------------------|--|--------------------------------------|-------------------------------|---|---------------------------|
| Linear developments excluding access road | Loss of primary vegetation | <ul style="list-style-type: none"> • Aquatic and Terrestrial Ecology and Fauna • Erosion | Construction | -7.5 | <ul style="list-style-type: none"> • Areas of indigenous vegetation, even secondary communities outside of the direct project footprint, should not be fragmented or disturbed further. • Control invasive species across the site. • The clearing of vegetation must be minimised where possible. All activities must be restricted to within the authorised areas. | -6.75 |
| | Loss of wetland habitat | | Construction | -5.5 | <ul style="list-style-type: none"> • It is deemed important that the wetland areas be demarcated as sensitive areas, and no unauthorised construction activity, laydown yards, camps or dumping of construction material are to be permitted within the sensitive zones. | -5.625 |

| Name of activity | Potential impact | Aspects affected | Phase in which impact is anticipated | Significance if not mitigated | Mitigation type | Significance if mitigated |
|------------------|---|------------------|--------------------------------------|-------------------------------|--|---------------------------|
| | | | | | <ul style="list-style-type: none"> • Ensure that no pollution enters the wetland units on site, including polluted runoff. • Apply erosion and sediment control. | |
| | Ecological corridors | | Construction | -6 | <ul style="list-style-type: none"> • Good vegetation cover must be maintained in all areas not used for infrastructure. • It is recommended that areas to be developed/disturbed be specifically demarcated through pegging, where possible, so that during the construction/activity phase, only the demarcated areas be impacted upon. • Ecological corridors must not be disrupted where possible to ensure easy movement of fauna. In situations where species are observed on site they may not be killed. They must be removed by a suitably qualified person(s). | -5.625 |
| | Infestation by alien invasive plant species | | Construction | -16 | <ul style="list-style-type: none"> • An alien and invasive species control and monitoring plan must be compiled. | -8.4375 |

| Name of activity | Potential impact | Aspects affected | Phase in which impact is anticipated | Significance if not mitigated | Mitigation type | Significance if mitigated |
|------------------|---|------------------|--------------------------------------|-------------------------------|---|---------------------------|
| | | | | | <ul style="list-style-type: none"> Populations of invasive species on site must be controlled. The spread of invasive and weedy species from the site must be prevented. Several alien and invasive species resemble indigenous species, especially as seedlings. Care must be taken not to control indigenous species during the control of invasive species. | |
| | Erosion and Sedimentation | | Construction | -10.5 | <ul style="list-style-type: none"> Monitor the entire site for signs of erosion. All erosion features must be rehabilitated as soon as possible. Implement sediment fences around erosion prone areas. | -5 |
| | Infestation by alien invasive plant species | | Operation | -14 | <ul style="list-style-type: none"> Compile an alien and invasive species control and monitoring plan. Control invasive species across the site. | -8.4375 |
| | Erosion and Sedimentation | | Operation | -10.5 | <ul style="list-style-type: none"> Monitor the entire site for signs of erosion. | -5 |

| Name of activity | Potential impact | Aspects affected | Phase in which impact is anticipated | Significance if not mitigated | Mitigation type | Significance if mitigated |
|------------------|----------------------------|--|--------------------------------------|-------------------------------|---|---------------------------|
| | | | | | <ul style="list-style-type: none"> All erosion features must be rehabilitated as soon as possible. Implement sediment fences around erosion prone areas | |
| Access roads | Loss of primary vegetation | <ul style="list-style-type: none"> Aquatic and Terrestrial Ecology and Fauna Erosion | Construction | -7.5 | <ul style="list-style-type: none"> Areas of indigenous vegetation, even secondary communities outside of the direct project footprint, should not be fragmented or disturbed further. Control invasive species across the site. The clearing of vegetation must be minimised where possible. All activities must be restricted to within the authorised areas. | -6.75 |
| | Loss of wetland habitat | | Construction | -5.5 | <ul style="list-style-type: none"> It is deemed important that the wetland areas be demarcated as sensitive areas, and no unauthorised construction activity, laydown yards, camps or dumping of construction material are to be permitted within the sensitive zones (where possible). | -5.625 |

| Name of activity | Potential impact | Aspects affected | Phase in which impact is anticipated | Significance if not mitigated | Mitigation type | Significance if mitigated |
|------------------|------------------------------|------------------|--------------------------------------|-------------------------------|--|---------------------------|
| | | | | | <ul style="list-style-type: none"> • Ensure that no pollution enters the wetland units on site, including polluted runoff. • Apply erosion and sediment control. | |
| | Ecological corridors | | Construction | -6 | <ul style="list-style-type: none"> • Good vegetation cover must be maintained in all areas not used for infrastructure. • It is recommended that areas to be developed/disturbed be specifically demarcated through pegging, where possible, so that during the construction/activity phase, only the demarcated areas be impacted upon. • Ecological corridors must not be disrupted where possible to ensure easy movement of fauna. In situations where species are observed on site they may not be killed. They must be removed by a suitably qualified person(s). | -5.625 |
| | Infestation by plant species | | Construction | -14 | <ul style="list-style-type: none"> • An alien and invasive species control and monitoring plan must be compiled. | -7.59375 |

| Name of activity | Potential impact | Aspects affected | Phase in which impact is anticipated | Significance if not mitigated | Mitigation type | Significance if mitigated |
|------------------|------------------------------|------------------|--------------------------------------|-------------------------------|---|---------------------------|
| | | | | | <ul style="list-style-type: none"> Populations of invasive species on site must be controlled. The spread of invasive and weedy species from the site must be prevented. Several alien and invasive species resemble indigenous species, especially as seedlings. Care must be taken not to control indigenous species during the control of invasive species. | |
| | Erosion and sedimentation | | Construction | -9.75 | <ul style="list-style-type: none"> Monitor the entire site for signs of erosion. All erosion features must be rehabilitated as soon as possible. Implement sediment fences around erosion prone areas. | -5 |
| | Infestation by plant species | | Operation | -13 | <ul style="list-style-type: none"> Compile an alien and invasive species control and monitoring plan. Control invasive species across the site. | -7.59375 |
| | Erosion and sedimentation | | Operation | -9.75 | <ul style="list-style-type: none"> Monitor the entire site for signs of erosion. | -5 |

| Name of activity | Potential impact | Aspects affected | Phase in which impact is anticipated | Significance if not mitigated | Mitigation type | Significance if mitigated |
|---------------------------------------|----------------------------|--|--------------------------------------|-------------------------------|---|---------------------------|
| | | | | | <ul style="list-style-type: none"> All erosion features must be rehabilitated as soon as possible. Implement sediment fences around erosion prone areas | |
| Chrome stockpile pad and loading area | Loss of primary vegetation | <ul style="list-style-type: none"> Aquatic and Terrestrial Ecology and Fauna Erosion | Construction | -8.25 | <ul style="list-style-type: none"> Areas of indigenous vegetation, even secondary communities outside of the direct project footprint, should not be fragmented or disturbed further. Control invasive species across the site. The clearing of vegetation must be minimised where possible. All activities must be restricted to within the authorised areas. | -7.5 |
| | Loss of wetland habitat | | Construction | -5 | <ul style="list-style-type: none"> It is deemed important that the wetland areas be demarcated as sensitive areas, and no unauthorised construction activity, laydown yards, camps or dumping of construction material are to be permitted within the sensitive zones (where possible). | -4.5 |

| Name of activity | Potential impact | Aspects affected | Phase in which impact is anticipated | Significance if not mitigated | Mitigation type | Significance if mitigated |
|------------------|---------------------------------------|------------------|--------------------------------------|-------------------------------|--|---------------------------|
| | | | | | <ul style="list-style-type: none"> • Ensure that no pollution enters the wetland units on site, including polluted runoff. • Apply erosion and sediment control. | |
| | Ecological corridors | | Construction | -5.5 | <ul style="list-style-type: none"> • Good vegetation cover must be maintained in all areas not used for infrastructure. • It is recommended that areas to be developed/disturbed be specifically demarcated through pegging, where possible, so that during the construction/activity phase, only the demarcated areas be impacted upon. • Ecological corridors must not be disrupted where possible to ensure easy movement of fauna. In situations where species are observed on site they may not be killed. They must be removed by a suitably qualified person(s). | -4.5 |
| | Infestation by invasive plant species | | Construction | -16 | <ul style="list-style-type: none"> • An alien and invasive species control and monitoring plan must be compiled. | -6.75 |

| Name of activity | Potential impact | Aspects affected | Phase in which impact is anticipated | Significance if not mitigated | Mitigation type | Significance if mitigated |
|------------------|---------------------------------------|------------------|--------------------------------------|-------------------------------|---|---------------------------|
| | | | | | <ul style="list-style-type: none"> Populations of invasive species on site must be controlled. The spread of invasive and weedy species from the site must be prevented. Several alien and invasive species resemble indigenous species, especially as seedlings. Care must be taken not to control indigenous species during the control of invasive species. | |
| | Erosion and sedimentation | | Construction | -10.5 | <ul style="list-style-type: none"> Monitor the entire site for signs of erosion. All erosion features must be rehabilitated as soon as possible. Implement sediment fences around erosion prone areas. | -3.5 |
| | Infestation by invasive plant species | | Operation | -16 | <ul style="list-style-type: none"> Compile an alien and invasive species control and monitoring plan. Control invasive species across the site. | -6 |
| | Erosion and sedimentation | | Operation | -10.5 | <ul style="list-style-type: none"> Monitor the entire site for signs of erosion. | -4.5 |

| Name of activity | Potential impact | Aspects affected | Phase in which impact is anticipated | Significance if not mitigated | Mitigation type | Significance if mitigated |
|-----------------------|----------------------------|--|--------------------------------------|-------------------------------|---|---------------------------|
| | | | | | <ul style="list-style-type: none"> All erosion features must be rehabilitated as soon as possible. Implement sediment fences around erosion prone areas | |
| Remining pump station | Loss of primary vegetation | <ul style="list-style-type: none"> Aquatic and Terrestrial Ecology and Fauna Erosion | Construction | -8.25 | <ul style="list-style-type: none"> Areas of indigenous vegetation, even secondary communities outside of the direct project footprint, should not be fragmented or disturbed further. Control invasive species across the site. The clearing of vegetation must be minimised where possible. All activities must be restricted to within the authorised areas. | -7.5 |
| | Loss of wetland habitat | | Construction | -7.5 | <ul style="list-style-type: none"> It is deemed important that the wetland areas be demarcated as sensitive areas, and no unauthorised construction activity, laydown yards, camps or dumping of construction material are to be permitted within the sensitive zones (where possible). | -5.625 |

| Name of activity | Potential impact | Aspects affected | Phase in which impact is anticipated | Significance if not mitigated | Mitigation type | Significance if mitigated |
|------------------|---------------------------------------|------------------|--------------------------------------|-------------------------------|--|---------------------------|
| | | | | | <ul style="list-style-type: none"> • Ensure that no pollution enters the wetland units on site, including polluted runoff. • Apply erosion and sediment control. | |
| | Ecological corridors | | Construction | -5.5 | <ul style="list-style-type: none"> • Good vegetation cover must be maintained in all areas not used for infrastructure. • It is recommended that areas to be developed/disturbed be specifically demarcated through pegging, where possible, so that during the construction/activity phase, only the demarcated areas be impacted upon. • Ecological corridors must not be disrupted where possible to ensure easy movement of fauna. In situations where species are observed on site they may not be killed. They must be removed by a suitably qualified person(s). | -4.5 |
| | Infestation by invasive plant species | | Construction | -16 | <ul style="list-style-type: none"> • An alien and invasive species control and monitoring plan must be compiled. | -6.75 |

| Name of activity | Potential impact | Aspects affected | Phase in which impact is anticipated | Significance if not mitigated | Mitigation type | Significance if mitigated |
|------------------|---------------------------------------|------------------|--------------------------------------|-------------------------------|---|---------------------------|
| | | | | | <ul style="list-style-type: none"> Populations of invasive species on site must be controlled. The spread of invasive and weedy species from the site must be prevented. Several alien and invasive species resemble indigenous species, especially as seedlings. Care must be taken not to control indigenous species during the control of invasive species. | |
| | Erosion and sedimentation | | Construction | -10.5 | <ul style="list-style-type: none"> Monitor the entire site for signs of erosion. All erosion features must be rehabilitated as soon as possible. Implement sediment fences around erosion prone areas. | -3.5 |
| | Infestation by invasive plant species | | Operation | -16 | <ul style="list-style-type: none"> Compile an alien and invasive species control and monitoring plan. Control invasive species across the site. | -6 |
| | Erosion and sedimentation | | Operation | -10.5 | <ul style="list-style-type: none"> Monitor the entire site for signs of erosion. | -4.5 |

| Name of activity | Potential impact | Aspects affected | Phase in which impact is anticipated | Significance if not mitigated | Mitigation type | Significance if mitigated |
|------------------|--|---|--------------------------------------|-------------------------------|--|---------------------------|
| | | | | | <ul style="list-style-type: none"> All erosion features must be rehabilitated as soon as possible. Implement sediment fences around erosion prone areas | |
| All | Increased dust generation PM 10 and PM 2.5 because of bulk earthworks, operation of heavy machinery, and material movement | <ul style="list-style-type: none"> Dust | Construction | -9 | <ul style="list-style-type: none"> Speed limits must be put in place to reduce erosion. Soil surfaces must be wetted as necessary to reduce the dust generated by the project activities. Speed limit signage must be visible to traffic. | -7.875 |
| | Poor waste management will result in the contamination of surface runoff resulting in the deterioration of water quality of the watercourse. | <ul style="list-style-type: none"> General, hazardous and construction waste Storage of chemicals, and fuel Maintenance of pipelines | Construction/ Operation | -12 | <ul style="list-style-type: none"> Waste management must be a priority and all waste must be collected and stored effectively and responsibly according to a site-specific waste management plan. Dangerous waste such as metal wires and glass must only be stored in fully sealed and secure containers, before being moved off site as soon as possible. Litter, spills, fuels, chemical and human waste in and around the Project Area must be minimised and controlled. | -5.90625 |

| Name of activity | Potential impact | Aspects affected | Phase in which impact is anticipated | Significance if not mitigated | Mitigation type | Significance if mitigated |
|------------------|---|---|--------------------------------------|-------------------------------|---|---------------------------|
| | | | | | <ul style="list-style-type: none"> The Contractor should supply sealable and properly marked domestic waste collection bins and all solid waste collected shall be disposed of at a licensed disposal facility. Where a registered disposal facility is not available close to the Project Area, the Contractor shall provide a method statement with regards to waste management. Under no circumstances may domestic waste be burned on site or buried on open pits. Refuse bins will be responsibly emptied and secured. Temporary storage of domestic waste shall be in covered and secured waste skips. | |
| | Stochastic spills and leaks from plant and vehicles may result in impaired soil and water quality | <ul style="list-style-type: none"> Soils Water resource quality | Construction | -10 | <ul style="list-style-type: none"> Provision must be made to monitor any unforeseen impact that may arise as a result of the proposed project such as leakages in the pipeline. Leakages should be reported immediately to prevent pollution of the surrounding environment. | -7.5 |

| Name of activity | Potential impact | Aspects affected | Phase in which impact is anticipated | Significance if not mitigated | Mitigation type | Significance if mitigated |
|------------------|------------------------------------|--|--------------------------------------|-------------------------------|---|---------------------------|
| | | | | | <ul style="list-style-type: none"> All chemicals and toxicants to be used for the construction must be stored outside the channel system and in a bunded area. All machinery and equipment should be inspected regularly for faults and possible leaks, these should be serviced off-site. The Contractor shall be in possession of an emergency spill kit that must always be complete and available on site All contaminated soil / yard stone shall be treated in situ or removed and be placed in containers. | |
| | Impacts on existing infrastructure | <ul style="list-style-type: none"> XX | Construction | -5.5 | <ul style="list-style-type: none"> Care must be taken to ensure that existing infrastructure is not impacted on by construction activities. In the event that damage occurs to infrastructure (pipelines, powerlines, roads, railway etc.) it must be reported to the relevant authority/entity. | -3 |

| Name of activity | Potential impact | Aspects affected | Phase in which impact is anticipated | Significance if not mitigated | Mitigation type | Significance if mitigated |
|------------------|--|--|--------------------------------------|-------------------------------|---|---------------------------|
| | | | | | <ul style="list-style-type: none"> The contractor shall be held liable for damages caused on existing infrastructure. | |
| | Job creation during construction phase | <ul style="list-style-type: none"> XX | Construction | 6 | <ul style="list-style-type: none"> Labourers must be sourced locally as far as possible. Local suitably qualified SMMEs must be appointed where possible. | 11 |
| | Impacts on recorded and known heritage sites | <ul style="list-style-type: none"> XX | Construction | -2 | <ul style="list-style-type: none"> An appropriately qualified heritage practitioner / archaeologist must be identified to be called upon if any possible heritage resources or artefacts are identified Should an archaeological site or cultural material be discovered during construction (or operation), the area should be demarcated, and construction activities halted. The qualified heritage practitioner / archaeologist will then need to come out to the site and evaluate the extent and importance of the heritage resources and make the necessary recommendations for mitigating the find and the | -2.25 |

| Name of activity | Potential impact | Aspects affected | Phase in which impact is anticipated | Significance if not mitigated | Mitigation type | Significance if mitigated |
|------------------|------------------|------------------|--------------------------------------|-------------------------------|--|---------------------------|
| | | | | | <p>impact on the heritage resource.</p> <ul style="list-style-type: none"> • The contractor therefore should have some sort of contingency plan so that operations could move elsewhere temporarily while the materials and data are recovered. • Construction can commence as soon as the identified heritage site has been cleared and signed off by the heritage practitioner / archaeologist. • The chance find protocol must be implemented where possible heritage finds are uncovered. | |



9 SUMMARY OF SPECIALIST REPORTS

Various specialists that were appointed to undertake the specialist assessments for the application area. Vegetation and Wetland Assessment – Kyllinga Consulting; and

Heritage Impact Assessment (Phase I) - Apelser Archaeological Consulting

Table 20 presents a summary of the findings and recommendations as identified in the specialist studies undertaken to inform the BAR.

The following specialist studies were undertaken:

- Vegetation and Wetland Assessment – Kyllinga Consulting; and
- Heritage Impact Assessment (Phase I) - Apelser Archaeological Consulting

Table 20: Summary of Specialist Findings.

| Specialist study undertaken | Recommendations of Specialist Report | Reference to the applicable section of the Report where Specialist recommendations have been included. |
|---|--|--|
| <p>Vegetation and Wetland Assessment</p> | <p>A vegetation and wetland assessments were conducted and the findings of the report included that the site vegetation consisted of Marikana Thornveld vegetation which is endangered. It was further noted that the proposed developments would have minimal impacts on the vegetation as a bulk of the developments are along disturbed areas and servitudes.</p> <p>Several watercourses and wetland units were also identified on site. The specialist has made buffer recommendations as follows.</p> <p>Due to the nature of linear developments, no buffer zone is applicable to the pipeline, powerline and road construction activities.</p> <p>The proposed stockpile pad and loading area are located more than 200m away from the closest watercourse, which is located opposite a railway line. Although a small artificial wetland is present on site, it is present due to a leak at the pump station and will disappear if the leak is fixed. No buffer zone recommendation is therefore needed for this development.</p> <p>The proposed remining and booster pump area is located in proximity to a clean water dam in a channelled valley bottom (CVB) wetland. The existing tailings facility was constructed on top of the CVB wetland directly downstream of the dam and a clean water canal pass around the tailings facility to the east. According to the buffer tool, a buffer of 50m wetland buffer is required around the remining and booster pump area. No buffers are required for the vegetation units.</p> | <p>Sections 8</p> |

| Specialist study undertaken | Recommendations of Specialist Report | Reference to the applicable section of the Report where Specialist recommendations have been included. |
|---|--|--|
| Heritage Impact Assessment (Phase I) - Apelser Archaeological Consulting | <p>A field assessment was conducted in September 2023 focused on the proposed project's development footprint. The findings of the assessment are as follows:</p> <p>Most of the areas that had to be assessed are located in areas that had already been extensively impacted by mining-related activities, earlier agricultural developments and others such as Eskom Powerlines and servitudes, railway line and roads. The potential of finding intact and undisturbed cultural heritage (archaeological and/or historical) sites, features or material is therefore deemed low. However, several previously recorded archaeological and historical sites are located in close proximity to the areas that had to be assessed in 2023. None of these will, however, be directly impacted by the proposed mining-related development actions. These sites include some Iron Age sites – mainly in the form of pottery scatters – as well as the remains of historical structures (farmsteads/farmworker homesteads) that were deemed of fairly low significance at the time. No further mitigation measures were required for most of these sites. A number of these resources have also been evidently directly impacted (probably demolished already) by mining-related developments such as tailings dams and other infrastructure that are situated in the locations where these used to be.</p> <p>The most significant of these sites was a graveyard (informal cemetery) containing around 24 graves located close to the Hoedspruit Tailings Dam. The site is located close to the proposed New Powerline feeding the Hoedspruit Return Water (RW) Pumps. Graves and Grave Site always carry a High Significance Rating from a Cultural Heritage point of view, and care should be taken therefore not to impact negatively on the site. If the site and graves cannot be avoided by placing a buffer zone around it in order to protect it in situ, then they can be relocated after all the required legal processes and requirements have been adhered to. The sites were not located and assessed during the September 2023 field assessment.</p> <p>Two previously unrecorded sites were identified during the September 2023 assessment. Both of these are located in the general area close to the New K4 Return Water Pipeline to RWD 280HDPE, although they will not be directly impacted. Site 1 is situated close to some rocky outcrops and a low rocky (norite/granite) ridge. The site contains a number of small scatters of pottery (undecorated) and some sections of low stone-walling that are representative of various enclosures for livestock and possibly hut bays. The site dates to the Late Iron Age and is similar to those identified in the larger study area during previous</p> | Section 8 |

| Specialist study undertaken | Recommendations of Specialist Report | Reference to the applicable section of the Report where Specialist recommendations have been included. |
|-----------------------------|--|--|
| | <p>assessments such as those by Pistorius in 2012. Although the site will not be directly impacted by the new pipeline development, care should still be taken to avoid the archaeological site by placing a buffer zone of at least 30m around it within which no development should be allowed.</p> <p>Site 2 consists of the remains (mostly foundations) of various structures that were possibly a farmstead with related infrastructure, including farmworkers homesteads. The age of the 16 structures could not be determined, but it is likely less than 60 years of age based on the brick and cement construction observed. The site is not deemed of high significance due to its general bad state of preservation (with the structures on it being mostly demolished/vandalised). The possibility of the presence of graves close to the site should always be considered, but none were identified during the assessment. The site will not be directly impacted by the proposed mining-related developments.</p> | |



10 ENVIRONMENTAL IMPACT STATEMENT

10.1 SUMMARY OF KEY FINDINGS

A summary of the key findings of the environmental impact assessment as undertaken in this BAR is outlined below:

- The majority of the impacts had a medium to low negative (-ve) rating prior to mitigation, which were then decreased to a low- negative in the post mitigation scenario.
- The proposed Meccano 2 plant (WLTR Plant Retrofitting) and associated remining infrastructure project has the potential to impact negatively on the surrounding environment and properties it will transverse. However, the impact assessment conducted by the EAP and specialists concluded that the foreseeable impacts can be mitigated to acceptable levels through the implementation of the proposed mitigation measures.
- The HIA identified Two (2) previously unrecorded sites during the September 2023 assessment. Both of these are located in the general area close to the New K4 Return Water Pipeline to RWD 280HDPE, although they will not be directly impacted. Site 1 is situated close to some rocky outcrops and a low rocky (norite/granite) ridge. The site contains a number of small scatters of pottery (undecorated) and some sections of low stone-walling that are representative of various enclosures for livestock and possibly hut bays. Site 2 consists of the remains (mostly foundations) of various structures that were possibly a farmstead with related infrastructure, including farmworkers homesteads. The age of the 16 structures could not be determined, but it is likely less than 60 years of age based on the brick and cement construction observed. The site is not deemed of high significance due to its general bad state of preservation (with the structures on it being mostly demolished/vandalised).
- The HIA further stated that based on an HIA conducted in 2012 in the area several sites with heritage significance were identified. The most significant of these sites was a graveyard (informal cemetery) containing around 24 graves located close to the Hoedspruit Tailings Dam. The site is located close to the proposed New Powerline feeding the Hoedspruit Return Water (RW) Pumps.
- A vegetation and wetland assessments were conducted on site and the findings of the report included that the site vegetation consisted of Marikana Thornveld vegetation which is endangered. It was further noted that the proposed developments would have minimal impacts on these vegetation projects as the bulk of the developments are along disturbed areas and servitudes
- The proposed remining and booster pump area is located in proximity to a clean water dam in a channelled valley bottom (CVB) wetland. The existing tailings facility was constructed on top of the CVB wetland directly downstream of the dam and a clean water canal pass around the tailings facility to the east. According to the buffer tool, a buffer of 50m wetland buffer is required around the remining and booster pump area. No buffers are required for the vegetation units.

Key findings for the socio-economic environment

- The project has potential to contribute to the Rustenburg economy through job creation during the construction periods.

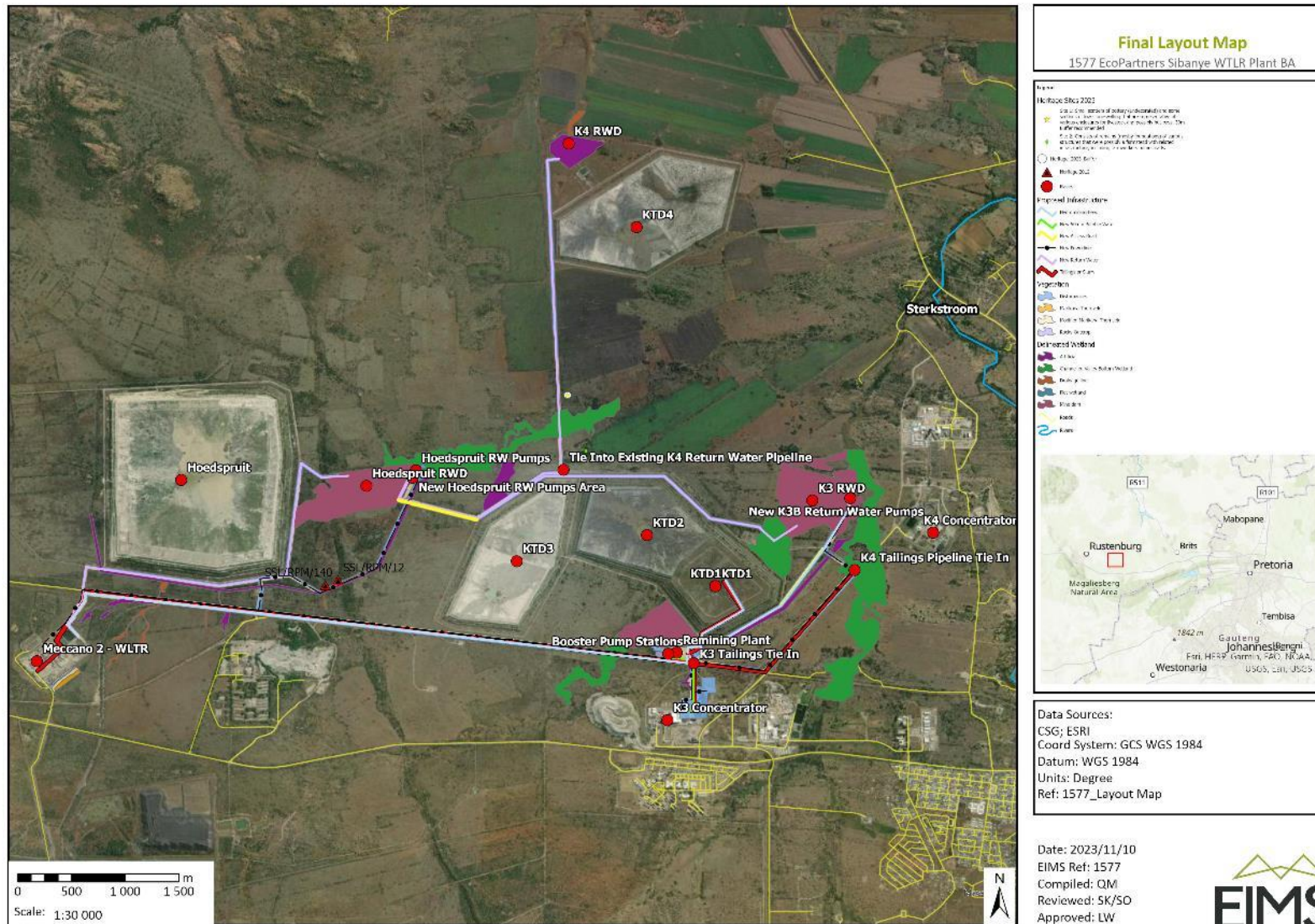


Figure 17: - Final site layout map



10.3 SUMMARY OF POSITIVE AND NEGATIVE IMPLICATIONS AND RISKS

The proposed WLTR plant retrofitting and associated remining infrastructure project will transverse several properties which could result in direct and indirect environmental impacts. Furthermore, the proposed project could also result in erosion; compaction of soils; introduction and spread of alien species; pollution of water resources; loss of indigenous vegetation; soil erosion; dust and waste management challenges among others.

The aim of the proposed project is to increase the LOM of the WLTR plant. WLTR plant retrofitting, installation of infrastructure and construction of related remining structures is required to allow for the remining of existing dormant Tailings residue stockpiles. Due to the site's historic mining alterations, these pre-existing alterations will allow for seamless continuation of the current land uses. Furthermore, the proposed infrastructure allows for the employment of newer technologies to recover PGM reserves that initially could not be mined due to technological deficiencies. The continuation of mining activities in turn has major spinoffs for improving the local economy which is primarily maintained by mining activities and ensuring sustainable job security for local people who are currently employed by the mine.

The implementation of the proposed mitigation measures will ensure that the negative implications and risks of the project are reduced to a low level. Appropriate mechanisms for avoidance and mitigation of these negative impacts are included in the EMP. The potential negative impacts are listed in Table 17.

11 PROPOSED IMPACT MANAGEMENT OBJECTIVES AND OUTCOMES

The management objective is to minimise the cultural, heritage/archaeological, and biodiversity impacts of the proposed activity in terms of the perceptions and expectations of I&AP's. The outcome to be achieved is to lessen the impact through the following measures:

- Ensure that accurate information regarding the construction of the proposed infrastructure is communicated to I&APs;
- Ensure that information is communicated in a manner which is understandable and accessible to I&APs;
- Prevent the unnecessary destruction of, and fragmentation, of the vegetation community;
- Prevent the loss of the faunal community (including potentially occurring species of conservation concern) associated with the vegetation communities;
- Limiting the activity to the defined servitude area and only impacting those areas where it is unavoidable to do so otherwise;
- Ensure an approach that will provide the necessary confidence in terms of environmental compliance;
- Prevent the further loss and fragmentation of vegetation communities and the CBA areas in the vicinity of the project areas;
- Conserve sensitive receptors linked with wetland habitats to ensure that the functional integrity of all delineated systems is ensured;
- To avoid damage to road, railway, electric (powerlines) etc infrastructure;
- To mitigate the impact on the wetlands;
- To prevent water quality contamination;
- To mitigate the impact on hydromorphic soils and compaction; and
- To maintain safety to communities, workers etc.

12 ASPECTS FOR INCLUSION AS CONDITIONS OF AUTHORISATION

The following conditions are recommended for inclusion in the Environmental Authorisation:

- All mitigation measures included in the Basic Assessment Report, EMPr and associated specialist studies report must be adhered to;
- A Heritage Specialist must be appointed to delineate no-go areas in relation to the informal cemetery/graveyard identified along powerline route from Hoedspruit during commencement of construction activities.
- An Environmental Control Officer should be appointed for the proposed project to monitor compliance with the conditions of the Authorisation and EMPr during the construction phase.

13 DESCRIPTION OF ANY ASSUMPTIONS, UNCERTAINTIES AND GAPS IN KNOWLEDGE

Certain assumptions, limitations, and uncertainties are associated with the BAR. This report is based on information that is currently available and, as a result, the following limitations and assumptions are applicable:

- The project scope and descriptions are based on project information provided by the client;
- The information presented in this report is based on the information available at the time of compilation of the report;
- It is assumed that all data and information supplied by the Specialist, Applicant or any of their staff or consultants is complete, valid, and true; and
- The description of the baseline environment has been obtained from specialist studies.

Furthermore, certain assumptions, limitations, and uncertainties are associated with the BAR specialist studies and these are detailed for each aspect below.

Vegetation and Wetland Impact Assessment:

- The site assessment is limited to the site and the provided routes. The delineation and assessment of wetland areas in the surroundings are largely based on desktop assessments and the supplied information. In addition, the assessment of the wetland is mainly confined to the specific crossings and not to the entire wetland unit.
- The site visit took place at the end of the growing season, during a wet season with late rains. It is therefore possible that early flowering species and species with early dormancy were missed. The assessment was also confined to the provided routes.

Heritage Impact Assessment (Phase I):

- Although all efforts are made to identify all sites of cultural heritage (archaeological and historical) significance during an assessment of study areas, the nature of archaeological and historical sites are as such that it is always possible that hidden or subterranean sites, features or objects could be overlooked during the study.

14 REASONED OPINION AS TO WHETHER THE PROPOSED ACTIVITY SHOULD OR SHOULD NOT BE AUTHORISED

The section below gives reasons on why the activity should be authorised as well as conditions which that should be included in the authorisation.

14.1 REASONS WHY THE ACTIVITY SHOULD BE AUTHORISED OR NOT

The impacts on the environment can be mitigated to a low final significance through implementation of the proposed EMPr mitigation measures. Furthermore, no fatal flaws were identified through the specialist studies undertaken as part of this assessment. It is therefore the opinion of the EAP that the proposed activity should be authorised.

14.2 CONDITIONS THAT MUST BE INCLUDED IN THE AUTHORISATION

The following conditions should be included in the environmental authorisation:

- The applicant should adhere to the conditions of the EA, EMPr and the Specialist reports for this project; and
- A Heritage Specialist must be appointed to delineate no-go areas in relation to the informal cemetery/graveyard identified along powerline route from Hoedspruit during commencement of construction activities.
- An independent Environmental Control Officer should be appointed for the proposed project to ensure compliance with the EMPr during the construction phase.

15 PERIOD FOR WHICH THE ENVIRONMENTAL AUTHORISATION IS REQUIRED

The Environmental Authorisation applied for contains activities with an operational phase. Construction activities must commence within five (5) years of approval of EA application, after completion of construction activities the EA will no longer be valid. Listed activities with an operational phase (development and operation) will be mitigated through the mine's approved EMPr and the EA will be valid for the life of mine's operations.

16 UNDERTAKING

It is confirmed that the undertaking required to meet the requirements of this section is provided at the end of the BAR and is applicable to both the BAR and the EMPr. Refer to section 16 for the signed undertakings.

17 FINANCIAL PROVISION

Financial provision for the rehabilitation of the Meccano 2 plant and associated remaining plant and infrastructure project will be included in the Final Report to be submitted to DMRE.

18 OTHER MATTERS REQUIRED IN TERMS OF SECTIONS 24(4)(A) AND (B) OF THE ACT

Section 24(4) (A) and (B) refer to the "procedures for investigation, assessment and communication of the potential consequences or impacts of activities on the environment". The table below provides reference to where in the report section 24 (4) (A) and (B) is addressed.

| Sub-Section Reference | Applicable legislation under section 24 (4)(A) and (B) of the NEMA | Reference Where Applied (i.e., where in this document has it been explained how the development complies section 24 (4)) |
|-----------------------|--|--|
| | | 24 (a) must ensure, with respect to every application for an environmental authorisation- |

| Sub-Section Reference | Applicable legislation under section 24 (4)(A) and (B) of the NEMA | Reference Where Applied (i.e., where in this document has it been explained how the development complies section 24 (4)) |
|--|--|--|
| 24 (a) (i) | coordination and cooperation between organs of state in the consideration of assessments where an activity falls under the jurisdiction of more than one organ of state | Refer to Section 6.7 and Appendix B. Both the Local Municipality and District Municipality were included on the I&AP database, notified, and provided with an opportunity to review and comment on the BAR and associated appendices. |
| 24 (a) (ii) | that the findings and recommendations flowing from an investigation, the general objectives of integrated environmental management laid down in this Act and the principles of environmental management set out in section 2 are taken into account in any decision made by an organ of state in relation to any proposed policy, programme, process, plan, or project | Refer to Section 9 and Section 10 A summary of the specialist reports, including the recommendations is presented in Section 9. Section 10 presents a summary of the key findings. |
| 24 (a) (iii) | that a description of the environment likely to be significantly affected by the proposed activity is contained in such application | Refer to Section 6.9. Section 6.9 provides a summary of the environmental attributes for the proposed project area. |
| 24 (a) (iv) | investigation of the potential consequences for or impacts on the environment of the activity and assessment of the significance of those potential consequences or impacts | Refer to sections 6.10, 6.11, 6.12, 6.13 and 8. Sections 6.10, 6.11, 6.12, 6.13 and 8 identifies potential impacts and risks, outlines the impact assessment methodology applied and presents the potential positive and negative impacts associated with the project, respectively. Section 8 presents the impact assessment for the identified impacts. |
| 24 (a) (v) | public information and participation procedures which provide all interested and affected parties, including all organs of state in all spheres of government that may have jurisdiction over any aspect of the activity, with a reasonable opportunity to participate in those information and participation procedures | Refer to Section 6.7 and Appendix B. Section 6.7 provides a summary of the public participation process to be followed. The Public Participation Report and associated appendices is attached in Appendix B |
| 24 (b) must include, with respect to every application for an environmental authorisation and where applicable— | | |
| 24 (b) (i) | investigation of the potential consequences or impacts of the alternatives to the activity on the environment and assessment of the significance of those potential | Refer to Section 6.1, 6.2, 6.3, 6.4, 6.5 and 6.6 and 6.10. |

| Sub-Section Reference | Applicable legislation under section 24 (4)(A) and (B) of the NEMA | Reference Where Applied (i.e., where in this document has it been explained how the development complies section 24 (4)) |
|-----------------------|--|--|
| | consequences or impacts, including the option of not implementing the activity | Section 6.1, 6.2, 6.3, 6.4, 6.5 and 6.6 provide motivation as to why no alternative sites were considered and motivation for alternative site development, respectively. Section 6.10 investigates the potential impacts of the proposed activity. |
| 24 (b) (ii) | investigation of mitigation measures to keep adverse consequences or impacts to a minimum | Refer to Section 6.13. and Appendix D. Section 6.13.provides possible mitigation measures for the potential impacts for each activity. Specialist Assessments are included in Appendix D. Mitigation measures are included in Appendix H. |
| 24 (b) (iii) | investigation, assessment, and evaluation of the impact of any proposed listed or specified activity on any national estate referred to in section 3(2) of the National Heritage Resources Act, 1999 (Act No. 25 of 1999), excluding the national estate contemplated in section 3(2)(i)(vi) and (vii) of that Act | Refer to Appendix D and Section 8. Impacts in terms of the National Heritage Resources Act, 1999 are assessed in Section 8. The HIA is included in Appendix D. |
| 24 (b) (iv) | reporting on gaps in knowledge, the adequacy of predictive methods and underlying assumptions, and uncertainties encountered in compiling the required information | Refer to Section 13. Assumptions, Uncertainties and Gaps in Knowledge are included in Section 13. |
| 24 (b) (v) | Investigation and formulation of arrangements for the monitoring and management of consequences for or impacts on the environment, and the assessment of the effectiveness of such arrangements after their implementation | Refer to Appendix H. |
| 24 (b) (vi) | consideration of environmental attributes identified in the compilation of information and maps contemplated in subsection (3); | Refer to Section 6.9 environmental attributes and Appendix C for maps. |
| 24 (b) (vii) | provision for the adherence to requirements that are prescribed in a specific environmental management Act relevant to the listed or specified activity in question | Refer to Section 3 for the policy and legislative context. |

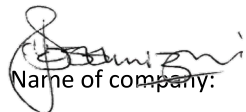
I, **San Oosthuizen**, declare –

- The correctness of the information provided in the reports;
- The inclusion of comments and inputs from stakeholders and I&AP's;
- The inclusion of inputs and recommendations from the specialist reports where relevant; and

That the information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested and affected parties are correctly reflected herein.

Please note that comments and inputs from I&AP and stakeholders will be included in FINAL BAR

Signature of the environmental assessment practitioner:



Name of company:

EcoPartners (Pty) Ltd

Date: 24 November 2023

19 REFERENCES

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Appendix A: EAP Detailings

Appendix B: Public Participation Report

Appendix C: Maps

Appendix D: Specialist Reports

Appendix E: Impact Assessment Table

Appendix F: Screening Tool Report

Appendix G: Site Sensitivity Verification Report

Appendix H: Part B - Environmental Management Programme (EMPr)