Registration no. 2018/217803/07

TRANSNET'S PROPOSED EXPANSION OF LEPHALALE RAILWAY YARD, STEENBOKPAN, LEPHALALE LOCAL MUNICIPALITY, WATERBERG DISTRICT, LIMPOPO PROVINCE

Scoping and Environmental Impact Assessment Process

VOLUME 1 - DRAFT ENVIRONMENTAL IMPACT REPORT
Version: Draft

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Prepared for: Transnet SOC Limited
Transnet Ref: Lephalale Railway Yard Environmental Assessment: 3424302.023S
Date: May 2019
Revisions: *None*

DEA Reference number: 14/12/16/3/3/2/1116

Purpose: 30 Day public review and comment

THIS ENVIRONMENTAL IMPACT REPORT HAS BEEN PREPARED FOR THE APPLICATION FOR ENVIRONMENTAL AUTHORISATION FOR THE PROPOSED EXPANSION OF TRANSNET'S LEPHALALE RAILWAY YARD

Naledzi Environmental Consultants (Pty) Ltd (Naledzi) has prepared this draft Environmental Impact Report (Draft EIR) for the sole use of Transnet SOC Limited. The report is also privy to review by the public, interested and affected parties (I&APs) as well as relevant competent authorities as part of a public participation process. No part of the report may be reproduced in any manner without written permission from Naledzi representing Transnet SOC Limited. No other warranty, expressed or implied, is made as to the professional advice included in this report.

REPORT PREPARED FOR:
Transnet SOC Limited Reg No 1990/000900/30
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Lephalale Railway Yard Environmental Assessment: 3424302.023S

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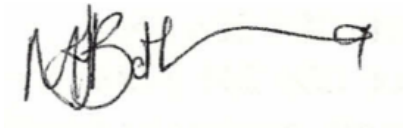
Naledzi is an independent environmental assessment practitioner (EAP) with no vested interest (either business, financial, personal or other) in the proposed activity proceeding other than remuneration for work performed. We do not echo the views of the applicant or client however provide an independent view formed by tasks conducted under the National Environmental Management Act, 1998 (Act 107 of 1998) [NEMA] and the Environmental Impact Assessment (EIA) Regulations of 2014 (as amended in April 2017).

PROJECT INFORMATION

Title:	Application for Environmental Authorisation for the proposed expansion of the Lephalale Railway Yard, Steenbokpan, Lephalale, Waterberg District, Limpopo Province.
Authors:	Marissa Botha
Reviewer:	Desmond Musetsho
Status of Report:	Draft Environmental Impact Report (EIR)
First Issue:	May 2019
Applicant Environmental Authorisation:	Transnet SOC Limited
Independent Environmental Assessment Practitioner:	Naledzi Environmental Consultants (Pty) Ltd (Naledzi)

NALEDZI ENVIRONMENTAL CONSULTANTS (PTY) LTD:

Approved for Naledzi Environmental Consultants (Pty) Ltd



…….
Environmental Assessment Practitioner
Marissa Botha, *Pr.Sci.Nat*

Approved for Naledzi Environmental Consultants (Pty) Ltd

…….
Environmental Assessment Practitioner
Desmond Musetsho, *Pr.Sci.Nat*

Background and Purpose of the draft Environmental Impact Report

Transnet SOC Limited (Pty Ltd) has applied for environmental authorisation to expand the Lephalale Railway Yard with four additional railway tracks including associated buildings and infrastructure. This is an existing 100 wagon yard along the existing Lephalale – Thabazimbi railway track in the Waterberg District, which just requires extension for it to accommodate 200 train wagons in future for the increase in load and capacity.

An application for environmental authorisation was submitted to the Department of Environmental Affairs (DEA) on 5 November 2018 for several listed activities triggered by the project in terms of the NEMA and its EIA Regulations of 2014 (GN. 326). The application is subject to a Scoping and EIA Process.

Naledzi has been appointed by Transnet as the independent EAP to conduct the EIA Process. A series of environmental reports are prepared during the EIA Process namely a Scoping Report and Plan of Study (PoS) for EIA, Environmental Impact Report (EIR) and Environmental Management Programme (EMPr) which is to be submitted to DEA for consideration and approval. To date the three main environmental reports have been completed. The Scoping Report and PoS for EIA was prepared and made available for public comment in November 2018, then submitted to DEA and subsequently approved on 19 February 2019. This report, the draft EIR and EMPr has now been prepared and is made available for public responses before submission to the DEA.

This EIR was compiled by Naledzi on acceptance of the Scoping Report and advice by DEA to proceed with the tasks contemplated in the PoS for EIA, including public participation process. Specialist investigations as detailed in the PoS for the EIA have now been completed and the findings have been consolidated in this EIR. The EIR includes an independent assessment of the project's environmental consequences and recommends ways to reduce the impact of the project by imposing mitigation/management measures.

The EIR is a tool for communicating the likely impacts of the project to interested and affected parties (I&APs) and assists the DEA to understand the environmental consequences of approving the project, and the proponent in managing these impacts.

The draft EIR and EMPr is currently available to all stakeholders for a 30-day review period from 31 May to 1 July 2019 at public venues in Lephalale, Marapong and Steenbokpan including on the Naledzi website – see Table 1 for more details.

A public engagement session has also been scheduled to highlight and talk over the EIA findings. The session is open to any stakeholders and I&APs to attend. All written comments received on the EIR and recorded at public engagement will be captured in an Issues and Response Report (IRR) which will accompany the final EIR to DEA for approval.

Other key stakeholders in the process include Department of Mineral Resources (DMR) and Department of Water and Sanitation (DWS) since more authorisations and licenses are required for the project namely:

- A Mining Permit in terms of the Minerals and Petroleum Resources Development Act, 2002 (Act 28 of 2002) [MPRDA] and environmental authorisation in terms of NEMA EIA Regulations is required from the DMR for the establishment of two borrow pits for fill material to level the extension area;
- A Water Use License (WUL) is required from the DWS since the project triggers Section 21 (c), (i) and (g) water uses in terms of the National Water Act, 1998 (Act 36 of 1998) [NWA]. The yard will dispose of treated effluent through soak away systems and three non-perennial streams will be crossed with the expansion of the yard. There are also several small pan depressions found within 500m of the project site.

Both the Mining Permit and WUL application must still be submitted to DMR and DWS.

PUBLIC REVIEW OF THE DRAFT EIR & EMPR

An electronic copy of the draft EIR and EMPr is currently available for download at www.naledzi.co.za/publicdocuments.

Hard copies of the reports are also available in at the below stated public venues for a period of 30 days, from **31 May** to **1 July 2019**.

PUBLIC VENUES WHERE EIR & EMPR CAN BE VIEWED

Public Venues	Address	Contact details
Lephalale Public Library	c/o Joe Slovo & Doewater Street	Librarian – Johanna Ndoweni 014 762 1453
Marapong Public Library	916 Phukubye Street, Marapong	Librarian – Mr Sophonia Petje 073 210 8954
Lesedi Tshukudu Thusong Centre	Steenbokpan	Josephine Sekoboane 078 109 1055

SCHEDULED PUBLIC INFORMATION SESSION

Date	Time	Venue
Tuesday, 18 June 2019	14:00 – 15:30	Komunati Lodge, farm Altoostyd, Onverwacht (Lephalale) 23°45'47.60"S 27°31'33.70"E

Interested and Affected parties wishing to comment on the draft EIR and EMPr may do so by:

- Comment by email, facsimile or telephone;
- Any written submission
- Completing the Comment Sheet and submitting it via fax, email or at the public information session (available on Naledzi website, at public venues)

All comments can be sent to the offices of Naledzi no later than **1 July 2019**.

Direct your comments to:

Naledzi Environmental Consultants
Contact Person: **Ms. Marissa Botha**
Suite # 320, Postnet Library Gardens, Private Bag X 9307, Polokwane, 0700
Tel: (015) 296 3988 Fax: (015) 296 4021
Cell: **084 226 5584**
Email: botham@naledzi.co.za

EAP DECLARATION OF INDEPENDENCE

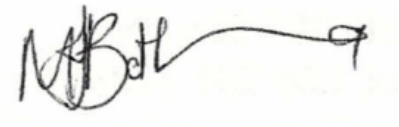
This draft EIR has been prepared as part of the EIA process for the Lephalale Railway Yard project as required by the 2014 EIA Regulations (as amended by GN R 326 of 2017) under the NEMA ('the Regulations').

In compiling this report, the authors comply with the general requirements for EAPs as set out below in the Regulations:

"General requirements for EAPs and specialists:

(1) An EAP and a specialist, appointed in terms of regulation 12(1) or 12(2), must—

a) be independent;
b) have expertise in conducting environmental impact assessments or undertaking specialist work as required, including knowledge of the Act, these Regulations and any guidelines that have relevance to the proposed activity;
c) ensure compliance with these Regulations;
d) perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the application;
e) take into account, to the extent possible, the matters referred to in Regulation 18 when preparing the application and any report, plan or document relating to the application; and
f) disclose to the proponent or applicant, registered interested and affected parties and the competent authority all material information in the possession of the EAP and, where applicable, the specialist, that reasonably has or may have the potential of influencing -
    i. any decision to be taken with respect to the application by the competent authority in terms of these Regulations; or
    ii. 5the objectivity of any report, plan or document to be prepared by the EAP or specialist, in terms of these Regulations for submission to the competent authority; unless access to that information is protected by law, in which case it must be indicated that such protected information exists and is only provided to the competent authority."



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Marissa Botha, *Pr.Sci.Nat*
Environmental Assessment Practitioner

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ABBREVIATIONS

FSR	FINAL SCOPING REPORT
DSR	DRAFT SCOPING REPORT
DEIR	DRAFT ENVIRONMENTAL IMPACT REPORT
FEIR	FINAL ENVIRONMENTAL IMPACT REPORT
DEA	NATIONAL DEPARTMENT OF ENVIRONMENTAL AFFAIRS
SACNASP	SOUTH AFRICAN COUNCIL NATURAL SCIENTIFIC PROFESSIONS
NEC	NALEDZI ENVIRONMENTAL CONSULTANTS
NEMA	NATIONAL ENVIRONMENTAL MANAGEMENT ACT
EIA	ENVIRONMENTAL IMPACT ASSESSMENT
SIP	STRATEGIC INFRASTRUCTURE PROJECT
GN	GOVERNMENT NOTICE
EAP	ENVIRONMENTAL ASSESSMENT PRACTITIONER
m	METER
m^3	CUBIC METER
LLM	LEPHALALE LOCAL MUNICIPALITY
WRD	WATERBERG DISTRICT MUNICIPALITY
ESA	ECOLOGICAL SUPPORT AREA
CBA	CRITICAL BIODIVERSITY AREA
WWTW	WASTEWATER TREATMENT WORKS
MP	MINING PERMIT
MPRDA	MINERAL AND PETROLEUMS RESOURCES DEVELOPMENT ACT 28 OF 2002
WULA	WATER USE LICENCE APPLICATION
NWA	NATIONAL WATER ACT
NFA	NATIONAL FOREST ACT 84 OF 1998
LEMA	LIMPOPO ENVIRONMENTAL MANAGEMENT ACT 7 OF 2003

DWS	DEPARTMENT OF WATER AND SANITATION
DMR	DEPARTMENT OF MINERAL RESOURCES
IRR	ISSUES AND RESPONSE REPORT
HIA	HERITAGE IMPACT ASSESSMENT
EA	ENVIRONMENTAL AUTHORISATION
SAHRA	SOUTH AFRICAN HERITAGE RESOURCES AGENCY
I&APS	INTERESTED AND AFFECTED PARTIES
LEDET	LIMPOPO ECONOMIC DEPARTMENT OF ENVIRONMENT AND TOURISM
WUL	WATER USE LICENCE
EIR	ENVIRONMENTAL IMPACT ASSESSMENT REPORT
EMPR	ENVIRONMENTAL MANAGEMENT PROGRAMME
BID	BACKGROUND INFORMATION DOCUMENT
PPP	PUBLIC PARTICIPATION PROCESSS
NEMPAA	NATIONAL ENVIRONMENTAL MANAGEMENT PROTECTED AREAS ACT 57 OF 2003
FEL	FRONT END LOADING
EMF	ENVIRONMENTAL MANAGEMENT FRAMEWORK
LIHRA	LIMPOPO HERITAGE RESOURCES AGENCY

1 INTRODUCTION

1.1 Introduction

Transnet SOC Limited (herein after Transnet) proposes to expand the Lephalale Railway Yard south west of Lephalale town along the existing Lephalale-Thabazimbi railway track. The yard is an existing 100 wagon yard along the existing railway track in the Waterberg District, which just requires extension for it to accommodate 200 train wagons in future for the increase in load and capacity. The railway line is a key corridor to Transnet for the transportation of various commodities in particular coal.

Coal is in high demand at Eskom power stations in the Mpumalanga Highveld and for export from the Richards Bay Coal Terminal (RBCT) at the East Coast. The Witbank Coal fields are nearing depletion and the Waterberg Coal field is the next coal hub. Development of the Waterberg has been designated a national priority because of pressure from Eskom, which wants to source coal from Lephalale to keep power stations in Mpumalanga running after they have exhausted their local supply sources.

Increased rail capacity is required in Lephalale to support the forecast growth and demand for long term rail network capacity from the Waterberg area for coal transportation. The project is of strategic importance to state and is listed as a Strategic Infrastructure Project (SIP1). It is instrumental to 'unlocking the northern mineral belt of the Waterberg as a catalyst' by creating rail capacity to Mpumalanga and Richards Bay.

The railway yard expansion triggers listed activities under the NEMA, as amended and the EIA Regulations of 2014 (GN. 326) which require environmental authorisation from the Department of Environmental Affairs (DEA).

Naledzi has been appointed by Transnet as the independent EAP to undertake the Scoping and EIA Process in an effort to obtain environmental authorisation from DEA, for the project. The authorisation process is subject to submission of an application to DEA, preparation of the Scoping Report and Plan of Study for EIA, Environmental Impact Report (EIR) and Environmental Management Programme (EMPr) also to be submitted to DEA. The application was submitted to DEA on 5 November 2018 followed by a Scoping Report and Plan of Study for EIA which was approved on 19 February 2019. (See Appendix 1A - Scoping Approval).

Transnet will further require approval from the Department of Mineral Resources (DMR) to establish two borrow pits to source fill material for the railway yard expansion and a water use license from the Department of Water and Sanitation (DWS) for scheduled water uses to be undertaken as part of the railway yard expansion operation.

1.2 Purpose of the Environmental Impact Report

This EIR was compiled by Naledzi on acceptance of the Scoping Report and advice by DEA to proceed with the tasks contemplated in the Plan of Study for EIA, including public participation process. The report has been compiled according to the requirements of Appendix 3 of the NEMA EIA Regulations of 2014 (GNR. 326).

The EIR presents an independent assessment of the project's potential impacts on the environment and recommends ways to reduce the impact of the project by imposing mitigation/management measures. The report is informed by specialist investigations completed by an independent specialist team. The EIR is ultimately a point of departure for preparation of an EMPr to manage impacts during the project's implementation.

This report is ultimately a tool to communicate the likely impacts of the railway yard to interested and affected parties (I&APs), assist DEA to understand the environmental consequences of approving the expansion of the railway yard and assist Transnet in managing the impacts.

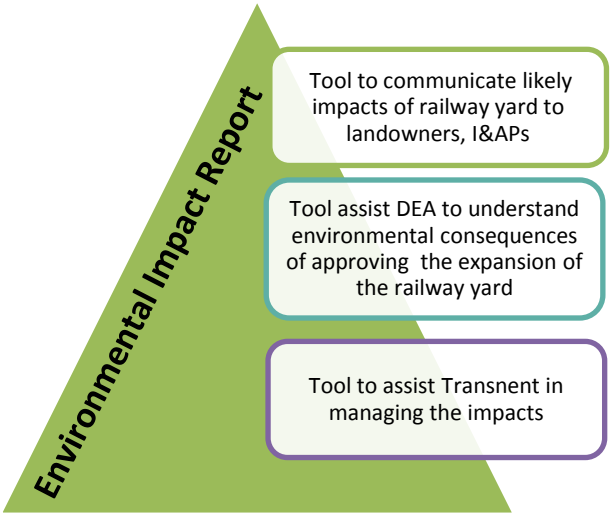


Figure 1: Diagrammatic illustration of EIR purpose

1.3 Objective of the EIR exercise

In terms of the NEMA EIA Regulation 2014 (GN. 326), Regulation 23 an EIR must contain all information set out in Appendix 3 to the EIA Regulations. The objective of an EIA Process is to, through a consultative process:

- Conduct an in-depth investigation into the biophysical and socio-economic aspects of the project site;
- Determine the policy and legislative requirements applicable to the project and how the project complies with it;
- Motivate the need and desirability of the activity at the preferred location;
- Address the issues identified during the Scoping Phase;
- Identify the most feasible location for the project components based on the potential risks of the activities;

- Identify the most ideal location for the development footprint on the land parcel;
- Facilitate public inputs in the environmental and social matters;
- Advise the applicant of the potential impacts (positive and negative) of the project and implications for the construction, operation and closure phases by identifying, assessing and ranking the risks of the project at its ideal location;
- Recommend suitable measures to avoid, manage and mitigate these identified impacts
- Identify residual (remaining) risks that need to managed and monitored through the phases of the project

1.4 Methodology

The EIA Study addresses both the biophysical and socio-economic setting of the project site. Data was obtained in the following manner:

- Site visits were conducted in June 2018 and February 2019 to determine the environmental features and socio-economic environment of the project area;
- Site surveys were conducted during the Scoping Phase to identify any heritage resources, surface and groundwater features, sensitive of fauna and flora, visual character, sensitive noise receptors, protected areas including social groups that could be impacted by the development;
- The railway yard expansion plans were superimposed on the gathered environmental baseline data and potential impacts were identified for further assessment through specialist investigations;
- The gathered environmental baseline data and identified issues were communicated to interested and affected parties (I&APs) through a Scoping Report and the action plan to further investigate the issues through specialist investigations were detailed in the Plan of Study for EIA.
- I&APs were informed of the availability of the Scoping Report through letters, site notices, newspaper advertisements and a public meeting to capture issues affecting the biophysical and social environment;
- Specialist investigations were conducted by independent specialists to assess the identified impacts of key concern. Studies related to fauna, flora and wetlands include both winter and summer surveys;
- Specialist have made recommendations for the mitigation of the identified impacts
- The information gathered and findings of the specialist investigations have been consolidated in the EIR and is communicated to I&APs for inputs;

The specialist investigations ultimately shape the final railway yard design. These studies are attached under Appendix F to the EIR. The intention of the EIR is not to rewrite the content of the specialist investigations but to capture the outcome of these studies and its recommendations.

1.5 Content of Document

The content requirements of the EIR have been addressed and divided into Section A - K within this report. The sections are as follows:

- Section A – Background, Study Site Location, Details of EAP

- Section B – Project Description
- Section C – Policy and Legislative Requirements
- Section D – Need and Desirability of the Project
- Section E – Motivation for preferred development footprint within approved site
- Section F – Description of Environmental Attributes
- Section G – Public Participation Process
- Section H – Identified Impacts and Risks on Environmental and Social Attributes
- Section I – Environmental Impact Statement
- Section J – Other information required by Competent Authority
- Section K – EAP Oath

2 DETAILS OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER

2.1 Details of the EAP who prepared the report

NEC has been appointed by Transnet to undertake the EIA Process in terms of the NEMA EIA Regulations of 2014 (GNR. 326). The project consultants responsible for the project are:

Name of Practitioner: Naledzi Environmental Consultants Pty Ltd
Contact person: Marissa Botha
Telephone no.: +2715 296 3988 / +2784 226 5584
Fax no.: +2715 296 4021
Email: botham@naledzi.co.za

2.2 Expertise of the EAP who prepared the report

The co-ordination and management of this EIA process is being conducted by Naledzi Environmental Consultants Pty Ltd with the lead EAP being Marissa Botha. See Appendix 1B for Curriculum Vitae of EAP and declaration of interest.

Marissa Botha

Professional Registration:
Professional Environmental Scientist with South African Council for Natural Scientific Professions (SACNASP) (registration number 117526)

Experience in years: 14 years working experience in the environmental management industry.

Experience:
Marissa Botha is an Environmental Assessment Practitioner at Naledzi Environmental Consultants, located in Polokwane. She has 14 years working experience in the environmental consulting industry. She gained extensive experience in the field of Integrated Environmental Management, environmental impact assessments and public participation in multiple projects such as electricity power lines, residential developments, road and water infrastructure development/upgrades, borrow pit and prospecting right applications, filling stations, education facilities, commercial plant, radar masts, green field magnetite ore mine atmospheric emission license variations including postponement applications from the minimum emission standards compliance timeframes or coal fired power stations.

Marissa has project experience in the development of Environmental Impact Assessments, Environmental Management Plans. Her areas of skill include project management, environmental scoping and impact assessments, environmental management plans. She has worked in Limpopo, North West, Gauteng, Northern Cape, Mpumalanga and Free State Provinces of South Africa.

2.3 Independent Specialists

The EIA Process is involved specialist investigations to assess the affected environmental and social settings of the project site. The independent specialists who formed part of the project are detailed in Table 1.

Table 1: Independent Project Specialists

No	Company	Specialist	Study	Attached
1	GCS Environmental Engineering	Pieter De Coning	Waste Management Plan	Volume 2 Appendix 2A
2	Holistic Environmental Services	Reinier Terblanche	Ecologist Assessment and Wetland Biodiversity	Appendix 2B
3	Millennium Heritage Group Pty Ltd	Eric Mathoho	Heritage Impact Assessment (HIA) and Desktop Palaeontological	Appendix 2J
4	dBA Acoustics	Barend van der Merwe	Noise and Vibration	Appendix 2G
5	Naledzi Waterworks	Duncan Munyai	Hydrogeological Impact Assessment	Appendix 2D
6	Equispectives Research and Consulting Services	Ilse Aucamp	Social Impact Assessment	Appendix 2K
7	Corli Havenga Transportation Engineers	Cobus Havenga	Traffic Impact Assessment	Appendix 2I
8	Bio Assets	Wynand Vlok	Visual Impact Assessment	Appendix 2H

The HIA completed during the Scoping Phase has recently been updated with a desktop Palaeontological Assessment since the site corresponds to a moderately sensitive palaeontological zone as per the SAHRIS palaeo-map. The study is attached to the EIR and has been submitted to SAHRA via SAHRIS.

3 LOCATION OF STUDY SITE AND LAND OWNERSHIP

3.1 Location of project site

The study site is 30km south west of Lephalale town at Steenbokpan along the existing Thabazimbi to Lephalale single railway track behind the Medupi Power Station. This is a rural game farming area situated in Ward 3 of the Lephalale Local Municipality in the Waterberg District of Limpopo Province.

The site is accessed from the existing Transnet gravel servitude road from the D2649 Afguns Road behind Medupi Power Station.

The railway yard expansion coordinates are included in Table 2.

Table 2: Railway Yard Coordinates

Phase	Start	End
1 – Bypass line	23°46'34.23"S 27°25'55.86"E	23°45'0.97"S 27°28'11.61"E
2 – Arrival line	23°46'11.67"S 27°26'16.54"E	23°45'04.54"S 27°28'05.76"E

A Regional Locality Plan is included under Figure 2 and a locality plan showing the affected farms is included under Figure 3. Large formats of all Plans are included under Appendix 1C.

3.2 Affected Property

Transnet needs to acquire 22 Hectares of privately owned land south of the existing Thabazimbi - Lephalale railway track for the railway yard expansion.

Affected properties include Portion 1 (remainder) of the farm Geelhoutkloof 359LQ and farm Geelhoutkloof 745LQ[1] , Portion 2 of the farm Enkeldraai 314LQ and farms Enkeldraai 718LQ[2] and Buffelsjagt 744LQ[3]. The affected farms belong to Mr Tjaart Sauer, and Mr Hendri Hills. No land needs to be acquired from Mr Sauer, but approximately 22 hectares must be acquired from Mr Hills.

The two borrow areas (Borrow Area 1 and 2) are also required to source fill material these are to be located on Buffelsjagt 744LQ also owned by Mr Hendrie Hills.

Refer to Figure 4 for Plan 2 for a Local Plan of affected properties and Table 4 for ownership details.

[1] Geelhoutkloof 745LQ is the former Remainder of farm Geelhoutkloof 359LQ
[2] Enkeldraai 718LQ has been consolidated from Enkeldraai 314LQ and a portion of the remainder of Geelhoutkloof 359LQ
[3] Buffelsjagt 744LQ is consolidated from former Buffelsjagt 317LQ and Portions 2 & 3 of Pontes Estate 712LQ

3.3 21 Digit Surveyor General Codes

Table 3: Affected land parcels and ownership details

Farm name	Title Deed	LPI Code	Track position	Registered Landowner	Land use
RE/ Portion 1, Geelhoutkloof 359LQ	T52917/2007	T0LQ00000000035900001 Extent: 838 Ha	South and North	Hennie Hills Boerdery CC	Commercial game hunting farm
Geelhoutkloof 745LQ	T53434/2005	T0LQ00000000035900000 Extent: 1,229Ha	South	Hennie Hills Boerdery CC (Hennie Hills)	
Portion 2, Enkeldraai 314LQ		T0LQ00000000031400002 Extent: 170Ha	South	Tyd tot Tyd Enkeldraai Trust (Tjaart Sauer)	Commercial game hunting farm and cattle grazing
Enkeldraai 718LQ	T2803/2018	T0LQ00000000071800000 Extent: 1,210Ha	North	Tyd tot Tyd Enkeldraai Trust (Tjaart Sauer)	
Buffelsjagt 744LQ	T2808/2018	T0LQ00000000074400000 Extent: 1,366Ha	North	Hendrie Hills Family Trust	Commercial game hunting

3.4 Proclamations on affected properties

Remainder of the farm Geelhoutkloof 359LQ and a portion of Enkeldraai 718LQ are proclaimed as 'Koedoe Private Nature Reserve' in terms of the National Protected Areas Register. It was declared on August 29, 1962 and comprises an area of 1,226.11Ha – see Figure 4. The reserve is owned by Mr Hendrie Hills south of the railway track and Mr Sauer north of the track.

The existing railway track already cuts across this nature reserve. Limpopo Department of Economic Development, Environment and Tourism (LEDET) require amendment of the nature reserve boundary to accommodate the expansion of the railway yard. Transnet must negotiate with Mr Hills and Mr Sauer to apply for this amendment to LEDET. These talks have not been initiated yet.

Figure 2: Regional Locality Plan 1.1 (image courtesy of Google Earth Pro 2018)

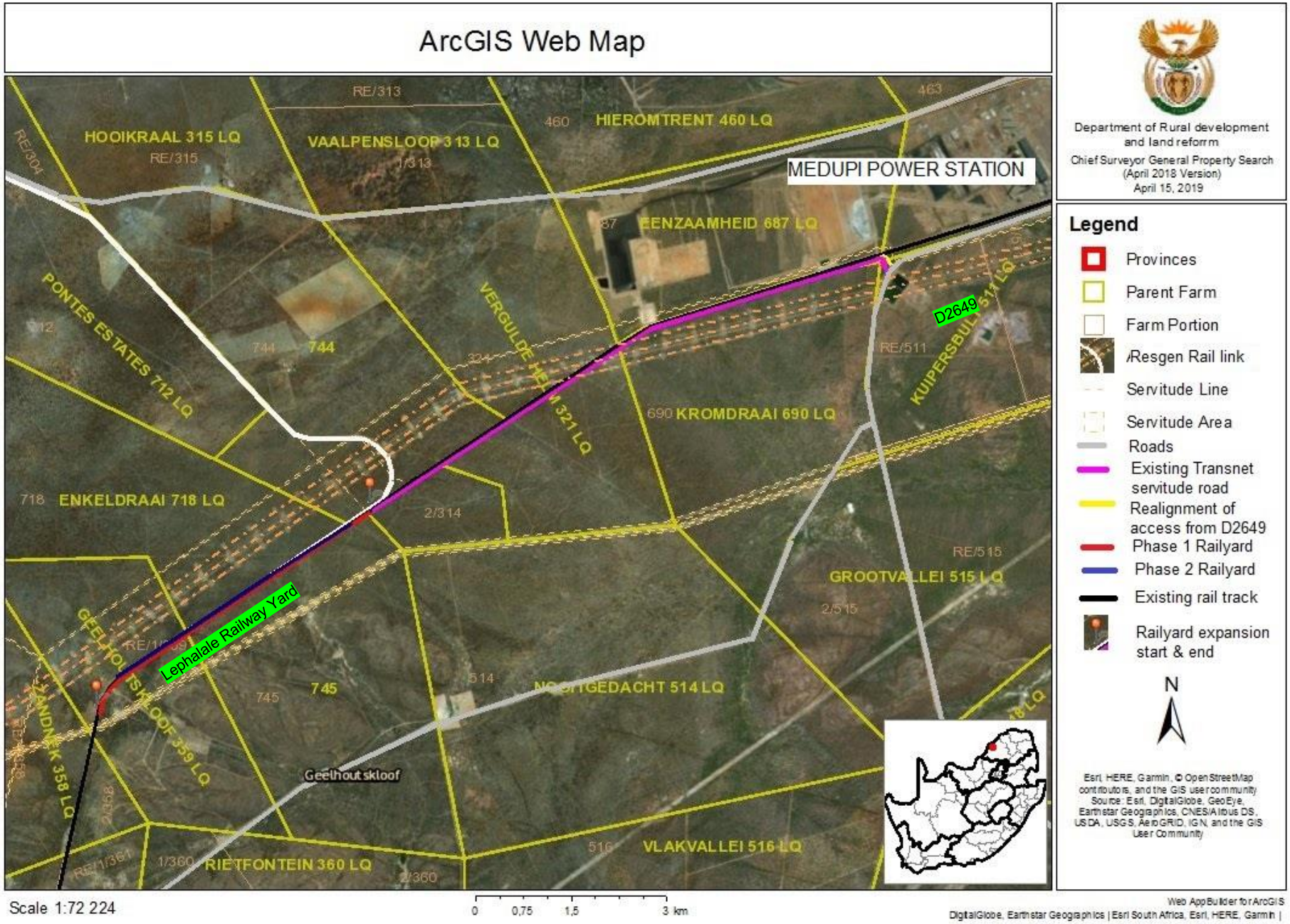


Figure 3: Plan 1.2 Regional Locality Plan with farm descriptions

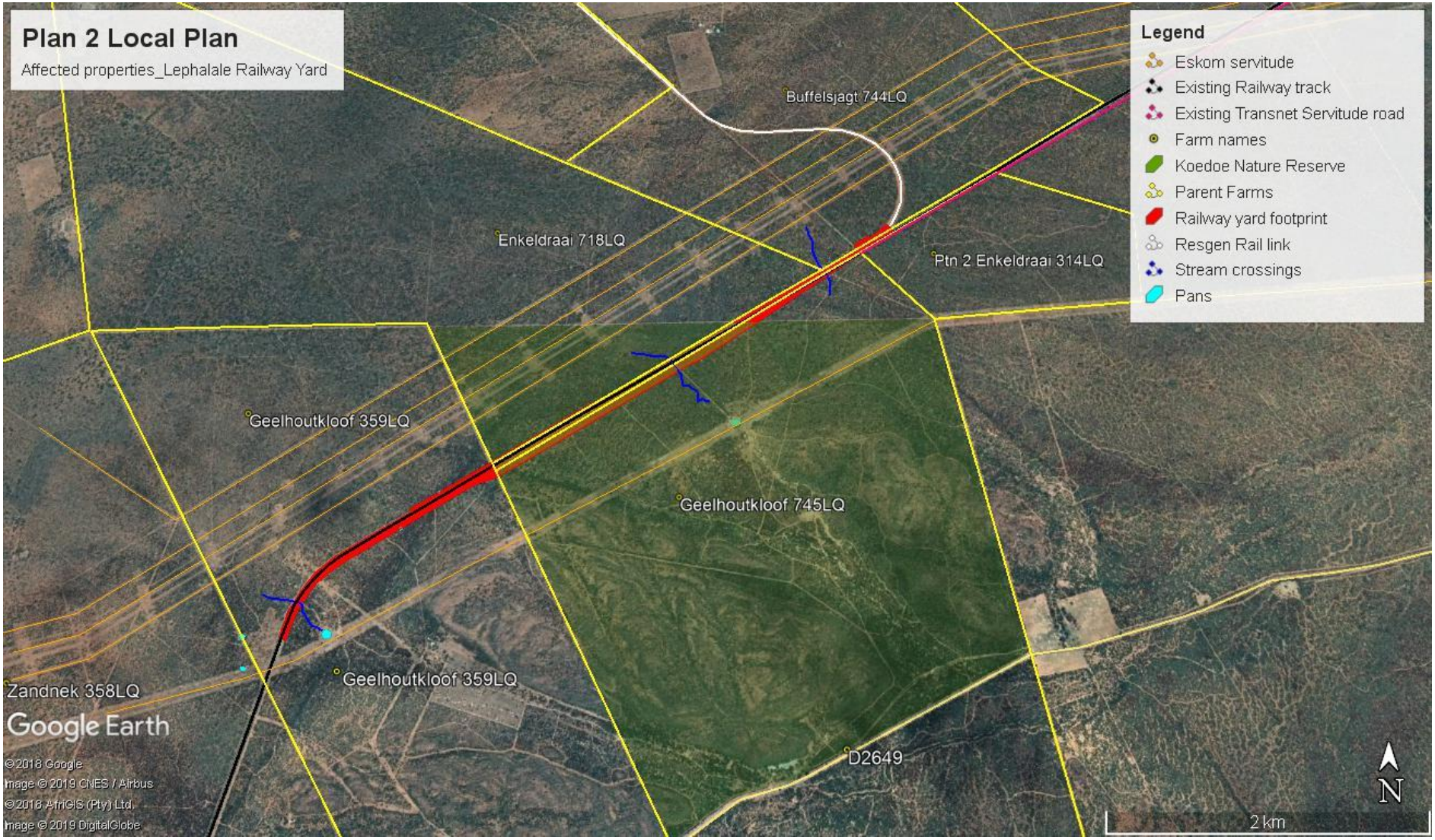


Figure 4: Plan 2 Local Plan showing railway yard footprint (red) and affected properties

3.5 Servitudes

The 22kV Theunisen-Stockpoort power line runs 6m south of the existing railway yard. Transnet will incorporate it in the railway yard design, since relocation will not be feasible due to significant cost associated with its relocation. The power line is small and not visible on plans. It routes from start to end of the railway yard. Only a section of the 22kV power line is illustrated in Figure 5 below (green dotted line south of track).

The Medupi Spitskop 1400kV power line runs north (350m) of the existing railway yard. Transnet is seeking an alternative site for Borrow Area 1 further away from the Medupi Spitskop 1400kV power line to avoid any impact on the servitude.

Resgen Boikarabelo Coal Mine has laid tracks north along the existing railway line and has done site preparation to build a 36km rail link (approved 2012, LEDET). The link is being built from the existing track to the Resgen Plant at Kruishout 271LQ. The rail link infrastructure is incorporated in the railway yard design – see Figure 5 below.

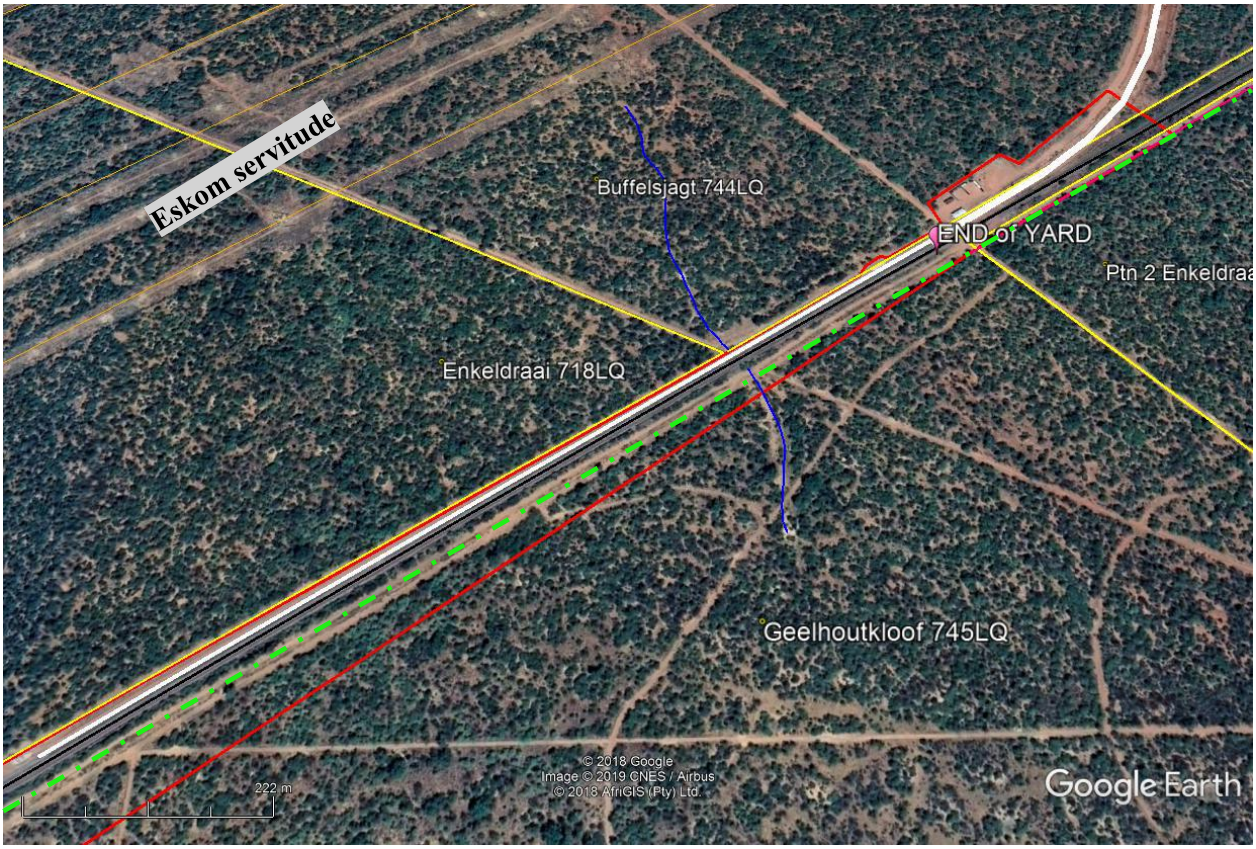


Figure 5: Location of Resgen rail link alongside existing Thabazimbi/Lephalale Railway track

Railway yard expansion footprint area

Farm boundaries

Existing railway track

Resgen rail link tracks (existing)
(White line north of existing railway track)

22kV Eskom power line

1400kV Eskom power line

SECTION B – PROJECT DESCRIPTION

4 PROJECT DESCRIPTION

4.1 Applicant Details

The applicant for the environmental authorisation is Transnet SOC Limited.

Table 4: Details of Applicant

Applicant:	Transnet SOC Limited,
Company Reg. no:	1990/000900/30
Contact:	Mr Andries Van Ross
Address:	1st Floor, Waterfall Business Estate, 9 Country Estate Drive Midrand, 1662
Tel:	011 308 1681
Fax:	0866 780 171
Email:	Andries.VanRoss@transnet.net

4.2 Project Scope

The Lephalale Railway Yard is an existing 100 wagon yard along an existing railway track, which requires extension for it to accommodate 200 train wagons. There is an existing gravel access and servitude road from the D2649 Afguns tar road to the position of the railway yard and along the existing track – See Figure 2 & 3 Plans 1.1 and 1.2 and Refer to Appendix 1C for large format plans.

The expansion of the Lephalale Railway Yard will be linear in design, 4.9km in length and will require a 60m wide strip of land south along the existing single track. The expansion of the railway yard goes beyond Transnet servitude and requires approximately 22 hectares of land to be acquired. Refer to Appendix1D For Transnet Acquisition Plan.

The railway yard expansion facilities to be developed would mainly comprise the following:

- 4 new service tracks;
- A North Facility comprising a Provisional facility, Office building, administration building; and staff facilities;
- Diesel Storage and decanting point for diesel locomotives
- South Facility comprising a Maintenance & repair building; and
- Internal tarred access road from yard entry to the southernmost facility at end of the yard

The railway yard will be developed in two phases. Phase 1**,** southern section, would require Transnet to build a bypass line [1]; towards the south of the existing railway line. This would enable an alternative route for trains whilst Transnet is building the new tracks. Phase 2, northern section, would include building the additional railway tracks [2]; the bulk earthworks and building the facilities.

[1] Southern section of the track development would include:

- Bypass line
- Decanting arrival/departure line

- Departure line

[2] Northern section of the track development would include:
- An arrival line
- Run around line
- Spare lines

Facilities and infrastructure to be developed as part of the yard are described in Table 5 and in the sections below.

Table 5: Lephalale Railway Yard Infrastructure Details

Infrastructure	Dimensions	Start/Position	Middle	End
TOTAL AREA FOR LEPHALALE RAILWAY YARD:			**22 Hectares**	
1. 4 new railway tracks				
Phase 1 Bypass line (south)	4.9km	23°46'34.23"S 27°25'55.86"E	23° 45.590'S 27° 27.333'E	23°45'0.97"S 27°28'11.61"E
Phase 2 – arrival line (north)	3.7km	23°46'11.67"S 27°26'16.54"E	23° 45.648'S 27° 27.136'E	23°45'04.54"S 27°28'05.76"E
Gravel service road north of arrival line (full length of the yard)	3.7km 4m wide	23° 45.060'S 27° 28.090'E	23° 45.653'S 27° 27.114'E	23° 46.166'S 27° 26.272'E
Structural works as part of the 4 new service tracks - Streamcrossings				
Culvert Extension – southern bypass line (stream crossing)	3000 x 2800mm box culvert (8.4m^2)	23°45'6.02"S 27°28'4.28"E		
Culvert Extension - North arrival line (Stream crossing)	3000 x 2800mm box culvert (8.4m^2)	23°45'29.69"S 27°27'24.70"E		
Culvert Extension - south bypass line (stream crossing)	3000 x 1800mm box culvert (5.4m^2)	23°45'31.45"S 27°27'25.96"E		
Underpass extension- south bypass line)	3000 x 1800mm box (5.4m^2)	23°45'27.54"S 27°27'32.08"E		
New box culvert North arrival line)	2400 x 1200mm	23°45'36.23"S 27°27'13.84"E		
New box culvert – South by pass line	2400 x 1200mm	23°45'37.98"S 27°27'15.11"E		
Concrete drift – southern bypass line (Stream crossing)		23°46'26.48"S 27°25'58.80"E		
2. Main Tar Access Road for Railway Yard				
Tarred Access Road	3.7km distance 8m wide	23° 45.009'S 27° 28.228'E	23° 45.569'S 27° 27.334'E	23° 45.996'S 27° 26.600'E
Underpass	Dimensions not known	23°45'27.54"S 27°27'32.08"E		
3. Guard House at Yard Entry				
Guard House and septic tank	Dimension not known at this stage	23° 45.009'S 27° 28.228'E		
JoJo Tank	21m^3 20 000 litres			
4. North Facility				
North Provisional facilities	2000m^2	23°45'30.67"S 27°27'23.66"E		
Infra Crew Building	370m^2	23°45'33.00"S 27°27'22.53"E		

Infrastructure	Dimensions	Start/Position	Middle	End
Staff Amenities	960m^2	23°45'29.68"S 27°27'25.98"E		
Administration Building	1340m^2	23°45'28.78"S 27°27'27.63"E		
Mini Substation	630kVA (22kV/400V)	23° 45.476'’S 27° 27.445'E		
Store room	unknown	23°45'28.15"S 27°27'29.16"E		
Water and Oil Separator	Max inflow 5 litres/second (18.0m^3/h)	23°45'55.20"S 27°26'43.14"E		
Earth Channel (serve as evaporation pond)	550m in length x3m wide x2m deep. Capacity of 3300m^3	23°45'41.13"S 27°27'5.25"E	23°45'36.50"S 27°27'13.37"E	23°45'31.13"S 27°27'22.52"E
5. Sewage system				
Bio Mite Sewage System (submerged) and soakaway system – Northern Facility	Unit is 6.77m x 2.45m (estimated extent 16m^2) Capacity: 18 060 Litres/day	23°45'28.95"S 27°27'25.32"E		
Bio Mite system at South facility with soakaway system	Unit is 6.77m x 2.45m (estimated extent 16m2) Capacity: 4914 Litres/day	23°45'52.42"S 27°26'46.53"E		
6. Water Storage Area				
Steel Water Reservoir	260m^3	23°45'41.84"S 27°27'6.28"E		
7. Diesel Storage Area and Decanting Point				
Total Diesel Fuel Storage 2x 300 000 litre diesel tanks and decanting slabs	600m^3	23° 45.725'S 27° 27.071'E		
4x Rail decanting points	Not known at this stage	23° 45.767'S 27° 26.984'E		
8. South Facility (Maintenance and Repair Building)				
South Provisional Facility Sanding facilities Oil Storage (6720 litres in 32 drums) Parts Room Staff amenities	1200m^2	23°45'54.36"S 27°26'44.26"E		
Water and Oil Separator	Max inflow 5 litres/second (18.0m^3/h)	23°45'55.20"S 27°26'43.14"E		

4.3 Railway yard design and infrastructure

See Appendix 1E for a Site Layout Plan of the Lephalale Railway Yard.

4.3.1 New Railway Lines

This will entail the construction of 4 new railway lines and extension of existing and construction of new culverts.

In Phase 1 a bypass line of 4.9km will be constructed south of the existing railway line to serve as an alternative route whilst Transnet builds the new tracks. In Phase 2 an arrival line of 3.7km will be constructed north of the existing railway line-see Table 5.

A gravel service road of 4 metre wide will be constructed north of the arrival line, within existing Transnet servitude. The service road will have a distance of 3.7km with 300 mm layer works and 150 mm wearing course.

The existing track and 4 new railway tracks cross three streams. Culverts at the existing railway exist for these stream crossings. Structural works will be required as part of the construction of the new railway tracks namely the construction of new - and extension of existing culverts from the existing railway line to the new railway tracks, reinforced concrete drainage structures and provision of concrete drifts-see Table 5 for positions and dimensions.

4.3.2 Railway Yard Internal Tarred Access Road

A 3.7km internal tarred access road of 8m wide will be constructed from the entrance of the railway yard to the end of the yard at the South Provision Facility.

The tar road will extend through the yard and will tie up to an existing service road on the west of the yard. This will ensure that maintenance personnel have access to all locations within the yard and that there is an escape route through the yard in case of a fire emergency. An underpass will be provided for the tar road to ensure no safety incidents associated with grade crossing. The road will have a combination of mountable and barrier kerbs and allow access and parking near facilities.

The yard design allows for fuel to be brought to site via rail however the tar road will also provide access to fuel tankers required to decant fuel within the yard. A turning circle will be provided for these operations.

4.3.3 Guard House

Entry to the railway yard will be controlled. A Guardhouse will be constructed at the entrance of the yard with a water storage tank (20 000 litre/21m^3 JoJo Tank) and septic tank-see Table 5. This will be situated at the entry to the railway yard where the tarred access road is to start.

See Appendix 1E1 for Design Plan for Guard House.

4.3.4 North Facility (Office and administration buildings)

The north facility will mainly comprise office and administrative buildings to be located in the middle of the railway yard. The North Facility will cater for:

- North Provisional Facility
- Infra Crew Building
- Staff Amenities
- Administration Building
- Store room
- Effluent management (water/oil separator)

For the dimensions and locations of the buildings see Table 5. The yard design will also cater for carports.

See Appendix 1E2 for Design Plans of the North Facility.

4.3.5 Water Storage/Reservoir

Water will be sourced from the Lephalale Local Municipality and delivered to the site via truck and pumped into a 260m^3 steel water reservoir-see Table 5. Water will be reticulated via a 110mm upv pressurised pipe network to facilities.

See Appendix 1E3 Design Plan for Water Reservoir

4.3.6 Diesel Storage Area and Decanting point

The yard will have a diesel storage area and decanting points.

A total of 600m^3 of diesel will be stored onsite in 2 x 300 000 litres diesel tanks and decanting slabs. The storage tanks will be in a bunded area. There shall be four (4) rail decanting points and one road decanting point provided all at one location. The pump rooms for decanting and refuelling shall be ventilated and contain fire protection as per the SANS requirements. One (1) 500 litre (0.5m^3) diesel tanker will be located in the fire pump room.

See Appendix 1E4 Design Plan for Diesel Storage and Decanting Point.

4.3.7 South Facility (Maintenance and Repair Building)

The south facility will mainly comprise the maintenance and repair buildings to be located in 1.1km west of the north facility. It will include the following infrastructure under one roof:

- Sanding Facilities (for sandbox container on locomotives-traction improvement);
- Oil Storage: 6720 litres of oil storage (32 drums of oil)
- Parts storage room
- Staff amenities
- Effluent management (water/oil separator)
- Fire suppression systems which require a foam storage tank, water storage tank and foam pipelines;

For the extent and location of buildings see Table 5. See Appendix 1E5 for Design Plans of the South Facility and the Water/Oil Separator.

4.3.8 Fence

The railway yard will be fenced off with controlled access via a Guard House at entry to the yard.

4.4 Other Service and Material requirements

4.4.1 Communication Tower

During the site visit in February 2019, it was mentioned by the Transnet Engineers that a communications tower will be set up – height was not confirmed.

4.4.2 D2649 Afguns Road and Access Road

Transnet has an existing gravel servitude road from the D2649 Afguns tar road to the railway yard position and along the existing track.

Based on the estimated traffic volumes of 297 vehicles per day (56 trips truck trips) this access road which intersects with the D2649 will require an upgrade. The existing gravel road alignment will be upgraded with lane widening (up to 4.5m) around curves with access control 150m from the D2649. See Appendix 1E6 for Conceptual Intersection Layout D2649 and Access Road.

An alternative alignment is also suggested for the access road upgrade yet it will be more expensive than widening the existing alignment, this is discussed under Section 7.2 of this report.

4.4.3 Sewer and wastewater

Transnet will install a Bio-Mite submerged wastewater treatment system, one at the North Facility and one at the South Facility for wastewater collection and treatment which will then be discharge into a soak away system. It will treat domestic and industrial waste water to a level that conforms to the National Standards as required by DWS.

The Bio-Mite units will be submerged. See Table 6 for daily, monthly and annual sewage volumes to be generated by the railway yard and the systems design capacity.

Table 6: Daily, monthly and annual volume generated at Railway Yard including system carrying capacity

Facility	Daily volume generated at yard	Capacity	Monthly volume	Annum
North Bio Mite 100	18.06 m^3	20 m^3	361.2 m^3	4334.4 m^3
South Bio Mite 25	4.9 m^3	5 m^3	98.28 m^3	1179.36 m^3
Total (round)	**23 m^3**		**460 m^3**	**5520 m^3**

The system septic tank chamber and primary unit will be desludged every 1 or 2 years. Sludge will be removed by a service provider. The details of the provider will only be known during the operation of the facilities since a full procurement process still needs to be followed.

Appendix 1E7 Design Plan of the Bio Mite system and description of operation.

4.4.4 Waste Storage and Management

The railway yard will generate general waste, hazardous waste and potentially mineral waste. These wastes will be managed through the Lephalale Railway Yard Waste Management Plan (WMP) developed by GCS Environmental Engineering, 2019 – see WMP attached under Appendix 1F1.

Wastes to be managed include spoil material, general waste produced at the office and staff areas, hazardous waste such as hydrocarbons, chemical wastes and wastes emanating from the operational and workshop areas.

Cut and fill requirements at the railway yard will be generated spoil material during Phase 1– 263027.31 – 32166271m^3 and Phase 2, 308873.55 – 374163.11m^3. Possible uses for spoil material include:

- Berms and fill
- Stockpiled in areas of designated borrow areas for later use for rehabilitation of borrow areas

Please note that spoil material will no longer be used for an earth berm on either side of the railway yard expansion footprint, as stipulated in the Scoping Report, since Transnet cannot achieve the correct slope. Different options for a barrier will need to be discussed between Transnet and landowners.

General waste produced will be collected in waste skips/wheely bins and stored in a demarcated area at the South Facility. An approved waste removal company will remove the waste to the Lephalale landfill site.

Hazardous waste emanating from the yard will be kept in a closed bin and separate from general waste. Hazardous waste will either be removed to Holfontein Hazardous Waste Disposal site in Gauteng or Transnet will negotiate with nearby mines to dispose their hazardous waste at a suitable mine's hazardous waste site.

No minerals/stock would be loaded at the railway yard. Trains will be dispatched to the private sidings for loading at mines. Train wagons will not be covered resulting in fugitive coal dust settling along the railway yard, although expected to be minimal. Storm water will carry coal spillages off site. This is addressed under Section 4.4.6.

4.4.5 Electricity Requirements

Electricity will be sourced from Eskom. Transnet will develop a Mini-Substation 630kVA, 22kV/400V at the Administration building to cater for the North and South facility electricity requirements-see Table 5.

4.4.6 Storm water management

Drainage around the site will comprise table drains in cuttings, pipes, manholes and culverts. Stormwater is directed away from the tracks and buildings and drained to storm water channels and low-lying areas.

Train wagons will not be covered resulting in fugitive coal dust settling along the railway yard. Coal spillages from wagons may contaminate the area and lead to storm water contamination or even contamination of the ballast and surrounding area. To mediate possible contamination of

storm water runoff an earth channel will be established alongside a portion of the track that will serve as a storage/evaporation pond. The channel will contain runoff water until it evaporates. The dimensions, capacity and location are provided in Table 5.

Transnet will clean the channel from any coal sludge from time to time. Transnet will engage with Grootgeluk Coal mine to dispose of coal sludge at the mine since the Grootgeluk have these systems in place. The volume of sludge from the yard should be minimal.

4.4.7 Effluent management

Water and Oil separators will be constructed at the North and the South Facility to deal with the contaminated liquids onsite. Once the water has passed through the oil separator and tested, it will then be drained to the sewer network. The Oil Separator will be designed to remove a minimum of oil droplet size of 150micron at max. Inflow of 5 litres/second (18m^3/h). It will include a suitable oil skimmer to remove accumulated oil from liquid surface of the separator.

The Water and Oil Separator Design is also included under Appendix 1E8.

4.4.8 Borrow Pits / Fill material

As stated, two borrow pits of < 5 Hectares will be established for the construction of the railway yard on the farm Buffelsjagt 744LQ. Borrow Pit 1 will be located at 23°44'34.62"S 27°28'25.69"E and Pit 2 at 23°43'16.21"S 27°26'27.21"E. To lodge the application for borrow areas to DMR Transnet requires landowner consent from Mr. Hills. Mr Hills has requested consideration of alternative borrow areas. See Figure 6. Transnet is still considering these and is subject to further discussion with Mr Hills.

Accordingly the relevant applications and subject reporting must still be submitted to the DMR.

4.4.9 Blasting

Based on the Geotechnical Investigation prepared by PD & E Geotechnical in 2017 for the railway yard, sporadically soft through to hard rock Sandstone Boulders and Bedrock were encountered in deep cuts (up to ± 10m). In general soft excavations would be undertaken but blasting may be required.

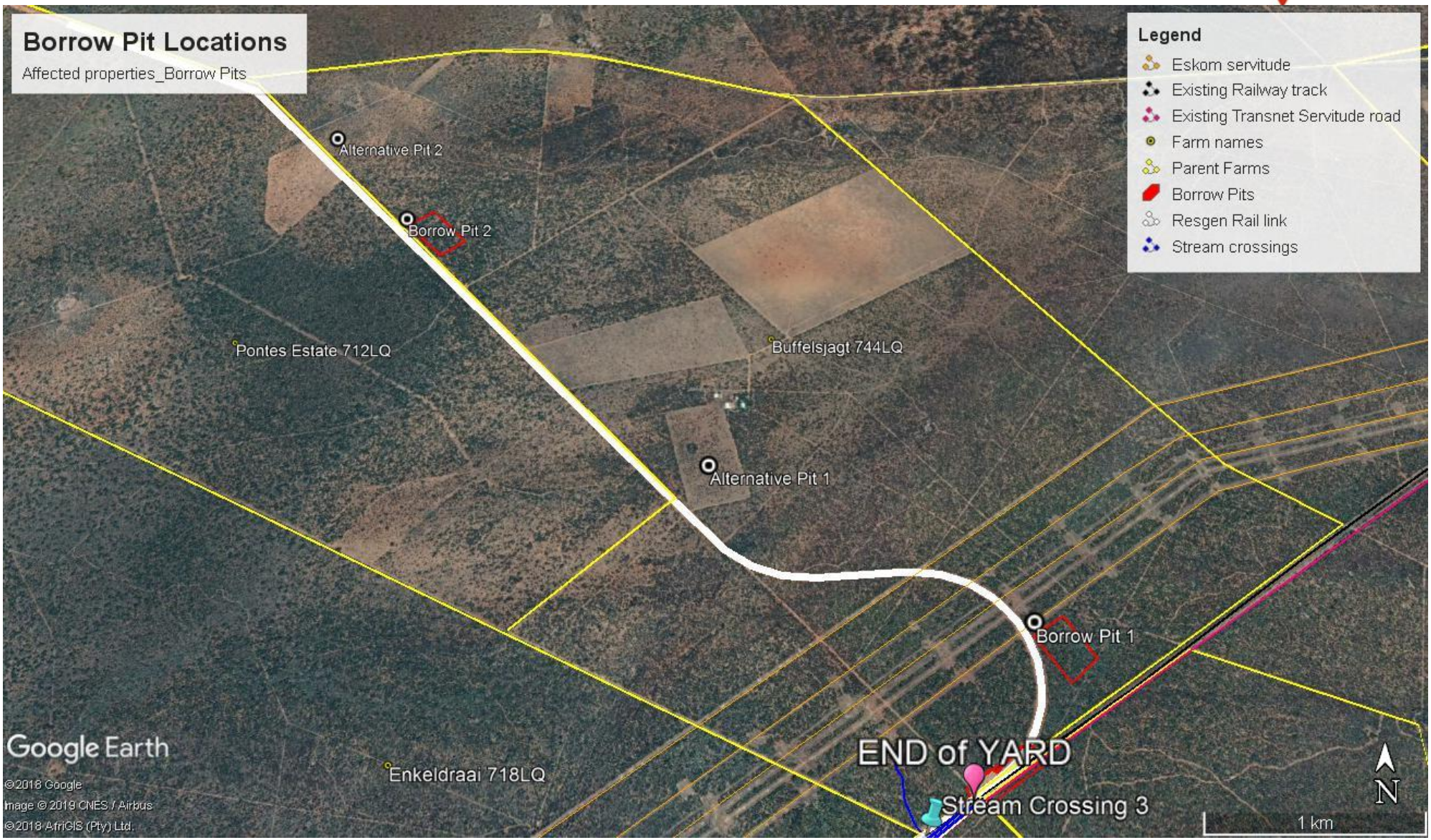


Figure 6: Aerial Locality Plan of Transnet preferred Borrow Pit 1 & 2 and alternative positions requested by Landowner Mr Hendrie Hills

4.5 Listed and Specified Activities triggered under NEMA

GN 327 (LN1), 325 (LN2) and 324 (LN3) of the NEMA EIA Regulations (GN. 326) schedules listed activities which require environmental authorisation. The listed activities triggered by the project are listed in Table 7. DEA is the competent authority for the project and Limpopo Department of Economic Development, Environment and Tourism (LEDET) the commenting authority. The application for environmental authorisation was submitted to DEA on 5 November 2018 and the project was issued with DEA project reference number 14/12/16/3/3/2/1116.

The application is subject to a full Scoping and EIA Process. The Scoping Phase was completed in January 2019 and the EIA Phase commenced on 19 February 2019.

Table 7: All listed and specified triggered activities

Detailed description of listed activities associated with the project	
Listed activity as described in GN R 327, 325 and 324	**Description of project activity that triggers listed activity**
GN 327, Listing Notice 1. Activity 24 The development of a road- i. N/A ii. a road with a reserve wider than 13.5 meters, or where no reserve exists where the road is wider than 8 metres; but excluding a road – a) which is identified in activity 27 in Listing Notice 2 of 2014 b) where the entire road falls within an urban area; or c) which is 1 kilometre or shorter	Construction of internal tar access road of 3.7km in length, 8 meter wide from entry of the Lephalale Railway Yard to the South Facility of the yard.
GN 327, Listing Notice 1. Activity 48 The expansion of—infrastructure or structures with a physical footprint of 100 square metres or more; (a) within a watercourse; (c) within 32 metres of a watercourse, measured from the edge of a watercourse; —excluding— (ee) where such expansion occurs within existing roads, road reserves or railway line reserves;	The expansion of the Lephalale Railway Yard footprint area with railway tracks and internal tar access road will result in 3 stream crossings (non-perennial streams). The North Facility and staff facilities will be developed within 32m of Stream Crossing No. 2 and the expansion of the railway yard will result in the destruction of two pan depressions (Pan 1 and Pan 2). Pan 1 and 2 will be relocated and rehabilitated to establish adequate buffer zones. The expansion will take place beyond Transnet servitude.
GN 327, Listing Notice 1. Activity 64 The expansion of railway lines, stations or shunting yards where there will be an increased development footprint, excluding- i. railway line, shunting yards and railway stations in industrial complexes or zones; ii. underground railway lines in mines; or	The Lephalale Railway Yard is an existing 100 wagon yard along the existing Lephalale-Thabazimbi railway track in the Waterberg District, which just requires extension for it to accommodate 200 train wagons in future for the increase in load and capacity. The development of the Lephalale Railway Yard would take place on the existing Lephalale / Thabazimbi single railway line. The single railway line will be expanded with 4 service tracks with the addition of the yard mainly comprise three buildings; office building, administration

ii. additional railway lines within the railway line reserve	building and maintenance & repair building with associated infrastructure and 4 service tracks. The development of the Lephalale Railway Yard goes beyond Transnet servitude therefore requires approximately 22 hectares of land to be acquired.
GN 325, Listing Notice 2. Activity 4 The development and operation of facilities or infrastructure for the storage, or storage and handling of a dangerous good, where such storage occurs in containers with a combined capacity of more than 500 cubic metres	**A.** The yard will include two 300 cubic metres diesel tanks with decanting slabs. There shall be four (4) rail decanting points and one road decanting point provided all at one location The total fuel storage volume is 600 cubic metres. This meets the more than 500 cubic metres threshold of Activity 4. **B.** There will also be 1 x 500 litre diesel tanker in the fire pump room ($0.5m^3$) **C.** 6720 litres of oil storage ($6.72m^3$) (32 drums of oil)
GNR 324 Listing Notice 3. Activity 2 The development of reservoirs with a capacity of more than $250m^3$. (e) Limpopo (i) In a protected area identified in terms of NEMPAA, excluding conservancies	The yard will include a Water Reservoir (steel tank) with a volume of $260m^3$ for its bulk water supply. **A.** The reservoir will be positioned on the farm Geelhoutkloof 745LQ with the Koedoe Private Nature Reserve.
GNR 324 Listing Notice 3. Activity 4 The development of a road wider than 4 metres with a reserve less than 13,5 metres. (e) Limpopo (i) Outside urban areas: (aa) A protected area identified in terms of NEMPAA, excluding disturbed areas; (ee) Critical Biodiversity Areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans. (gg) Areas within 5 kilometres from any other protected area identified in terms of NEMPAA or from the core areas of a biosphere reserve, excluding disturbed areas; or	The project site corresponds to a CBA 2 and ESA 1 as per the Limpopo Conservation Plan 2013. The development includes construction of a 3.7km, 8 metre wide tarred access road from entry of the yard to the furthest facility on the west. It also includes a 3.7km, 4 metre wide service road north of the existing railway line, within existing Transnet servitude. The western sections of the project site traversed by these proposed roads correspond to a CBA 2. The existing single railway line and proposed expansion footprint for the Lephalale Railway Yard traverse Koedoe Nature Reserve as per the National Protected Areas Database.
GNR 324 Listing Notice 3. Activity 12 The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for	The project site corresponds to a CBA 2 and ESA 1 as per the Limpopo Conservation Plan 2013. The project will require clearance of indigenous vegetation in a CBA on the western portion of the project site to make way for the railway tracks and infrastructure. It is expected that more than 300 square metres of indigenous vegetation

maintenance purposes undertaken in accordance with a maintenance management plan. In: (e) Limpopo: (ii) within critical biodiversity areas identified in bioregional plans	would be removed for these purposes.
GNR 324 Listing Notice 3. Activity 23 The expansion of structures where the footprint area is expanded by more than 10m^2 or more where such expansion occur (a) within a watercourse (b) within 32m of a watercourse (e) Limpopo (aa) Protected Area (ff) Critical Biodiversity Area	The expansion of the Lephalale Railway Yard will result in 3 stream crossings and will be developed within 32m of two pan depressions. The pans and two of the stream crossings fall within geographical areas. **A.** The expansion of the railway yard with 4 new rail tracks will cross three small non-perennial streams whereby existing culverts along the existing rail track will be extended to the new tracks to allow the streams to flow under the new railway track. Stream crossing 1 will be located within a Critical Biodiversity Area, Stream Crossing 2 will be located within the Koedoe Nature Reserve. **B.** **Pan Depression 1 and 2** The expansion of the railway yard footprint area will be result in the destruction of two pan depressions which are located within a Critical Biodiversity Area. These pans will be relocated and rehabilitated to establish adequate 32m buffer zones.

4.6 Other Relevant Authorisations

4.6.1 Water Use License

The project triggers scheduled Section 21 water uses under the National Water Act (Act 36 of 1998) (NWA) and requires a water use license from DWS. The following water uses are triggered:

- 21 (c) and (i) - The expansion of the railway yard will cross three streams and will be developed within 32m of two pan depressions;
- 21 (g) – Waste discharge into a Bio-Mite sewage treatment system at the South and North facility which collects; treat (to national standards required by DWS) and discharges treated content into a soak away system;
- 21 (g) – Septic tank at the Guard House;
- 21 (g) – Earth channel will be established to serve as storage/evaporation pond to contain coal contaminated storm water;

NEC will submit the water use license application to DWS: Polokwane Regional Office during May 2019.

4.6.2 Mining Permit (Borrow Pit Application)

Transnet will apply for a mining permit to establish the two borrow pits on farm Buffelsjagt 744LQ. The relevant application will be submitted to the DMR in terms of the MPRDA and NEMA EIA Regulations 2014 (GNR 326) – see Table 8.

Table 8: Scheduled Listed Activities triggered by the creation of borrow areas for the Lephalale Railway Yard

Listing Notice	Activity	Applicability
GNR 327 Listing Notice 1 **Activity 21**	Any activity including the operation of that activity which requires a mining permit in terms of Section 27 of the MPRDA, including: i. Associated infrastructure, structures and earthworks directly related to the extraction of a mineral resource	Mining of gravel from borrow pits for cut and fill requirements and road construction at the proposed railway yard.
GNR 327 Listing Notice 1 **Activity 27**	The clearance of an area of 1 hectare of more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for – i. Undertaking a linear activity; or ii. Maintenance purposes undertaken in accordance with maintenance management plan.	Mining Permits are submitted if the mining area in question does not exceed 5 hectares. The area for the required borrow pits may exceed one hectare and would require the removal of indigenous vegetation.

4.7 Plan which locates the proposed activities

The NEMA EIA Regulations of 2014 (GNR. 326) also requires that a Plan is provided showing the location and area of all listed activities and infrastructure to be placed on site. See Appendix 1E for a Site Layout Plan.

4.8 Main activities/processes to be undertaken at the railway yard

Main activities to be undertaken at the Lephalale railway yard:

- Office and administrative activities from two Transnet operating units.
- Crossing of 200 wagon trains (allow more trains to enter and exit Lephalale)
- Shunting: Split a maximum of 9 by 200 wagon diesel powered trains into 100 wagon trains and join 18 by 100 wagon trains in 200 wagon diesel powered trains per day;
- Switching crew of trains
- Dispatching trains to private sidings for loading (local mines)
- On track rolling inspections of stock to declare these ready and safe for the loaded journey;
- Service and maintenance of diesel locomotives such as sanding, refuelling and cleaning;
- Replacing and charging of telemeters;
- Transportation of water to site from municipal supply to fill the Water Reservoir
- Receiving of bulk fuel for diesel locomotives;

4.9 Commodity/Stock to be transported

Coal is generally moved between Exxaro Grootgeluk Mine in Lephalale, to locations which include Richards Bay, Saldanha, New Castle, Biljkor, Cor-Delfos, Dwaalboom and New Brighton. The new Resgen mine at Boikarabelo, in the Lephalale area is also expected to come online shortly.

No stock would be loaded at the railway yard. Trains will be dispatched to the private sidings for loading at mines. Train wagons are/will not be covered with chutes.

4.10 Current and future train traffic (Produce of yard)

Currently 8 trains pass the existing Lephalale-Thabazimbi single railway line in both directions. Eighteen trains will use the facility during the construction and operation of the Lephalale Railway Yard.

4.11 Traffic trips to be generated by Railway yard

The expected normal weekday trip generation for this railway yard is expected to be:

Weekday morning peak hour:	55
Weekday afternoon peak hour:	55
Off peak trips:	165, of this we estimate that ±20% can also be truck trips
Truck trips:	22 (11 in and 11 out)
Total	297 trips per day

The estimated number of truck trips is 56 trips per day.

4.12 Project labour requirements

4.12.1 Construction Phase

During the construction phase 50-80 job opportunities will be created mainly comprising unskilled labour.

Labour will be sourced from the local area; no construction camp will be required. Local guest accommodation will be sourced for permanent construction staff. Transport will be provided for permanent workers during the construction phase.

4.12.2 Operational Phase

During the operation phase it is estimated that 50-100 people will work at the yard as the railway yard will provide facilities to two (2) different operating units of Transnet. Permanent staff will be sourced from the local area as far as possible.

A typical Yard will have the following Permanent positions:

I. **Operations:**
   - Area Manager
   - Section Manager
   - Yard Manager
   - Crew Manager
   - Safety Manager
   - Yard officials
   - Refuelling and sanding

II. **Infra Crew:**
   - 1x Track Master
   - 21 x Infra Workers
   - 3 x Flagmen

III. **Fire and hazmat: Fire Officials**

IV. **TE: Carriage & Wagon, Locomotive**

4.12.3 Operational hours

The construction of the railway yard will be undertaken from 7 am to 5pm during weekdays.

During the operational phase the railway yard will operate from 7am to 5pm, Monday to Saturday.

4.13 Project method statement

There are three phases relevant to the proposed project, namely;

- Construction: Phase 1 Southern Bypass line (12 months)
- Construction: Phase 2 Northern arrival line, earthworks, building facilities (18 months)
- Operational and Maintenance Phase

The total construction time for both phases will be 2 years 6 months. Construction is estimated to start in 2021.

4.13.1 Construction Phase 1:

Transnet will build a bypass line south of the existing railway line to enable an alternative route for trains whilst building the new tracks. The duration is addressed under Section 7.10. Phase 1 will involve the following:

- Clearing of vegetation for the development of the bypass line and perimeter fence.
- Topsoil removal
- Installation of perimeter fence line;
- Earth works to level terrain along bypass line, decanting line, departure line route
- Establish subgrade drainage and material preparation (railway sleepers, steel rails, rail fasteners)
- Construction of new/extension of culverts for bypass line
- Laying of bottom ballast, Installation of bottom anchorage
- Laying steel rails and top ballast
- Construction of an access road;
- Construction of fuel storage and handling areas
- Creation of laydown yards;

4.13.2 Construction Phase 2:

Phase 2, northern section, would include building the additional railway track (arrival line, run around line, spare lines), the bulk earthworks and building the facilities. The Phase 2 will involve the following:

- Clearing of vegetation and removal of topsoil
- Bulk of earthworks (cutting, filling and levelling of terrain).
- Soft excavations would be undertaken, blasting may be required in some instances, yet limited
- Transportation of borrow materials to site
- Establish subgrade drainage and material preparation (railway sleepers, steel rails, rail fasteners)
- Construction of new/extension of culverts, concrete drifts and overpass
- Building additional railway tracks

- Construction of gravel service road;
- Construction of facilities and services
- Construction of storm water management system

4.13.3 Construction Camp

DEA has requested that Transnet investigate the possibility of a construction camp that includes accommodation for workers. Transnet has confirmed no construction camp will be required, local labour will be employed. There is an existing site office within Transnet servitude which will be used as a laydown area. Construction staff will commute to the construction site on a daily basis.

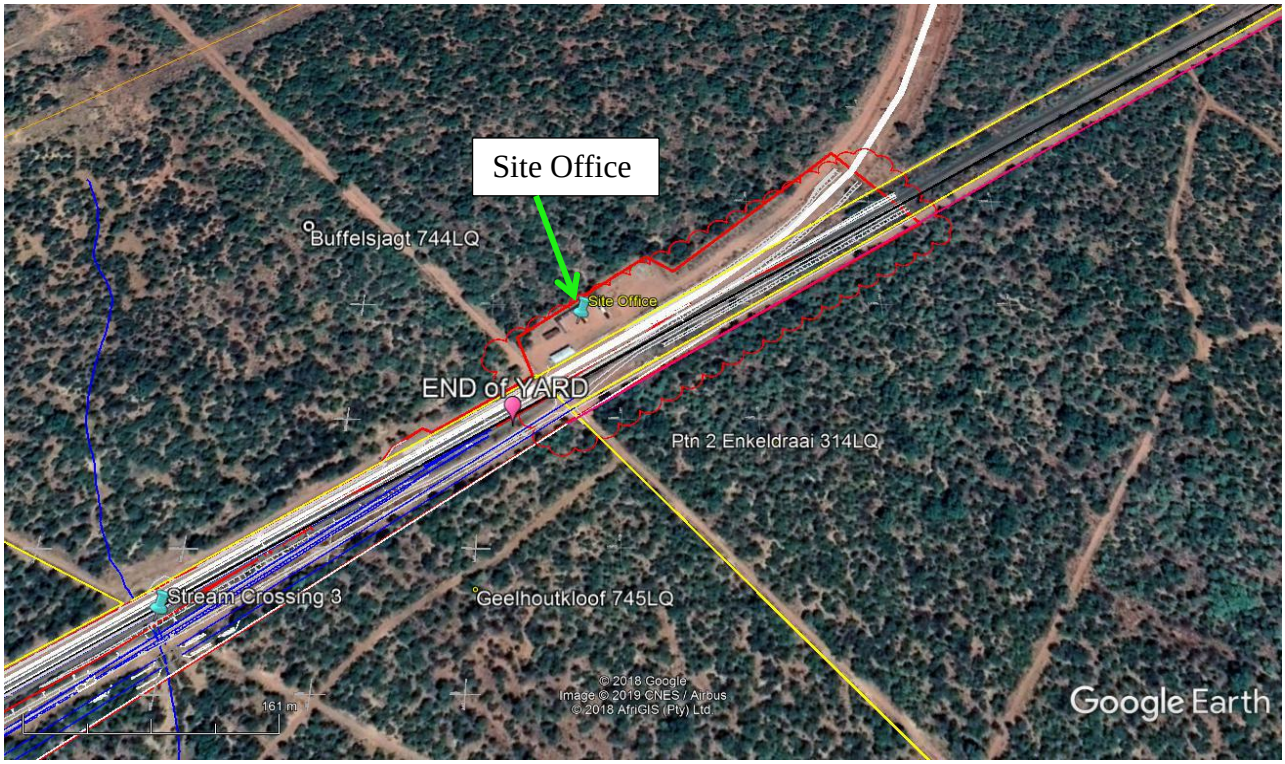


Figure 7: Location of existing site office at the Lephalale Railway Yard north of the track (farm Buffelsjagt 744LQ)

4.13.4 Operational Phase

The operation lifespan of the railway is not known at this stage. The operational phase activities have been addressed under Section 7.4.

4.13.5 Capital Value of Project

The capital value of the project is estimated at R 800 million.

SECTION C – POLICY AND LEGISLATIVE REQUIREMENTS

5 POLICY AND LEGISLATIVE REQUIREMENTS

The EIA Regulations of 2014, Appendix 3 require that the EIR include a description of the policy and legislative context within which the development is to be located and an explanation of how the development complies with and responds to the legislation and policy context.

South Africa has sound environmental legislation aimed at achieving sustainable development, including laws that support public participation, impact assessment and environmental management. Developers need to comply with a range of other laws which regulate the impact on the environment. These include amongst others:

- National Legislation;
- Provincial Legislation;
- Biodiversity Conservation Plans, Environmental Management Frameworks;
- Municipal Planning Frameworks;
- Guideline Documents

The requirements of the applicable legislations or acts are outlined below.

5.1 National legislation

5.1.1 Constitution of the Republic of Southern Africa Act No 108 of 1996

Section 24 of the Constitution states that every person has the right to an environment that is not harmful to their health or well-being and to have the **environment protected** through reasonable legislative measures.

Environmental protection is a practice of protecting the natural environment on individual, organizational or governmental levels, for the benefit of both the natural environment and humans. Due to the pressures of population and technology, the biophysical environment is being degraded, sometimes permanently. This has been recognized, and governments have begun placing restraints on activities that cause environmental degradation.

The railway yard expansion is considered such an activity and Transnet has followed an EIA Process in terms of the NEMA EIA Regulations of 2014 (GNR 326) to determine the environmental and social consequences of the project. This EIR document's these consequences and recommends ways to manage, control, remedy and stop environmental degradation which may be caused by the activity. An EMPr has been prepared to manage impacts during the project's implementation.

The primary issue that prevailed from the study is that the project will impact negatively on the directly affected landowners and some of their livelihood activities. To manage the risk Transnet will engage with farmers directly about aspects that may affect their livelihoods and compensate them in a fair manner if any assets are lost or compromised.

The noise impact from the operation of the expanded railway yard and trains hooting will impact negatively on the Farm Manager's house on Geelhoutkloof 359LQ dubbed receptor M. In this case the noise specialist has recommended implementing a noise monitoring plan.

5.1.2 National Environmental Management Act 107 of 1998 (NEMA) and EIA Regulations of 2014 (GNR. 326)

NEMA provides for the co-operative, environmental governance by establishing principles for decision making on matters affecting the environment, institutions that will promote cooperative governance and procedures for co coordinating environmental functions exercised by organs of state.

The Environmental Management principles set out in NEMA should guide decision making throughout the project life cycle to reflect the objective of sustainable development.

Section 24 (5) of NEMA provides for specific listed activities which require environmental authorisation prior to their commencement. GN 327, 325 and 324 under the NEMA EIA Regulations of 2014 (as amended by GNR 326) schedules listed activities which require EA. The project triggers activities under all the relevant notices and is subject to a full Scoping and EIA Process. The triggered listed activities relevant to the project have been addressed under Section 4.4 of this report.

Transnet is required to undertake a Scoping and EIA Process and submit a Scoping Report, EIR and EMPr, which describe the potential environmental impacts of the proposed railway yard development, how such impacts will be managed and detail the public participation process undertaken. The decision making authority for the project is the DEA. The provincial authority, LEDET is the commenting authority.

The application was submitted to DEA on 5 November 2018 followed by a Scoping Report and Plan of Study for EIA which was approved on 19 February 2019. The EIR and EMPr have now been prepared in accordance with Appendix 3 of the EIA Regulations 2014 (GNR 326). It is currently being distributed for public review before submission to the DEA for decision making.

Section 28 of NEMA is also of key importance and places "Duty of care and remediation of environmental damage" on the developer/applicant.

Section 28 (1) of NEMA states:
"Every person who causes has caused or may cause significant pollution or degradation of the environment must take reasonable measures to prevent such pollution or degradation from occurring, or, in so far as such harm to the environment is authorised by law or cannot reasonably be avoided or stopped, to minimise and rectify such pollution or degradation of the environment."

2) Without limiting the generality of the duty in subsection (1), the persons on whom subsection (1) imposes an obligation to take reasonable measures, include an owner of land or premises, a person in control of land or premises or a person who has a right to use the land or premises on which or in which-

a) any activity or process is or was performed or undertaken; or
b) any other situation exists, which causes, has caused or is likely to cause significant pollution or degradation of the environment.

(3) The measures required in terms of subsection (1) may include measures to-

a) investigate, assess and evaluate the impact on the environment;
b) inform and educate employees about the environmental risks of their work and the manner in which their tasks must be performed in order to avoid causing significant pollution or degradation of the environment;
c) cease, modify or control any act, activity or process causing the pollution or degradation;
d) contain or prevent the movement of pollutants or the causing of degradation;

e) eliminate any source of the pollution or degradation; or
f) remedy the effects of the pollution or degradation."

Accordingly, Transnet has undertaken an EIA to investigate and evaluate the potential environmental and social consequences associated with the proposed project and identify means to mitigate/contain negative impacts and prevent unacceptable impacts on the environment. Specialist evaluations and recommendations were sourced on all aspects of the biophysical and social environment to determine such. This is considered a "reasonable step" to prevent pollution or degradation of the environment which may result from the proposal.

5.1.3 National Water Act (Act 36 of 1998)

The principles and objectives of the NWA are to guide the protection, use, development, conservation, management and control of water resources in a sustainable and equitable manner for the benefits of all persons.

Section 19 of the NWA deals with prevention and remedying effects of pollution in particular where pollution of water resources occurs or might occur as a result of activities on land. The person who owns controls, occupies or uses the land in question is responsible for taking measures to prevent pollution of water resources. If these measures are not taken, the catchment management agency concerned may itself do whatever is necessary to prevent the pollution or to remedy its effects, and to recover all reasonable costs from the persons responsible for the pollution.

To give effect to the above Section 21 of the NWA calls for licensing of defined water uses. The project triggers Section 21, (c), (i) and (g) water uses under the NWA and requires a water use license from DWS – see Table 9 below.

Table 9: Triggered Section 21 water uses

Water Use	Activity	Applicability
Section 21 (c) & (i)	Impeding or diverting the flow of water in a watercourse & altering the bed, banks, course or characteristics of a watercourse	▪ Construction and extension of culverts across three stream crossings ▪ Construction of the development within 32m of a two pan depressions; ▪ Construction of the development within 500m of several pan depressions.
Section 21 (g)	Disposing of waste in a manner which may detrimentally impact on a water resource	▪ Bio-Mite wastewater treatment system to cater for the yard facilities discharging treated effluent into a soak away system. ▪ Discharge of effluent into a septic tank at the Guard House. ▪ Disposal of coal contaminated storm water into an earth channel for forced evaporation.

Transnet has conducted a pre-application meeting with DWS on 16 October 2018 to discuss the nature of the WULA. Next, Transnet will submit the WULA and undertake the WULA Procedure followed by submission of a WULA forms and Water Use Technical Report to the DWS for decision making.

The application and subject reporting will be submitted to DWS during May 2019 in line with the Regulations for Procedural Requirements for Water Use License Applications and Appeals GNR 267 of 24 March 2017.

5.1.4 Mineral and Petroleum Resources Development Act (Act 28 of 2002) (MPRDA)

The project will require fill material which will be obtained from two borrow pits. This requires authorization in terms of the MPRDA and its subsequent amendments of 2008, 2014 and the MPRDA Regulations R. 527. A Mining Permit Application in terms of Section 27 of the MPRDA read with Section 23 of the MPRDA amendment Act 2008 (Act 49 of 2008) must still be lodged with the DMR. The preferred borrow pit positions are still subject to further discussions with Landowner Mr Hills since he has requested consideration of alternative sites.

Mining related activities are now also included in the NEMA EIA Regulations of 2014 (GNR. 326). The project also requires an EA in terms of EIA Regulations under GNR. 327 which schedule listed activities related to mining permits which require EA-see Table 10.

Table 10: Triggered Listed Activities in terms of GNR 327 and 324

Listing Notice	Activity	Applicability
GNR 327 Listing Notice1 **Activity 21**	Any activity including the operation of that activity which requires a mining permit in terms of Section 27 of the MPRDA, including: i. Associated infrastructure, structures and earthworks directly related to the extraction of a mineral resource	Mining of gravel from borrow pits for cut and fill requirements and road construction at the proposed railway yard.
GNR 327 Listing Notice1 **Activity 27**	The clearance of an area of 1 hectare of more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for – iii. Undertaking a linear activity; or iv. Maintenance purposes undertaken in accordance with maintenance management plan.	Mining Permits are submitted if the mining area in question does not exceed 5 hectares. The area for the required borrow pits may exceed one hectare and would require the removal of indigenous vegetation.

The project is subject to a Basic Assessment Process and submission of a Basic Assessment Report and Environmental Management Programme, which describe the potential environmental impacts of the proposed mining activities how such impacts will be managed and how the disturbed areas will be managed. The relevant application for a mining permit, EA and subject reporting must still be submitted to the DMR: Limpopo Regional Office.

5.1.5 National Environmental Management: Waste Act (Act 58 of 2008) (NEM: WA)

The NEMWA is the principal act governing waste management within South Africa since 2009. The objectives of the act involve the protection of health, wellbeing and the environment. It provides measures for to avoiding and minimising the generation of waste, reducing, recycling and recovering waste, and treating and safely disposing of waste. It further requires that all waste management activities must be licensed and are subject to a Basic Assessment or full EIA process.

The spoil material from cut and fill operations whilst developing the Lephalale Railway Yard are not considered waste/inert waste; it is not contaminated during any process. The project does not trigger any listed waste management activities; hence no authorisation is required in terms of NEMWA.

Further, Section 28 of the NEM:WA requires entities or industries to develop waste management plans for their industry. It is therefore assumed the waste management plan/s should be conducted in line with the regulations. Section 30 of NEM:WA specifies the information that must be included the industry waste management plan. Information that needs to be addressed for the Lephalale Railway Yard in terms of Section 30 (2) includes:

- the amount of waste that is generated;
- measures to prevent pollution or ecological degradation;
- targets for waste minimisation through waste reduction, re-use, recycling and recovery;
- measures or programmes to minimise the generation of waste and the final disposal of waste;
- measures or actions to be taken to manage waste;
- the period that is required for implementation of the plan;
- methods for monitoring and reporting; and
- any other matter that may be necessary to give effect to the objects of the Act.

The Lephalale Railway Yard Waste Management Plan has been prepared in line with the NEM:WA and is attached under Volume 2 Appendix 2A.

5.1.6 National Forest Act, (Act 84 of 1998)

The purpose of the Forest Act is to protect natural forests and woodlands as it forms an important part of that environment and need to be conserved and developed according to the principles of sustainable management. Plantation forests play an important role in the economy and have an impact on the environment and need to be managed appropriately.

Section 15(1) of the National Forest Act states no person may cut, disturb, damage or destroy any protected tree or possess, collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any protected tree or any forest product derived from a protected tree, except under a licence or exemption granted by the Minister to an applicant and subject to such period and conditions as may be stipulated.

Two nationally protected tree species have been recorded onsite (wide spread in area) namely Sclerocarya birrea (Marula) and Boscia albitrunca (Shepherd's Tree). A protected tree survey will be undertaken to identify trees for removal within the footprint areas and Transnet will apply to the Department of Forestry and Fisheries (DAFF) for Protected Tree Removal Permits prior to its removal.

5.1.7 National Environmental Management: Biodiversity Act (Act 10 of 2004) (NEM:BA)

The purpose of the Biodiversity Act is to provide for the management and conservation of South Africa's biodiversity within the framework of the NEMA and the protection of species and ecosystems that warrant national protection. As part of its implementation strategy, the National Spatial Biodiversity Assessment was developed.

A list of threatened and protected species, categorised as critically endangered (CR), endangered (EN), and vulnerable (VU) or protected has been issued in terms of Section 56 (1) of the NEMBA. South Africa also uses the internationally endorsed World Organisation-International Union for Conservation of Nature (IUCN) IUCN Red List Categories and Criteria in the Red List of South African plants. NEMBA will be considered in this application and occurrence of species on site will be determined through Ecological Impact Assessment field investigations.

NEM: BA is also the most recent legislation pertaining alien invasive plant species. Gazette No 78 of 2014 provides a list of Alien Invasive Species and Gazette No 37886 of 2014 is the 'Alien and Invasive Species Regulations' which calls for Category 1 alien invasive plant species to be removed and /or controlled. It further states no land user shall allow Category 2 species to occur within 30m of the 1: 50 year flood line of a river, stream, spring, natural channel, dam or wetland. It also prohibits Category 3 species from occurring within close proximity of a watercourse.

A list of threatened and protected ecosystems has been gazetted in 2011 in terms of Section 52 (1) of the same act. The ecosystems are categorised as critically endangered (CR), endangered (EN), and vulnerable (VN) or protected.

Threatened species and Near Threatened species are absent from the project site. Loss of sensitive species due to the project will be limited to two national and one provincial protected tree species (yet wide spread in area) namely Marula, Shepard's Tree and provincially protected Tambotie.

The project site does not cover any nationally threatened and or protected ecosystem.

5.1.8 National Environmental Management: Protected Areas Act (Act 57 of 2003) (NEMPAA)

NEMPAA provides for the protection and conservation of ecologically viable areas representative of South Africa's biological diversity and its natural landscapes and seascapes; for the establishment of a national register of all national, provincial and local protected areas.

A Register of Protected Areas has been established in terms of the Section 10 of the Act. The register is available through an interactive map and database on the DEA website http://mapservice.environment.gov.za/PAR/map.aspx. Based on the Register the remainder of the farm Geelhoutkloof 359LQ and a portion of the Enkeldraai 718LQ is registered as 'Koedoe Private Nature Reserve.

Section 49 of the act places restriction of activities in protected areas described in Section 86. Section 86 indicates the Minister may make regulations regarding prohibiting or restricting activities that have an adverse effect in protected areas and land uses in protected area that are harmful to the environment.

The northern section of Koedoe Nature Reserve was cut off before by the existing railway line. The extension of the railway reserve for this project will further isolate the different parts of the Nature Reserve. Transnet will engagement with the affected landowners and apply for amendment of the Koedoe Nature Reserve boundaries to an extent which is practical for the foreseeable future in terms of most likely developments.

Transnet must still engage Mr Hills and Mr Sauer to apply for the amendment of the nature reserve boundaries to LEDET. Transnet has not initiated the talks with these landowners yet.

5.1.9 National Heritage Resources Act (Act 25 of 1999) (NHRA)

NHRA protects all structures and features older than 60 years (Section 24), archaeological sites and material (Section 35) and graves and burial sites (Section 36). Section 38 indicates that any person intending on undertaking any form of development which involves the activities listed below must, at the earliest stage of initiation, notify the SAHRA:

- Construction of road, wall, power line, pipeline, canal/similar form of linear development / barrier exceeding 300m in length;
- Any development or other activity which will change the character of the site-
  - Exceeding 5000m2 in extent or
  - Involving 3 or more existing erven / subdivision thereof or;
  - The re-zoning of a site exceeding 10 000m2 in extent; or
  - Any other category of development provided for in regulations by SAHRA / provincial heritage resources agency.

Section 35(4) of the NHRA also protects palaeontological sites. The railway yard expansion area coincides with a moderately sensitive palaeontological zone. A Palaeontological Desktop Study is required for developments which coincide with moderately sensitive palaeontological zones.

The HIA completed during the Scoping Phase has thus been updated with a desktop Palaeontological Assessment based as per the SAHRIS palaeo-map. The updated HIA and PIA is attached under Volume 2 Appendix 2J and will be submitted to SAHRA for decision making. SAHRA's decision will be submitted to DEA once received.

5.1.10 Noise Control Regulations (1994) (NCR)

The Noise Control Regulation, 1994 was promulgated in terms of the Environmental Conservation Act. It defines nuisance noise as; "any sound which disturbs/impair the convenience/piece of any person" and "any noise level which exceeds the zone sound level / or a noise level which exceeds the ambient sound level at the same measuring point by 7dBA or more".

The Noise Control Regulations, 1994 excludes railway type noise as an aspect for consideration in the control of noise. For purposes of this noise assessment it was decided to be guided by the recommended noise levels applicable in United Kingdom (UK) – 63.0dBA to 68.0dBA, United States of America (USA) – 67.0dBA, Australia – 60.0dBA, Japan – 55.0dBA to 60.0dBA. The following maximum noise levels of 60.0dBA during the day and 50.0dBA during the night is proposed to be used for the defined noise sensitive areas along the boundaries of the rail yard.

The South African National Standards (SANS 10103:2008) provide the guidelines for the different recommended prevailing ambient noise levels and how to evaluate when a specific operation or activity is creating a noise disturbance and what reaction can be expected if a noise disturbance is created. SANS 10210 of 2004 is the national standard applied to determine or project road traffic noise which is associated with a new development.

The typical ambient noise levels at the project site/receptors are 35dBA during the day and 30dBA at night. The operations of the yard and use of the train hooter will exceed the threshold value and cause disturbance at the Farm Manager's residence on Portion 1 (re) of Geelhoutkloof 359LQ during the day and night time. Use of the train hooter will also cause disturbance at the Geelhoutkloof Lodge (next to Afguns Road) on Portion 1 (re) of Geelhoutkloof 359LQ and the residence on the Farm Nooitgedacht 514LQ.

The prevailing ambient noise level along the feeder road was 66.8dBA during the day and 62.2dBA during the night. During construction the noise levels along the feeder roads will be 47.5dBA and during the operational phase 50.7dBA. There will therefore be no noise impact from traffic activities onto the residential properties. Refer to Volume 2 Appendix 2G for the Noise Impact Report.

The proposed rail yard project will comply with the relevant Noise Control Regulations, 1994 and

SANS 10103 of 2008 provided that the noise mitigatory measures are in place and that the noise Management plan be adhered to at all times.

5.1.11 Key Decision Making Authorities

DEA is the decision making authority for the environmental authorisation application. The WUL application will be submitted to DWS and the mining permit with associated environmental authorisation application to the DMR. All issues related to the borrow pits and water use license would therefore be dealt with under those applications and subject reporting. The applications and its submission to the key authorities is summarised in Table 11.

Table 11: Authorisation Processes, legislation and key authorities

No	Authorisation Processes	Relevant Legislation	Competent Authority	Submitted
A	Environmental Authorisation (EA subject to Full Scoping and EIA Process	NEMA and NEMA EIA Regulations of 2014	DEA	YES
B	Water Use License subject to WULA Procedure	NWA and NWA WULA Regulations of 2017	DWS	May 2019
C	Mining Permit & Environmental Authorisation subject to Basic Assessment Process	MPRDA NEMA and NEMA EIA Regulations of 2014	DMR	May 2019
D	Protected Tree Permits for removal	Section 15 (1) of National Forest Act 84 of 1998 Permits in terms of LEMA (Tambotie)	DAFF LEDET	Post September 2019 Once EA approved

5.2 Strategic national plans

5.2.1 Infrastructure Development Bill (B49 of 2013)

The Infrastructure Development Bill is to provide for the facilitation and coordination of public infrastructure projects which is of significant economic or social importance which are to be given priority for approval and implementation to ensure the development goals of the State.

Schedule 1 of the Bill lists development of railways as projects of strategic importance to be given priority for approval and implementation. The railway yard is instrumental to the goal and forms part and will increase the rail capacity at Lephalale.

5.2.2 National Infrastructure Plan 2012 (NIP)

SA Government adopted a National Infrastructure Plan in 2012. With the plan it aims to transform SA's economic landscape while simultaneously creating significant numbers of new jobs, and strengthen the delivery of basic services. The plan also supports the integration of African economies.

The National infrastructure Plan (NIP) seeks to promote:

- re-industrialisation through manufacturing of inputs, components and machinery;
- skills development aimed at critical categories;
- greening the economy; and
- empowerment.

The NIP comprises 18 identified Strategic Integrated Projects (SIPs) which integrate multiple infrastructure plans into a coherent package.

SIP 1 refers to ‘’Unlocking the northern mineral belt with Waterberg as the catalyst’ (with an emphasis on investment on heavy haul rail links to Richard’s Bay).

- Unlock mineral resources.
- **Rail**, water pipelines, energy generation and transmission infrastructure.
- Thousands of direct jobs across the areas unlocked.
- Urban development in Waterberg - first major post-apartheid new urban centre will be a “green” development project.
- **Rail capacity to Mpumalanga and Richards Bay**.
- Shift from road to rail in Mpumalanga.
- Logistics corridor to connect Mpumalanga and Gauteng.

The expansion of the Lephalale Railway Yard is instrumental to one such goal, ‘unlocking the northern mineral belt of the Waterberg as a catalyst’ by creating rail capacity to Mpumalanga and Richards Bay.

The Waterberg complex is hence regarded as a strategic growth node. Adequate rail infrastructure capacity is critical to unlock the potential of this economic hub. In order to meet the anticipated transportation of coal volumes from the Waterberg region, additional freight capacity is required to supply the market demand for coal. Projected increase in coal volumes of up to 25Mtpa can be accommodated on the current infrastructure with minimum additional infrastructure requirements. The major infrastructure requirement is the extension of current yards and crossing loops to accommodate 200 wagon trains. The section between Lephalale and Pyramid South requires the major infrastructure modifications as well as new infrastructure. The current yard at Lephalale (Grootgeluk mine) is not able to accommodate a 200 wagon train. Transnet has identified the need to develop a Network Stabilisation Facility (NSF) as part of the Waterberg programme, the expansion of the Lephalale Railway Yard. The Lephalale yard is an existing 100 wagon yard, which just requires extension for it to accommodate 200 train wagons. It will increase capacity and to allow more trains to enter and exit Lephalale. The Lepalale Railway Yard is thus of strategic importance and in line with the development goals of the NIP.

5.3 Provincial legislation and management plans

5.3.1 Limpopo Environmental Management Act No 7 of 2003 (LEMA)

LEMA was written to consolidate and amend the environmental management legislation of the Province. It includes Regulations which call for the protection of indigenous plants, animals which require a permit from provincial authority, LEDET for its pick, sell, removal, donate, in and or export in the province. The lists of plants and animals are itemized under Schedule 8, 11 and 12 of the act.

The succulent stapelaid and related species, *Piaranthus atrosangeuineus* is endemic or near endemic species, protected in terms of LEMA. According to the Ecological Impact Assessment (RF. Terblanche, 2019) it is unlikely that the stapeliad *Piaranthus atrosanguineus* will occur within the railway yard expansion footprint.

Provincially protected tree species Tamboti (*Spirostachys Africana*) (Schedule 12) has been recorded onsite. A permit for its removal will be obtained from LEDET once environmental authorisation is issued by DEA for the project and removal of individual tree species has to take place.

5.3.2 Limpopo Conservation Plan 2013

LEDET is the custodian of the environment in the Limpopo Province and primary implementing agent of the Limpopo Conservation Plan version 2. The conservation plan informs land use planning, environmental assessments, land and water use authorisations as well as natural resource management, undertaken by a range of sectors whose policies and decisions impact on biodiversity. This is done by providing a map of biodiversity priority areas, referred to as Critical Biodiversity Areas (CBA) and Ecological Support Areas (ESA's), with accompanying land use planning and decision making guidelines.

The biodiversity priority areas inform land use planning guidelines. Its intent is to provide guidance on what types of land-use activities are compatible with biodiversity management objectives for each CBA map category.

The project site corresponds to two priority biodiversity areas namely ESA 1 and CBA 2.

Land use guidelines for the above biodiversity areas corresponding to the project site are discussed in Table 12. The guideline indicates compatible and incompatible land-uses which aid planners to identify appropriate zones to impose on CBA's and ESA's when developing Spatial Development Frameworks, Environmental Management Frameworks, and Land-use management schemes. It also gives evaluators of EIA an indication of appropriate land-use with each area.

Table 12: Project area biodiversity Priority Areas land use guidelines

CBA Map Category	Description	Land Management Objective	Land Management Recommendations	Compatible land use
CBA (2)	Best design selected site. Selected to meet biodiversity pattern/ecological process targets.	Maintain in natural state with limited to no biodiversity loss. Maintain current agricultural activities. Land use should not be intensified. Minimise impact on threatened species	Avoid conversion of agricultural land to more intensive land uses which may negatively impact on threatened species / ecological processes.	Agricultural practices (arable, intensive&extensive animal production, game and ecotourism (populations of threatened species maintained and ecological process which support them).
ESA (1)	Natural, near natural and degraded areas supporting CBA's by maintaining ecological processes.	Maintain ecosystem functionality and connectivity allowing for limited loss of biodiversity pattern	Implement appropriate zoning and land management guidelines to avoid impacting ecological processes. Avoid intensification of land use and fragmentation of natural landscape.	Conservation and associated activities. Extensive game farming and eco-tourism operations. Extensive livestock production. Urban Open Space System. Low density rural residential, small holdings, resorts where development design and overall densities allow maintenance of ecological functioning.

The general recommendations for CBA2 areas are to keep it in a natural state and for ESA1 areas it should be maintained in an ecological functional state.

Since the expansion of the railway yard is different to the preferred biodiversity compatible land uses are submitted in terms of the NEMA: EIA regulations or Land Use Planning Ordinance (LUPO)/SPLUMA:

- A Screening Exercise should be undertaken by an Ecologist to verify the CBA and ESA map category on site;
- If the site is verified as a CBA and ESA, developments other than the preferred land uses, should be investigated in detail and the mitigation hierarchy applied in full;
- If the application is pursued they should be informed by a specialist biodiversity assessment

An Ecological and Wetland Impact Assessment Study was conducted by RF. Terblanche and attached to this EIR under Volume 2 as Appendix 2F. It informs this EIA Study for the expansion of the railway yard.

RF Terblanche, 2019 states that it is unlikely that the development will result in loss of Threatened, Near Threatened and Declining plant or animal species. The site does not appear to be specific breeding habitat for any large carnivore and bird species which roam large areas of which the site is part. Scope for the site to be part of a corridor of particular conservation importance is small. The small wetland depressions (pans) with their buffer zones as well as the three drainage lines and buffers zone at the site are part of corridors of particular conservation importance. In the case of the small seasonal pans, a stepping stone corridor applies.

All activities will be limited to the expansion footprint; the three stream crossings will be limited to extension of culverts from the existing to the new railway tracks. The buffer zones of pans are already compromised. Pan 1 & 2 is to be moved forty metres from the edge of the road next to the proposed Railway Line site during construction. Wetland characteristics of these pans may even slightly improve in such a case. It should be noted that these pans are not comparable to larger marshlands or saltpans in the region in which case a no-go zone would have applied.

If the development is approved and these recommendations, which lead to two rehabilitated small pans and buffer zones, could be successfully implemented the risk of loss of biodiversity corridors and stepping stone small wetlands in the larger area shifts will be moderate to low.

5.3.3 Waterberg District Environmental Management Framework (Waterberg District EMF)

The Environmental Management Framework (EMF) is an initiative of the national DEA in partnership with LEDET and WDM). The EMF supports decision making in the WDM area to facilitate appropriate and sustainable development. The EMF integrates policies and frameworks and aligns government mandates to streamline decision-making and to improve cooperative governance. The EMF has a number of objectives, which include identifying the status quo, development pressures and trends in the area and a development decision support system to ensure environmental attributes, issues and priorities are taken into account.

Based on the Waterberg District EMF the project areas falls within Environmental Management Zone 5 set out as a mining and industrial development focus area, Zone 11 a major infrastructure corridor and to a lesser extent in Zone 2 which is set out for nature and cultural tourism activities are represents areas of high natural, visual and cultural quality.

The expansion of the railway yard is a major infrastructure project inline with the objectives for Zone 5 and 11.

The project site and surrounding farms are used for game breeding, tourism and hunting as set out in Zone 2. The expansion of the railway yard will impact on the natural, visual quality and spirit of place but can be mitigated to acceptable levels.

The existing visual impacts at the project site from power lines, game fences and Medupi power station are high. The additional impact from the railway line will be very low and won't increase the already high visual impact in the area. No sites of cultural or heritage signficance were recorded at and surroundign the project site. The investigation was supplemented by a desktop Palaeontological Assessment which also did not yield any sites of signficance.

The spirit of place associated with an area is an important factor in tourism and hunting and the marketing of these activities (natural/tourism development). The sense and spirit of place will be altered permanently by the project but can be mitigated to lower its intensity by managing visual and noise impacts.

Industrial activities are present near the site and Threatened species and Near Threatened species are absent from the project footprint area. The project will have a moderate to low impact on ecology given migitations are upheld within the planned footprint. The cumulative impact on sensitive species and connectivity of ecosystems are limited.

5.4 Municipal planning frameworks

5.4.1 Lephalale Spatial Development Framework (SDF)

The Lephalele SDF is a core component of LLM's economic, sectoral, spatial, social, institutional, environmental vision, a tool to achieve the desired spatial form of the Municipality.

The Lephalale SDF echoes the Waterberg District EMF in its land use planning objectives. Based on the Lephalale SDF the project site corresponds to Environmental Management Zone 11 set out as a major infrastructure corridor and to a lesser extent in Zone 2 which is set out for nature and cultural tourism activities.

The adherence to the land use planning aims for the environmental management zones and potential impact of the project on these zones has been addressed under Section 5.3.3.

5.4.2 Lephalale Integrated Development Plan (IDP)

The IDP is a process through which the municipalities prepare strategic development plans for a five-year period. An IDP is one of the key instruments for local government to cope with its new developmental role and seeks to arrive at decisions on issues such as municipal budgets, land management, promotion of local economic development and institutional transformation in a consultative system and strategic manner.

The IDP recognises the development of Transnet's Rail Project Phase 1 and Phase 2.

The 1st project is to increase rail capacity of the existing Lephalale-Thabazimbi-Rustenburg-Pyramid rail line from the current 4mta to 23mtpa. The project aims to increase passing loops on the existing single lane and replacing sleepers to increase the loading

The 2nd Phase of the rail improvement is aimed at increasing export from the Waterberg coal fields and includes doubling the Lephalale-Thabazimbi rail line. This will result in the increase in mining activity in the Waterberg coal fields between Lephalale and Botswana Border.

5.5 GUIDELINE DOCUMENTS USED FOR EIA PROCESS AND PUBLIC PARTICIPATION PROCESS

The DEA, other provincial government departments, including DWS have formulated guideline documents to assist applicants, authorities and environmental assessment practitioners on the requirements of considering various aspects in the EIA process. Guidelines consulted during the preparation of the EIR include:

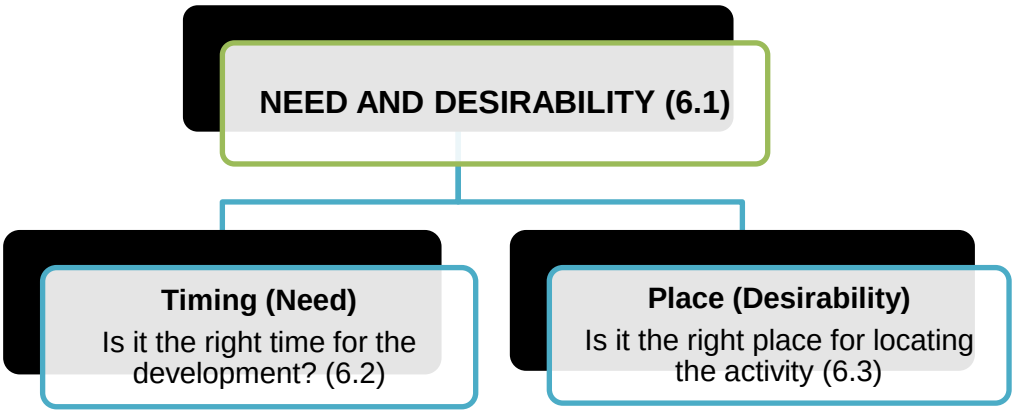
- Western Cape: DEA&DP Involving specialists in EIA (2013)
- DEA IEM Guideline Series 11: Criteria for determining alternatives
- DEA: Integrated Environmental Management Guideline 7: Public Participation in the EIA Process (2012) (read due regard of Regulation 41-44 of NEMA EIA Regulations 2014)

SECTION D – NEED AND DESIRABILITY OF THE PROJECT

6 NEED AND DESIRABLITY OF THE PROJECT

In terms of Appendix 3 of the EIA Regulations of 2014, the EIR must motivate the need and desirability of the proposed activity, in context of the preferred development footprint as contemplated in the accepted scoping report.

The concept of "need and desirability" relates to, amongst others, the nature, scale and location of development being proposed, as well as the wise use of land. Essentially, the "need" primarily refers to time and "desirability" to place (i.e. is this the right time and is it the right place for locating the type of land-use/activity being proposed?).



The financial viability of a proposed project must be considered within the context of justifiable economic development. Transnet might indicate whether the expansion of the railway yard will be "do-able", but the "need and desirability" will determine the interests and needs of the broader public as reflected in a credible IDP, SDF and EMF for the area, and as determined by the EIA. (*Zoneland Solutions*)

The DEA, when considering the application for the railway yard expansion, as a minimum, must have regard to the need for and desirability of the activity.

6.1 Background

Of the 269 million tonnes of coal produced in South Africa, 70% is consumed domestically and 30% is exported. The export target in SA is 77 million tonnes per annum. In 2017, 76 million tonnes of coal was loaded at the RBCT for export.

The Waterberg area is estimated to contain more than 50% of SA's remaining coal reserves and is expected to become SA's next coal hub as reserves in Emalahleni and Middelburg area near depletion. Development of the Waterberg has been designated a national priority because of pressure from Eskom, which wants to source coal from Lephalale to keep power stations in Mpumalanga running after they have exhausted their local supply sources.

Transnet's Waterberg Coal line currently moves 4 million tons of coal per annum from Lephalale to the RBCT. The railway line stretches from Lephalale through Thabazimbi, Rustenburg and Pyramid South and links to the existing Ermelo railway line, which provides linkage to the RBCT.

Government's national priority is to 'unlock the northern mineral belt of the Waterberg as a catalyst' by creating rail capacity to Mpumalanga and Richards Bay. It has been identified as a SIP by the Presidential Infrastructure Coordinating Commission (PICC). Any infrastructure proposed to increase rail capacity along the Waterberg Coal line is thus instrumental to this goal. It is also a key driver for SA's economy and goal to create five million new job opportunities by 2020.

Present drivers in the Waterberg area include the world's largest coal mine Grootgeluk Coal Mine which is operating 20km from Lepahalale. It produces around 19Mt/year, of which 14,8Mt is supplied to Eskom's Matimba power station. Grootegeluk is being expanded to supply coal to Eskom's Medupi power station, to which it will eventually supply 14,6Mt/year. Exxaro has further plans for the Waterberg, where it wants to develop a new mine, Thabametsi, which could supply up to 17Mt/year to power stations and 2,8Mt/year to other markets, and build other greenfields mines to produce 13Mt/year for the export market from 2018 to 2025.

Further two Australian miners, Waterberg Coal and Resource Generation (Resgen), have also announced the development of the Boikarabelo Coal Mine. Waterberg Coal is looking to build a mine that will supply 10Mt/year to Eskom over a 30-year period. Resgen is planning construction of the Boikarabelo mine, which will produce 6Mt/year. Half of this will go to Eskom and half to the export market.

Based on the above validated demand and confirmed mining investment, Transnet is implementing the second phase of the Waterberg expansion programme which will grow export rail capacity to 25 Mt through incremental upgrades of the existing rail networks and yards using additional loops, while maintaining the existing axle load, electrical upgrades and improved train control systems.

The Waterberg Coal line can accommodate the projected 25 Mt coal volume if major infrastructure requirements are implemented such as the extension of current yards and crossing loops to accommodate 200 wagon trains. The current yard at Lephalale (Grootgeluk mine) is not able to accommodate a 200 wagon train. Transnet has thus identified the need to develop a Network Stabilisation Facility (NSF) by expanding the existing Lephalale Railway Yard along the Lephalale-Thabazimbi railway track to a 200 wagon yard.

Resgen is currently constructing its 36km rail link next to and from the existing Lephalale-Thabazimbi railway yard to its Boikarabelo Coal Mine towards Kruishout 271LQ. The rail link was approved in 2012 by LEDET as part of the Boikarabelo Coal Mine EA. The expansion footprint area for the Lephalale Railway Yard is thus at the point of the existing 100 wagon yard, the position of Exxaro Grootgeluk Mine and position of Regen Boikarabelo Coal Mine's 36km rail link turn off along the existing railway track.

Transnet will augment the existing Transnet infrastructure and Resgen rail link holding yard with the expansion of the Lephalale Railway Yard to allow compilation of a further 100 wagon trains from the surrounding mines, to refuel diesel locomotives, sanding, crew switch and on track inspections of rolling stock.

6.2 Is this the right time for the project?

Transnet has validated demand and confirmed mining investment to substantiate the need for the expansion of the railway yard at this time as detailed under Section 6.1. The current existing track is congested due to empty train wagons standing on the existing track prohibiting loaded trains to leave Lephalale.

The current demand at Lephalale is to run a 65 slot timetable with future traffic comprising 200 wagon coal trains. To achieve this, a 200 wagon yard is required at Lephalale. The projected demand for expansion of rail capacity is to move the projected 25 million tonnes of coal from the Waterberg to Richards Bay port and domestic market is by 2018 - 2025. The actual construction of the expanded Lephalale Railway Yard is planned for 2021 and construction should be complete by 2024 to meet the rail capacity requirement by 2025. The project is a national priority to state.

Norman Mbazima, Anglo American, Investing in African Mining Indaba, Mining Weekly, 9th March 2018 stated that 'efficient and cost-effective freight logistics for inland coal mines are important and require urgent expansion in rail networks to support export affordability'.

The need for the increase in rail capacity at this point in time is also recorded in the Lephalale Local Municipality IDP 2018/2019. It recognises the demand for rail increase indicating over the past decade there has been a substantial growth in volume of high grade coal transported from Grootgeluk coal mine to Exxaro clients in Limpopo, North West, Mpumalanga and Gauteng Province. The requirements to transport coal and coal products from Lephalale to end users across SA and beyond have increased tremendously.

6.3 Is it the right place for locating the activity?

This project entails the expansion of the existing Lephalale Railway Yard. The expansion location is thus fixed and has been positioned according to the point of existing and prospective clients namely Exxaro Grootgeluk Coal Mine and Resgen Boikarabelo Coal Mine's rail link turnoff along the existing track that require the increase in rail capacity.

When considering the interests and needs of the broader public as reflected in a credible IDP, SDF and EMF for the area, the project is consistent with Environmental Management Zone 11 which is set out as a major infrastructure corridor but inconsistent with Zone 2 which is set out for nature and cultural tourism activities according to the Lephalale IDP/SDF and the Waterberg District Environmental Management Framework. The project position is therefore mainly in line municipal and district planning except for Zone 2.

The expansion of the yard will take place in a commercial game farming area and the directly affected properties are used for commercial game hunting, game breeding and associated tourism activities such as characterised by Zone 2 of the Lephalale IDP and Waterberg EMF.

The current land uses are sensitive receptors to visual and noise impacts.

The additional impact from the expansion of the railway yard will be very small and won't increase the already high visual impact from the surrounding industries. The visual disturbance of the yard will be 100m or less from the yard. The project will have a very low visual disturbance on the nature reserve. The impact from lights at night must be noted. Lights will be faced down and towards the railway yard to lower light pollution towards the surrounding properties.

The noise threshold value of 7dBA will be exceed Geelhoutkloof Farm Manager's house and will experience the highest noise intrusion during the operation of the yard and use of train hooter.

The threshold value of 7.0dBA will also be exceeded at the Nooitgedacht 514LQ farmhouse east of Geelhoutkloof and Geelhoutkloof lodge/house next to Afguns road for the duration the hooter will be activated inside the yard area and at intersections:
Accordingly the project will impact on the direct landowner's sense and spirit of place due to the increase in noise levels and limited visual impact from the activity. The sense of place will be altered permanently. The project will also impact on their livelihoods activities. Transnet will engage with the directly affected farmers about aspects that may affect their livelihoods and compensate them in a fair manner if any assets are lost or compromised.

The expansion of the railway yard will also further isolate the Koedoe Nature Reserve. The boundaries of the Koedoe Nature Reserve should therefore be amended to an extent which is practical for the foreseeable future in terms of most likely developments. Transnet will engage with the affected landowners for the amendment of the nature reserve boundaries.

6.4 Need and Desirability

The Department of Environmental Affairs released a guidance document in 2017 (DEA, 2017) that deals with the Need and Desirability in terms of the EIA regulations. This document presents certain questions to engage with to determine the need and desirability of a proposed project – see Table 13 for the Need and Desirability of the project from an ecological and social perspective.

Table 13: Need and Desirability considerations for the Lephalale Railway Yard project

CONCERNS		RESPONSES
1	**"SECURING ECOLOGICAL SUSTAINABLE DEVELOPMENT AND USE OF NATURAL RESOURCES"**	
1.1	How will this development impact on the ecological integrity of the area? 1.1.1 Threatened Ecosystems 1.1.2 Sensitive or stressed ecosystems (wetlands) 1.1.3 CBA's and ESA's 1.1.4 Ecological Drivers of the ecosystem 1.1.5 Environmental Management Framework	1.1.1 It does not correspond to any nationally listed threatened ecosystems. 1.1.2 **Wetlands & Streams**: The project will result in 3 stream crossings and impact on 2 pans. Existing culverts along the existing rail track will be extended to the new tracks to allow the streams to flow under the new railway track. Two pans (Pan 1 and Pan 2) are located in the yard footprint which will be restored forty metres from the edge of the road next to

CONCERNS		RESPONSES
	1.1.6 Spatial Development Framework 1.1.7 Global and international responsibilities relating to the environment (ramsar site, climate change)	the proposed Railway Line site during construction since the pans current buffer zones are compromised at present. The pans are of low ecological importance and flow sensitivity. Wetland characteristics of these pans may even slightly improve in such a case. It should be noted that these pans are not comparable to larger marshlands or saltpans in the region in which case a no-go zone would have applied. **Nature Reserve:** The central portion of yard expansion will cut across the Koedoe Nature Reserve. The northern section of Koedoe Nature Reserve was cut off before by the existing railway line. The extension of the railway reserve will further isolate the different parts of the Nature Reserve. The boundaries of the Koedoe Nature Reserve should be amended to an extent which is practical for the foreseeable future in terms of most likely developments. 1.1.3 The western portion of the development footprint corresponds to CBA2 and the eastern portion to an ESA1. Scope for the site to be part of a corridor of particular conservation importance is small. Conservation important species are absent from site and does not appear to be a specific breeding site for large carnivore or bird species. The small wetland depressions (pans) with their buffer zones as well as the three drainage lines and buffers zone at the site are part of corridors of particular conservation importance. The two pans will be rehabilitated to lower the risk of loss of biodiversity corridors and stepping stone pan depressions. 1.1.4 In the larger area current ecological drivers include Eskom power stations related infrastructure and related coal mining. A number of industries are present near the site. Vegetation is an open savanna which has been impacted by development in the past at the present railway line, railway reserve. Alien invasive weeds and indigenous pioneer plant species are conspicuous where clearings or other disturbances have taken place in the past. Dirt roads cross the site. Owing to the absence of Threatened species and Near Threatened species using the proposed footprint as habitat in particular the

CONCERNS		RESPONSES
		cumulative impact on sensitive species and connectivity of ecosystems are limited. 1.1.5 The expansion of the railway yard is consistent with the Waterberg District EMF, Environmental Management Zone 5 and 11 set out as industrial and mining focus area and a major infrastructure corridor but inconsistent with Zone 2 which is set out for nature and cultural tourism activities. Farm Geelhoutkloof 359LQ and Geelhoutkloof 745LQ are used as a commercial game hunting farm, game breeding and associated tourism activities. The spirit of place associated with an area is an important factor in tourism and hunting and the marketing of these activities. The increase in noise levels from trains stopping and starting, airbrakes, shunting, whistles and maintenance activities including visual impacts such as more railway lines, buildings and light at night (although very limited) will also impact on the sense and spirit of place. The sense and spirit of place will change permanently. Transnet will engage with the directly affected farmers about aspects that may affect their livelihoods and compensate them in a fair manner if any assets are lost or compromised. 1.1.6 The Lephalale SDF echoes the Waterberg District EMF. Thus response under 1.1.5 applies. 1.1.7 N/A. The development footprint area does not correspond to any RAMSAR sites.
1.2	How will the development disturb or enhance ecosystems and or result in the loss or protection of biological diversity?	Owing to the absence of Threatened species and Near Threatened species using the proposed footprint as habitat in particular the cumulative impact on sensitive species and connectivity of ecosystems are limited. Two small wetland depressions (Pans 1 & 2) with their buffer zones as well as the three drainage lines and buffers zone at the site are part of corridors of particular conservation importance. The two pans will be relocated and rehabilitated to lower the risk of loss of biodiversity corridors and stepping stone pan depressions. Pan 1&2 buffer zones have been compromised. Wetland characteristics of these pans may slightly improve with the relocation.
1.3	How will this development pollute and or degrade the biophysical environment?	There is also a low to moderate risk for contamination of the shallow water table from fuel, hydrocarbons spillages from transportation vehicles, oil spillages

CONCERNS		RESPONSES
		from storage drums and fuel spillages from Diesel tanks. To manage risks Transnet will resort to immediate clean up after spillages and storage facilities will be bunded and lined. A Water and oil separator will be constructed at both the North and the South Facility to deal with the contaminated liquids onsite. Once the water has passed through the oil separator and is tested, it will then be drained to the sewer network. Coal spillages from train wagons may contaminate the area and lead to storm water contamination or even contamination of the ballast and surrounding area. A lined earth channel will be established alongside a portion of the track that will serve as a storage/evaporation pond for coal contaminated storm water runoff. The channel will contain runoff water until it evaporates. The channel will be cleaned form sludge and taken to Grootgeluk Coal mine, subject to an agreement with the mine, since the mine have systems in place for handling coal sludge. The volume of sludge from the yard should be minimal. Two Bio-Mite submerged wastewater treatment system will be installed for wastewater collection and treatment. The risk of the system contaminating surrounding boreholes will be low to moderate. Monitoring boreholes will be drilled up and down slope of the Bio Mite units to monitor water levels and quality increase of leakages. The expansion of the yard will also result in partial destruction of habitat of medium and low ecological sensitivity. Individual Protected trees species Shepard's Tree, Marula and Tamboti will be removed. These trees will be marked at site with an application of permits for the removal of these trees. During the construction phase animal species could be disturbed, trapped, hunted or killed. Contractors must ensure that no animal species are disturbed, trapped, hunted or killed during the construction phase. During operation an increased infestation of exotic or alien invasive plant species owing to clearance or disturbance where the footprint took place may occur. Continued monitoring and eradication of alien invasive plant species will be implemented. During the decommissioning phase of the railway yard infestation by alien invasive species could replace indigenous vegetation or potential areas

CONCERNS		RESPONSES
		where indigenous vegetation could recover. Continued monitoring and eradication of alien invasive plant species will be imperative. Poor recovery of indigenous vegetation could lead to further loss of indigenous vegetation at the site during decommissioning. A monitoring and rehabilitation plan for vegetation at the site will be implemented to make sure that indigenous vegetation recover at hitherto cleared areas where possible. Habitat loss owing to clearing of vegetation (cumulative effects) Clearing of vegetation at the proposed railway yard and borrow area footprints will entail the partial destruction of medium and low sensitive habitat. Rehabilitation and monitoring of vegetation following clearing of vegetation will be implemented. A key issue at the site is the implementation of efficient rehabilitation. By implementing the mitigations and planned footprint for development all the impact risks listed are moderate or low. A rehabilitation plan which includes the re-establishment of indigenous vegetation at the site will be implemented.
1.4	What waste will be generated by this development?	The railway yard will generate general waste, hazardous waste and potentially mineral waste. These wastes will be managed through the Lephalale Railway Yard Waste Management Plan (WMP). Coal contaminated storm water runoff will be captured in an earth channel and forced to evaporate. Coal sludge will be cleaned and removed from the earth channel. The system septic tank chamber and primary unit will be desludged every 1 or 2 years. Sludge will be removed by a service provider.
1.5	How will this development disturb or enhance landscapes and/or sites that constitute the nation's cultural heritage?	No sites of cultural, heritage of palaeontological significance exist at or surrounding the development footprint area. The site corresponds to a moderately sensitive palaeontological zone and has been subject to a desktop PIA.
1.6	How will this development use and/or impact on non-renewable natural resources?	The development will not use or impact any non-renewable resources. Transnet will transport coal from the Waterberg area on behalf of clients to the Highveld, Mpumalanga and to the RBCT for export.
1.7	How will this development use and/or impact on renewable natural resources and the ecosystem of which they are part? 1.7.1 Does the proposed development exacerbate the increased dependency on	1.7.1 The only nature resource to be used is water. The railway yard will obtain its water requirement from a municipal source. The yard is not a water intense activity. Eskom electricity will be used at the yard. Potential impacts on groundwater will be

CONCERNS		RESPONSES
	increased use of resources to maintain economic growth or does it reduce resource dependency 1.7.2 Does the proposed use of natural resources constitute the best use thereof? 1.7.3 Do the proposed location, type and scale of development promote a reduced dependency on resources?	monitored, but these risks are anticipated to be moderate to low. BH1 on farm Geelhoutkloof will need to be relocated further south of the railway yard, since it falls within the railway yard expansion footprint. Transnet will need to drill an alternative borehole for Mr Hills for stockwatering. 1.7.2 Only water will be used and it will be obtained from municipal source. 1.7.3 The railway yard will not be a water intensive activity.
1.8	How was a precautionary approach applied in terms of ecological impacts?	The main purpose of the Ecological investigation and field visits were ultimately to serve as a habitat survey that concentrated on the possible presence or not of species of particular conservation concern as well as ecosystems of particular conservation concern. Flora and Fauna species of the Limpopo Province of high conservation priority were extracted from literature review and updates from the Threatened Species Programme (SANBI). Species were eliminated from occurring onsite based on habitat type and distributional range through a scan to make sure these are not present onsite. For others, a habitat survey during the site visits confirmed likely presence or absence.
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. 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?	1.9.1 Refer to Section 6.3 1.9.2 Pans 1 & 2 are biodiversity corridors and their current bufferzones are compromised. The scope is to relocate the pans. Wetland characteristics of Pans 1 & 2 may slightly improve with the relocation.
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 socioeconomic impacts (e.g. on livelihoods, loss of heritage site, opportunity costs, etc.)?	Refer to Section 6.3 and 8.16.1 (Farmers)

CONCERNS		RESPONSES
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?	The extension of the Railway reserve can further isolate the different parts of the Koedoe Nature Reserve. During the construction and operation of the proposed Railway Yard the development and activities associated with construction should be restricted to the footprint so that the different sections of the Koedoe Nature Reserve could continue to fulfill its role in biodiversity conservation in particular for animals such as birds which can fly across from the one section of the reserve to the other. It is recommended that the boundaries of the Koedoe Nature Reserve should be amended to an extent which is practical for the foreseeable future in terms of most likely developments. Pan 1 and Pan 2 will be impacted by the expansion of the yard by the construction of new railway tracks north and south of the existing railway yard. But no loss of any wetland animal or plant species of particular conservation importance is expected. Since the bufferzones of the pans are already compromised the scope is to, during construction, move each of the pans forty metres from the edge of the road next to the railway yard expansion footprint. The relocation of these pans will slightly improve the wetland characteristics. These pans are not comparable to larger marshlands/saltpans in the region in which case a no-go zone would have applied. By rehabilitating the two pans successfully and reinstating adequate buffer zones, the risk of loss of biodiversity corridors and stepping stone small wetlands in the larger area shifts from high to moderate/low. There is little scope for the site to be part of a corridor of particular conservation importance.
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?	No alternative site locations were considered for the project since it's the expansion of an existing railway yard. The existing culverts of the existing railway track will be extended to the new tracks. The two pans within the expansion footprint will be relocated since the bufferzones of the depressions have been compromised. The scope is to relocate these pans and reinstate an adequate buffer zone which will slightly improve the wetland characteristics. The loss of 22 hectares of indigenous vegetation is inevitable with the expansion. The development will result in the clearance of vegetation to make way for the expanded rail reserve which will result in partial destruction of habitat of medium and low ecological sensitivity. Individual Protected trees species Shepard's Tree, Marula and Tamboti will be

CONCERNS		RESPONSES
		removed. These trees will be marked at site with an application of permits for the removal of these trees. Threatened or other High Conservation Priority Plant Species are absent from the expansion footprint. There is little scope for the site to be part of a corridor of particular conservation importance.
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?	Noise impact will be very high during operation of the expanded railway yard and the threshold value of 7.0dBA will be exceed at receptors K, L, M. The noise intrusion will mostly be felt at M (Geelhoutkloof Farm Manager's residence). Negative impact on directly affected landowners' livelihood activities (impact on sense and spirit of place due to increased noise levels, night lights). Additional visual impact from railway line will be limited since there is an already high visual impact in the area. Impact from lights at night must be noted. A moderate to low ecological impact is expected due to removal of indigenous vegetation, loss of individual nationally and provincially protected trees. Koedoe Nature Reserve will be further isolated by the expansion of the railway yard. Impact on wetlands. Destruction of two very small pan depressions within the expansion footprint area. But these will be relocated and rehabilitated. Traffic impact on adjacent road system due to increased traffic volumes. All of the above negative implications can be adequately mitigated through management measures prescribed in the EMPr attached under Volume 4.
	Social perspective	
2.1	2.1.1. The IDP and any other strategic plans, frameworks of policies applicable to the area, 2.1.2. Spatial priorities and desired spatial patterns, 2.1.3. Spatial characteristics, and 2.1.4. Municipal Economic Development Strategy ("LED Strategy").	The Lephalale IDP 2018/2019 is applicable to the project area. The project is a SIP1 identified by the PICC and main infrastructure requirement along the Waterberg Railway Corridor. The Lephalale IDP recognises the Transnet Railway Yard Project Phase 1 and 2 which is to increase rail capacity.
2.2	Considering the socio-economic context, what will the socio-economic impacts be of the development, and specifically also on the socio-economic objectives of the area? 2.2.1. Will the development compliment the	The existing railway track impacts relates to noise from trains. The land owners are used to the impacts created by the railway line and can live with it as it is currently operated. The expansion of the railway yard will result in:

CONCERNS		RESPONSES
	local socio-economic initiatives, or skills development programs?	▪ Community expectations of high project benefits. Transnet can only meet limited expectations and these should be managed carefully; ▪ The increase in noise and visual impact of the yard will permanently impact on the sense and spirit of place of directly affected farms Geelhoutkloof 359LQ, Geelhoutkloof 745LQ and Enkeldraai 718LQ; ▪ The project will have a positive economic impact by creating 50-80 job opportunities during construction (mostly unskilled labour) and 100 jobs during operation (skilled labour). Local people will be employed as far as possible; ▪ The project will have a negatively impact on livelihood of farmers. Two farmers Hendrie Hills and Tjaart Sauer will be directly affected.
2.3	How will this development address the specific physical, psychological, developmental, cultural and social needs and interests of the relevant communities?	The proposed development is in a rural area and the closest communities are in Steenbokpan and Lephalale. There are farmers and farm workers in closer proximity. Recommendations made in Section 5 of the Social Impact Assessment Report refer to this aspect.
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?	The life of the project is not known. There is a possibility that the project could be expanded in future. The project will have a positive economic impact on the society in general in the long term. It will have a negative impact on the directly affected landowners. Whilst the negative economic impact on the landowners can be mitigated to an extent, the impact on the sense and spirit of place will be permanent. The aspirations of future generations related to the directly affected landowners are also impacted on negatively.
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, 2.5.2. reduce the need for transport of people and goods, 2.5.3. result in access to public transport or enable non-motorised and pedestrian transport (e.g. will the development result in densification and the achievement of thresholds in terms public transport), 2.5.4. compliment other uses in the area,	2.5.1. The project will create direct employment opportunities on site and secondary opportunities in the closest towns. There will be some long-term employment opportunities. 2.5.2. Given that the site is far from town, the project will not reduce the need for transport of people and goods. 2.5.3. Given the rural nature of the site there will be no impact on public transport. 2.5.4. The project is needed to allow other industrial uses in the area to reach its full potential. It impacts on the current land use activities directly adjacent to site. 2.5.5. See question 2.1

CONCERNS		RESPONSES
	2.5.5. be in line with the planning for the area, 2.5.6. for urban related development, make use of under-utilised land available with the urban edge, 2.5.7. optimise the use of existing resources and infrastructure, 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), 2.5.9. discourage "urban sprawl" and contribute to compaction/densification, 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, 2.5.11. encourage environmentally sustainable land development practices and processes, 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.), 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), 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, and 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?	2.5.6. N/A 2.5.7. It will expand existing infrastructure 2.5.8. N/A 2.5.9. N/A 2.5.10. N/A 2.5.11. The development will allow existing infrastructure to expand, and will use less land than would be required for a green-fields site 2.5.12. The site for the proposed development has been chosen due to fact that there is existing infrastructure that can be expanded. It also offers easy access to other industries e.g. Resgen's Boikarabelo railway 2.5.13. The investment will bring significant economic opportunities to the area, and will benefit existing and new industrial role players, with a knock-on positive effect on the economy of the country. 2.5.14. See Section 5.2.2.2 2.5.15.N/A.
2.6	How were a risk-averse and cautious approach applied in terms of socio-economic impacts?	2.6.1. See Section 3.2. 2.6.2. See Sections 5.2.1.5, 5.2.2.3, 5.2.2.4 and 5.2.2.5 where these aspects are discussed and

CONCERNS		RESPONSES
	2.6.1. What are the limits of current knowledge (note: the gaps, uncertainties and assumptions must be clearly stated)? 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? 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?	assessed. 2.6.3. The information used in the SIA is based on the official data received from the municipalities and StatsSA. Given that municipalities are subject to public consultation processes, the assumption is made that the data is correct. A conservative approach was taken to the identification of impacts in the scoping phase. In the impact assessment phase of the project the impacts presented in the scoping reports were triangulated through a participation process to ensure that the assumptions were correct, and to close any gaps in the data. Recommendations about consulting vulnerable parties such as the Steenbokpan community were made to the PP team, and a special meeting was conducted. Given the nature of the project, no critical social resources should be affected, and once commissioned, there is a relatively low risk for social disruption. Communities were consulted about the social mitigation measures during the impact assessment phase to ensure that the measures suggested are acceptable to the communities affected by the project.
2.7	2.7. How will the socio-economic impacts resulting from this development impact on people's environmental right in terms following: 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? 2.7.2. Positive impacts. What measures were taken to enhance positive impacts?	2.7.1. See Sections 5.2.1.5, 5.2.2.5 2.7.2. See Sections 5.2.2.3
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 socio-economic impacts will result in ecological impacts (e.g. over utilisation of natural resources, etc.)?	It is not anticipated that the social impacts resulting from the proposed project will have significant ecological impacts.
2.9	What measures were taken to pursue the selection of the "best practicable environmental option" in terms of socio-economic considerations?	The information provided in the SIA were fed into the other specialist studies and used to ensure that the best practical environmental option was chosen, whilst the social aspects were also considered.
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	Given the proximity of the project from communities, the adverse environmental impacts do not have social or environmental justice implications.

CONCERNS		RESPONSES
	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?	
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?	The environmental resources affected by the proposed development where not used by local communities.
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?	Environmental health and safety are legal requirements and will also be written into the project specifications. Also see Section 5.2.2.5
2.13	What measures were taken to: 2.13.1. ensure the participation of all interested and affected parties, 2.13.2. provide all people with an opportunity to develop the understanding, skills and capacity necessary for achieving equitable and effective participation, 2.13.3. ensure participation by vulnerable and disadvantaged persons, 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, and 2.13.7. Ensure that the vital role of women and youth in environmental management and development were recognised and their full participation therein was promoted?	See Section G of the EIR for public participation. The SIA did additional consultation to the EIA public consultation. The one-on-one interviews ensured that there was time to explain the project in a non-threatening environment. People were interviewed in the language of their choice. Through the process vulnerable groups were identified, and additional measures have been developed to make sure that they can participate effectively. Woman and youth were specifically included in the consultation to ensure that their voices are heard.
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)?	The area has been exposed to boom-bust development, and it is anticipated that there will be significant development in the area in the next decades, depending on economic conditions. The project will create some employment opportunities, including unskilled jobs. The area has high unemployment rates. The project will facilitate movement in other industries, and can assist with stimulating the local economy, which will result in

CONCERNS		RESPONSES
		much needed employment opportunities
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?	Will form part of the Transnet operational procedures in line with South African legislation
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, 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 (i.e. equitable distribution of costs and benefits), and 2.16.5. the opportunity costs in terms of job creation (e.g. a mine might create 100 jobs, but impact on 1000 agricultural jobs, etc.).	See Section 5.2.2.3.
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, and 2.17.2. that actual or potential conflicts of interest between organs of state were resolved through conflict resolution procedures?	No specific intergovernmental coordination and harmonisation of policies, legislation and actions relating to the environment took place as a result of this specific project. No conflicts of interests have arisen as a result of this project.
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?	This EIA Process has been followed to ensure that negative environmental and social impacts are identified and managed through the implementation of an EMPr. The most significant negative impacts from the project include noise, safety impact from hunting due to presence of people next to game hunting farms, loss of livelihoods of affected farmers as a result of these impacts. A Noise Impact Assessment was undertaken to investigate the level of impact and the most affected receptors. The Noise specialist based on the assessment has made recommendations for implementation to manage these impacts to comply with the relevant noise regulations and standards. A Social Impact Assessment was conducted which highlight the social risks of the development and recommend effective mitigation measures to address

CONCERNS		RESPONSES
		the issues. All the measures recommended by the specialists throughout the EIA Process have been incorporated in the overall management scheme for the project and have been added as conditions for inclusion in the Environmental Authorisation. Importantly the most directly affected landowner Mr Hills does not only use the affected farm as a livelihood source now, he also sees it as an investment in the future livelihoods of his children. It is recommended that Transnet must engage with farmers directly about aspects that may affect their livelihoods and compensate them in a fair manner if any assets are lost or compromised. After following the EIA Process the findings are still that the project will create a significant number of jobs in an area where it is needed. In the broader economic context of South Africa, the project will have a positive impact and also have the potential to unlock other industrial development. On a site level, the project will impact negatively on the directly affected landowners and some of their livelihood activities
2.19	Are the mitigation measures proposed realistic and what long-term environmental legacy and managed burden will be left?	The mitigation measures are seen as realistic and the implementation of the SIMP (See Table 13 of the Social Impact Report) will ensure that the social impacts will be managed.
2.20	What measures were taken to ensure that he 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 is responsible for implementing the Environmental Management Programme.
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 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?	All the specialists identified sensitive areas after the specialist studies were completed. This assisted with selecting the best practicable environmental option.
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?	See Section 5.2.1 of the Social Impact Report.

SECTION E – MOTIVATION FOR PREFERRED DEVELOPMENT FOOTPRINT

In terms of Appendix 3 of the EIA Regulations of 2014, the EIR must detail the process followed to reach the proposed development footprint within the approved site as contemplated in the accepted Scoping Report.

Appendix 3 also requires the consideration of alternatives taking into account location or site alternatives, activity alternatives, processes or technology alternatives, temporal alternatives and the no-go alternative. Evaluation of alternatives also allows the relative impact of different project alternatives on the environment to be considered. (DEAT (2006) Guideline 5: Assessment of Alternatives and Impacts in support of the EIA Regulations, 2006-IEM Guideline Series)

7 MOTIVATION FOR PREFERRED FOOTPRINT

7.1 Details of the development footprint alternatives considered

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

a) Location alternatives for railway yard

The positioning of the area proposed for the expansion of the railway yard is dictated by the location of the existing yard. It is for this reason that the footprint south of the existing Lephalale – Thabazimbi railway track has been identified as ideal to expand the existing railway yard.

The preferred development footprint at the preferred site is also based on the following factors:

- the point of the existing 100 wagon yard,
- the gradient south of the existing track (level terrain required),
- simulated train turnaround times and trip times,
- points of congestion along the Waterberg system; and
- Position of prospective client Resgen Boikarabelo Coal Mine's 36km rail link turn off along the existing railway track.

Existing infrastructure located onsite will be incorporated in the railway yard expansion design, which includes:

- 22kV Theunisen-Stockpoort power line since relocation is not feasible based on the significant cost for relocation;
- Resgen rail link tracks

Site infrastructure and buildings have also been strategically placed according to the railway yard process. No alternative locations for infrastructure or buildings were considered.

Environmental sensitivities identified within the expansion footprint namely three stream crossings (Stream Crossing No. 1, No. 2 and No.3) will be conserved. Culverts exist along the existing railway track for these stream crossings. The existing culverts will be extended to the new tracks to allow the streams to flow under the new railway tracks. The active channel of stream crossing No. 2 is poorly developed and probably enhanced by stormwater runoff. The North Facility and Staff building will be developed within the 32m buffer zone of this stream yet it will be situated on a fill area at the level of the railway track.

The new railway tracks of the yard expansion will cross two pans (Pan 1 & 2). Since the bufferzones of the pans are already compromised the scope is to, during construction, move each of the pans forty metres from the edge of the road next to the railway yard expansion footprint. The relocation of these pans will slightly improve the wetland characteristics. These pans are not comparable to larger marshlands/saltpans in the region in which case a no-go zone would have applied. By rehabilitating the two pans successfully and reinstating adequate buffer zones, the risk of loss of biodiversity corridors and stepping stone small wetlands in the larger area shifts from high to moderate/low. No loss of any wetland animal or plant species of particular conservation importance is expected.

During the Scoping Phase it was considered feasible to include a 2m high earth berm along either side of the railway yard expansion boundaries to lower the visual and noise impact from the proposed railway yard expansion and to provide a barrier between the railway yard activities and commercial game hunting activities on the adjacent farms. Enough spoil material will be available for earth berms yet Mr Hills commented that a 2m earth berm would not suffice and requested that the earth berm be the height of the tallest buildings at the railway yard. Transnet has confirmed that it cannot achieve the required slope and will need substantially more land to construct a larger earth berm base resulting in substantially more project costs not viable for Transnet. The earth berm has thus been excluded from the railway yard design.

The Visual Impact Assessment has also confirmed that the visual disturbance will be an area close to the railway line – 100m and less. The dense vegetation and high trees will screen the activities. The view from the small outcrops in the nature reserve (south of the railway line) will have a very low visual disturbance from the proposed new infrastructure.

b) Location alternatives considered for borrow areas

Since the Mining Permit, Water Use License and EIA Process are integrated, alternative locations for the Borrow Areas will be discussed.

Two borrow pits of < 5 Hectares will be established for the construction of the railway yard on the farm Buffelsjagt 744LQ. Borrow Pit 1 will be located at 23°44'34.62"S 27°28'25.69"E and Pit 2 at 23°43'16.21"S 27°26'27.21"E. The affected landowner, Mr Hendri Hills has requested consideration of alternative borrow areas.

Alternative Borrow Pit 1 is suggested in an old cultivated field a couple of hundred metres from the Buffelsjagt 744LQ farm house. Alternative Borrow Pit 2 is also suggested in an old cultivated field 600m north of the original Borrow Pit 2 site.

For Transnet these alternative sites are not preferred since suitable fill material has not been confirmed to occur within these positions. Borrow Pit 1 and Pit 2 have been subject to geotechnical testing which suggests suitable material is available from these locations but is subject to further laboratory testing.

At Borrow Pit 1 there are no streams or pans, it is located in an area of medium ecological sensitivity and it will have a very low visual impact and preferred is by Transnet. Protected tree species Marula occur at Pit 1 which may need to be removed. Alternative Borrow Pit 1 is preferred by the landowner and located in an old cultivated field of low ecological sensitivity and it will have a very low visual impact. No drainage lines appear to be present and it is not anticipated that protected trees would need to be removed.

At Borrow Pit 2 no streams or pans have been identified, it is located in an area of medium ecological sensitivity and it will have a very low visual impact. Protected tree species Marula occur at the pit location. Alternative Borrow Pit 2 is also located in an old cultivated field in an area of low ecological sensitivity however this borrow area will result in a moderate visual impact.

Since no geotechnical testing has been undertaken at Alternative Borrow Area 1 or 2. These alternatives can only materialise as feasible alternatives once soils are tested and found to be suitable for fill material.

Transnet is still considering these and is subject to further discussion with Mr Hills.

c) Type of activity to be undertaken

No project alternatives have been considered during the EIA Process. As documented in detail in the Scoping Report Transnet has undertaken several feasibility studies to identify the required network infrastructure solution to stabilise the rail network. The infrastructure considered for the specific rail section included:

a) Ring Road Rail Distribution
b) Centralised loading terminals
c) Private Sidings
d) Ring Road via Grootegluk Mine
e) Standard Gauge Options from Lephalale to Ermelo
f) New terminal and Changeover Yards either at Lephalale, Thabazimbi or Pyramid South. Lephalale having to either be a 100 wagon yard or 200 wagon yard.

Infrastructure requirements were to accommodate 200 wagon coal trains in areas of most congestion Thabazimbi to Lephalale to stabilise the network.

Impact of initial delays as well as additional delays could be seen on the section between Thabazimbi and Lephalale. Every time a train departs late, even by a few minutes it has an effect on the stability. Due to the fact that the track warrant adds delays on the empty trains arriving in Thabazimbi, these late trains have a major impact on the full trains.

The Waterberg Front End Loading (FEL1) was concerned with providing sufficient and appropriate infrastructure, equipment and rolling stock capacity along the route to achieve a sustainable throughput of a maximum of 80 Mtpa of export coal and 32 Mtpa of domestic coal.

New yards are required as tonnage levels increase according to demand. The major infrastructure requirement is a Network Stabilisation Facility (NSF), this means the extension of current yards and crossing loops to accommodate 200 wagon trains. Thus the activity alternative (f) new terminal and Changeover Yards was further pursued.

The 112km long section from Thabazimbi to Lephalale has one crossing loop in between Lephalale and Thabazimbi at Matlabas loop. The only future traffic on this line will be the 200 wagon coal trains which will travel from Grootgeluk Mine southwards through Thabazimbi, towards the greater Gauteng area.

The 65 slot timetable for this section has a train inter-departure time of 02:35 and consists of:
65 slots for 200 wagon coal trains.

The longest travel time between two loops determines the capacity on a single line section. Initial calculations revealed the current theoretical capacity of the current infrastructure, which was calculated according to train running times between possible crossing points. In order to transport 25 Mtpa of Coal from Grootgeluk mine, the number of 200 wagon trains required per day is 6 (with a payload of 60 tons per wagon):

6 Trains per day = 42 Trains per week
42 Trains per week = 65 Slots per week (65% utilisation factor included)

The theoretical calculations reveal that the current theoretical capacity is 66 slots per week. In order to run the required 65 slots of 200 wagon coal trains on this section, amendments to current infrastructure will be required to accommodate the 200 wagon trains.

Therefore the arrivals and departure yard at Lephalale will initially be built as non-electrified for phases 1 to 5, and in phase 6 will be electrified. The average yard line length was estimated at 1750m with clearance of at least 1500m. Furthermore, as tonnages increase over time, so will the number of yard lines required as given below:

Phase 3 – 4 lines (1 arrival, 1 departure, 1 run around and a spare line)

Phase 5 – 2 additional lines added (1 arrival and 1 departure)

Phase 6 – the 6 lines and the remainder of the main line from Lephalale to Thabazimbi to be electrified

Double Line – a further 4 electrified lines are required in addition to the lines added during the phased expansion. A total of 10 yard lines will be able to handle up to approximately 50 x 100 wagon trains per day with trains not occupying a line for longer than 2 hours. Figure 14 shows the concept layout of the 100 wagon terminal yard below:

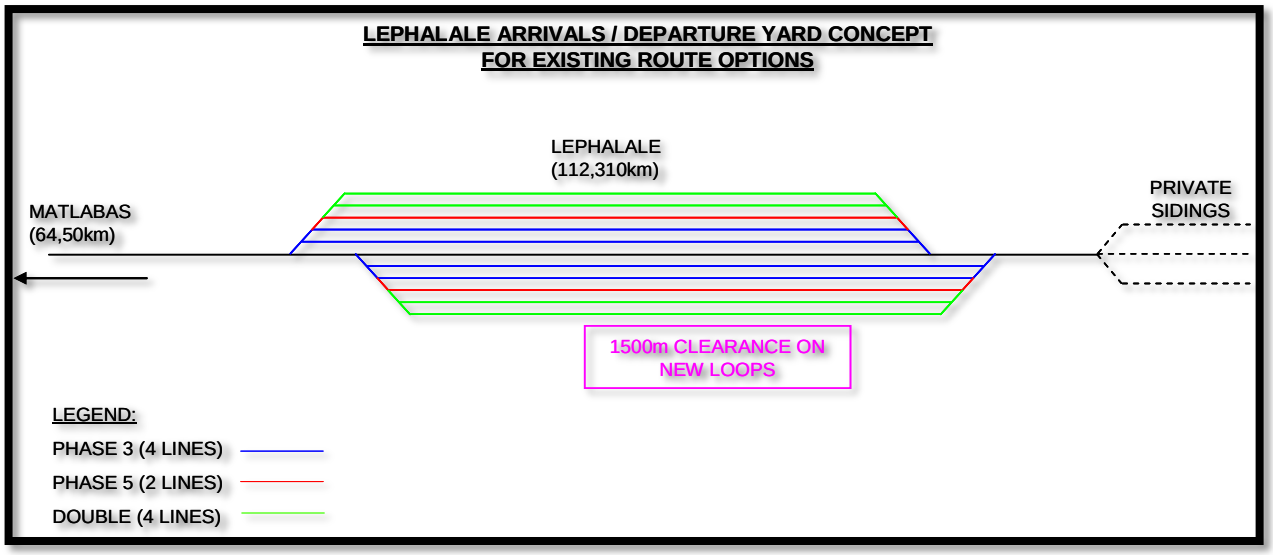


Figure 8: Lephalale Yard for Phased Expansion

The option of developing/expanding the Lephalale Railway Yard was preferred since it will eliminate train dwell time by increasing the number of wagons being shunted from 100 to 200 improving network stability. It will provide sufficient and appropriate capacity, equipment and rolling stock capacity along the route.

d) Railway yard access road upgrade alternatives considered

Upgrades are required to the intersection of the D2649 road and railway yard access road.

Mr Hendrie Hills requested that access control should be implemented near Afguns Road (D2649). This was considered during the TIA and it is noted that the existing service road is also used by the surrounding farms and access will therefore not only be limited to Transnet employees. The TIA has considered two alternative alignments for the access road:

1. Existing gravel road alignment, with lane widening around curves with access control point 150m from D 2649;
2. Re-alignment of first part of access road to remove sharp curves and lane widening around curves. If required an access control point can be located at 100m from Road D2649. From a geometric point of view this option is preferred. From a geometric point of view this option is preferred.

e) Technology alternatives

Diesel locomotives area used along the Lephalale to Thabazimbi railway track since it is not electrified.

In future the railway yard will be electrified then use and storage of diesel may fall away at the railway yard.

f) Operation aspects of the activity

For water supply there is only one feasible alternative. Water requirements will be trucked in from a municipal source then pumped and stored in a steel reservoir.

A Bio Mite waste water treatment unit will be installed at the North and South Facility at the railway yard due to lower set up cost and being more suitable for the volume of wastewater generated at the yard. The risk of the system contaminating surrounding boreholes will be low to moderate. Monitoring boreholes will be drilled up and down slope of the Bio Mite units to monitor water levels and quality increase of leakages.

7.2 No-go Option

The railway yard expansion footprint is located directly adjacent to commercial game hunting farms. In the eye of the affected parties the only thing that will not alter their sense and spirit of the place in this instance is to avoid any further development, the no-go option. Therefore if the no-go option is pursued the affected landowners will only experience the existing impacts from the railway yard and track. The existing railway line has been there for about 40 years. The land owners are used to the impacts created by the railway line and can live with it as it is currently operated.

But since confirmed demand and mine investment requires efficient and cost effective transport for coal from the Waterberg District, coal mines will start using alternative means of transport. The no-go option would have a major negative impact on the road network resulting in road deterioration, significant increase in traffic in the Limpopo, Gauteng, Mpumalanga and Natal Province and road safety concerns.

The no-go option will also have a negative economic impact on several mining investments already made in the Waterberg Coal field depending on rail transportation to ship coal to end users. A detrimental impact is foreseen on Eskom since there is pressure from Eskom, which wants to source coal from Lephalale to keep power stations in Mpumalanga running after they have exhausted their local supply sources.

This expansion of rail capacity along the Waterberg Railway Corridor is a strategic infrastructure project and of national importance. It is instrumental to 'unlocking the northern mineral belt of the Waterberg as a catalyst'. The no-go option is therefore not preferred.

SECTION F – DESCRIPTION OF THE ENVIRONMENTAL ATTRIBUTES

8 DESCRIPTION OF ENVIRONMENTAL ATTRIBUTES

The content of the EIR is outlined under Section 23 (3) and Appendix 3 of the NEMA Regulations of 2014 (GNR 326). It is indicated that a description of the environmental attributes associated with the development footprint focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects must be provided and the manner in which the activity will affect the different components must be provided.

Information pertaining to the receiving environment and its social surroundings has been sourced through site investigations, desktop analysis and use of tools such as Geographic Information Systems and fundamentally specialist investigations. NEC conducted site visits on 13 June 2018 and 12 February 2019 to the study site.

Specialist studies were conducted during the months of July 2018, November 2018 and February to April 2019 to further investigate potential impacts foreseen for the project. The Specialist Investigations are attached under Volume 2 of the EIR and include:

- Geotechnical Investigation conducted during October 2017 by J. Viljoen;
- Heritage Impact Assessment conducted during July 2018 and Desktop Palaeontological during completed during April 2019 by Millennium Heritage Group Pty Ltd;
- Noise and Vibration Assessment conducted on 23-24 July 2018 and 15 November 2018 by dBA Acoustics;
- A Hydrogeological Impact Assessment inclusive of a Hydrocensus was conducted during August 2018 by Naledzi Waterworks and updated during April 2019;
- Social Impact Assessment was conducted during September 2018, January to February 2019;
- Visual Impact Assessment was conducted February 2019 by BioAssests;
- Ecological and Wetland Impact Assessment was conducted during July 2018 and April 2019 by Holistic Environmental Services. The current study represents the Summer Survey of the study site, the winter survey is to be completed in May 2019;
- Traffic Impact Assessment was conducted in April 2019 by Corli Havenga Transportation Engineers.

8.1 Existing land use and infrastructure (Socio Economic)

Given that the Lephalale Railway Yard is an existing facility, there is an existing Thabazimbi – Lephalale railway track with the 100 wagon yard limited to the single track. The track has several level

crossings and culverts including an associated servitude road south along the track. The servitude road start from the D2649 Afguns tar road and ends at the farthest point of the railway yard.

Resgen has laid two railway tracks next the existing single railway track and yard as part of its 36km rail link heading towards the Resgen Plant at Kruishout 271LQ. Transnet built the tracks for Resgen and has an existing associated Site Office at the end of the yard. The expansion of the yard will not impact the infrastructure but augment it - see Figure 15.

The 22kV Theunisen-Stockpoort distribution power line runs 15m south of the existing track and yard. Transnet will incorporate the power line in the railway yard design, as relocation will not be feasible due to the significant cost associated therewith.

The eastern portion of the current operational railway yard is situated in the Koedoe Private Nature Reserve owned by Mr. Hendrie Hills. The reserve has therefore been 'cut off' in its northern section. The extension of the railway reserve will further isolate the different parts of the Nature Reserve. The boundaries of the nature reserve will be amended to an extent which is practical for the foreseeable future in terms of most likely developments.

See Appendix Volume 2 Appendix 2B for Site Photographs/ Photolog

8.2 Surrounding land use and infrastructure (Socio Economic)

Medupi Power Station Complex, coal mining (Grootgeluk Mine), settlements (Lephalale, Marapong, Steenbokpan), cattle farming, game farming and ecotourism surround the existing railway track and yard. Several power line servitudes associated with Medupi and Matimba power stations crisscross the landscape in the vicinity of the project site. The 1400kV Medupi Spitskop power line is located 350m north of the railway yard. Another Eskom power line servitude from Matima power station is located 500m south of the existing railway track. Transnet is seeking an alternative site for Borrow Area 1 further away from the Medupi Spitskop 1400kV power line to avoid any impact on the servitude.

Game farms Geelhoutkloof 359LQ, Geelhoutkloof 745LQ, Enkeldraai 718LQ and Buffelsjagt 744LQ border the existing railway yard on either side of the track. The landowners are used to the noise impact from the trains along the railway track and can live with it as it is currently operated.

The railway yard will extend to the south of the existing railway track onto the farms Geelhoutkloof 359LQ and Geelhoutkloof 745LQ owned by Mr Hendrie Hills. Farm Enkeldraai 718LQ borders the existing railway track to the north and is owned by Mr Tjaart Sauer. No land needs to be acquired from Mr Sauer but approximately 22 hectares must be acquired from Mr. Hills. These two farmers are directly affected by the proposed expansion of the railway yard.

Mr Hills uses his property for game breeding, hunting safaris and tourism. Three of his game holding pens, a breeding camp, a lodge and the manager's house are in close proximity of the project footprint area plus an Eskom power point and farm borehole is located within the proposed yard expansion footprint – see Figure 15. One game holding pen (Game Pen 2) is next to the railway track and needs to be relocated to a more suitable area as the noise impact from the expansion of the yard will be harmful for the game. Game holding pens 1 and 3 are further south of the railway yard and may be impacted by the noise generated by the extended yard. At this point in time the pens do not need to be relocated but impact thereon monitored during operation of the yard and its lot determined based on monitoring outcomes since it's difficult to define the potential impact at this point in time.

The borehole and Eskom power point would need to be relocated further south of the yard footprint area.

Mr Sauer is north, directly adjacent to the railway line on Enkeldraai 718LQ. The current railyard activities do not interfere with the activities on Mr Sauer's farm. He states there is a game camp that borders the railway track and commercial hunting takes place in this area. The noise generated from the expansion of the yard will impact on his hunting activities on the farm.

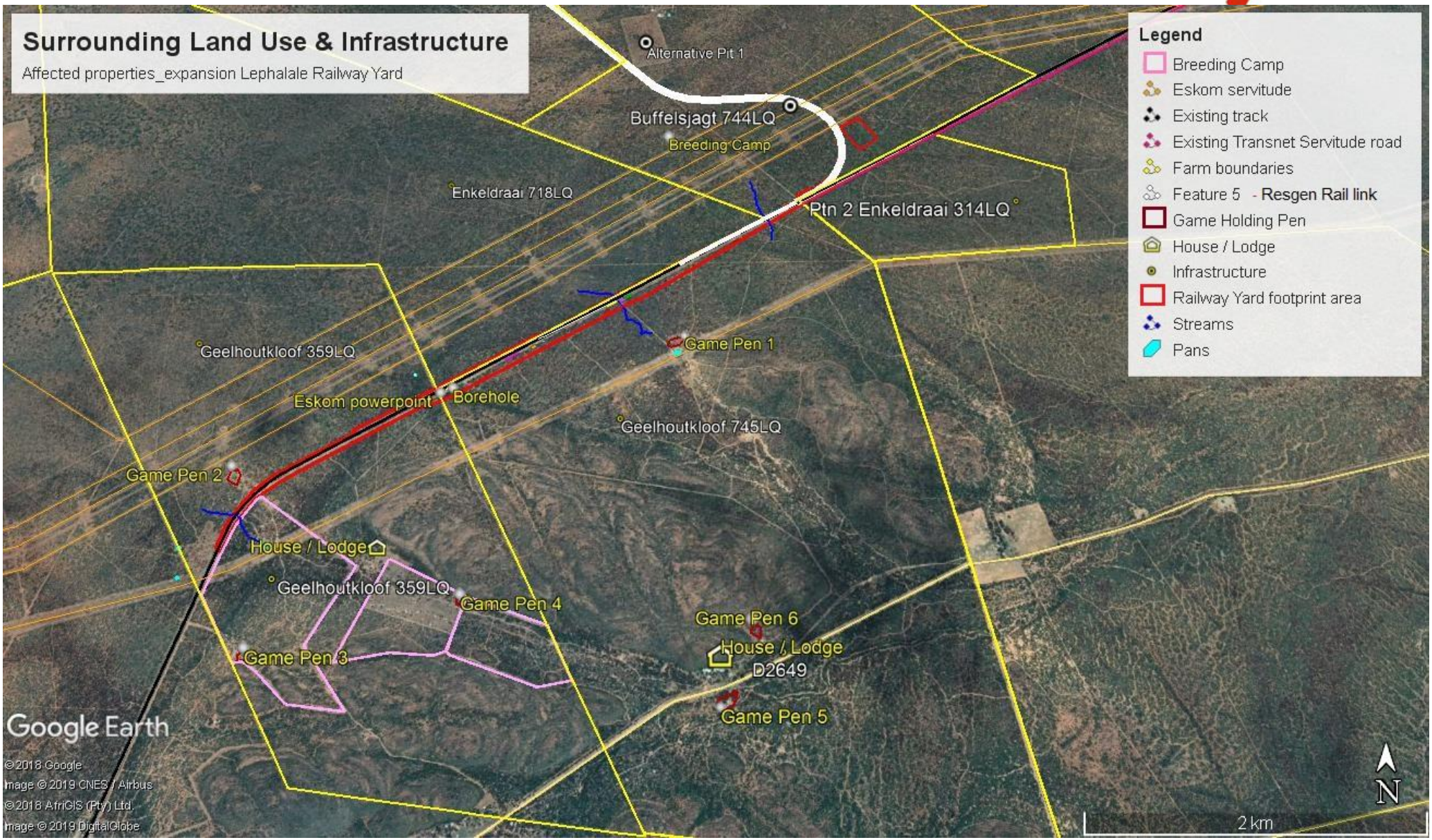


Figure 9: Aerial locality map showing the location of game farm infrastructure in proximity of the proposed yard expansion footprint.

8.3 Climate

The regional climate is characterised by semi-arid climate with low to moderate rainfall, hot dry summers and high evaporation rates. The closest weather station to the project site is Lephalale Airport weather station, 22km east of the project site

8.3.1 Temperature

The project site is located at approximately 940m above sea level. The maximum temperatures during summer months exceed 30 °C and the maximum winter temperatures average at 23 °C-see Table 13.

The temperature averages were taken from the https://www.worldweatheronline.com/ellisras-weather-averages/limpopo/za.aspx for the period January 2017 to December 2017 taken at the Lephalale Airport weather station.

Table 14: Maximum and Minimum recorded temperatures for period January 201 7- December 2017

° C	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Max	31	31	31	25	23	22	24	26	29	29	29	30
Min	23	23	21	18	12	9	11	14	19	21	21	22

8.3.2 Mean Annual Precipitation

The average mean annual precipitation (MAP) for the area is 650mm/annum. 80% of the regions rain falls between October to March with peak rainfall being in January-see Table 14.

Table 15: Long term mean annual precipitation for Lephalale

mm	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
MAP	121	104	80	42	14	6	4	5	13	50	99	112	650

8.3.3 Prevailing Wind Direction

Analysis of the wind records for the area, taken from Lephalale Airport Statistics (www.windfinder.com), indicates the main prevailing winds blow from the northeast at an average of 2 metres/second. The wind statistics are based on observations taken in the period of 12/2011 to 05/2018 daily from 7am-7pm-see Table 16.

Table 16: Wind statistics for Lephalale Airport for 1 year (averages period 12/2011 – 05/2018)

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Wind direction	ENE	ENE	ENE	ENE	NE	NE	NE	ENE	ENE	ENE	NE	NE
Wind speed (m/s)	2	2	2	2	2	2	2	2	3	3	3	2

Figure 16 below is a wind rose of Lephalale Airport weather station. This wind rose reveals a prevailing wind direction of Northeast.

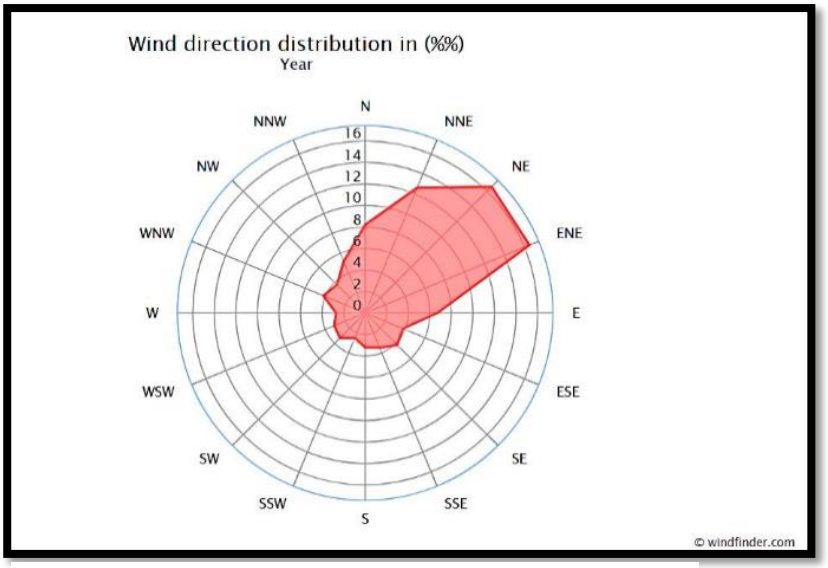


Figure 10: Wind Rose for Lephalale

The prevailing wind direction would be pivotal information to determine noise propagation and windblown dust from site.

8.4 Topography

The project site is located 940m above sea level. The area can be classified as plains with low reliefs. The study area has a gentle slope, which ranges between 1.1 % - 1.8 % (Naledzi Waterworks, 2019).

Rail yards require level tracks and terrain. The existing formation level along the existing railway line's alignment over this new length is located on fills (embankments of up to approximately ± 4.0m in height) with sections at grade and cuts (maximum depth in the order of ± 10.0m).

Extensive cutting of the existing topography will be required to reach a level yard. Excess spoil material will be stockpiled in the area of the designated borrow pit/s which could later be used for rehabilitation of the borrow areas. The option to use the excess soil for a 2m earth berm has been waved by Transnet since the correct slope cannot be achieved and access to and from surrounding properties need to be provided over the servitude to adjacent farms.

(See Volume 2 Appendix 2C- Geotechnical Investigation prepared by J. Viljoen, October 2017).

8.5 Geology and Soils

The project area falls within the 1: 250 000 Geological Map series of South Africa – Sheet 2326, Ellisras (Council of Geoscience). It lies on the Waterberg sandstone just south of the Eenzaamheid fault-see Figure 17. The dominant parent material of the area is a sedimentary rock of the Waterberg Group comprising of sandstone and conglomerates. The various rock types are generally covered by a wide range of materials such as residual soils, and/or pedogenic soils overlain by transported soils and occasional fill. The layer thicknesses are highly variable (J. Viljoen, October 2017).

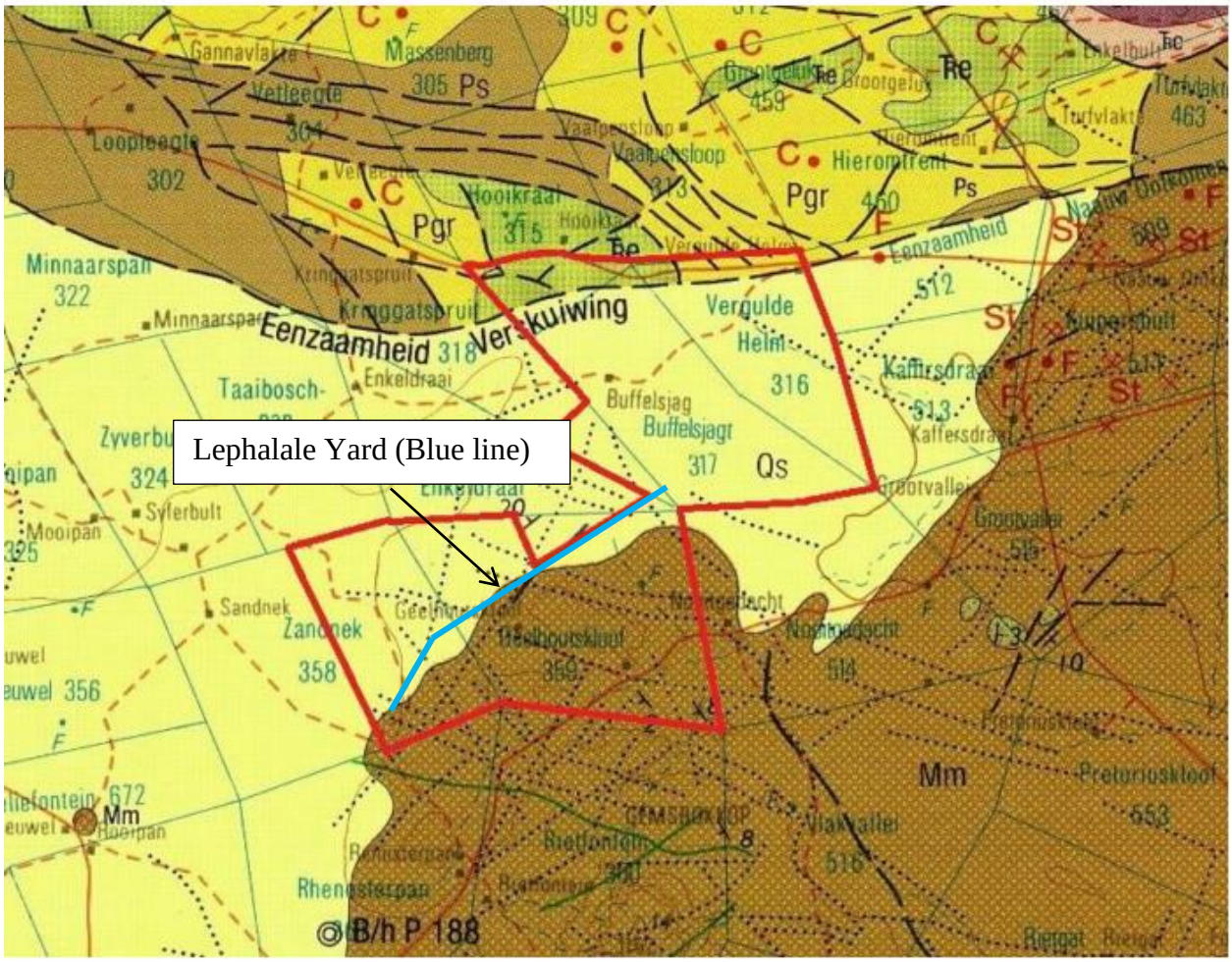


Figure 11: Geology of the study area (blue line above) and surroundings. (Taken from 2326 Ellisras 1: 250 000 Geology Map from Council of Geoscience, 1993). The Red polygon represents the land owned by affected landowner Mr Hendrie Hills.

Soil types on site comprise orange, brown, well drained sandy soils with high base status. There also appears from aerial imagery to be red, yellow and greyish soils present. Refer to Figure 18 for the National Soil types covering the project site.

Based on the geotechnical investigation's summary of results of particle size distribution from tests pits it is evident that the soils comprise in majority sand with low clay content which can classify the soil erodibility as moderate to high. Good management of soils for erosion and compaction will be essential. Rehabilitation plan which includes the re-establishment of indigenous vegetation at the site will be implemented to address potential erosion risks.

Extensive cutting of the existing topography would be required for development a level track and yard paired with excavations. Borrowing of material would also be required to develop service roads and as required for the yard development. General cut and fill procedures would also be carried out for founding of proposed structures.

The soils and geology are of importance to the development as suitable geology and soils are required for the founding of structures.

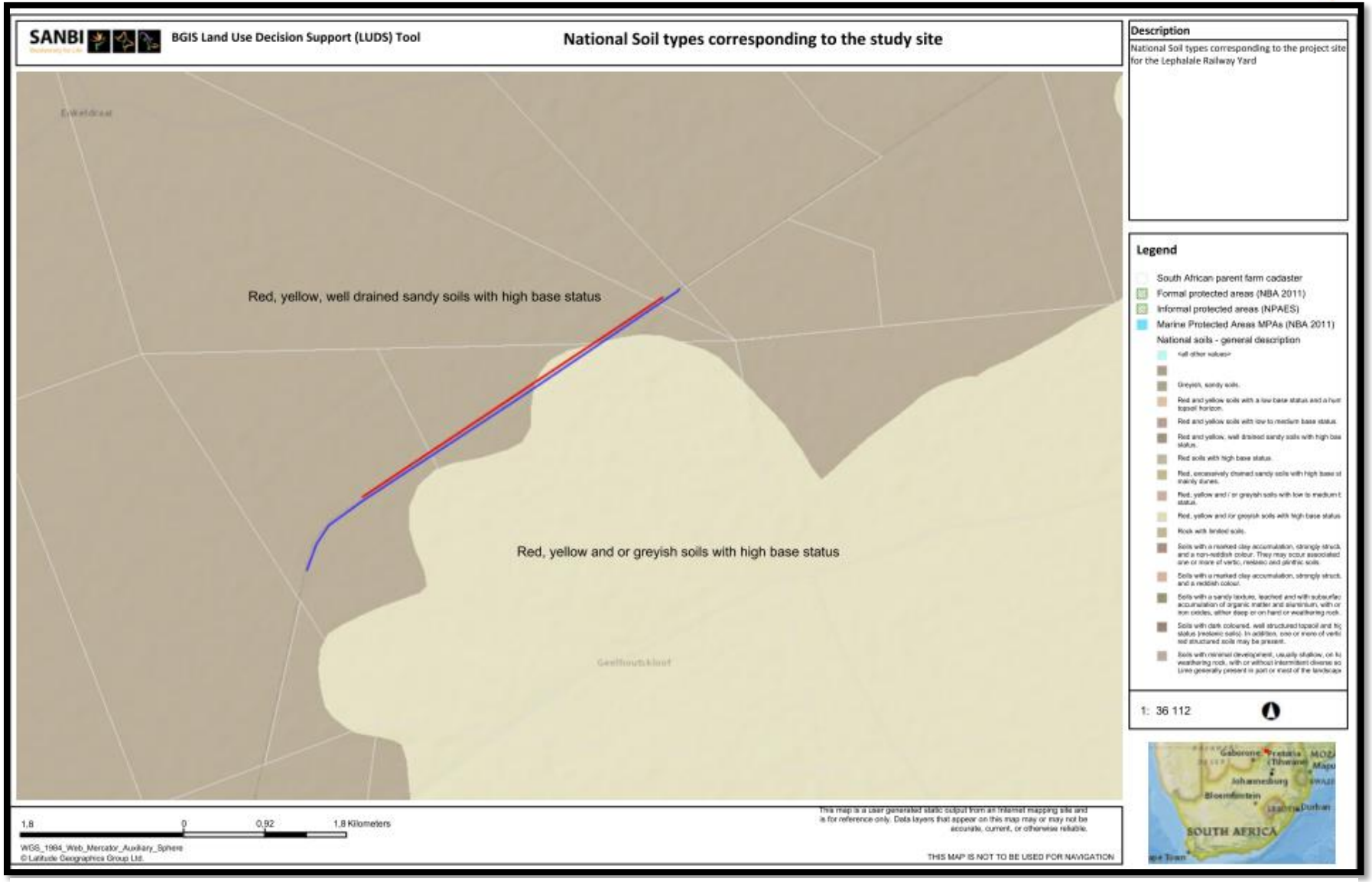


Figure 12: National soil types covering the project area

8.6 Agricultural Potential

The vegetation types present on site is suitable for game farming practices. Its land capability could be considered as grazing. The game farming infrastructure and practices along the railway yard expansion are further addressed under Section 8.2 and 8.16 (subsection 8.16.2 & 8.16.3).

8.7 Groundwater

Naledzi Waterworks conducted a Preliminary Hydrogeological Investigation during August 2018. The Hydrogeological Investigation has now been updated during April 2019 to consider additional information which became available during the EIA Phase of the study. The updated Hydrogeological Investigation is attached under Volume 2 Appendix 2D to the EIR.

According to the investigation the project site falls within the A42J quaternary catchment area and is underlain by rocks of the Waterberg Group. The groundwater potential of this formation is generally low with majority of yields <2 litres/second.

Two groundwater systems underlay the site; an upper weathered aquifer (5-15m) and fractured aquifer system (15-40m) (Golder, 2018). The weathered aquifer system is recharged by rainfall, less than 60% of water recharged to the weathered zone starts in streams. It's a low yielding aquifer yet its water quality is normally excellent. The fractured aquifer system does not allow significant water flow. Groundwater movement occurs along fractures, cracks and joints in the rock, mainly present in sandstone and quartzite, hence better yielding properties. Its water quality contains higher salt loads compared to the weathered aquifer (Naledzi Waterworks 2019).

Golder conducted a hydrocensus in 2015 on 17 boreholes in the regional area for the Medupi Fluegas Desulphurisation Plant and substantial data relevant to borehole depths and water quality was gathered. Only 6 of the surveyed boreholes are within 2km from the railway yard and relevant to the project. Naledzi conducted a hydrocensus in August 2018 on these 6 relevant boreholes. The recorded boreholes are tabled in Table 16 and their relevant locations to the development footprint illustrated in Figure 19.

From the survey it has been established that groundwater at the study site is mainly used for domestic and stock/game watering purposes with several boreholes pumping water into drinking troughs located in bushes. The average ground water level measured in the study area is 20.345 mbgl. From the available groundwater flow data, the inferred groundwater flow is likely eastwards and towards the non-perennial Sandloop River-See Figure 20. Borehole BH01 is closest to the rail yard position. The recorded groundwater level at BH01 was 24.21 meters below ground level.

Table 17: Hydrocensus boreholes recorded on farms Geelhoutkloof and Zandnek

Site name	Borehole number	GPS coordinates	Mbgl	Use	Condition
Geelhoutkloof	BH01 (GE06)	23°45'56.09"S 27°26'45.71"E	24.21	Game watering	Working
Geelhoutkloof	BH02	23°46'37.81"S 27°26'26.70"E	9.78	Domestic/All purpose	Working
Geelhoutkloof	BH03 (GE01)	23°46'13.91"S 27°27'51.01"E	13.88	Unused	Open
Zandnek	BH04	23°47'6.11"S 27°24'47.59"E	55.56	Domestic/All purpose	Working
Geelhoutkloof	BH05	23°47'1.61"S 27°27'47.09"E	9.17 windmill	Unused	Broken
Geelhoutkloof	BH06	23°47'2.29"S 27°27'54.22"E	9.47	Domestic/All purpose	Working

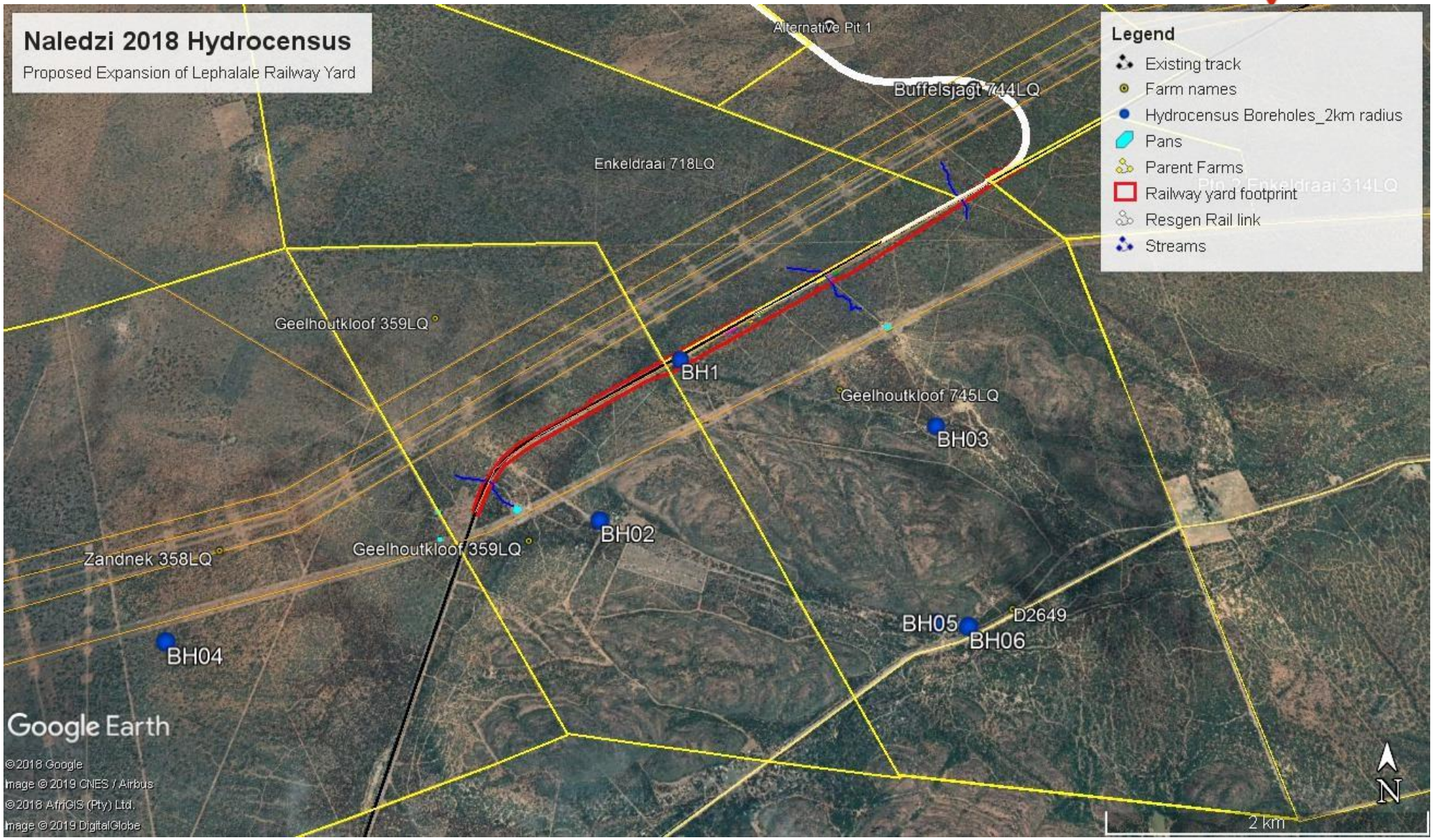


Figure 13: Location of 2018 Hydrocensus boreholes surveyed by Naledzi in relation to the project site

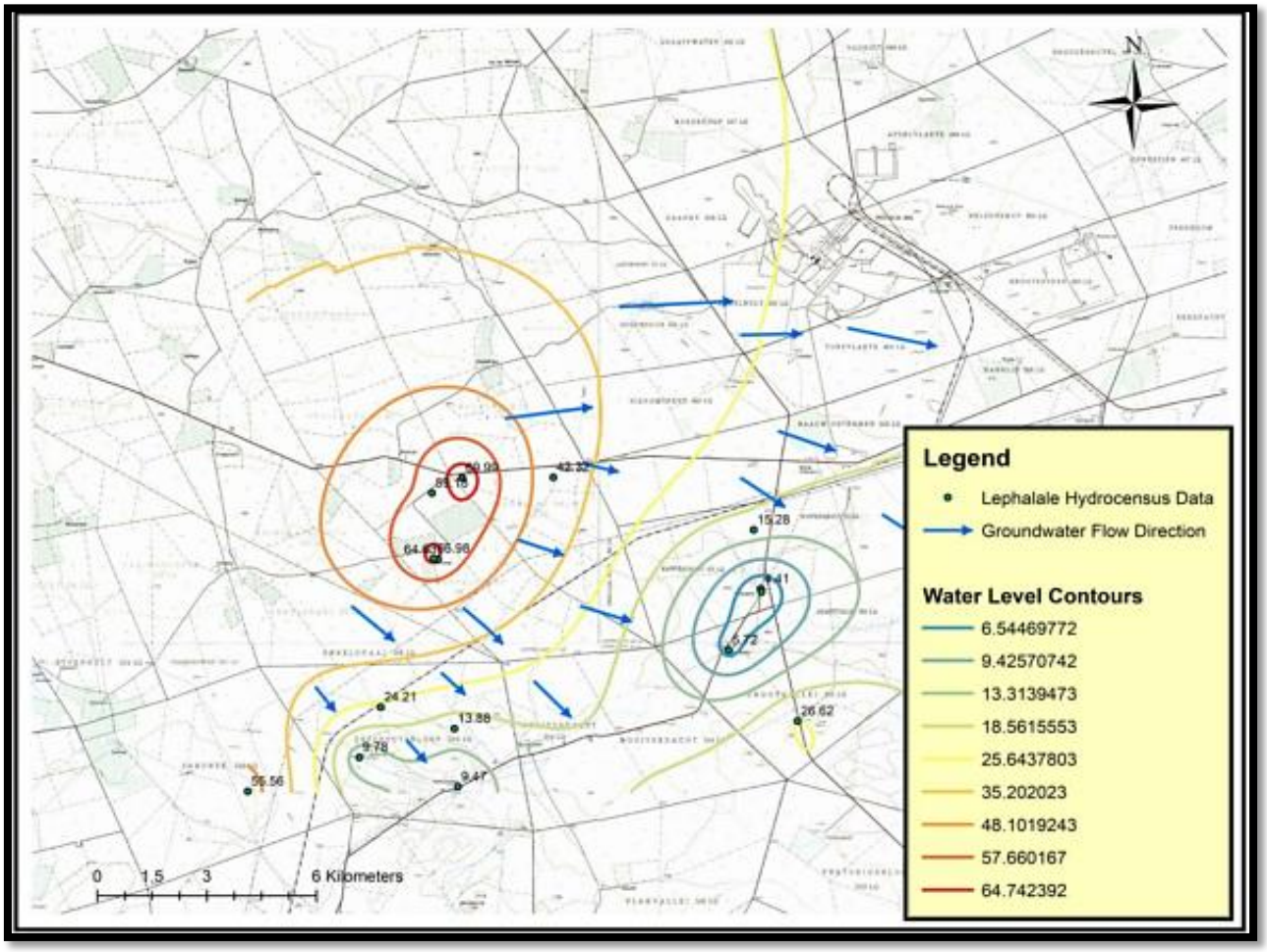


Figure 14: Piezometric surface map of the project area (groundwater flow)

To determine the baseline groundwater quality data Naledzi sampled and tested two boreholes, BH03 and BH06 (Figure 19) in the study area which were in use and pumping during the survey. The rest of the borehole water quality data were obtained from the Golder 2015 hydrocensus data.

The ambient groundwater quality is Marginal (Class II) to Poor (Class III - IV) water quality. Only boreholes BH01 (GE06) and BH03 (GE01) (Figure 19) are unpolluted (mainly rainwater recharge) and representative of pristine background water quality (calcium magnesium bicarbonate type water)-see Section 4.3 of the Hydrogeological Report.

For the expansion of the railway yard BH01 (Figure 19) will be capped and relocated further south of the existing railway yard to make way for the southern bypass line. It is recommended that the alternative borehole be drilled on the same intrusion further south from BH01's position so it can serve as the new BH01 monitoring borehole.

There is also a low to moderate risk for contamination of the shallow water table from fuel, hydrocarbons spillages from transportation vehicles, oil spillages from storage drums and fuel spillages from Diesel tanks. To manage risks Transnet will resort to immediate clean up after spillages and storage facilities will be bunded and lined.

The railway yard expansion design includes the construction of a water and oil separator at both the North and the South Facility to deal with the contaminated liquids onsite. Once the water has passed through the oil separator and is tested, it will then be drained to the sewer network. The Oil Separator will be designed to remove a minimum of oil droplet size of 150micron at maximum inflow of 5

litres/second (18m^3/h). It will include a suitable oil skimmer to remove accumulated oil from liquid surface of the separator.

Coal spillages from train wagons may contaminate the area and lead to storm water contamination or even contamination of the ballast and surrounding area. To mediate possible contamination of storm water runoff a lined earth channel will be established alongside a portion of the track that will serve as a storage/evaporation pond. The channel will contain runoff water until it evaporates. The dimensions, capacity and location are provided in Table 5 Section 4.2 of Section B of the report.

Transnet will clean the channel from any coal sludge as required. Coal sludge will be taken to Grootgeluk Coal mine, subject to an agreement with the mine, since the mine have systems in place for handling coal sludge. The volume of sludge from the yard should be minimal.

The expansion of the yard will include administrative buildings and offices containing wash basins, toilets and showers. Approximately 23m^3 of sewage will be generated per day. A Bio-Mite submerged wastewater treatment system will be installed, one at the North Facility and one at the South Facility, for wastewater collection and treatment (to DWS national standard) which will then be discharge into a soak away system. The risk of the system contaminating surrounding boreholes will be low to moderate. Monitoring boreholes will be drilled up and down slope of the Bio Mite units to monitor water levels and quality increase of leakages.

The railway yard will generate general waste, hazardous waste and potentially mineral waste. These wastes will be managed through the Lephalale Railway Yard Waste Management Plan (WMP)

The project will pose a low to medium risk of impacting on the surrounding groundwater regime.
Four new monitoring boreholes are recommended as part of a Groundwater management and monitoring system to be implemented to minimise the impacts from the development and has been incorporated into the attached EMPr – see Figure 21.

A WULA will be submitted to DWS in May 2019 for a license to conduct waste related Section 21(g) water uses which may impact on groundwater namely:

- Section 21g: Bio Mite wastewater treatment system and soakaway - Disposal of sewage into Bio Mite at North and South Facilities and disposing treated effluent into a soak away system
- Section 21g: Guard House Septic Tank - Disposal of sewage into a septic tank
- Section 21g: Earth Channel - Disposal of coal contaminated storm water into an earth channel for forced evaporation

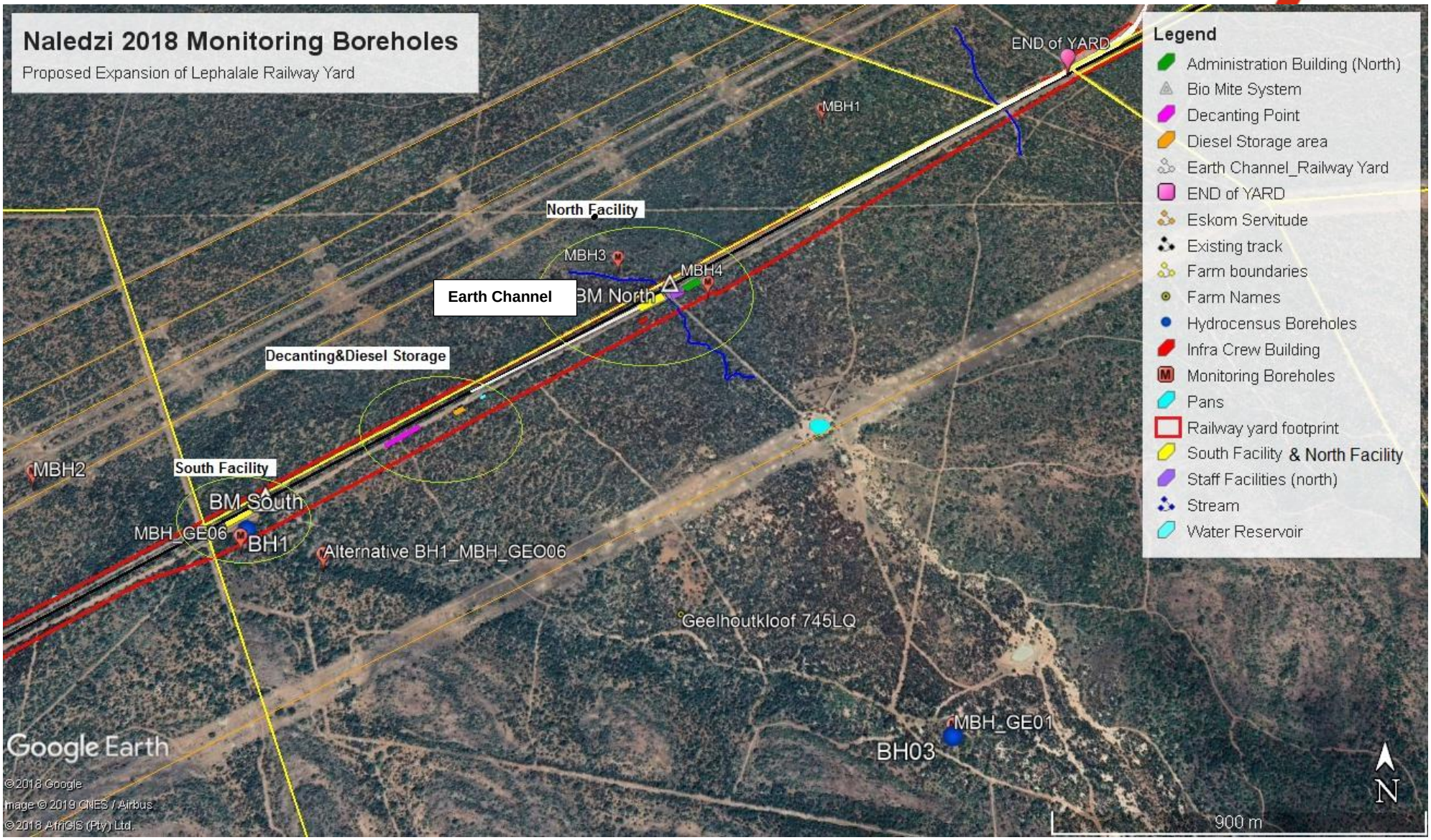


Figure 15: Proposed Groundwater monitoring points in relation to aspects which may impact on groundwater regime

8.8 Surface Water and Wetlands

Reinier F. Terblanche conducted a Wetland Impact Assessment Study for the project to determine if any wetlands are present at the site and to determine the setting, properties and functional aspects of the wetlands. Further to determine if any riparian zones are present including an indication of the active channel and riparian zone. The Wetland Assessment Report is attached under Volume 2 Appendix 2E to the EIR.

R.F. Terblanche conducted the wetland survey during February 2019 and April 2019 to note key elements of habitats on the site and surrounding areas, relevant to the conservation of wetlands and riparian zones.

During the initiation site visit in June 2018 no streams or wetlands were identified on the project site. It was then documented by Naledzi in the Scoping Report that no streams or wetlands were present. The Wetland Survey was conducted during February 2019 and April 2019 (summer), after the Lephalale area received substantial rain, non-perennial streams and wetland depressions were then identified. The findings follow in the next sections.

The project site is located in the Limpopo Water Management Area in the Mokolo quaternary catchment of A42J. The non-perennial Sandloop is 4km north east from Lepahale Railway yard site. Surface water flow is eastwards towards the Sandloop River – See Figure 23.

On a local scale there are three stream crossings and 2 pans within the railway yard expansion footprint area and 5 pans within 500m of the footprint area-see Figure 22, 24 and 25 and refer to Section 8.8.1 and 8.8.2 for further details.

Figure 16: Location of wetlands (Pan 1 and Pan 2) and Streamcrossings (1, 2, 3) at the site (RF Terblanche, Wetland Report, 2019)

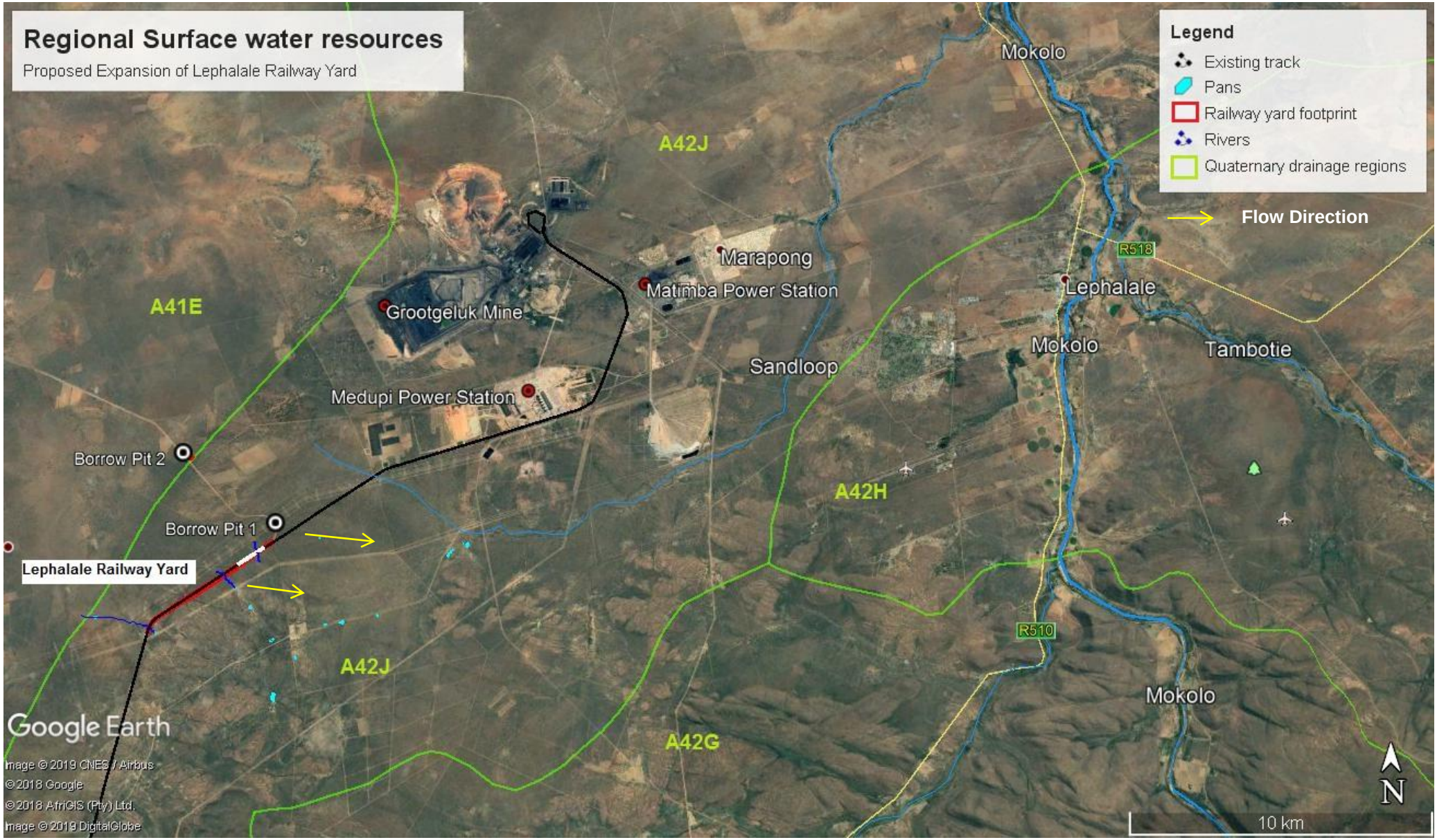


Figure 17: Site in relation to catchment area and rivers (flow direction)

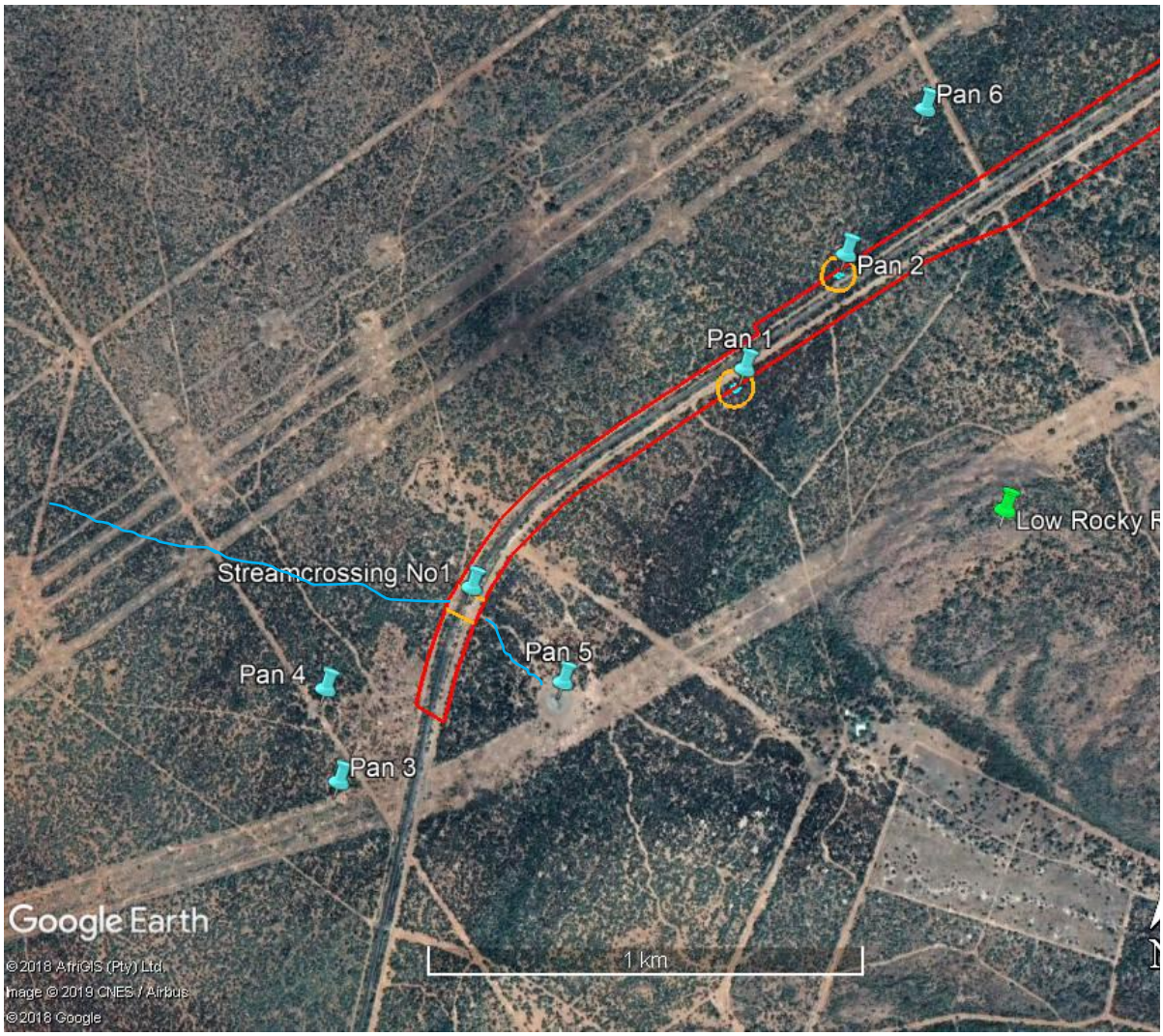


Figure 18: Wetlands and streamcrossing at the start of the railway yard site (western and central-western section) including small wetland depressions (Pan outside the site but within 500m from the boundary of the site. Wetland depressions Pan 1 and Pan 2 as well as Streamcrossing No1 are at the site. Wetland depressions Pan 3, Pan 4, Pan 5 and Pan 6 are outside the site but within 500 m from the boundary of the site.

———	Light blue outline	Route of active channel/ extent of wetland at the site
———	Orange outline	Outer edge of 32m buffer zone

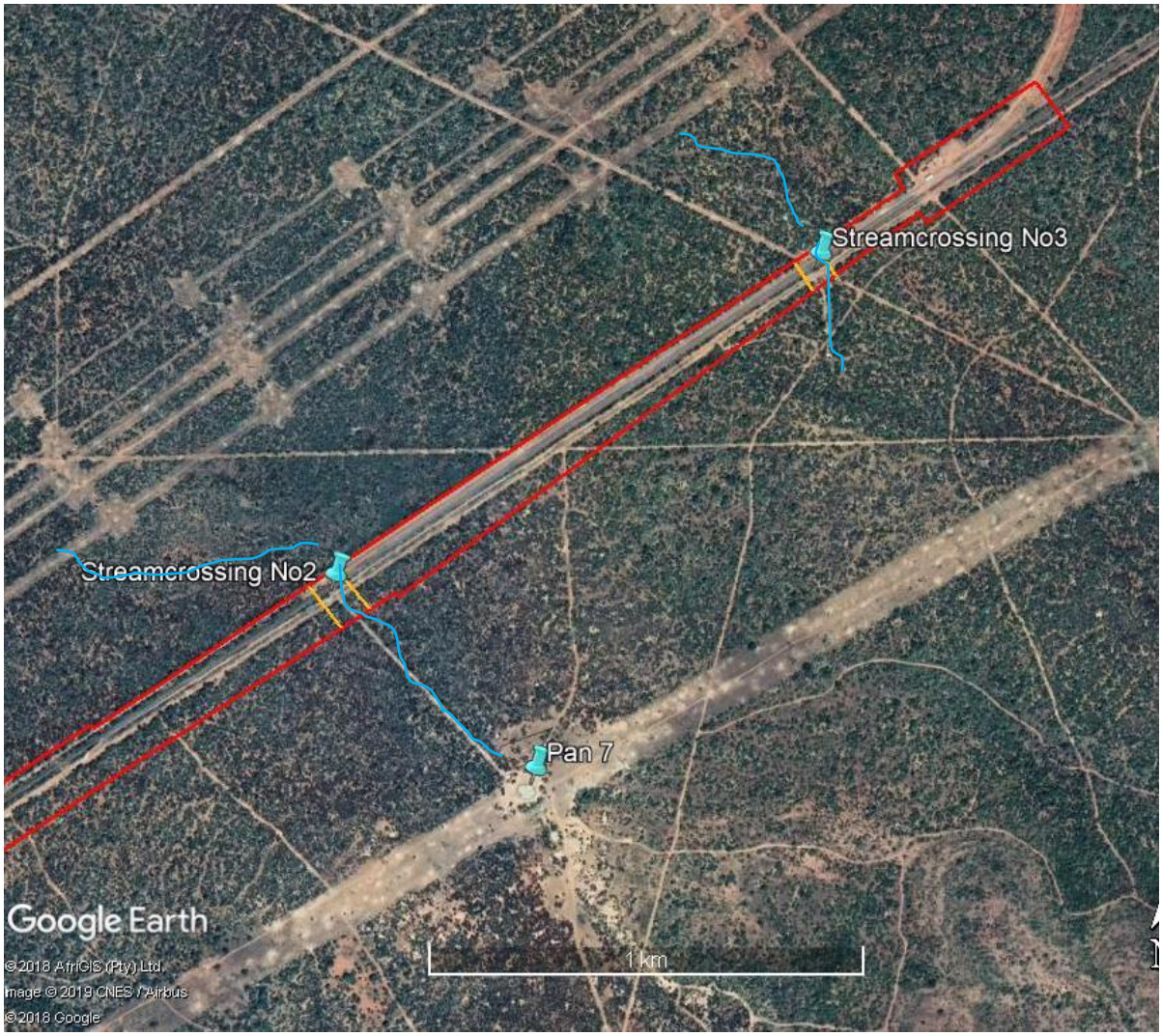


Figure 19: Location of streamcrossings towards the end (eastern portion) of the railway yard footprint as well as small wetland depression Pan 7 which falls outside the footprint area but within 500m from the boundary of the site

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———	Light blue outline	Route of active channel/ extent of wetland at the site
———	Orange outline	Outer edge of 32m buffer zone

8.8.1 Streams crossings

The three non-perennial streams, which cross the proposed extension of the Railway Yard, are in essence small seasonal drainage lines which feed into tributaries of rivers downstream. These streams are noted as Stream crossing No. 1, Stream crossing No. 2 and Stream crossing No. 3. Culverts exist along the existing railway track for these stream crossings-see Figure 26. These streams will be conserved. The existing culverts will be extended to the new tracks to allow the streams to flow under the new railway tracks.

The three stream crossings comprise concentrations of trees and grass. Reeds and sedges are absent. The species include: *Dichrostachys cinerea* (Sicklebush), *Senegalia erubescens (*Bluethorn*), Vachellia karroo (*Sweetthorn) and *Panicum maximum (*Guinnea Grass*).* These streams are biodiversity corridors of significant conservation importance in the larger area.

The active channel of Stream crossing No. 2 is poorly developed and probably enhanced by storm water runoff.

Figure 20: (Left) Culvert of Streamcrossing No. 3 at the site. Water visible in picture gathered after substantial rains (RF. Terblanche, 2019)

According to the Wetland Specialist the recommendations, if the development is approved, for the stream crossings include:

1) Restriction of developments to the extension of culverts
2) Bridge structures at roads next to the railway reserve
3) Exclude narrow drainage lines with 32m bufferzones from development as far as practical;
4) Construction should be planned in such a manner that surface flow and erosion is limited

Development around Stream crossing No. 1 and No. 3 will be restricted to extension of culverts for the new tracks and concrete drifts will be constructed for the new tar access road.

Development around Stream crossing No.2 will include extension of culvert for the new railway tracks, a new culvert for the new tar access road and also, the North Facility and Staff building will be developed within the 32m buffer zone of this stream. According to the Wetland Specialist Stream crossing No. 2 is probably enhanced by storm water runoff – see Figure 27.

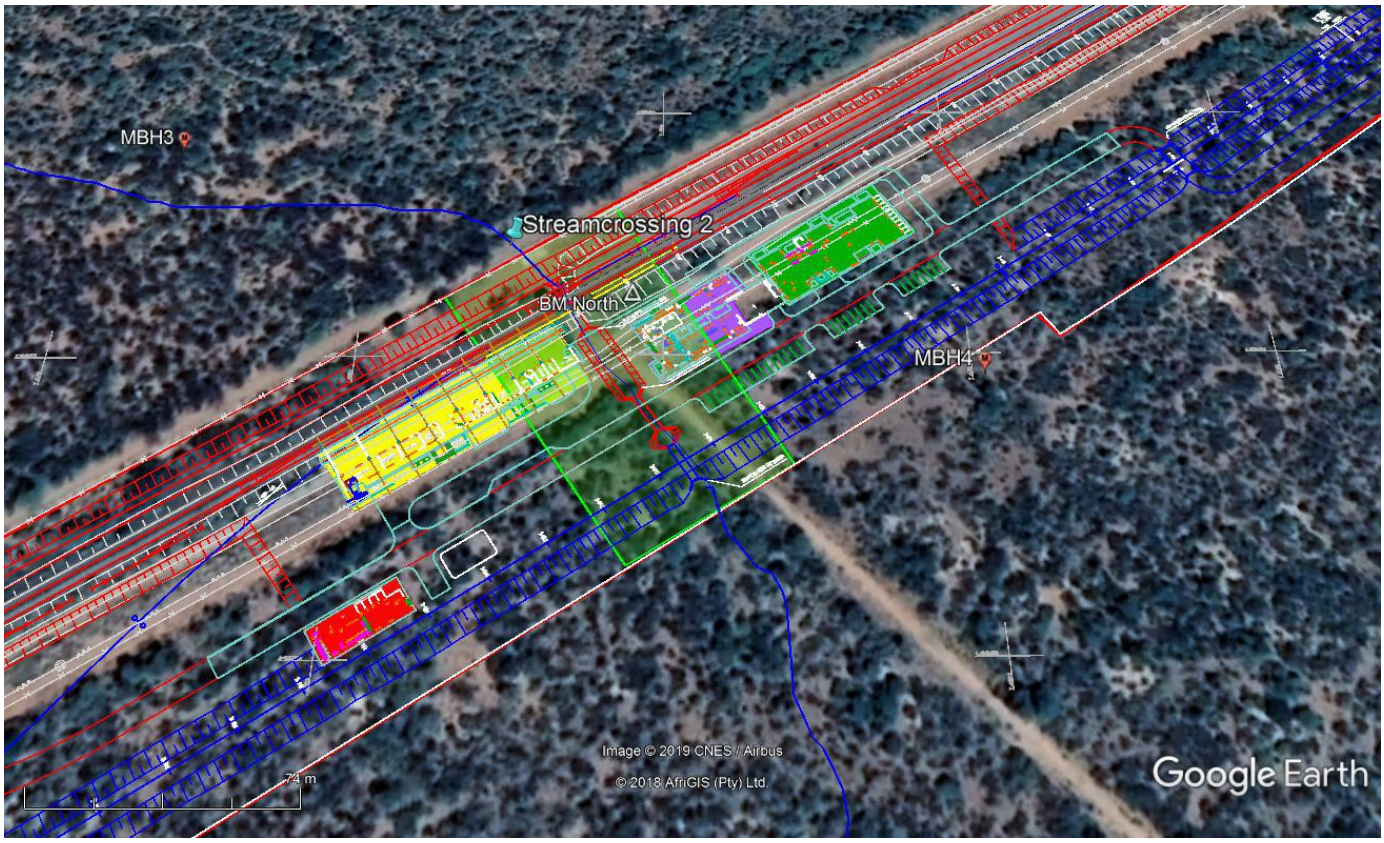

Figure 21: Railway yard infrastructure proposed at Streamcrossing No. 2 (Yellow polygon = North facility; Purple polygon = staff facility; Green Polygon= administration building; Green shaded area = 32m buffer zone to Streamcrossing No. 2)

The project also has the potential to carry pollutants into surface water sources in the surrounding area as a result of potential spillages of hazardous substances from refuelling areas, oil storage areas, wash bays, workshops. A Water and Oil separators will be constructed at the North and the South Facility to deal with the contaminated liquids onsite. Once the water has passed through the oil separator and tested, it will then be drained to the sewer network.

Drainage around the site will comprise table drains in cuttings, pipes, manholes and culverts. Stormwater is directed away from the tracks and buildings and drained to storm water channels and low-lying areas.

Coal contaminated storm water runoff from the yard will be channelled into an earth channel to be established alongside a portion of the track that will serve as a storage/evaporation pond. The channel will contain runoff water until it evaporates.

A WULA will be submitted to DWS in May 2019 for a license to impede the flow of water in a watercourse and to alter the bed, banks of a watercourse through Section 21c and 21i water use namely:

- Section 21c and i: Construction and extension of culverts across three stream crossings for new railway tracks and access road
- Section 21c and i: Construction railway yard infrastructure (North Facility, Staff building) within 32m of watercourse

Storm water management and erosion protection management measures will be implemented to minimise the impacts from the development on the streams and have been incorporated into the attached EMPr.

8.8.2 Wetland Depressions

Wetlands within the footprint area: Two very small pan depressions (Pan 1, Pan 2) are present within the railway yard expansion footprint and five pan depressions (Pan 3, Pan 4, Pan 5, Pan 6 and Pan 7) are found adjacent and within 500 m from the site – see Figure 24 and 25.

These pans are very small, not marshlands or any wetlands with distinct ecological importance. Wetland plants species appear to be rare and are poorly developed at these restricted pans. The pans are encroached by terrestrial vegetation namely Vachellia karroo (Sweet Thorn), Grewia species (Raisinbush) and Ziziphus mucronata (Buffalothorn).

Pan 1 is approximately 0,02 ha and is found south of existing railway reserve. Pan 2 has approximately 0,01 ha and is found north of existing railway reserve – see Figure 28. The two pans are very similar in terms of their ecological status and are classified together – See Table 18.

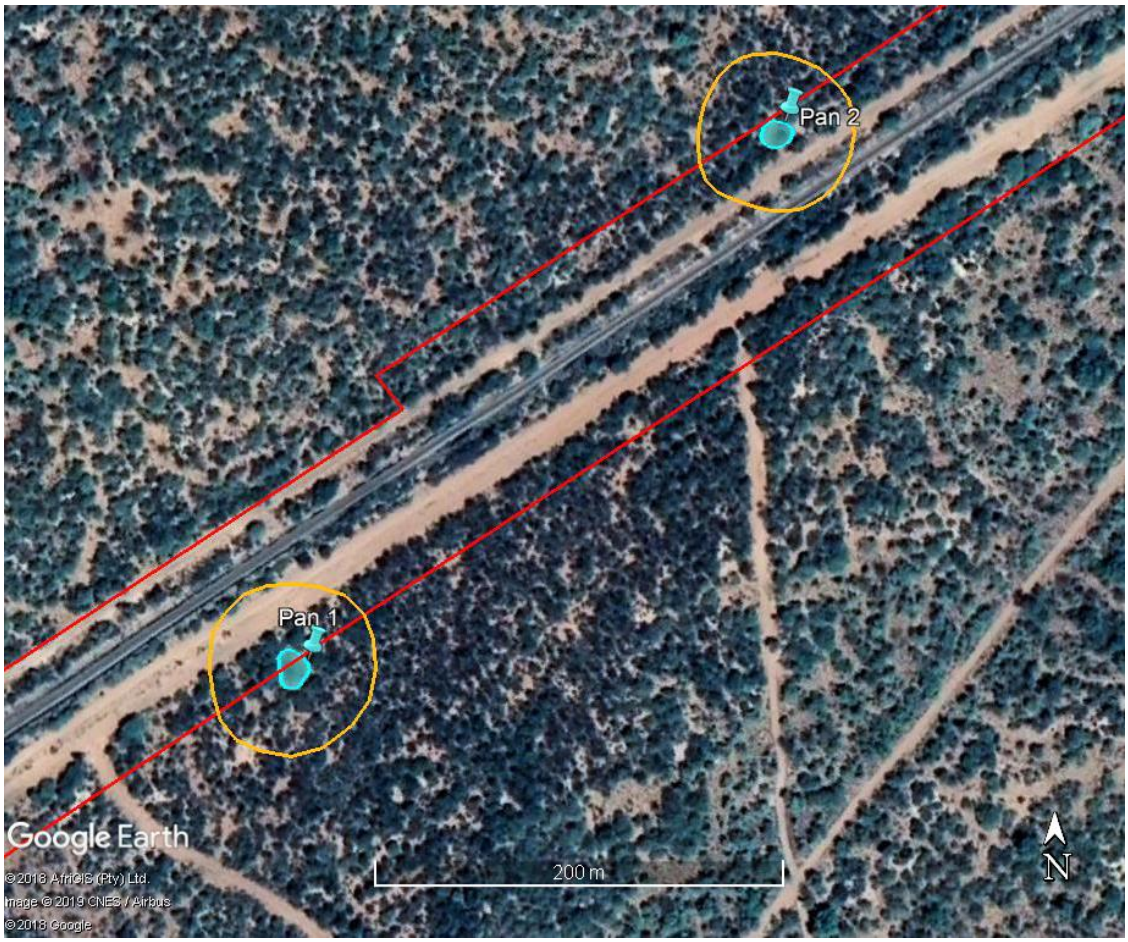

Figure 22: Pan 1 and Pan 2 (blue) in the central-western parts of the proposed railway yard expansion footprint (red polygon) (RF. Terblanche, 2019)

———	Light Blue polygon	Extent of wetland depression
———	Orange outline	Outer edge of 32m buffer zone

Table 18: Pan 1 and Pan 2 Habitat Classification

Habitat Integrity (Pan 1 & Pan 2)	Classification	Justification
Present Ecological State (PES)	D – largely modified	a large loss of habitat and basic ecosystem functions has occurred
Ecological Importance and Sensitivity (EIS)	Low/marginal	These wetlands are not ecologically important and sensitive at any scale. Biodiversity of the wetlands is ever-present and not sensitive to flow and habitat modifications. These wetlands play an insignificant role in moderating the quantity and quality of water of major rivers

The small pan depressions are endorheic[4], water that flows in during rainfall events mostly leaves through evapotranspiration and infiltration in a low rainfall area[5].

The 32m buffer zones of the Pan 1 and 2 are already compromised by past development. Waterflow to these pans are probably enhanced by stormwater runoff from roads next to the railway line where some erosion is visible. The Pans are probably partially maintained by the present railway line structures. Yet the small restricted wetland depressions at and near the proposed footprints remain important as part of stepping stone corridors in the larger area.

Pan 1 and Pan 2 will be impacted by the expansion of the yard by the construction of new railway tracks north and south of the existing railway yard. But no loss of any wetland animal or plant species of particular conservation importance is expected. Since the bufferzones of the pans are already compromised the scope is to, during construction, move each of the pans forty metres from the edge of the road next to the railway yard expansion footprint. The relocation of these pans will slightly improve the wetland characteristics.

These pans are not comparable to larger marshlands/saltpans in the region in which case a no-go zone would have applied. By rehabilitating the two pans successfully and reinstating adequate buffer zones, the risk of loss of biodiversity corridors and stepping stone small wetlands in the larger area shifts from high to moderate/low.

Wetlands outside the footprint area but within 500m from the site

Pan 3, Pan 4, Pan 5, Pan 6 and Pan 7 are unlikely to be impacted significantly by the expansion of the railway yard. These pans are unlikely to experience significant increase in surface flow and erosion from the development.

There is no distinct indication that interflow plays an important role in the maintenance of these wetlands outside the site. The geomorphological setting and flow regime are likely to be similar post development. Loss of any wetland animal or plant species of particular conservation importance are not expected particularly since these wetlands are outside the footprint area.

A WULA will be submitted to DWS for a license to impede and diverting the flow of water in a watercourse and to alter the bed, banks of a watercourse through Section 21c and 21i water use namely:

[4] retains water and allows no outflow to other external bodies of water
[5] Low rainfall area (Mean Annual Precipitation <500mm)

- Section 21c and i: Railway Yard expansion which will divert and alter the pans;
- Section 21c and i: Construction railway yard infrastructure within 500m of several pan depressions

8.8.3 Freshwater Ecosystem Priority Areas relevant to the project site

Freshwater Ecosystem Priority Areas (FEPA's) are strategic spatial priorities for conserving the country's freshwater ecosystems and supports sustainable use of water resources.

River FEPAs achieve biodiversity targets for river ecosystems and threatened/ near threatened fish species, and were identified in rivers that are currently in good condition (A or B ecological category). Their FEPA status indicates that they should remain in a good condition in order to contribute to national biodiversity goals and support sustainable use of water resources.

The project site is located in a River FEPA in the sub catchment area of Matlabas/Mokolo sub water management area. The function or purpose of this FEPA is however not specified on the SANBI online LUDS tool.

Surrounding land and smaller stream networks in a River FEPA need to be managed in such a way that maintains the good condition (A or B ecological category) of the river reach (Nel et al., 2011a, 2011b). A key issue is therefore avoidance and limitation of pollutants into the soil and water at the proposed footprints.

The railway yard expansion layout will cater for pollution control measures namely:

- Water and Oil Separators at the North and South Facility to deal with contaminated liquids onsite;
- Lined earth channel to capture/store coal contaminated stormwater for forced evaporation;
- Bunded fuel and oil storage facilities
- Waste Management in line with a WMP
- Groundwater monitoring plan to monitor groundwater level and quality against pre-development status.

8.9 Land use Cover

According to the DEA National Land Cover Map the project site corresponds to land cover classes, woodland / open bush and low shrub land.

8.10 Ecological Features (Vegetation and Animals)

To inform this section the competent authority has requested an Ecological Impact Assessment inclusive of a summer – and winter survey. Reinier F. Terblanche (Ecologist) has conducted a summery survey during February and April 2019 which has informed the current Ecological Impact Assessment Report attached under Volume 2 Appendix 2F to the EIR.

A follow up winter survey, as per DEA's request, will be conducted from 27 to 30 May 2019 after which the Ecological Impact Assessment will be updated and submitted to DEA. In spite of this requirement the Ecologist is of the opinion that it is unlikely that more surveys would alter the outcome of the assessment.

The survey focused on determining if threatened fauna and flora known to occur in the Limpopo Province were likely to occur within the proposed development footprint. Other species which are not listed as threatened or near threatened but which are of known particular conservation concern also received attention in the survey. The ecological sensitivity of the site was also determined and potential impact from the development on the integrity of the Koedoe Nature Reserve which is cut across by the existing railway yard and the proposed expansion.

8.10.1 Project Site Vegetation Types

The northern parts of the study site represent Limpopo Sweet Bushveld and the southern parts of the site Western Sandy Bushveld (Mucina & Rutherford 2006) – Figure 29. These vegetation types are not listed as a threatened ecosystem according to the National List of Threatened Ecosystems (2011).

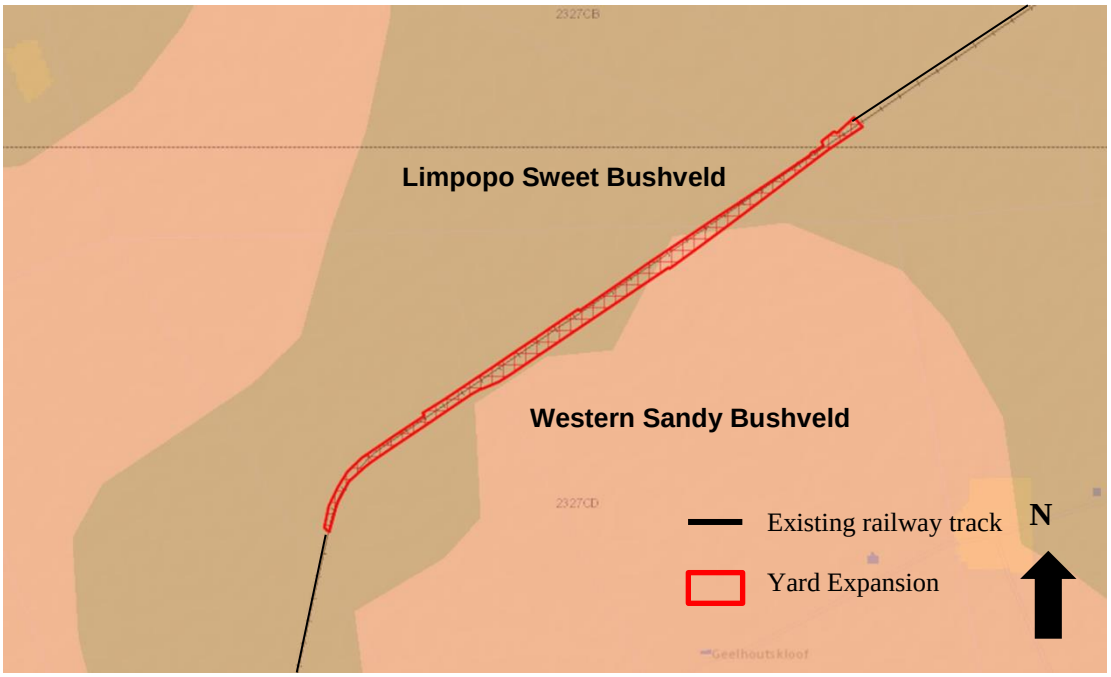

Figure 23: Vegetation types coinciding with the project site

The Limpopo Sweet Bushveld vegetation is short, open woodland dominated by *Acacia mellifera* and *Dichrostachys cinerea* as well as taller tree species such as *A. erioloba, A nigrescens* and *Terminalia sericea*. This vegetation type is very suitable for game farming practices. It is Least Threatened and extensive in geographic coverage. It is however poorly conserved even though it straddles many privately owned game farms. It is transformed by cultivation, but future threats include the mining of coal.

The Western Sandy Bushveld is typical of the sandy flats and undulating plains west of the Waterberg Mountains and north towards Steenbokpan. The vegetation structure varies from tall; open to low woodland dominated by broad-leaved and *microphyllous* species on soils underlain by arenite and standstone. Noteworthy species include *Acacia erubescens* and *Combretum apiculatum*, with *Terminalia sericea* on areas comprising of deep sandy soils. This vegetation type is also Least Threatened with about 6 % statutorily conserved in the Marakele National Park. Refer to Section 2 of the Ecological Impact Report for a list of characteristic plant species of the vegetation types.

8.10.2 Habitat Survey Results

The terrain is flat. Part of the site, an existing railway reserve, has been developed in the past. Tracks, fences and roads are present. The vegetation has thus been impacted by the present railway line, railway reserve and hitherto excavated areas (Resgen Rail link excavated areas). In the larger area extensive pylon strips run north and south, within 1 km and less, of the proposed railway yard expansion site – see Ecological Report for photographs of the project site.

Vegetation at and around the present railway reserve is woodland with a diversity of indigenous tree species. Tree species such as *Dichrostachys cinerea* (Sicklebush), *Senegalia erubescens* (Blue Thorn) and *Vachellia karroo* (Sweet Thorn) are conspicuous at the railway reserve. Indigenous tree species north and south of the present railway reserve include *Senegalia nigrescens* (Knob Thorn), *Senegalia erubescens* (Blue Thorn), *Combretum apiculatum* (Red Bushwillow), *Grewia bicolor* (White Raisin), *Grewia flavescens* (Sandpaper Raisin), *Grewia monticola* (Grey Raisin), *Vachellia karroo* (Sweet Thorn), *Terminalia sericea* (Silver Clusterleaf), *Sclerocarya birrea* subsp. *caffra* (Marula), *Commiphora mollis* (Velvet-leaved Corkwood), *Albizia anthelmintica* (Worm-bark False-thorn) *Ziziphus mucronata* (Buffalo Thorn), *Boscia foetida subsp. rehmanniana* (Smelly Shepherd's Tree) and *Boscia albitrunca* (Shepherd's Tree).

Indigenous herbaceous species include Seddera capensis, Limeum sulcatum, Solanum species, Geigeria burkei, Heliotropium giessii, Heliotropium nelsonii, Hermannia boraginiflora, Indigastrum costatum subsp. macrum, Indigofera daleoides, Commelina benghalensis, Sida cordifolia, Tephrosia purpurea, Tribulus terrestris, Syncolostemon elliottii, Pollichia campestris, Waltheria indica and Pavonia burchellii. Indigenous grass species include Eragrostis pallens, Aristida stipitata subsp. graciliflora, Eragrostis rigidior, Heteropogon contortus, Melinis repens, Panicum maximum and Tragus racemosa. Conspicuous exotic weeds at the site, notably impacted areas at present railway reserve, are Gomphrena celosioides (Bachelor's Button), Hibiscus trionum (Bladder Hibiscus), Tagetes minuta (Khaki Weed), Bidens bipinnata (Black Jack), Argemone ochroleuca (White-flowered Mexican Poppy), Solanum elaeagnifolium (Silver-leaf Bitter Apple) and Schkhuria pinnata (Dwarf Marigold). Alien invasive weeds and indigenous pioneer plant species are conspicuous where clearings or other disturbances have taken place in the past.

Two small wetland depressions (pans) are present at the proposed footprint. Four other small wetland depressions (small pans) are present within 500 m of the proposed footprint. Three narrow seasonal streambeds cross the proposed footprint and which are noted as Streamcrossing No 1, Streamcrossing No 2 and Streamcrossing No 3 (Described in detail under Section 8.2 of this report).

There is little scope for the site to be part of a corridor of particular conservation importance. Two very small seasonal pans are present at the site which is part of a stepping stone corridor system of conservation importance. Seasonal streambeds that cross the site are conservation corridors of importance in the larger area.

8.10.2.1 Occurrence of Threatened or other High Conservation Priority Plant Species

No threatened, near threatened, critically rare, rare and or data deficient plant species were recorded during the February and April 2019 site survey. These species are also unlikely to occur based on the lack of suitable habitat.

Threatened (critically endangered, endangered and vulnerable), near threatened, critically rare, rare and data deficient plant species in the Limpopo Province that were considered are listed in Tables 4.2

to 4.9 of the Ecological Assessment Report (extracted from Raimondo et al. 2009 and updates by Threatened Species Programme, SANBI).

Protected Species
Two widespread tree species, which are not threatened but which appear on the national list of protected tree species as promulgated by the NFA are present onsite namely the *Boscia albitrunca* (Shepherd's Tree) and *Sclerocarya birrea* (Marula). The main reasons for this list are to provide strict protection of certain tree species while others require control over harvesting and utilisation. In terms of a part of section 15(1) of the NFA, no person may cut, disturb, damage or destroy any protected tree or possess, collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any protected tree, except under a license granted by the Minister.

Permits will be obtained from Department of Agriculture and Forestry (DAFF) for removal of any listed nationally protected tree species found within the footprint area. Marking of *Boscia albitrunca* (Shepherd's Tree) and *Sclerocarya birrea* (Marula Tree) will take place at the site with an application of permits for the removal of these trees.

It is recommended, *Sclerocarya birrea* (Marula tree) trees should be planted at appropriate sites at the study area. For *Boscia albitrunca* cultivation success is too low at present to be practical in which case other indigenous trees should be cultivated at appropriate sites at the study area.

The provincially protected tree species, the *Spirostachys africana* (Tamboti) is present onsite. It is listed as protected under Schedule 12 of the Limpopo Environmental Act No. 7 of 2003; 1 May 2004). A permit for removal of individuals of this tree species found within the project footprint area will be obtained from LEDET as required in terms of LEMA for the remove or disturb of protected plants (trees). Marking of *Spirostachys africana* (Tamboti) will take place at the site with an application of permits for the removal of these trees.

Endemic or Near Endemic Species
The *Piaranthus atrosangeuineus*, a succulent stapeliad is protected in terms of LEMA. This species was not recorded onsite and is unlikely to occur. Its distribution includes areas northwards to Lephalale, it grows in Acacia-Grewia bushveld, specifically under heavily grazed Acacia tortillis (Umbrella Thorn) individuals. Its blooming season is late spring to autumn and is rain-dependant. The survey was undertaken during April 2019 (autumn) after Lephalale received substantial rains.

8.10.2.2 Occurrence of Threatened or other High Conservation Priority Animal Species

Animals are categorized as either vertebrates or invertebrates. Occurrence has been detailed accordingly.

VERTEBRATES
Namely mammals, birds, reptiles and amphibians

a) Mammals of particular High Conservation Concern

Tables 4.11 – 4-13 of the Ecological Report lists the possible presence and absence of Threatened, Endangered and Vulnerable mammal species of the Limpopo Province. Carnivores such as the Near Threatened *Parahyaena brunnea* (Brown Hyaena) travel through the proposed yard footprint and use the larger study area as its territory, it was recorded onsite. *Panthera pardus* (Leopard) which is listed as Vulnerable (IUCN) could also travel through the site occasionally. Suitable habitat exists. Owing to the size of the proposed footprint, large areas for these animals would remain in the local study area if

the development is approved. There is no distinct threat to any mammal species of particular conservation concern if the development is approved.

b) Birds of particular High Conservation Concern

Tables 4.14 – 4.15 of the Ecological Report lists possible presence or absence of threatened or near threatened bird species of the Limpopo Province. The site does not appear to form part of any habitat of particular importance for Threatened bird species or bird species of particular conservation priority. Threatened vulture species such as *Gyps africanus* (White-backed Vulture) listed nationally as Critically Endangered could cross the site from time to time. There are no signs (such as nests) or observations that indicate a specific importance of the site for threatened or near threatened bird species.

c) Reptiles and Amphibians of particular High Conservation Concern

Table 4.17 of the Ecological Report list possible presence or absence of threatened or near threatened reptile species of the Limpopo Province. Presence of threatened reptile species at the site is unlikely.

d) Amphibians of particular High Conservation Concern

The only frog species from the Limpopo Province which is listed as a threatened species, in this case vulnerable, is *Breviceps sylvestris*, the northern forest rain frog. Two subspecies of Breviceps sylvestris are recognised and both occur in afromontane forest or northeastern mountain grassland. No threatened frog species or any other frog species of particular conservation priority appear to be present at the site.

INVERTEBRATES
Namely butterflies, beetles, scorpions and spiders.

e) Butterflies of particular High Conservation Concern

The expected presence or absences of butterfly species of high conservation priority are listed in Tables 4.18 – 4.22 in the Ecological Report. Several conservation important species were considered yet the presence of these species at site is highly unlikely owing to lack of habitat requirements and distributional barriers

The Rare (low density) *Colotis celimene amina* (Lilac tip) could occur at the site but up to date the larger area has not been identified as particular suitable habitat for this rare but widespread species. Reasons for its rarity are poorly understood apart from that the butterfly species occurs at some places where *Boscia albitrunca* is present (but clearly not at all places where *Boscia albitrunca* is present) (Terblanche, In prep.).

f) Cicadas of particular High Conservation Concern

Only one species of conservation priority the ***Pycna (Platypleura) sylvia*** (Giant cicada) has been considered. Based on present information it is unlikely that *Pycna sylvia* (confined to Sekhukhuneland) is to be found at the site based on the lack of host plant *Pycna sylvia* and the tree *Vitex obovata* subsp. *wilmsii.* Apparently *Pycna sylvia* is mostly found at or in the vicinity of dense stands of the host plant.

g) Fruit chafer beetles, Scorpions of particular High Conservation Concern

No fruit chafer beetles of particular conservation priority are expected to be resident at the site.

The rock scorpion species (*Scorpiones: Ischnuridae*) are of known high conservation priority in the Limpopo and Mpumalanga Provinces combined. Presence of Rock Scorpions at the site proposed for development is unlikely.

h) Baboon Spiders of particular High Conservation Concern

In the South African context baboon spider species as listed in Table 4.26 of the Ecological Report, belonging to the genus *Ceratogyrus* has a particular presence in the Limpopo Province. *Ceratogyrus* ("horned baboon spiders") is also of importance to the pet trade and appears on the TOPS list with other baboon spider genera *Harpactira* and *Pterinochilus*.

De Wet & Schoonbee (1991) recommended determination of veld condition boundaries of habitats where colonies of *Ceratogyrus* occur, yet no detailed habitat study could be tracked in an extensive literature survey for this study. *Ceratogyrus bechuanicus* could be present at the study area but no distinct signs of the species at the site and no distinct indications of suitable habitat have been found at the site.

Though the presence of some baboon spider species of particular conservation concern is possible at the proposed footprint the site does not appear to be a habitat of particular importance for any baboon spiders of particular conservation concern.

8.10.2.3 Important Biodiversity Areas at Site

An Important Biodiversity Map is a spatial plan for ecological sustainability. It identifies a set of biodiversity priority areas, called Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs), which together with protected areas, are important for the persistence of a viable representative sample of all ecosystem types and species as well as long term ecological functioning of the landscape as a whole (SANBI, 2017). Provided that protected areas and CBAs remain largely natural, and ecological processes are maintained in ESAs, intensive land uses can be expanded into Other Natural Areas without undue impacts on biodiversity conservation or the ecological sustainability of the landscape as a whole (SANBI, 2017).

The proposed railway yard expansion footprint corresponds to two biodiversity priority areas namely CBA 2 and ESA 1 as set out the Limpopo Conservation Plan 2013 – see Figure 30.

The western section of the yard footprint represents the CBA 2 which together with protected areas ensure viable representative sample of all ecosystem types and species can persist. These CBA's must stay largely natural (SANBI 2017). The central and eastern parts of the yard footprint represent ESA 1. ESAs ensure long-term ecological functioning of the landscape as a whole. ESA's must retain ecological processes which require semi-natural conditions (SANBI 2017). The objective is to prevent further deterioration of the ESA's in ecological condition.

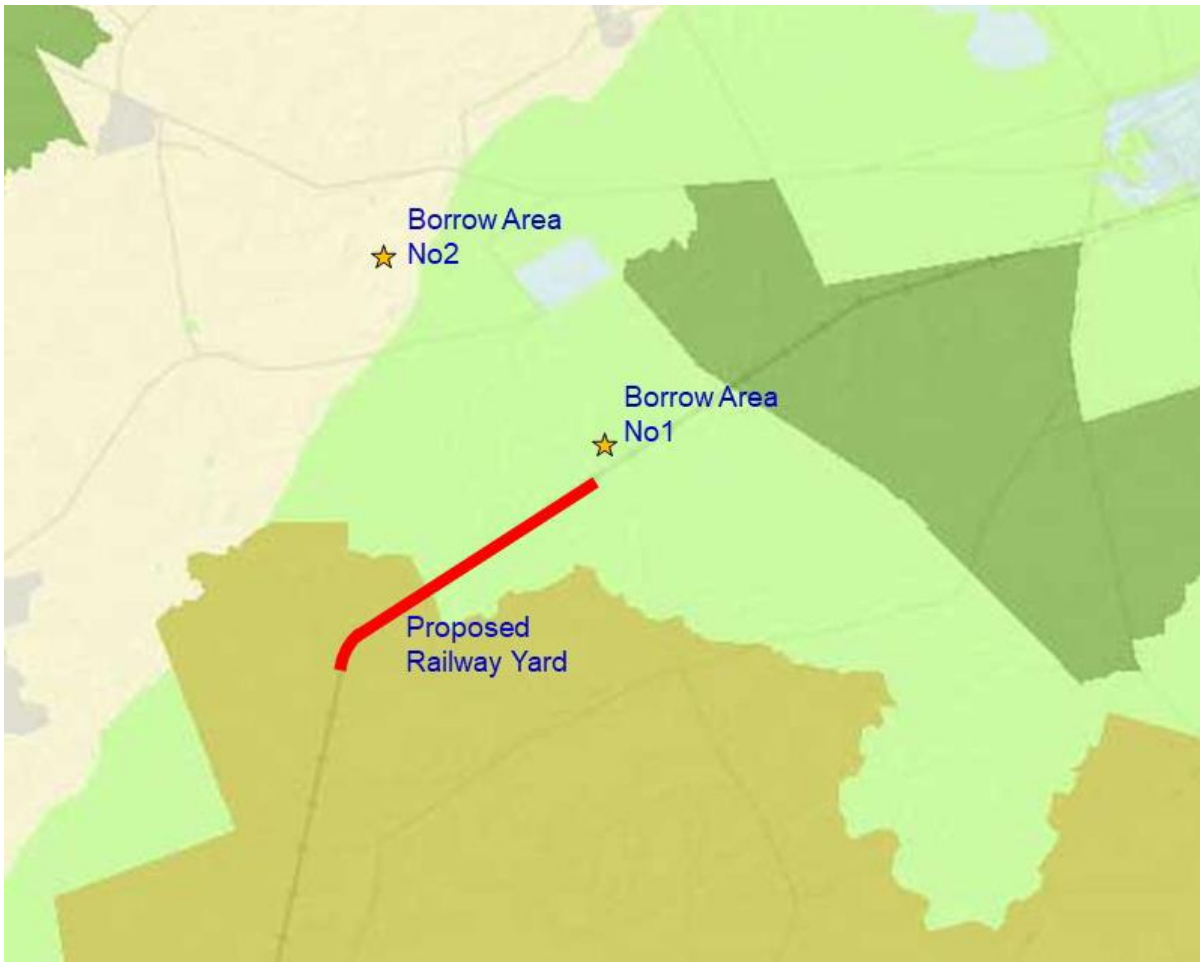

Figure 24: Railway Yard expansion site corresponding to important Biodiversity Areas as set out in the Limpopo Conservation Plan 2013

———	Red outline	Indication of location of proposed Railway Yard site
☆	Stars	Indication of location of proposed Borrow Areas
	Pale shading (no colour)	Other Natural Areas
———	Orange-green shading	Critical Biodiversity Area 2 (CBA 2)
———	Light green shading	Ecological Support Area 1 (ESA 1)

8.10.2.4 Environmental Sensitivity of site

Ecological sensitivity at the existing railway reserve is low. Ecological sensitivity at the remaining savanna north and south of the railway reserve is medium. Ecological sensitivity is medium-high at the two very small wetland depressions (pan) and their buffer zones (32 m) at the site as well as the three non-perennial drainage lines with their buffer zones (32 m).

LEGEND

—	Red outline	Boundaries at the proposed Railway Yard
—	Light yellow outline and shading	Low Sensitivity
—	Orange outline and shading	Medium Sensitivity
—	Green outline and shading	Medium-high Sensitivity

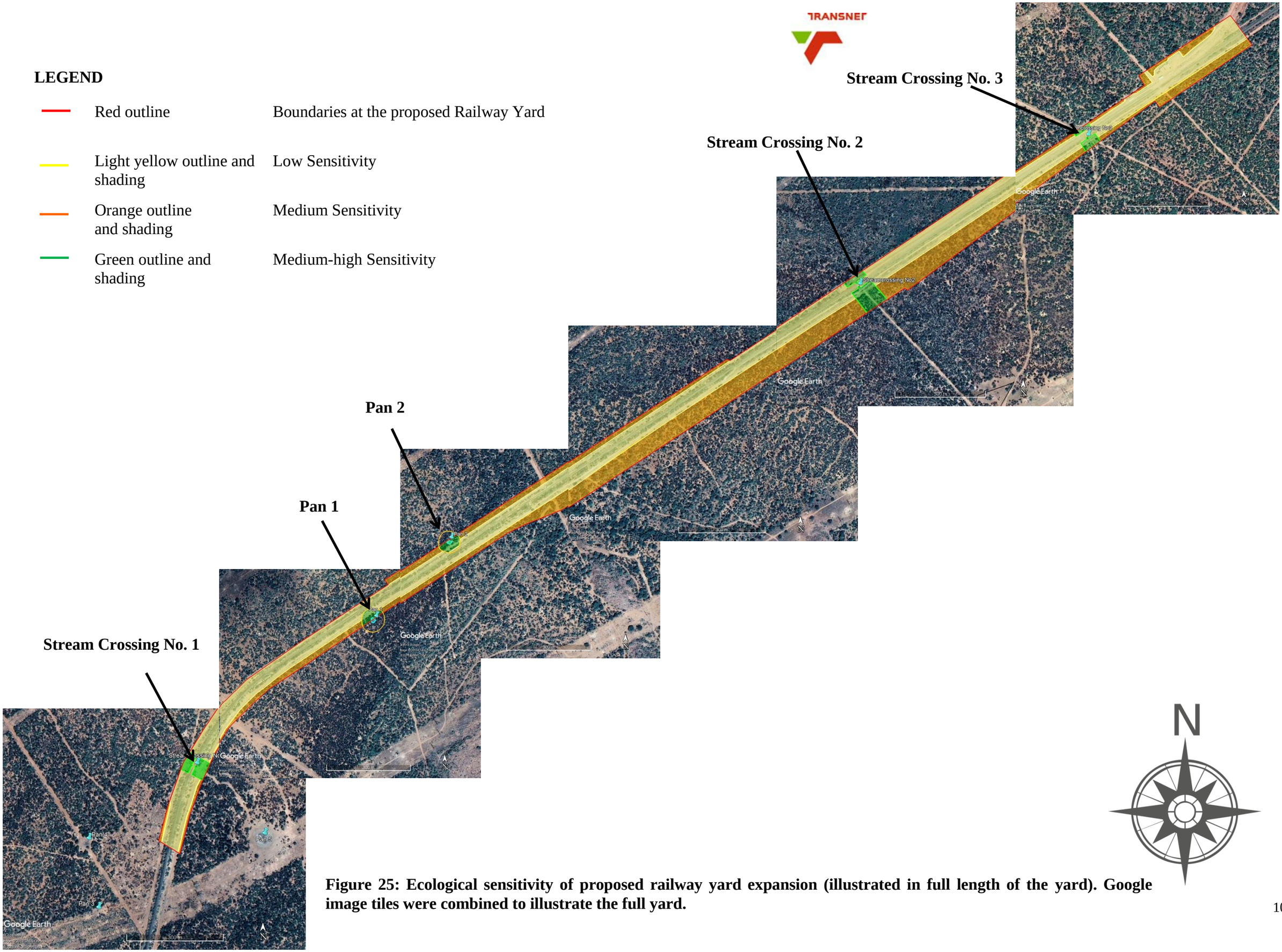

Figure 25: Ecological sensitivity of proposed railway yard expansion (illustrated in full length of the yard). Google image tiles were combined to illustrate the full yard.

8.10.2.5 Protected Areas

The central portion of the proposed yard expansion cuts across the Koedoe Nature Reserve which is private owned and operated as a game hunting farm. Koedoe Nature Reserve is listed in the National Register of Protected Areas and coincides with a portion of Enkeldraai 718LQ and farm Geelhoutkloof 359LQ – See Figure 4 Plan 2 Local Plan under Section 3.3 of the EIR.

The existing railway yard / track cross the northern section of the nature reserve and thus the reserve was 'cut-off' before. The expansion of the railway reserve for this project can further isolate the different parts of the Nature Reserve. During construction and operation of the expansion of the railway yard activities will be restricted to the footprint to that the different sections of the reserve can continue to fulfil its role in biodiversity conservation for animals such as birds. Amendment of the reserve boundaries is recommended to an extent which is practical for the foreseeable future in terms of the most likely developments.

Transnet must still engage with the landowners for the application for amendment of the nature reserve boundaries.

8.10.3 Risks posed by development on Ecology

Based on the ecological and wetland features identified at the railway yard footprint no changes will be affected to the railway yard layout. Relocation and rehabilitation of Pan 1 and 2 will improve its wetland characteristics and reinstate adequate buffer zones and the risk of loss of biodiversity corridors and stepping stone small wetlands in the larger area shifts from high to moderate/low. These pans are not comparable to larger saltpans in the region in which case a no-go zone would have applied.

Development around Streamcrossing No. 1 and No. 3 will be restricted to extension of culverts for the new tracks and concrete drifts will be constructed for the new tar access road. Development around Streamcrossing No.2 will include extension of culvert for the new railway tracks, a new culvert for the new tar access road and also, the North Facility and Staff building will be developed within the 32m buffer zone of this stream. According to the Wetland Specialist Streamcrossing No. 2 is probably enhanced by stormwater runoff.

The development will result in the clearance of vegetation to make way for the expanded rail reserve which will result in partial destruction of habitat of medium and low ecological sensitivity. Individual Protected trees species Shepard's Tree, Marula and Tamboti will be removed. These trees will be marked at site with an application of permits for the removal of these trees.

During the construction phase animal species could be disturbed, trapped, hunted or killed. Contractors must ensure that no animal species are disturbed, trapped, hunted or killed during the construction phase.

During operation an increased infestation of exotic or alien invasive plant species owing to clearance or disturbance where the footprint took place may occur. Infestation by alien invasive species could replace indigenous vegetation or potential areas where indigenous vegetation could recover. Once established combatting these alien invasive plant species may become very expensive in the long term. Continued monitoring and eradication of alien invasive plant species will be implemented.

During the decommissioning phase of the railway yard infestation by alien invasive species could replace indigenous vegetation or potential areas where indigenous vegetation could recover. Once established combatting these alien invasive plant species may become very expensive in the long term. Continued monitoring and eradication of alien invasive plant species will be imperative.

Poor recovery of indigenous vegetation could lead to further loss of indigenous vegetation at the site during decommissioning. A monitoring and rehabilitation plan for vegetation at the site will be implemented to make sure that indigenous vegetation recover at hitherto cleared areas where possible.

Contamination of soil by leaving rubble/ waste or spilling petroleum fuels or any pollutants could infiltrate the soil during decommissioning phase. Rubble or waste that could accompany the development if approved should be removed throughout during the construction. Measures will be taken to avoid any spills and infiltration of petroleum fuels or any chemical pollutants into the soil during construction phase.

Habitat loss owing to clearing of vegetation (cumulative effects) Clearing of vegetation at the proposed railway yard and borrow area footprints will entail the partial destruction of medium and low sensitive habitat. Rehabilitation and monitoring of vegetation following clearing of vegetation will be implemented.

A key issue at the site is the implementation of efficient rehabilitation. By implementing the mitigations and planned footprint for development all the impact risks listed are moderate or low.

A rehabilitation plan which includes the re-establishment of indigenous vegetation at the site will be implemented.

8.11 Air Quality

The WRD forms part of the Waterberg-Bojanala Priority Area with the DEA establishing ambient monitoring stations as part of the AQMP development for the priority area. There is currently no existing major air pollution problem in the area; there are indications that government recognises the potential for a problem to occur. Lephalale is the major contributor to industry emissions at approximately 96% of emissions in the Waterberg District. Matimba power station and Grootgeluk Coal Mine are the main contributing sources in Lephalale. Lephalale is also a significant contributor to vehicle emissions at 24%.

The ambient air quality in the Lephalale area is affected by the following existing source types:

- Matimba and Medupi power stations and ash dumps
- Coal mining operations
- Household fuel combustion,
- Infrequent veld fires
- Wind blow dust from open areas
- Vehicle exhaust releases and road dust entrainment along paved and unpaved roads in the area

During the construction of the railway yard increased dust is anticipated due to vehicle entrained dust along service roads, windblown dust from exposes surfaces, spoil piles and borrow areas.

During the operation phase there would be coal dust blown from train wagons (wagons not covered with chutes) and emissions from diesel locomotives (carbon monoxide, hydrocarbons, soot, nitrogen

oxide, sulphur dioxide). The railway yard site is situated distant from any sensitive receptors and the impact is anticipated to the low with implementation of mitigation measures.

8.12 Noise and Ground Vibration

Barend van den Merwe from dBAcoustics has prepared a Noise and Vibration Impact Assessment Study for the project dated January 2019. The report is attached under Volume 2 Appendix 2G to the EIR and its findings have been used to inform this section.

The expansion of the Lephalale Rail Yard project will be situated in a commercial game farming area where there are distant mining activities, feeder roads and residential areas. A number of farmsteads (noise receptors) are located in the vicinity of the railway yard expansion and these are number A-N as per Figure 32. House A, C, D and E are situated on the perimeter of the 3km radius study area and the potential impact of the rail yard development has been gauged on these houses too. Refer to Table 19 for details of farmhouses within the approximately 10km radius of the proposed rail activities.

Table 19: Proposed activities and farm houses on different farm portions

Farm Portion	Farm House	Railway Yard Activity	Remarks
Vergulde Helm 316LQ	I	Distant existing railway line	In excess of 2000m from yard and borrow pits
Buffelsjagt 744LQ (former Buffelsjagt 318LQ)	H	Borrow Pit 1	In excess of 2000m from yard and borrow pits
Pontes Estate 712LQ (former Kringgatspruit 318LQ)	B	Portion of the railway yard and Borrow Pit 2	In excess of 2000m from yard and borrow pits
Enkeldraai 718LQ (former Enkeldraai 314LQ)	F	Portion of the railway yard and Borrow Pit 2	In excess of 2000m from yard and borrow pits
Zandnek 358LQ	G, N	Distant existing railway line	In excess of 2000m from yard and borrow pits
Geelhoutkloof 359LQ	L, M	Rail yard and existing railway line	L – in excess of 2000m M – 837m from yard
Nooitgedacht 514LQ	J, K	Distant existing railway line	In excess of 2000m from yard and borrow pits

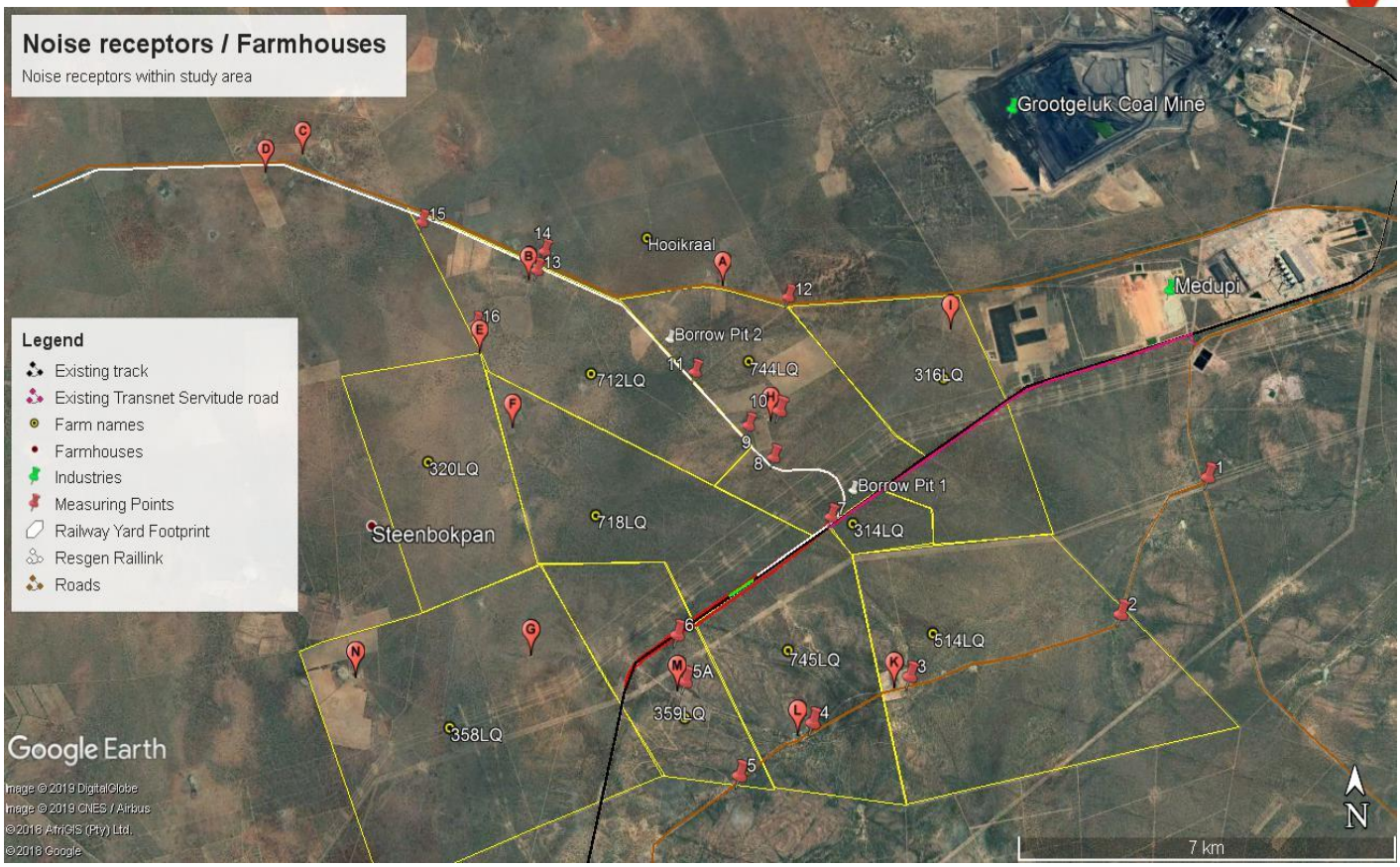

Figure 26: Individual farmsteads A to N in the vicinity of the railway yard expansion which are considered noise receptors to the noise sources. Measuring Points 1-16 from which ambient noise levels where measured

The following are existing noise sources in the vicinity of and boundaries of the study area:

- Domestic/farm activity noises;
- Intermittent traffic along feeder roads and gravel roads;
- Intermittent train and train hooting noise;
- Distant traffic noise from the abutting feeder roads
- Noise from Medupi power station
- Insects and birds; and
- Wind noise

8.12.1 Ambient Noise levels

To determine the prevailing ambient noise levels for the study area different measuring points were selected and include all the noise sources such as distant mining activities, power station noise, traffic and domestic noise. The average ambient levels through the study area are summarised in Table 20.

Table 20: Ambient average noise levels through the study area

Location (MPs – Measuring points)	Daytime Leq dBA	Night time Leq dBA
Along the gravel road to the south MPs 1, 2, 3, 4 and 5	30.3dBA	27.8dBA
Proposed rail yard MPs 5A, 6 and 7	32.7dBA	27.8dBA
Farm portions to the north of proposed rail yard MPs 8, 9, 10, 11 and 16	35.8dBA	30.9dBA
Along Steenbokpan Road MPs 12, 13, 14 and 15	40.9dBA	27.9dBA

The maximum and minimum [6] prevailing ambient noise levels at the different measuring points are detailed in Table 21. A noise survey was carried out at MP5A during the time a train passed the measuring point at 837m.

Table 21: Ambient noise levels at different measuring points

Position	Day time				Night time			
	Leq - dBA	Lmax (Fast) - dBA	Lmin (Fast) - dBA	Remarks	Leq - dBA	Lmax (Fast) - dBA	Lmin (Fast) - dBA	Remarks
1	33.2	54.4	24.8	Distant plant and traffic noise.	36.4	51.5	31.3	Distant Medupi plant audible.
2	29.7	49.4	22.1	Far distant Medupi power station noise.	34.0	63.5	18.6	Far distant Medupi power station noise.
3	30.1	50.5	21.3	Far distant Medupi power station noise.	30.4	47.7	18.0	Far distant Medupi power station noise.
4	27.4	66.0	21.1	Far distant Medupi power station noise.	29.1	49.0	16.8	Natural noises such as insects and wind.
5	31.0	50.4	23.3	Natural noises such as birds and wind.	29.0	44.6	18.3	Natural noises such as insects and wind.
5A	27.1	59.5	15.7	Natural noises such as birds and wind.	22.2	45.5	15.7	Natural noises such as insects and wind.
6	33.6	63.5	20.8	Distant Medupi plant noise.	30.6	63.6	20.8	Natural noises such as insects and wind.
7	37.5	54.2	27.4	Natural noises such as birds and wind.	30.6	63.6	20.8	Natural noises such as insects and wind. Distant Medupi power station audible.
8	33.9	51.3	26.7	Natural noises such as birds and wind. Distant traffic noise.	30.5	56.1	21.7	Distant Medupi power station audible.
9	37.3	55.0	26.7	Natural noises such as birds and wind. Distant traffic noise.	31.9	57.5	21.8	Distant Medupi power station audible.
10	30.0	48.4	20.9	Natural noises such as birds and wind. Distant traffic noise.	31.9	57.5	21.8	Distant Medupi power station audible.
11	38.8	66.4	21.8	Natural noises such as birds and wind. Distant traffic noise.	27.7	46.1	22.9	Distant Medupi power station audible.
12	36.6	60.4	23.6	Natural noises such as birds and wind. Traffic noise excluded 2 x trucks and 4 x motor vehicles.	29.9	51.9	22.4	Distant Medupi power station audible.
13	38.6	54.5	27.0	Distant traffic noise.	25.9	46.6	18.9	Distant Medupi power station audible.
14	40.5	60.9	27.4	Natural noises such as birds and wind.	25.9	46.6	18.9	Corona noise from overhead power lines.
15	47.9	73.8	21.4	Natural noises such as birds and wind. Traffic excluded (1 x truck and 3 x motor-vehicles)	29.7	46.7	17.0	Natural noises such as insects and wind.
16	39.0	59.4	25.3	Natural noises such as birds and wind.	32.4	48.4	22.2	Natural noises such as insects and wind.

The proposed traffic routes will be along the rail servitude and the existing feeder roads. The traffic along the feeder roads exists out of heavy–duty trucks and motor-vehicles. The measured prevailing ambient noise level along the feeder roads was 66.8dBA during the day and 62.2dBA during the night.

The ground vibration levels throughout the study area (23 July 2018) were insignificant as the ground vibration levels were between 0.381mm/s to 0.835mm/s.

[6] Leq is the average noise level for the specific measuring point over a period of time, the Lmax is the maximum noise level and the Lmin is the minimum noise level registered during the noise survey for the specific area in dBA.

8.12.2 Noise Levels related to phases of railway yard

Different noise levels will be experienced during the construction, operation and decommissioning phases of the project which will have different noise intrusion levels on the noise receptors (farmhouses). This section summarises the activities related to project phases and noise generated by these activities. The next section will explain how these activities will impact on the noise receptors.

From construction machinery the cumulative noise level of the machinery and equipment will be 64.9dBA at 60m and 40.8dBA at 960m if all the machinery operates in a radius of 30m at one time (this is for direct line of sight with no barrier in place). Earthworks and possible blasting will be required at the borrow pits to remove the topsoil and to dislodge rock which may be used at the construction of the railway line. Blasting will be restricted to the day time[7] period.

The following sound levels were used in determining the noise level at the residential areas during the construction phase:

- Site clearing and grubbing of footprint – 90.5dBA
- Civil Construction at the railway yard footprint - 85.5dBA;
- Assembly of water and diesel tanks – 87.5dBA;
- Activities at the borrow-pits – 85.0dBA;
- Construction of the roads – 87.5dBA; and
- Construction of the railway line – 90.0dBA.

The noise intrusion level during the operational phase will be based on the following noise levels at the railway yard:

- Locomotive start-up and idling – 90.5dBA;
- Shunting operations – 93.5dBA;
- Release of air brakes – 95.0dBA;
- Maintenance work within the workshop – 85.0dBA;
- Outdoor maintenance work – 85.0dBA;
- Re-fuelling of locomotive – 83,0dBA;
- Passing train – 87.0dBA;
- Train hooter – 110dBA; and
- General noise level inside yard area without train activities – 50.0dBA.

The noise intrusion level during the decommissioning phase will be based on the following noise levels at the source:

- Removal of infra-structure – 85.0dBA; and
- Rehabilitation of disturbed footprint – 85.0dBA.

To obtain a ground vibration level for the operation of the proposed expansion of the railway yard the Noise Specialist recorded levels at the Thabazimbi rail yard and the ground vibration levels at a distance from the train activities were between 1.73mm/s to 2.55mm/s.

[7] Critical impacts from air blast are identified where air blast noise from blasting exceeds 140.0 dBL, generally accepted as the safe threshold for hearing. Impact rank for day time period include - insignificant (<115dBL), minor (>115-125), major (>125-140), critical (>140). For Vibration (mm/s) the impact rank for day time is insignificant (<2), minor (>2-5), major (>5-10) and critical (>10).

8.12.3 Noise Intrusion analysis at farmhouses

As explained under Section 5.1.10 of this report; The NCR, 1994 defines nuisance noise as any noise level which exceeds the ambient noise level at the same measuring point by 7dBA or more.

During construction of the rail yard and activities at the borrow pits the noise intrusion levels (in dBA) at the farmhouses A to N, will be insignificant, the noise increase will not be audible to low. Based on the analysis noise receptor M (Geelhoutkloof farm manager's house) will experience a noise increase of 4.1dBA above the ambient level, H (Buffelsjagt farmhouse) and G (Zandnek farmhouse) will experience at most a 1dBA increase above ambient level. This is well below the nuisance noise level of 7dBA.

The noise intrusion level during day and night time of the construction phase for the rail yard expansion activities at the farmhouses are illustrated in Table 8.1 – 8.6 under Section 8 of the Noise Impact Report. The assessment includes cumulative levels.

Section 5.1.10 of this report explains that the NCR, 1994 excludes railway type noise as an aspect for consideration in the control of noise. The specialist turned to global noise control levels stipulated for the UK, USA, AUS and Japan. The maximum noise levels of 60.0dBA during the day and 50.0dBA during the night is proposed to be used for the defined noise sensitive areas along the boundaries of the rail yard.

The most significant noise intrusion will be experienced during the operational phase of the expanded railway yard. The noise intrusion during the operational phase at the noise receptors is illustrated in Table 22.

Table 22: Noise intrusion levels in dBA during operational phase

Table 8-13: Noise intrusion levels in dBA during the operational phase

Residential property	Locomotive start -up and idling	Release of air brakes	Shunting operations	Maintenance work in the workshop	Outdoor maintenance work	Fill up locomotive	Passing train	General noise level in rail yard	Cumulative Levels	Cumulative noise level - Daytime	Cumulative noise level - Night time	Intrusion noise level - daytime	Intrusion noise level - night time
A	15.2	15.2	13.2	5.2	5.2	2.7	19.7	-14.8	22.8	35.9	31.3	0.2	0.7
B	13.4	13.4	11.4	3.4	3.4	0.9	17.9	-16.6	21.0	38.8	27.1	0.1	1.2
C	8.6	8.6	6.6	-1.4	-1.4	-3.9	13.1	-21.4	16.2	38.7	26.3	0.0	0.4
D	8.4	8.4	6.4	-1.6	-1.6	-4.1	12.9	-21.6	16.0	38.7	26.3	0.0	0.4
E	14.3	14.3	12.3	4.3	4.3	1.8	18.8	-15.7	21.9	34.7	32.8	0.2	0.4
F	16.1	16.1	14.1	6.1	6.1	3.6	20.6	-13.9	23.7	34.8	32.9	0.3	0.5
G	18.3	18.3	16.3	8.3	8.3	5.8	22.8	-11.7	25.9	35.1	33.3	0.6	0.9
H	19.9	19.9	17.9	9.9	9.9	7.4	24.4	-10.1	27.4	35.3	33.6	0.8	1.2
I	13.9	13.9	11.9	3.9	3.9	1.4	18.4	-16.1	21.5	33.5	36.5	0.3	0.1
J	12.9	12.9	10.9	2.9	2.9	0.4	17.4	-17.1	20.4	30.2	34.2	0.5	0.2
K	19.5	19.5	17.5	9.5	9.5	7.0	24.0	-10.5	27.1	32.0	30.5	1.1	1.8
L	22.2	22.2	20.2	12.2	12.2	9.7	26.7	-7.8	29.7	31.7	32.4	3.1	2.3
M	32.6	32.6	30.6	22.6	22.6	20.1	37.1	2.6	40.2	40.4	40.2	11.2	15.9
N	12.6	12.6	10.6	2.6	2.6	0.1	17.1	-17.4	20.2	30.7	28.5	0.2	0.4

The noise intrusion levels of the train horn in use at the middle of the train yard at the different noise receptors are illustrated in Table 23.

Table 23: Noise intrusion levels during use of train horn

Residential area	Train hooter	Cumulative noise level	Cumulative noise level	Intrusion level daytime	Intrusion level night time
A	30.2	36.8	33.4	1.1	2.8
B	28.4	36.4	32.7	0.7	2.1
C	23.6	36.0	31.4	0.3	0.8
D	23.4	30.9	32.5	0.9	0.6
E	29.3	32.7	33.8	2.7	1.9
F	31.1	33.6	34.5	3.6	2.6
G	33.3	35.0	35.7	5.0	3.8
H	34.9	36.1	36.6	6.1	4.7
I	28.9	36.5	32.8	0.8	2.2
J	27.9	31.9	34.9	2.2	0.9
K	34.5	35.9	35.3	5.6	7.5
L	37.2	38.0	37.6	7.7	9.8
M	39.2	39.8	39.5	9.5	11.7
N	27.6	32.2	30.7	1.9	2.9

Referring to Tables 22 and 23 it is evident that the threshold value of 7dBA will be exceed at noise receptor M (Geelhoutkloof Farm Manager's house) and will experience the highest noise intrusion (11.2 at day and 15.9dBA at night) during the operation of the yard and use of train hooter.

The threshold value of 7.0dBA will also be exceeded at the below noise receptors for the duration the hooter will be activated inside the yard area and at intersections:

- K (Nooitgedacht 514LQ farmhouse east of Geelhoutkloof); and
- L (Geelhoutkloof lodge/house next to Afguns road)

There are also game pens in the vicinity of the railway yard expansion. The Noise Impact Report states that further relocation of game as a result of noise disturbance is not likely. There is still an absence of understanding how observed behavioural and physiological effects translate into ecological consequences for wildlife. There are examples where a loud noise did not impact on the breeding and well-fare of wild life (IEMR, 2000).

Further based on the calculated traffic for the railway yard the noise level at 25m from the road will be along the feeder roads during the construction phase at 47.5dBA and during the operational phase 50.7dBA. There will therefore be no noise impact from traffic activities (during the construction and/or operational phases) onto the residential properties.

The noise intrusion levels to be experienced during the operational phase have been translated into a Noise Contour Map which illustrates the noise contours created by the railway yard and the movement of trains along the existing railway track – see Figure 33.

During the decommissioning phase the noise intrusion from dismantling activities on farmhouses will also be insignificant. The noise intrusion levels are illustrated in Table 8.25 and Table 8.26 of the Noise Impact Report.

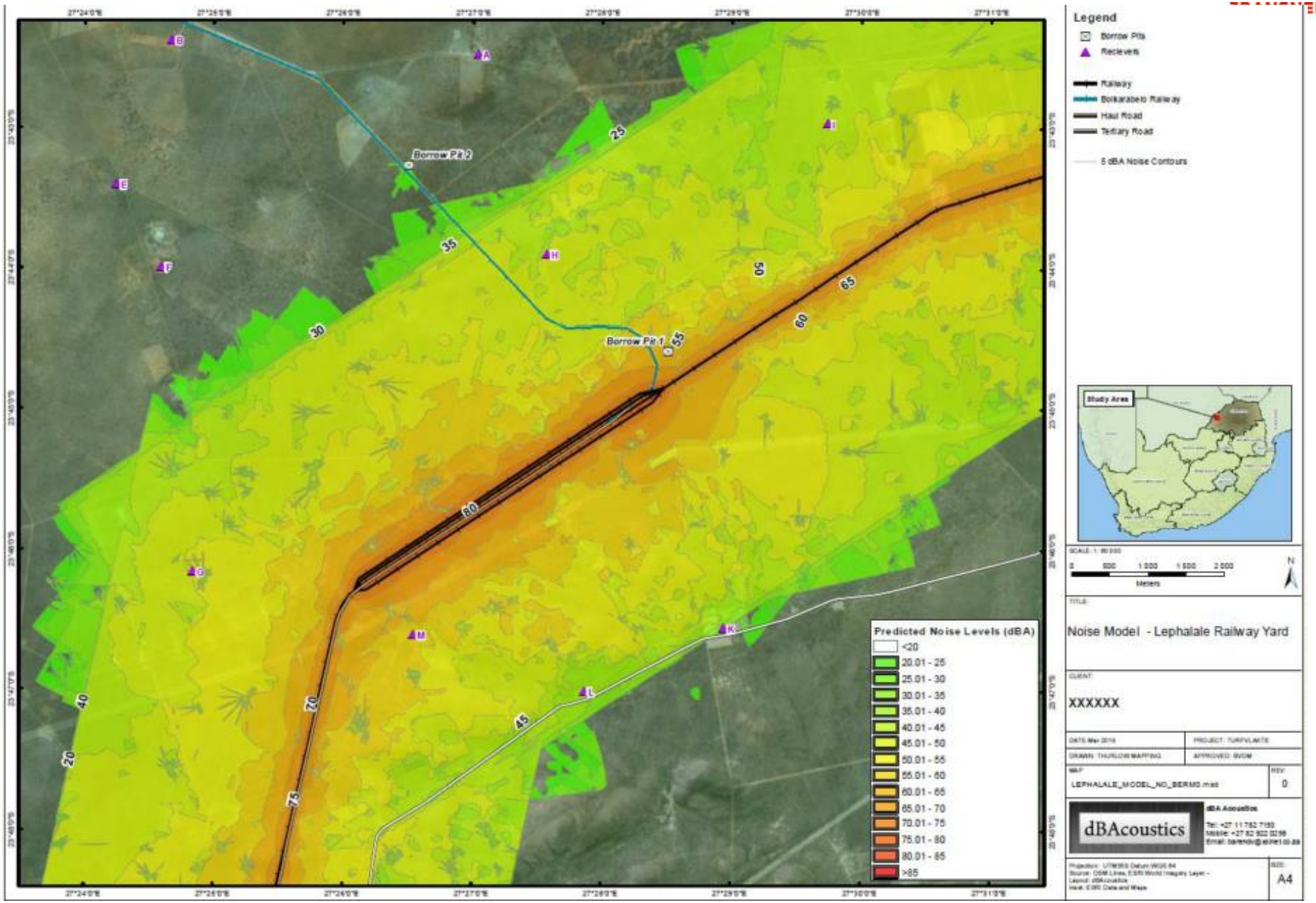

Figure 27: Noise contours during operation of railway yard and movement of trains along the existing railway track

Please note that the 2m earth berm barrier previously proposed in the Scoping Report between the railway yard and neighbouring properties have been removed from the layout plan and noise contour plan. Transnet has confirmed it will not be able to achieve the required slope for the earthberm and will require more land to include the earth berm along its servitude boundaries resulting in a costly mitigation not feasible for Transnet. Transnet also needs to provide access across the servitude to bordering landowners.

Therefore a Noise Management Plan (NMP) will be implemented which will entail regular environmental noise monitoring which will provide data for reviewing, checking and revising the NMP. Noise monitoring will be done at the railway yard footprint and abutting farm houses on a monthly basis after which it will change to quarterly / annual basis should there be no noise intrusion levels at farmhouse M. The proposed rail yard project will comply with the relevant Noise Control Regulations, 1994 and SANS 10103 of 2008 provided that the noise mitigatory measures are in place and that the noise management plan be adhered to at all times.

8.13 Visual Impact / Characteristics

Dr Wynand Vlok from BioAssess has conducted a Visual Impact Assessment (VIA) Study for the project dated April 2019. The report is attached under Volume 2 Appendix 2H and its findings have been used to inform this section.

The important aspect used during the study, was to determine areas where the proposed development will have visual impacts and each of the problem areas were photographed and assessed for the report. This included a site visit, physical characterisation of site, general landscape characterisation was recorded and this was done by focussing on the landscape and the nature of the environment. The potential views or visual receptors were mapped according to specialist's studies and the I&AP comments on the visual impacts. Concerns were related to the visual changes of the environment with regard to the livestock and game farms and the nature reserve – related to visitors travelling in the area and visiting the facilities.

Land use currently includes the Medupi Power Station Complex, new developments associated with this complex, mining in the larger area around the railway line, settlements, cultivation (both subsistence and commercial), cattle farming (both subsistence and commercial), game farming, ecotourism and other associated infrastructure. The residential impacts are associated with the power station, mining activities, agricultural activities, tourism, roads, power lines, telephone lines and cell phone towers, erosion and dumping of refuse.

Tourism is an important activity associated with the game farms and the nature reserve and includes travelling of visitors to local residents and visitors to a number of tourism destinations in the area. Some of the roads are tarred and some are gravel roads. A number of power lines (ranging from 11kV to 1400kV) are present in the area with telephone lines and cell phone communications masts dotting the landscape.

8.13.1 Visual Receptors / Key Observation Points (KoPs)

The visual receptors are considered landowners and tourists/guests who would experience the highest visual impact. Key observation points (KoP) have been identified within 10km radius of the study site as viewpoints for assessing the potential visual impacts from the activity – see Figure 34 for the location of KoP in relation to the study site, this includes views from the Koedoe Nature Reserve.

Figure 28: Key observation points (KoP) of the study site used as viewpoints for assessing the potential visual impacts from the activity

Koedoe Nature Reserve
Key Observation Points
Existing railway track
Railway yard expansion footprint
Resgen Railway link
Farm boundaries

The visual impact can be rated according to visual exposure ratings (Table 24) and category[8] of development.

Table 24: Visual Exposure Rating

	High exposure	Moderate exposure	Low exposure	Insignificant exposure
Surrounding farms	0-1.5km	1.5-3km	3-10km	More than 10km
Tourists	0-1.5km	1.5-3km	3-10km	More than 10km
Motorists	0-1.5km	1.5-3km	3-10km	More than 10km

[8] The key to the categories of development are the following:

- Category 1 development: e.g. nature reserves, nature-related recreation, camping, picnicking, trails and minimal visitor facilities.
- Category 2 development: e.g. low-key recreation, resorts or residential type development, small-scale agriculture or nurseries, narrow roads and small-scale infrastructure.
- Category 3 development: e.g. low density resort and residential type development, golf or polo estates, low to medium-scale infrastructure.
- Category 4 development: e.g. medium density residential development, sports facilities, small-scale commercial facilities and office parks, one-stop petrol stations, light industry, medium-scale infrastructure.
- Category 5 development: e.g. high density township and residential development, retail and office complexes, industrial facilities, refineries, treatment plants, power stations, wind energy farms, power lines, freeways, toll roads, large-scale infrastructure generally. Large-scale development of agricultural land and commercial tree plantations, quarrying and mining activities with related processing plants.

The visual resource rating of the study site is low since the area is 'highly modified with extensive infrastructure development (power stations), power lines (1400kV), roads, settlements, game fences and grazing.

The new railway yard expansion will have a very limited impact, as in most cases the railway line is at ground level. In some areas, the railway line will be raised and this can have a visual impact for people travelling along farm boundaries. Currently, the trees act as an effective visual barrier. If a train is travelling along the railway line, it will have a visual impact, as the locomotive is approximately 3.5m high. In areas where the railway line is raised, this total height impact will be approximately 6 – 6.5m.

The office buildings will be (according to consultants) "only single story in height", but a storing facility (<10m in height) will be higher than the single story brick facilities. In addition, there will be (to be confirmed) some communications antennas and light poles. The lights will have a visual impact at night and will further have a negative impact of the nocturnal biota.

The current railway line was not visible when more than 50m away. Some exceptions where noted where bush clearing was done or where access roads lead directly to gates on the boundary fence. Even when a train was passing, it was not visible from the farms when one was more than 50m away. An exception is when one is on the rocky outcrops on the Geelhoutskloof Reserve (Koedoe Nature Reserve). On these elevated areas, the train will be visible in a small corridor of cleared vegetation, but the distance of more than 1.5km will lower the visual disturbance due to the vegetation in the background (train not in silhouette).

Although the Visual Exposure Rating states an exposure rating of moderate to high (0 – 3km sighting) for people living near the corridor, the screening effect of the trees and vegetation will lower this risk considerably. This will apply in areas where the roads on farms are next to the fence (e.g. KOP1 – service road for the railway line – Figure 3 and 4). KOP 2 (80m) and KOP 3 (135m) is two areas where the local management roads on the farms Enkeldraai and Pontes Estates (incorporated into the Geelhoutskloof farm) is screened from the railway line by the natural vegetation. Here the high power lines (1400 kV) north of the railway line is not always visible).

KOP 4 is where the railway line is at ground level and KOP5 is a section where the railway line is lowered to ensure a level track system. From the access road next to the railway line some parts are visible, but when looking into the farms, the dense vegetation screen the infrastructure.

The impacts are rated as Category 4 with a high to very high visual disturbance expected, but when the current visual impacts are taken into consideration, it will be a low additional impact to the already high negative impacts from the Medupi Power Station and the power lines and one can describe the additional changes as "some change to the existing character – recognisable feature within the view frame and experience of the receptor".

In the second sector (KOP6 – KOP11) a similar trend was observed. When travelling against the boundary fences the new infrastructure will be visible, especially the Northern Facility (offices and stores) and this will add to the visual impact at that point.

At KOP6 and KOP7 the raised railway line will increase the visual impact for people next to the boundary fences of the farms. But as was noted earlier, once someone moved 50m away from the fence, the high natural vegetation will screen the elevated railway line and the trains travelling on it.

Another factor in this area is the Northern Facility where the office block and steel stores will be constructed. The height of the store is said to be lower than 10m and this structure will be visible for

people travelling along the boundary fences. The communications towers and light pylons will be visible as well. From a visual impact perspective, the lights at night will be the most comprehensive disturbance. It is recommended that lights must only be used in areas where work is carried out, that the lights must face towards the building (i.e. from the boundary fence towards the facilities) and that the pylons must be lower than the highest points of the buildings. This will lower the visual impact of light in the area and further lower the risk of light pollution for the nocturnal biota.

At KOP 8 and KOP9 the railway line is a ground level and the infrastructure will be screened by the vegetation, the trains will be visible for people near the boundary fence, but screened when 50m away. The existing cement power lines are screened by the vegetation and this indicate that the vegetation act as an effective screen for the trains (3.5m high). The last site (KOP10 and KOP11) in this sector is in an area where the railway line is lowered (cutting). Again the infrastructure and trains will not be visible from the boundary fences and the visual disturbance will be low. The existing power lines (1400kV) is sometimes visible (e.g. along access roads), but the vegetation screen it effectively in most areas.

When looking at the areas to the north of the railway infrastructure, all KOP's (KOP17 – KOP21) further than 500m had no visual disturbance of the railway of the proposed new buildings, as the vegetation gave a total screen of the existing and proposed facilities (offices, stores, communications tower). The only possible change can be with lights used at night (no direct impact, but a background glow).

All pylons for lights will be designed as low as possible and lights will face down towards the activities in order to lower the potential light pollution towards the surrounding landscape.

8.14 Traffic

Corli Havenga Transportation Engineers conducted a Traffic Impact Assessment (TIA for the project dated March 2019. The report is attached under Volume 2 Appendix 2I and its findings have been used to inform this section.

The objective of the TIA was to determine:

- Impact of the development on the road and transportation system surrounding the development;
- Is it possible to accommodate the development, with or without implementation of mitigation measures with acceptable norms;
- What mitigation measures and improvements may be required to accommodate the development

Access to the railway yard is obtained via Roads D2001, D1675 and D2649 (Afguns Road) which are existing surfaced roads and the existing access road from Road D2649 to the railway yard is a gravel road within the railway line servitude.

Road D2001 runs from Lephalale towards the Medupi and Matimba Power Stations. From this road, Road 1675, the road to Medupi Power Station, is used. Road D1675 is used for ±3.2km to the intersection with Road D2649, the intersection with the Road. Road D2649 is used for ±5.4km to the intersection with the Railway Yard access. This intersection does not have any turning lanes. From Road D2649 the existing gravel road is used for approximately 10km to the Railway Yard. This is an existing access road.

8.14.1 Existing traffic on road network

Manual traffic counts were undertaken on 18 to 19 February 2019 during morning and afternoon peak traffic periods on a normal weekday at intersections D2001 and D1675, D1675 and D2649 to obtain existing traffic volumes on the road system – see Table 25 for traffic count results.

18 February 2019: 10:15 – 14:30, 14:30 - 18:00
19 February 2019: 04:15 – 08:45

Table 25: Background traffic on affected road network (am and pm traffic counts)

Roads	Condition	Morning Peak hour (06:00 – 07:00am)	Afternoon peak hour (16:15 – 17:15pm)	Total vehicles through intersection
Intersection D2001 and D1675	Tar	2659 vehicles per hour (154 – Heavy vehicles) (411 – Taxis)	2366 vehicles per hour (106 - heavy vehicles) 282 – Taxis)	14 041 vehicles
Intersection D1675 and D2649	Tar	1152 vehicles per hour (69 – Heavy vehicles) (193 – Taxis)	1244 vehicles per hour (64 - heavy vehicles) (122 – Taxis)	5 923 vehicles
Intersection D2649 and Railway yard access road	Gravel	40 vehicles per hour (3 – Heavy vehicles) (2 – Taxis)	28 vehicles per hour (0 – Heavy vehicles) (0 – Taxis)	263 vehicles

8.14.2 Expected Traffic Growth

There is currently construction work in progress at Medupi Power Station and this is not regarded as a normal traffic flow pattern. This traffic flow pattern will gradually be replaced with the normal traffic flow pattern associated with the day to day operations at the power station. The TIA thus analysed a 10 year horizon year and applied a 2% per annum background traffic growth for the purposes of the TIA.

8.14.3 Expected Trip Generation from Railway Yard

The railway yard is not a land use for which trip generation figures are available in the TMH 17 Volume 1, (2)South African trip Data Manual3 . Transnet provided the expected trip generation figures.

- Maximum of 100 staff (of these 5-10 staff will work during the night)
- Normal weekday day operations
- 600m^3 of diesel required for diesel locomotives (delivered by road)
- 260m^3 of water storage capacity (delivered by road)
- Maintenance to be done onsite

The worst case scenario from a traffic impact point of view is when the expected peak hour trip generation from the Railway Yards co-inside with that on the adjacent road network.

It is expected that some of the employees will make use of public transport, car pool and own transport. It is also expected that the majority of the staff will reside in the Lephalale and Marapong areas. Trips have therefore been assessed to and from these areas. The expected peak hour trip generation is detailed in Table 26.

Table 26: Expected peak hour trip generation

Peak hour	Transport Mode	Directional split (in/out)	Total number of trips	New trips In	New trips out
Morning (a.m.)	Minibus	50:50	4	2	2
	Own vehicle (Occupancy 2)	75:25	17	13	4
	Own vehicle (Occupancy 2)	75:25	34	26	8
Total			**55**	**41**	**14**
Afternoon (p.m.)	Minibus	50:50	4	2	2
	Own vehicle (Occupancy 2)	25:75	17	4	13
	Own vehicle (Occupancy 2)	25:75	34	8	26
Total			**55**	**14**	**41**

Other trips to be generated:

Diesel: 200 000 litres per day, 4 trucks per day to site
Water: 120 000 litres per day, 4 trucks per day to site
Sewer: 1 truck per day to site
Maintenance: 2 trucks per day to site
Daily trips:
Normal day to day trips outside peak traffic hours, we work on an estimate of 20% of the daily trips occurring during peak hours, (55 trips x 2)/0.4 = 275 trips during the day. The off peak trips 275 - 110 = 165 will have a 50:50 directional split.

These will all be new trips.

8.14.4 Level of Service (LoS) of affected intersections

To analyse the operating conductions of intersections affected by the development the current level of service (LOS) needs to be determined. The operating conditions of the various intersections were determined using PVT VISTRO. The measure of performance according to the Highway Capacity Manual (HCM) Sixth Edition (2010) is total delay and the best service level is A which indicates free flow conditions while F indicates congestion and jammed conditions.

Acceptable levels of service for normal and abnormal days		
Area/Road Class	**Normal days**	**Abnormal days**
Urban Road	LOS D	LOS E
Rural Class 3-5	LOS C	LOS D
Rural Class 1-2	LOS B	LOS C

To determine the LOS of the affected intersections the TIA took into consideration the expected traffic growth demand on the affected road system over a 10 year period. The LOS is thus presented in 4 different scenarios namely:

1. 2019 Existing am and pm background traffic
2. 2029 expected am and pm traffic with 2%/annum background traffic growth
3. 2021 am and pm traffic with a 2%/annum background traffic growth and expected traffic demand from the railway yard expansion
4. 2029 am and pm traffic demand with 2%/annum traffic growth and expected traffic demand from the railway yard expansion

The results of the Intersection capacity analysis for the four scenarios are detailed in Table 26.

Table 27: Intersection analysis summary for Scenarios 1-4 for a.m. and p.m. peak traffic

Intersection	Scenario	Control Type	a.m. LOS	P.m. LOS	LOS With mitigation (upgrades)
SCENARIO 1: Status Quo					
D2001 & D1675	1	All-way stop	F	F	A: signalised (a.m.) B: signalised (p.m.)
D1675 & D2649	1	All-way stop	F	F	A: signalised
D2649 & Access Road	1	All-way stop	A	A	A
SCENARIO 2: Upgrades in Scenario 1 is applied					
D2001 & D1675	2	Signalised	A	C	None required
D1675 & D2649	2	Signalised	A	A	None required
D2649 & Access Road	2	All-way stop	A	A	None required
With the proposed upgrades under Scenario 1, the intersections continue to operate at acceptable levels of service during both peak hours.					
SCENARIO 3: The upgrades in Scenario 1 are applied and 60m passing lane on Road D2649 where intersects with railway yard access road (upgrade to provincial design standard)					
D2001 & D1675	3	Signalised	A	B	None required
D1675 & D2649	3	Signalised	A	A	None required
D2649 & Access Road	3	All-way stop	A	A	None required
With the proposed upgrades, the intersections continue to operate at acceptable levels of service during both peak hours.					
SCENARIO 4: Upgrades in Scenario 1 is applied					
D2001 & D1675	4	All-way stop	A	C	None required
D1675 & D2649	4	All-way stop	A	A	None required
D2649 & Access Road	4	All-way stop	A	A	None required

For Scenario 1 the two main intersections cannot operate at acceptable levels of service during both peak hours. The following upgrades are proposed:

Intersection: D2001 & D1675

- Traffic signal;
- Extend 60m left-slip lane to 120m (D2001);
- Additional 60m right-turn lane on south-western approach to allow for double right-turn; and
- Additional 60m through-lane on north-western approach (D2001).

Intersection: D1675 & D2649

- Traffic signal;
- additional 60m through lane on eastern approach; and
- Additional 60m through lane on western approach.

8.14.5 Traffic Increase on Railway Yard access road

A total number of 297 trips per day are expected along the existing gravel access road of which 56 trips are estimated to be truck trips. Based on these traffic volumes upgrading the access road is proposed from Afguns Road (D2649) to the railway yard. Access control is envisaged for the railway yard.

Mr Hendrie Hills requested that access control should be implemented near Afguns Road (D2649). This was considered during the TIA and it is noted that the existing service road is also used by the surrounding farms and access will therefore not only be limited to Transnet employees. If access control is implemented the following is proposed for the access control point:

- Option 1: Guardhouse in the middle separating lanes within in and outbound lanes of >4.5m wide with 100m (due to geometry of the road ±150m) spacing from D2649:

- Option 2: Guardhouse on the side of the road with in and outbound lanes of >3.7m wide with 100m (due to geometry of the road ±150m) spacing from D2649:

8.14.6 Road Updgrades required for Railway Yard expansion

Road upgrades and traffic control improvements are already required at the D2001 & D1675 and D1675 & D2649 intersections analysed without the added traffic from the project. These upgrades are thus not related to the planned railway yard and it's associated additional traffic demand. See Section 8.14.4 for the proposed upgrades for these intersections.

The implementation of the access road and associated upgrade of the intersection on Road D2649 serves the railway yard with access and is not seen as a mitigation measure from a traffic impact point of view.

Upgrades required to the intersection include a 60m passing lane on Road D2649. The TIA has considered two alignments for the access road:

3. Existing gravel road alignment, with lane widening around curves with access control point 150m from D 2649;
4. Re-alignment of first part of access road to remove sharp curves and lane widening around curves. If required an access control point can be located at 100m from Road D2649. From a geometric point of view this option is preferred.

Transnet indicated a site visit on 12 February 2019 that they are planning the upgrade of the access road from the Afguns Road (D2649) to the railway yard. This will be necessary to carry the project's estimated traffic volumes (±297 vehicles/day).

8.15 Cultural, Heritage and Palaeontological Landscape

Millenium Heritage Consultants CC, Eric Mathotho conducted a Heritage Impact Assessment for the project site which was included as part of the draft and final Scoping Report. The findings of the report states that generally, this area is known for sparsely distribution of archaeological sites, ranging from Khoi- San rock art, Iron Age and recent past periods including burial sites (Huffman 2007). No evidence of archaeological materials remains were recorded on the proposed railway yard. There is no indication of graves or burial sites within the proposed area. The results were submitted to SAHRA during November 2018.

SAHRA commented on 31 January 2019 and requested that a desktop Palaeontological Assessment be conducted as part of the HIA since the project is located in a moderately palaeontological sensitive zone as per the SAHRIS palaeo-map. Palaeontological heritage is protected in terms of the NHRA. According to this act, heritage resources may not be excavated, damaged, destroyed or otherwise impacted by any development without prior assessment and without a permit from the relevant heritage resources authority

In response Dr JF Durand from Millennium Heritage Group (Pty) Ltd conducted a desk PIA Study for the project during April 2019. Refer to Volume 2 Appendix 2J for the HIA and PIA which informs this section.

A Palaeontological Study details the probability of finding fossils in the study area and whether, there are indeed fossils, what the impact of the railway activities will be on the fossils and fossil sites. The PIA involved an overview of the literature on the palaeontology and associated geology of the study area.

According to the study the Kheisian-aged Mogalakwena Formation of the Waterberg Group outcrops in the southern half of the study site while the northern half of the study site is largely covered by Quaternary-aged sands and sandy soils.

Permian to Triassic-aged rocks of the Karoo Supergroup outcrop along the northern limit of the study site. The Grootgeluk Formation is considered to have a Very High Palaeontological Sensitivity, while the rocks of the Eendrachtspan Formation are considered to have a Moderate Palaeontological Sensitivity. None of the sites earmarked for development falls within the area with Very High Palaeontological Sensitivity. The areas where development will occur fall within areas that are identified as having a Moderate Sensitivity rating. See Section 7 of the PIA.

Although fossils are scarce in the Quaternary sand and sandy soils, the possibility of finding any in the study area should not be dismissed. In fact, the paucity of fossils in this particular area increases the importance of preserving any fossil that will aid in understanding the sedimentology and chronostratigraphy of the Quaternary sediments in this area.

An Environmental Control Officer (ECO) should take responsibility of monitoring the excavations and development onsite. If a significant find is made the procedure stipulated under
Procedure for Chance Palaeontological Finds should be followed which includes the safeguarding of the exposed fossils and the contacting of a palaeontologist for further advice.

The PIA Study has been submitted to SAHRA for decision making and the decision will be consequently be submitted to DEA.

8.16 Socio-Economic Environment

Equispectives Research & Consulting Services prepared a Social Impact Assessment Study for the project. Information included in this section has been abstracted from the SIA Report attached under Volume 2 Appendix 2K to the EIR.

The purpose of the SIA is to provide a baseline description of the receiving socio-economic environment and to identify social and economic impacts for the proposed Lephalale Railway Yard and to suggest ways in which these impacts can be mitigated and managed

The project is located in Ward 3 of the LLM that is located in the WRD in the Limpopo Province. The Waterberg region is regarded as a strategic growth node for various activities within the Mining and Minerals sectors. The proposed site is located approximately 30 km west of the town of Lephalale, in the rural area of Steenbokpan.

The main economic sectors are mining, agriculture and tourism. Mining, electricity generation and agriculture are the greatest contributors to the area's GDP (IDP 2018/2019). Agriculture is the sector that employs the largest part of the workforce, followed by community services. Tourism forms an important part of the economy of the area and is a potential future growth area. Hunting and ecotourism are the main tourism activities. The Waterberg coal fields that are located in Lephalale contain more than 40% of the total coal reserves of South Africa.

Ward 3

Population: Over two thirds of the population in Ward 3 belongs to Black population groups (68.4%) and a quarter to White population (28.6%). Ward 3 has a lower proportion of people belonging to the Black population group than on local or district level.

The average age in Ward 3 is 30.66 years. The majority of people in the ward are aged 25 – 34 years (23.1%), followed by 15 – 24 years (22.4%) and 35 – 49 years (20.6%).

Dependency ratio: Ward 3 has a total dependency ratio of 27.77, youth dependency of 22.85, aged dependency of 4.92 and employed dependency of 49.07 which is much lower than the local, district or provincial level. The low employed dependency (people dependent on people who are employed) is likely to the high incidence of farms in the ward where people reside at their place of employment with at least one household member being employed and the high incidence of urban areas in the ward.

Gender Distribution: The gender distribution in Ward 3 consists of 55.5% males and 44.5 % females. This can most likely be attributed towards economic and employment activities in the area such as mining, construction and agriculture that tends to favour males.

Language: Afrikaans is the home language of almost a third of the population in Ward 3, while almost a quarter has Setswana as home language. Almost a fifth of the population on Ward 3 has Sepedi as home language. The language profile in Ward 3 is very different from the profiles on local, district or provincial level where more than half of the population has Sepedi as home language.

Education Level: About a fifth of the people in Ward 3 aged 20 years or older have completed an education higher than Grade 12, which is much higher than on local, district or provincial level. Just over half of the population in the Ward has not completed secondary schooling (Grade 12 or equivalent). This is a lower proportion than on local, district or provincial level.

Employment: About two thirds of people aged between 15 -65 years in Ward 3 are employed, more than 70% of this group being employed in the formal sector. The level of employment on ward level is much higher than on local, district or provincial level.

Annual Household Income: The lowest proportion of people with no annual household income is on ward level. Less than 50% of households in Ward 3 had an annual household income of R38 201 in 2011. The Food Poverty Line (FPL)[9] for Limpopo Province is R 338/capita/month for 2011. The FPL is one of three poverty lines, the others being the upper bound poverty line (UBPL) and the lower bound poverty line (LBPL). The LBPL and UBPL both include a non-food component.

Individuals at the LBPL do not have enough resources to consumer or purchase both adequate food and non-food items and are forced to sacrifice food to obtain essential non-food items, while individuals at the UBPL can purchase both adequate food and non-food items. The LBPL for the Limpopo Province was R485 per capita per month in 2011 and the UBPL R627 per capita per month respectively. Based on this, a household with four members needed an annual household income of approximately R17 000 in 2011 to be just above the FPL.

Housing: Ward 3 has both the largest proportion households that live in urban areas (56.8%) and that live on farms (43.2%). Although the majority of Ward 3 covers farms, a part of Onverwacht is included in the ward. No areas in Ward 3 are classified as traditional residential. More than three quarters of households in Ward 3 live in houses or brick structures on separate stands or yards, with informal dwellings the second most used dwelling type. Household renting in Ward 3 is higher than on local, district or provincial level owed to mining and construction activities in the area. Just over a fifth of households on ward level have indicated that they occupy their dwellings rent-free. These households consist most likely of farm workers and households living in informal dwellings. Two thirds of the households consist of only one or two members likely attributed to mining and construction activities in the area that attract migrant workers.

Access to Basic Services: Two thirds of the households in Ward 3 get their water from a regional or local water scheme, the rest get their water from a borehole. 60% of households have access to piped water inside their dwellings, while about a third of the households have access to piped water inside their yards. 85% of households in the ward have access to electricity for lighting purposes. More than two thirds of households have access to flush toilets that is either connected to a sewerage system.

Despite the apparent increase in economic activity in the area, levels of poverty have increased. Potential reasons for this are that the people who migrated to the area by far outnumber the available employment opportunities, or that contract workers who are only in the area for a relatively short period of time start families, which they leave behind when they move to the next contract, and the family that stays behind then struggles without their financial contribution. Another possible reason is price increases due to a high demand for certain items.

The majority of the population in the municipality belong to the Black population group, but in the ward there are a high proportion of people belonging to the White population group. This suggests that the ward is culturally more diverse than the municipal area as a whole. People in the ward tend to be older, and as such can be expected to be in a different life stage than the average municipal resident. The main languages spoken in the ward are Afrikaans, Setswana and Sepedi, making the ward culturally different from the municipal area.

[9] FPL is the Rand value below which individuals are unable to purchase or consume enough food to supply them with the minimum per-capita-per-day energy requirement for good health

Education levels on ward level are higher than on municipal level and unemployment levels are lower. The household income level on ward level is higher than on municipal level and suggests a greater variety of skills levels. There is a high demand for rented accommodation, and this is supported by the relatively high proportion of households that rent their dwellings as well as the high incidence of informal dwellings (in backyards and informal settlements) on municipal and ward level.

8.16.1 Stakeholder Groups affected by the project

- Limpopo Provincial Government
- Waterberg District Municipality
- Lephalale Local Municipality
- Ward 3 Councillor and Ward Committee
- Lephalale community
- Marapong community
- Steenbokpan (Lesedi Community)
- Waterberg Environmental Justice Forum
- Resgen Boikarabelo Coal Mine (Resgen Rail link)
- Eskom (Medupi Power Station, existing power line infrastructure)
- Lephalale Development forum
- Lephalale Business Chamber
- Other mining companies (Grootgeluk Exxaro Coal Mine, current coal mining applications etc)
- Directly affected commercial game farms
- Neighbouring commercial game farms
- Farm workers
- Transnet (existing Waterberg Rail corridor)

Local authority Ward Councillor
The project is located in Ward 3 of LLM which includes Steenbokpan and the rural areas. The councillor resides in Lephalale and is represented by ward committee members in Steenbokpan. Tension exists in the communities, owed to rivalry for jobs and scarce resources resulting in strikes and protests about job opportunities, xenophobic incidents and conflict about political power when it comes to sharing of information about potential economic opportunities. There have been a number of violent strikes in Lephalale in the last five years related to wage negotiations, job losses, working conditions, service delivery, employment policies and bonuses amongst others. These strikes are present in all commercial sectors, ranging from retail to industrial

Civil Society
The project will affect the areas of Lephalale town, Marapong and Steenbokpan. There is also an active civil rights group in the area named the Waterberg Environmental Justice Forum. The geographical area where the Transnet Lephalale Railyard is situated has been exposed to intensive development in the past decades. The construction of the Medupi Power Station caused a significant influx of people in the area, with approximately 18 000 construction workers at the peak of construction. That number has been steadily decreasing, with an estimated number of 7 000 workers remaining in December 2018. Apart from this development, there were also other developments taking place in the area, such as the construction of the water pipeline associated with the Mokolo Crocodile Water Augmentation Project, the Biokarabelo Mine, numerous power lines and the expansion of the Grootegeluk Mine, amongst others.

Surrounding Communities

Lephalale is area is currently in a bust phase with fewer opportunities due to the downscaling of current construction projects. It is likely that most of the workforce will reside in Lephalale or Marapong. These towns should be able to accommodate the workforce during the operational phase of the project, and it is anticipated that most of the jobs could be done by local residents.

There are a high number of unskilled workers in Marapong, but also skilled workers that did contract work on the development projects in the area. It is not anticipated that the proposed expansion of the Lephalale Railway yard will have a major impact on the residents of Lephalale or Marapong. The biggest potential impact is the creation of additional traffic on the already busy intersection of the Afguns road and Mandela road. There is also an expectation that most of the unskilled labour should be sourced from Marapong.

Steenbokpan is a small rural settlement approximately 45km from Lephalale. 80-90% of the residents are unskilled. It is a peaceful community, with community unrest only taking place when there is competition for work. There are historic issues with the development taking place in the area, and the community feels as if the impact of this development on the community is not recognised, although the cumulative impacts on the community are significant. The community of Steenbokpan feels as if they had been lied to in terms of the benefits of development. According to the Steenbokpan community they receive little recognition from the municipality. There is also some political tension, since Steenbokpan falls within Ward 3, which belongs to the Democratic Alliance (DA), whilst the municipality is governed by the African National Congress (ANC). During March to September, the traditional hunting season, there are more opportunities available and the number of employed people increase. Most of the people in the community have skills related to the hunting industry and farm work. The majority of people speak Setswana. The Steenbokpan community is approximately 17km south west of the project site as the crow flies, but it is much further by road, as there is not a direct link road between the Lephalale Railway Yard and Steenbokpan. There are high expectations amongst the residents of Steenbokpan about job opportunities related to the expansion of the Lephalale Railway Yard, especially because the development falls within their ward. It must be recognised that expectations of the Steenbokpan community have not been managed in the past, and that this has been the cause of discontent in the community. The community is overwhelmed with information about all the different potential projects, and this is causing confusion and disgruntlement. The community struggles to differentiate between the different projects and proponents active in the area.

Civil Society Forums

Due to the turbulent socio-political environment in Lephalale, there are a few active civil society forums that engage with social and environmental justice issues. The two most prominent forums are the Lephalale Community Justice Movement (LCJM) and the Waterberg Environmental Justice Forum (WEJF). LCMJ focus is on jobs, business development and training. The WEJF is a community-based organisation that focuses on environmental rights, education and awareness within the Waterberg Region. Both these organisations are a-political but engage in activist behaviour when they feel that environmental or social rights are impinged. Steenbokpan also has a community forum.

Business and Industry

Resgen Boikarabelo mine is an open-cut coal mine being developed in the Waterberg coalfield, north east of Lephalale. Production is to start first quarter of 2019. Resgen is currently constructing a 36 km rail link next to and from the existing Lephalale-Thabazimbi railway track to its Resgen Plant. The rail link was approved in 2012 by LEDET as part of the Boikarabelo Coal Mine Environmental Assessment. Transnet will augment the existing Transnet infrastructure and Resgen rail link holding

yard with the development of the Lephalale Railway Yard to accommodate a further 100 train wagons to increase load and capacity. The construction of the Resgen rail link has been reported to be challenging due to community protests about the recruitment process that was not perceived as fair and transparent by the community. Due to the competition for jobs, community members were opposed to re-hiring people, and wanted to involved new people. Taking into account that all workers need to undergo training and health and safety screening, this added significant time and cost restraints. The conflict between the communities and the municipality about local investment exacerbate the labour issues.

Medupi Power Station is one of two Eskom-owned power stations in the Lephalale area. Medupi is a direct neighbour of one of the two directly affected farmers, and as such this farmer is already subjected to impacts such as run-off water, coal dust, noise and power lines that emanate from Medupi.

The 22kV Theunispan Stockpoort line runs south of the existing railway yard. Transnet will need to accommodate this line in the design of the railway yard, since relocation of the line will not be feasible due to the significant cost associated with the relocation. Transnet is also seeking an alternative site for Borrow Area 1 further away from the Medupi Spitskop 1400kV power line to avoid any impact on the servitude.

The Lephalale Business Chamber (LBC) is one of the more active Chambers in the area. The LBC sees the development of local businesses as key to building the local economy. Local procurement, skills development and good communication are essential considerations for any new project proponent entering the area.

The Lephalale Development Forum (LDF) currently identifies and facilitates projects that benefit the Lephalale community. It consist of five working groups that address issues such as local economic development, infrastructure and housing needs, social needs and challenges, labour- and skills development requirements, and environmental sustainability challenges. The LDF is an important stakeholder in the Transnet Lephalale Railway Yard project, as it can act as a liaison organisation. The LDF has access to a local technical training facility, and if the skills that will be required for the construction and operation of the yard are known, it can assist with developing the required skills to coincide with the implementation of the project.

Apart from Resgen, a number of mining companies are present in the area, either through active mining, mining rights or prospecting rights. Companies known to be in the area are Exxaro, Sasol, Anglo, Sekoko Coal, Platinum Group Metals, Gleneagles Gold Ltd, Vuselela Mining and Nozala Coal. There is therefore significant potential for cumulative impacts once all these mines become operational.

Farmers

The existing Lephalale Railway Yard is situated in a rural game farming area. There are two farmers whom will be directly affected by the proposed expansion of the railway yard. The affected farms belong to Mr Tjaart Sauer, and Mr Hendri Hills. No land needs to be acquired from Mr Sauer, but approximately 22 hectares must be acquired from Mr Hills. Both of the borrow pits are planned on Mr Hill's property. Neither Mr Sauer nor Mr Hills live on the properties. Mr Hill has a farm manager that resides on the property. Mr Sauer's mother visits the farm almost on a daily basis to ensure that everything on the farm is taken care of.

Mr Sauer uses his farm for game breeding and hunting. The farm provides a livelihood to Mr Sauer and his mother. They are concerned that there may be an increase in poaching due to the presence of

more people in the area during the construction and operation of the expanded railway yard. They also have concerns about the impact of the noise on the breeding habits and movement patterns of their game. The farm is used for commercial hunting, and Mr Sauer has several concerns about the impact of the expansion of the yard on their hunting activities. Firstly there is a concern about the safety of people moving around the railway yard during hunting season, and the probability of them being shot, and secondly they are concerned about the impact of more industrial activities on the sense of place. Hunters want to experience a quiet bush environment, and noise and construction activities do not contribute to such an environment. Giving that hunting is their main source of income, the Sauer's are concerned about the impact on their livelihoods. Other concerns about safety include potential theft or poaching, .and the physical safety of the people on the farm.

Mr Hill farms with game such as buffalo, sable, nyalas and kudu. He also breeds with exotic game such as golden wildebeest and black impala. The farm is approximately 5 800 hectares, which was bought and build up over the past 30 years to build a unit. It shares a border with Medupi power station. Mr Hills see it as his legacy to his children, who hope to make a living from the farm in the future (next 10 years). Apart from the breeding activities, the farm is also used for hunting, which takes place right through the year. Veterinarians visit the farm and give educational tours to children. There are two hunting lodges on the farm, one can host 16 people, and the other 27 people. The hunting lodges are popular with tourists, and are booked out during school holidays, and about 25 -30 weekends each year. People who do not hunt also use the facilities. The smaller hunting lodge is about 1.8km from the railway line, and the larger lodge about 2.4 km. The house of Mr Hills' farm manager is about 837m from the existing railway yard. There are also four holding pens for game on the farm. The game is transported from these pens once it is sold. The income generated by the hunting lodges and holding pens are the primary source of income of the farm.

There are already servitudes for water, electricity and rail running across the property. Some of the concerns that Mr Hills has include the economic impact on his property and livelihood, the safety of game and people, the impact of noise on animals and people, access control, impact of construction on existing infrastructure such as boreholes, electricity cables and water pipes, industrial action (strikes) from Transnet employees, dust, lights at night and access across the railway, since the farm is on both sides of the existing line.

Given the proximity of the railway yard and the distance between the yard and the neighbouring properties, it is unlikely that these properties will be affected by the proposed development. Their main concerns are noise, light at night and safety.

There are eight permanent farm workers living on Mr Hills' property. They have been living there for an extended period of time. During peak times Mr Hills bring workers from his other farm near Brits to assist with the workload.

Transnet

Transnet is also a key stakeholder. There are high levels of expectations about job creation and social investment from the communities of Marapong and Steenbokpan. Transnet will need to manage these expectations. It will also need to implement mitigation measures to ensure that the impacts of the proposed development are mitigated and managed. Given the location of the development, Transnet need to invest in relationships with the directly affected land owners to ensure good communication and the quick resolution of any issues that may arise.

8.16.1.1.1 Impact of Community expectations

Communities resort to violent protests if they feel that they are not being heard. This was the case with Resgen Boikarabelo Coal Mine. There is a risk that lives can be in endangered and property damaged during these protests, and Transnet should have emergency procedures in place should there be protests of this nature. Through their actions, communities can potentially cause significant delays in the construction phase, and also cause shutdowns in the operational phase of the project. Given that the railway yard will share an access road with some land owners, there is a possibility that innocent people may end up in an unsafe situation, and emergency procedures should be in place to deal with these situations, should it arise.

Although some of the community expectations are realistic, the extent to which Transnet can meet the some of the expectations are limited. The expectations include that Transnet provide skills development and training to prepare the community for new business opportunities, investing in a secondary school for Steenbokpan, donating sports equipment, employ more local people, give bursaries to local people, sending people to training centres and ensuring people get opportunities to get work experience. Unless the expectations of the community are managed carefully, this impact may pose a significant risk to Transnet, on different levels.

8.16.1.1.2 Impact on Sense and Spirit of Place

The surrounding farms are used for game breeding, tourism and hunting. The current residents and farm owners have a strong sense of place[10] associated with the farms. Part of the sense of place is the emotional attachment that the farmers have to their properties, and the hopes that they have for it to serve future generations (their children).

The spirit of place[11] associated with an area is an important factor in tourism and hunting and the marketing of these activities. Aspects that will impact on the sense and spirit of place include an increased noise levels from trains stopping and starting, airbrakes, shunting, whistles and maintenance activities. Visual impacts such as more railway lines, buildings and light at night will also impact on the sense and spirit of place. The sense of place will be altered permanently and successful mitigation will be challenging.

8.16.1.1.3 Economic Impacts

50 and 80 job opportunities will be created during construction and between 50 – 100 during the operational phase. During construction unskilled labour will be required and during operation permanent skilled labour as detailed under Section 4.11 of this report. There will be no construction camp, Transnet aim to employ local people as far as possible. Transnet will provide transport for the construction workers. Permanent skilled construction staff that does not live locally will stay in local guest houses. During operation Transnet intends to find local people to fill positions as far as possible.

[10] Sense of place refers to an individual's personal relationship with his/her local environment, both social and natural, which the individual experiences in his/her everyday daily life (Vanclay et al, 2015). It is highly personal, and once it is affected, it cannot be restored. It is also difficult to quantify.

[11] Spirit of place refers to the unique, distinctive and cherished aspects of a place. Whereas 'sense of place' is the personal feelings an individual has about a place, spirit of place refers the inherent characteristics of the place (Vanclay et al, 2015).

Apart from the direct economic impacts of the proposed project, there will also be secondary economic opportunities that can potentially benefit local service providers. Opportunities include transport, domestic services, catering, security and fencing amongst others. The use of local service providers will ensure that the local economy benefits directly from the proposed project.

8.16.1.1.4 Impacts on livelihoods of farmers

Affected landowners include Mr Hills and Tjaart Sauer.

Mr Hills uses his property for game breeding, hunting and tourism. Two of his holding pens, a breeding camp, a lodge (Zandnek) and the manager's house are in close proximity of the development. There is a concern that the expansion of the railway yard will have a negative impact on the hunting activities on the farm. The permanent presence of people in the area would mean that no hunting can be done in the vicinity of the railway yard due to safety concerns. This will limit the area available to hunt in. This concern is shared by Mr Sauer, who will lose a small portion of the area available for hunting on his farm because his property is next to the existing railway yard that will now be extended.

It is evident that a game pen (Pen 2) close to the expanded railway yard would be detrimental to the health and wellbeing of the game, and should the project proceed, this game pen should be relocated to a more suitable area. There is also a borehole that falls in the project area which would need to be relocated.

A second game pen (Pen 3) adjacent to a breeding camp and close to the Zandnek Lodge and farm manager's house may also be affected by the proposed expansion of the railway yard. The main concerns are the visual and noise impacts. The noise will impact on these receptors, but the impact is classified as medium (Van der Merwe, 2019).

The permanent residents will get used to the railway yard noise, but it will have a negative impact on tourists that visit the farm in terms of spirit of place. Tourists on hunting safaris or breaks may find the noises offensive, having a knock-on effect on tourism potential of the farm.

Non hunting visitors can be accommodated in the lodge away from the railway yard noises yet hunters move around the farm. Game breeding and the tourism lodges are the main economic activities on the farm. The proposed expansion of the Lephalale railway yard will have a negative economic impact on the livelihood activities that are currently sustaining the farms.

Some of the impacts can be mitigated by moving infrastructure around, but the direct financial impacts due to loss of revenue from hunting and tourism would need to be determined through a claims procedure that shows the actual losses. For this process actual numbers of hunters and tourists that visit the properties and the associated income from these streams must be known for at least a three-year period before the development commences. This can then be compared to numbers after the project has started. The information must be documented and audited. It must also be considered that the economic conditions in the country and other external factors can affect these numbers, as tourist and hunters are less likely to spend their money on recreational activities when the economy is down.

Part of Mr Hills' farm Geelhoutkloof has been declared as the Koedoe Nature Reserve. Should the project proceed, Transnet must negotiate with Mr Hills to apply for the boundaries of the nature reserve to be amended.

Due to the way in which the road system on the farm works, the area where the current railway yard is situated is used as a crossing to access different areas within the property. Land on both sides of the railway line belong to Mr Hills. If they cannot use this crossing, it would mean that they need to drive extra kilometres to access parts of the property. The current servitude is also used as an access route to town by the farm manager's family.

Mr Hills does not only use the farm as a livelihood source now, he also sees it as an investment in the future livelihoods of his children. At least two of his children's future career paths are directly linked to the farm. He is concerned that the proposed expansion of the railway yard will have a negative impact on the ability of his children to make a living from the farm.

The mitigation of the impacts on the farmer's livelihoods is not a simple matter, partially due to the fact that it is difficult to quantify and because there is an emotional component to it. It must be acknowledged that Transnet should enter into direct negotiations with the affected farmers and that it may take some time for the parties to agree on the most appropriate mitigation, therefore the mitigation suggested in this report aim to guide this process.

8.16.1.1.5 Safety Impacts

Safety and security is a big concern of all of the affected landowners. The current socio-economic and political conditions in South Africa are such that people living in isolated areas such as farms are extremely vulnerable to crime and violence.

- The project will introduce unfamiliar people into the area who will be able to share current conditions with outsiders or opportunistic criminals.
- There is also a risk that there may be an increase in poaching. All the farms adjacent to the railway yard are game farms. Poaching can be done through snares in the fences, or people cutting the fences and entering the properties.
- Given the location of the railway yard, there is a risk of poisonous snakes entering the areas where people work;
- Given the socio-political tension in the area, there is a risk for strikes at the construction site, or during the operation of the railway yard. Access to the site is via the Afguns road on dirt roads that passes through Mr Hills' farms. It would therefore be easy to block access to the site by blocking one of these roads. The farm owners and tenants make use of these roads to access their homes and to access town quicker.
- Hunting activities taking place on adjacent farms are a safety concern. With people permanently stationed on the railway yard, there is a risk that they may be in danger from stray bullets or hunting accidents. High calibre guns are used for hunting, especially for bigger game.

8.16.1.1.6 Impacts on infrastructure

There will be a significant increase in traffic along Mandela Drive and Afguns road during the operation phase of the railway yard. The road that turns from the Afguns road is a dirt road. The affected farmers are concerned about the quality of the road, especially in the rainy season if it will be used by heavy vehicles. In addition, the vehicles will create dust that will settle on the plants adjacent the road, making it unpalatable for the game to eat. This access road is also used by the people living on the farms to access town on a daily basis.

SECTION G: PUBLIC PARTICIPATION PROCESS

9 PUBLIC PARTICIPATION PROCESS

The Public Participation Process forms the corner stone for detailing the EIR. The process identifies potential I&APs on the project and solicits inputs and comments pertaining to the matter/activity proposed from such parties. Public Participation allows the public to contribute to the project and provides for better decision making by collective inputs from stakeholders, organs of state and specialists. In terms of the EIA Regulations 2014 (GNR. 326), Appendix 3 (h) (ii), an EIR must contain details of the public participation process undertaken for the project.

The public participation process is conducted in accordance to Regulation 41 to 44 of Government Notice R326 of the NEMA Regulations. The process provides the public access to necessary information on the project throughout the scoping and EIA phase of the study. It is provides sufficient, transparent and accessible information to I&APs in an objective manner in a phased approached as per the EIA process conducted. The objectives are outlined per phase below.

Table 28: Objective of consultation during different phases of the EIA Process

Scoping Phase	Impact Assessment Phase (WE ARE HERE)	Decision Making Phase
▪ Provide comments and inputs; ▪ Verify that issues have been recorded ▪ Assist in identifying reasonable alternatives ▪ Contribute local information and knowledge to help identify environmental impacts	▪ Contribute information and local knowledge to the impact assessment ▪ Verify that issues have been considered in the Environmental Impact Report & EMPr ▪ Comment on the findings of the Environmental Impact Report	Provide I&APs with the outcome of the environmental authorisation (DEA decision), how the decision can be appealed

9.1 Public Participation Process followed

The public participation process identifies potential interested and affected parties (I&APs) on the project and solicits inputs and comments pertaining to the activities from such parties. This section summarises the public participation process followed during the Scoping and EIA Phase of the EIA study.

The Scoping Phase public engagement commenced on 23 July 2018 and lapsed on 5 December 2018. From 23 July to 28 August 2018 I&APs and organs of state were provided the opportunity to register on the project database and review the available project Background Information Document (BID). Next, the draft Scoping Report (DSR) was made available for public review and comment from 29 October until 5 December 2018. A public meeting took place on 13 November 2018 to facilitate comments on the DSR as well as a focus group meeting with the landowner of farm

Geelhoutkoof 359LQ on 26 November 2018. The results of the public engagements were incorporated into the Final Scoping Report and submitted to DEA on 10 January 2019.

Whilst the Final Scoping Report was under review by DEA a public meeting took place with the community of Lesedi at Steenbokpan on 13 February 2019. The Ward Committee members of the Lesedi Location requested Naledzi to present the project to the community. The results of the consultation tasks have been incorporated in the Environmental Impact Report. All public participation process proofs are attached to the report under Volume 3 of the EIR.

All the issues and responses have been recorded in an Issues and Response Report (IRR) which is provided as a standalone document to the EIR and is discussed in the below sections.

9.2 Identification and Registration of I&APs

What is an interested and affected party?

- Any party interested and or affected by the activity
- Organs of state who have jurisdiction in respect of the activity

In terms of Regulation 40, 41 -44 of the EIA Regulations of 2014 of NEMA the Environmental Assessment Practitioner (EAP) managing the application must:

1) Provide access to information to all information that reasonably has or may have the potential of influence any decision and must include consultation with-
    - The competent authority
    - Every state department that administers a law relating to a matter affecting the environment relevant to an application for environmental authorisation;
    - All organs of state which have jurisdiction in respect of the activity;
    - All potential, or, where relevant registered interested and affected parties
    - Registered landowners;
    - Occupiers of the proposed application site;
    - Person in control of the proposed application site;
    - Owners, persons and occupiers of land adjacent to the site where the activity is to be undertaken;
    - Municipal ward councillor for the project area, ratepayers organisation representing the community in the area;
    - Municipality in which jurisdiction the application falls;

As per the requirements of regulations an I&AP database was opened for the project and landowners, organs of state, occupiers of the land, adjacent land owners, local and district

authorities including organs of state were pre-identified and registered on the project database during the week of 16 – 20 July 2018.

A project announcement newspaper advertisement called for registration of I&APs from 23 July to 28 August 2018. A further registration period and opportunity to comment on the DSR was provided from 29 October to 5 December 2018. The draft EIR is currently available for comment from 17 May to 17 June 2019 and I&APs have further opportunity to register during the review period, obtain project information and submit comments. The I&APs Database was maintained and updated during the EIA Phase and will be updated again upon the lapse of the draft EIR public review period. ThE I&AP database is included in this draft EIR.

Project information notifications and documents for review forming part of the EIA process was distributed to registered I&APs only.

The I&AP Database is attached under Volume 3 **Appendix 3A**.

Key identified I&APs for the project include:

- Affected registered landowners (HJH Hills Boerdery, Enkeldraai Trust, Resgen South Africa)
- Land rights holders under lease agreements (Assis Pontes, Debbie Vermaak)
- Eskom SOC Limited (Eskom Generation – Medupi and Matimba power stations)
- Eskom Distribution : Limpopo Region
- Eskom Transmission
- Grootgeluk Exxaro Coal Mine
- Sekoko Coal Mine
- Boikarabelo Coal Mine (Resgen South Africa)
- Surrounding landowners (Taaiboschpan 320LQ, Nooitgedacht 514LQ, Mooipan 325LQ, Zyferbulk 324LQ, Steenbokpan)
- Lephalale Local Municipality
- Lephalale Local Municipality - Ward 3 Councillor
- Lesedi Community (Steenbokpan)
- Marapong Community
- Waterberg District Municipality
- Department of Environmental Affairs (Directorates: Environmental Impact Management; Trans-Frontier and Protected Areas Planning; and Biodiversity and Conservation Divisions)
- Limpopo Department of Economic Development, Environmental Tourism (Environmental Impact Management, Protected Areas and Biodiversity and Conservation Divisions)
- Department of Water and Sanitation
- Department of Mineral Resources: Limpopo Regional Office
- Limpopo Department of Rural Development and Land Reform
- Limpopo Department of Agriculture Forestry and Fisheries
- Limpopo Heritage Resources Agency
- South African Heritage Resources Agency
- Department of Agriculture: Limpopo Province
- Department of Agriculture: Waterberg District (Lephalale, Modimolle Offices)
- Department of Transport (National and Limpopo Province)
- Local Media (Mogol Pos)
- Lephalale Business Chamber

- Lephalale Development Forum
- Steenbokpan Safety and Security Forum
- Waterberg Environmental Justice Forum
- Lephalale Community Justice Forum
- Steenbokpan Farmers Association
- South African Civil Aviation Authority
- South African National Defence Force
- South African National Roads Agency
- Endangered Wildlife Trust
- Birdlife SA

The following methods were implemented to announce and notify Interested and Affected Parties about the project:

9.3 Consultation with Competent Authority, DEA

A Pre-Application Meeting was held with the DEA on 27 July 2018 to discuss the project scope, potential triggered listed activities, and information requirements for the EIA Process including confirmation on specialist studies required for the project. The minutes and attendance register is attached under Appendix 3B.

Further the application for EA was lodged to DEA on 5 November 2018 together with the DSR for review and comment. DEA issued a reference number (14/12/16/3/3/2/1116) for the project and submitted inputs on the DSR on 5 December 2018. The DEA's DSR inputs are attached under Appendix 3C.

The Final Scoping Report was submitted to DEA on 10 January 2019 and subsequently approved on 19 February 2019. Please refer to Volume 1 Appendix 1A for the DEA FSR Approval.

This draft EIR and EMPr is also submitted to DEA for comments. Comments received from DEA during the public review period will be incorporated and addressed in the final EIR and submitted by 6 June 2019. Since the public review period on the EIR continues till 17 June 2019, Naledzi will submit the available EIR and public comments recorded up to 5 June 2019 to DEA by 6 June 2019. An updated EIR inclusive of all the public comments received until 17 June 2019 will be submitted to DEA by 27 June 2019.

9.4 Notification of EIA Process

The opportunity to participate in the Scoping and EIA study and register as an interested and affected party was announced on 20 July 2018. It called for the registration of I&APs from 23 July to 28 August 2018. A further registration period and opportunity to review and comment on the DSR was provided from 29 October to 5 December 2018. Another opportunity to register and comment on the project is provided from 17 May 2019 to 17 June 2019.

- **Newspaper advertisement**

A newspaper advertisement announcing the start of the Scoping & EIA Process, the availability of the BID and inviting the public to register on the I&AP database was placed in the Mogol Post on 20 July 2019. A second notice was issued in the Mogol Post on 26 October 2019 to announce the availability of the draft Scoping Report and scheduled public meetings. (See Appendix 3D for the

Mogol Post Tear Sheets). A third notice has now been issued in the Mogol Post of 17 May 2019 to announce the draft EIR and EMPr availability and scheduled public meetings.

Since social media has become a more popular news source than traditional sources, social media notifications regarding the availability of the DSR for public review and two scheduled public meetings were placed on the 'Ellisras Saampraat' Facebook page on 2 November 2018, the proof of social media notification is also included under Appendix 3D.

- **Site Notices**

Site notices were erected in the project area on 20 July 2018 at the following venues:

- Lephalale Square, Pick and Pay along Nelson Mandela Drive
- Lephalale Mall, Checkers along Nelson Mandela Drive
- Lephalale Public Library (Douwater Road)
- Lephalale Local Municipality – Rates & Taxes Pay Point (c/o Dagbreek & Douwater Road)
- Lephalale Superspar (Dagbreek Road)
- Marapong Public Library (Phukubye Street)
- Marapong Superspar
- Gravel road entry point from Afguns Road
- Entry point to Transnet Servitude road along existing Lephalale/Thabazimbi single railway line
- Farm Gate at entry point to farm Buffelsjagt
- Farm Gate at entry point to farm Kringgatspruit
- Confluence of farm gate entry points to farms Taaiboschpan and Enkeldraai

A second set of notices announcing the DSR for public review were placed on 29 October 2019 at the following venues:

- Lephalale Public Library (Douwater Road)
- Lephalale Local Municipality (Rates & Taxes Pay Point)
- Lephalale Superspar (Dagbreek Road)
- Marapong Public Library (Phukubye Street)
- Marapong Superspar;
- Lesedi Thusong Multipurpose Centre, Steenbokpan
- Bushveld Pub & Grill, Steenbokpan

Photographs were taken of the site notices placed in the area on both 20 July and 29 October 2018. (Appendix 3E – Proof of Onsite notice placement). Similarly a third set of notices have now been placed in the project area to announce the availability of the draft EIR and EMPr.

- **Direct Stakeholder Notification**

A BID and Stakeholder Notification Letter was prepared and distributed to I&APs on the project and served as notification to organs of state. The BID and Notification letter was presented in English. The BID was sent to pre-identified I&APs via email on 19 July 2018 and hand delivered to organs of state and local authorities on 20 – 23 July 2018. The BID was placed at the Lephalale- and Marapong Public Libraries on 20 July 2018 and was uploaded onto the Naledzi website

www.naledzi.co.za/publicdocuments for download by the public for purposes of review and comment. (See Appendix 3F for the signed BID Delivery List, Letters, emails)

9.5 Draft Scoping Report available for 30 days public review and comment

The DSR Availablity Notification Letter was prepared and distributed to registered I&APs and organs of state on the project database. Notifications were sent to registered I&APs via email. Hard and soft copies of the DSR were delivered to organs of state, the local and district authority on 29-31 October 2018. The application and DSR was submitted to DEA on 5 November 2018. The DSR was placed at the Lephalale- ,Marapong Public Libraries and Lesedi Thusukudu Centre on 29 October 2018 and was uploaded onto the Naledzi website for download by the public for purposes of review and comment.

Essentially the Mogol Post newspaper advertisement of 26 October 2018 announced the availability of the DSR for public review and comment until 27 November 2018. Subsequently the DEA requested that the public review and comment period on the DSR be extended until 5 December 2018. I&APs on the project database were notified according through an emailed notification on 30 November 2018. (See Appendix 3G for the signed DSR Deliverly List, Letters, emailed notifications)

The list of organs of state presented with a copy of the DSR included:

- Eskom Distribution
- Lephalale Local Municipality
- Waterberg District Municipality
- Limpopo Department of Economic Development, Environment & Tourism
- Limpopo Department of Rural Development and Land Reform
- South African Heritage Resources Agency
- Department of Water and Sanitation
- Limpopo Heritage Resources Agency
- Department of Environmental Affairs
- Department of Agriculture Forestry and Fisheries

Several stakeholders and organs of state submitted comments on the DSR during the public review and comment period-see Table 31.

One public meeting session took place on 13 November 2018 at Lephalale, Mogol Golf Club in the Grootgeluk Conference Room from 2pm – 4pm, since the 6pm-8pm was not attended by the public. The proceedings of the meeting were recorded. See Appendix 3H_for Minutes of the Public Meeting and the related Attendance Register.

A focus group meeting also took place on 26 November 2018 at Beestekraal, Brits with Mr. Hendri Hills, landowner for farm Geelhoutkloof 359LQ, a portion of Enkeldraai 314LQ and Pontes Estate 712LQ to discuss the project, content of the DSR and provide the presentation of the public meeting, since he was not able to attend. See Appendix 3H for Minutes of the Focus Group meeting and related Attendance Register.

On request by the Lesedi Ward Committee Members a public meeting took place on 13 February 2019 at the Lesedi Thusong Community Centre in Steenbokpan at 10am – 12pm. The intent of the meeting was to inform the community of the project. See Appendix 3H for Minutes of the Lesedi Community Public Meeting and related Attendance Register.

Table 29: List of Stakeholder's who submitted comments on the DSR

Stakeholders	Date	Method
DWS	30/11/2018	Letter
DEA: IEA-Strategic Infrastructure Projects	05/12/2018	Letter
DEA: Trans-Frontier and Protected Areas Planning	30/11/2018	Email
LEDET: Environmental Impact Management	27/11/2018	Letter
LEDET: Biodiversity and Conservation - Protected Areas	20/11/2018	Email
Eskom Distribution	31/11/2018 12/12/2018	Email
Lephalale Development Committee	13/11/2018	Comment Sheet
Lesedi Community Ward Committee	01/11/2018 05/11/2018	Email Comment Sheet
Tjaart Sauer & Frans Sauer (Enkeldraai 314LQ)	18/11/2018 19/11/2018	Emails
Sannie Sauer (Enkeldraai 314LQ)	19/11/2018	Comment Sheet
South Africa Civil Aviation Authority	14/11/2018	Email

The comments received on the DSR including responses provided thereto are included in the IRR, which is a standalone document to the draft EIR, under Volume 3 Appendix 3I_Annexure C.

The comments have thus been captured in the updated IRR Version 3.

9.6 EIR & EMPr available for 30 days public review and comment

The draft EIR & EMPr is the first official approach to I&APs and organs of state and information submission during the EIA Phase. The Draft EIR contains all the issues raised throughout the EIA process, findings of the specialist investigations and outcome of the assessment. I&APs are provided the opportunity to review the findings of the EIA.

The Draft EIR & EMPr is made available for public review from 31 May to 1 July 2019. Copies of the report are available at the following venues:

- Lephalale Public Library
- Lesedi Thusong Community Centre at Steenbokpan
- Marapong Public Library
- Including the Naledzi website at www.naledzi.co.za/publicdocuments

Electronic and hard copies of the report have also been submitted to organs of state including local and district authorities for review and comment.

One Public Meeting has been arranged at Komunati Lodge behind Medupi Power Station for 18 June 2019 at 2pm – 4pm, to present the findings of the EIR to importantly the directly affected landowners and other I&APs and stakeholders wishing to attend the information session.

All comments and issues received during the public review period of the Draft EIR and EMPr will be captured in a Final EIR and submitted to DEA for review and ultimately approval. I &APS will receive notification of the submission and will as per the scoping phase have the opportunity to request copies of the final report.

9.7 Summary of issues and concerns raised by I&APs during the EIA Process

Written submissions were received from registered I&APs on the DSR. A summary of the comments received from I&APs, whether at meetings, written or verbal, during the Scoping& EIA Phase up to the preparation of the draft EIR have been captured in the Issues and Response Report (IRR) Version 3 under Appendix G9. The Issues and Response Report consist of versions. Version 1 is appended to the draft Scoping Report, Version 3 to the final Scoping Report and Version 3 to the draft EIR. A summary of the issues are also contained in Section (iii) on page 31.

The current Issues and Response Report (IRR) Version 3 which accompanies the draft EIR reflects comments received during the following engagements:

- public registration and review period from 23 July to 28 August 2018; and
- DSR public review and comment period from 29 October to 5 December 2018; and
- Public engagement meetings held during the Scoping Phase.

(Refer to Volume 3 Appendix 3I for the IRR Version 3)

9.8 Submission Final EIR & EMPr

All comments and issues received during the public review period of the Draft EIR and EMPr would be captured in a Final EIR and submitted to DEA for review and ultimately approval. I&APs would receive notification of the submission of the final report.

9.9 Public Consultation during the Decision-making Phase

During this phase DEA will review the Final EIR and consult with any other key organs of state before granting or refusing an environmental authorisation.

The environmental authorisation will be made available for public review for a period of 20 consecutive calendar days. This provides I &AP's with an opportunity to verify that the decision taken have considered their comments and concerns raised. I&Aps are also then informed of the appeal procedure, should they have a reason to appeal.

SECTION H: IDENTIFIED IMPACTS BASED ON ENVIRONMENTAL ATTRIBUTES

10 IMPACTS AND RISKS IDENTIFIED FOR THE PROJECT

Appendix 3 of the EIA Regulations of 2014 (as amended by GNR 326) requires that an assessment of each identified potential significant impact and risk identified for the project be provided including:

- cumulative impacts,
- nature, significance and consequence of the impact and risk
- extent and duration of the impact and risk
- the probability of the impact and risk occurring
- the degree to which the impact and risk can be reversed;
- the degree to which the impact and risk may cause irreplaceable loss of resources; and
- the degree to which the impact and risk can be mitigated

A scoring system is utilised to rank the significance of each impact identified. The cumulative effect of the impacts within the local area would also be considered.

In terms of the NEMA, 1998 Chapter 1, sets out the national Environmental Management Principles of which ultimately strive to ensure that development is socially, environmentally and economically sustainable. The core values of an EIA are therefore integrity, utility and sustainability. The EIA would therefore conform to the agreed Environmental Standards and would provide balanced credible information for decision making and result in environmental safeguards.

10.1 Impact Assessment Methodology

After a list of potential impacts has been identified the aim of the EIA process is to predict the nature of the impact, rank and quantify it. From the rating system the impacts of most significance can be highlighted.

According to the EIA Regulations of 2014 a **significant impact means**:

"an impact that may have a notable effect on one or more aspects of the environment or may result in non-compliance with accepted environmental quality standards, thresholds, targets and is determined through rating the positive and negative effects of an impact on the environment based on criteria such as duration, magnitude, intensity and probability of occurrence".

The list of identified impacts for the Lephalale Railway Yard expansion project will be evaluated by considering several rating scales as listed below. These ratings include: extent, duration, intensity, significance, status of impact, probability. The significance of impacts will be calculated as follows:

Table 30: Assessment Methodology

Criteria: EXTENT	
"Extent" defines the physical extent or spatial scale of the potential impact	
RATING	**DESCRIPTION**

1	Site specific	Impacts extending only as far as the activity, limited to the site and its immediate surroundings
2	Local	Impacts extending within 5km from site boundary
3	Regional	Impacts extending to the district (20km from boundary of the site) of Lephalale/Waterberg District
4	Provincial	Impacts extending to provincial scale eg. Limpopo Province / Mpumalanga Province
5	National	Impacts extending to within the country i.e. South Africa.
6	International	Impacts extending beyond international border / the borders of South Africa

Criteria: INTENSITY			
"Intensity" establishes whether the impact would be destructive or benign.			
Status	**RATING**		**DESCRIPTION**
Negative	0	Negligible	Where impacts do not really affect the environment and no mitigation is required
	1	Low	Where impacts will result in short term effects on the social and/or natural environment. These impacts are not deemed largely substantial and are likely to have little real effect. (marginally affected)
	2	Medium	Where impacts will result in medium term effects on the social and/or natural environment. These impacts will need to be considered as constituting a fairly important and usually medium term change to the environment, these impacts are real but not substantial. Impacts are fairly easy to mitigate
	3	High	Whereby effects will be long term on social, economic and/or bio-physical environment. These will need to be considered as constituting usually long term change to the environment. Mitigation is considered challenging and expensive
	4	Very High	Where impacts should be considered as constituting major and usually permanent change to the environment, and usually result in severe to very severe effects. Mitigation would have little to now effect on irreversibility
Criteria: INTENSITY			
Status	**RATING**		**DESCRIPTION**
Positive	0	Negligible	Where impacts affect the environment in such a way that natural, cultural and social functions and processes are not greatly and in instances no mitigation measures will be required. (environment not really affected)
	1	Low	Minor improvement are anticipated over a short term on the social and/or natural environment.

	2	Medium	Where moderate improvements are anticipated over a medium- to long-term on the social and/or natural environment.
	3	High	Where large improvements are anticipated over a long term on social, economic and/or bio-physical environment.
	4	Very High	This results in permanent improvements to the social/or natural environment.

Criteria: STATUS		
"Status of impact" - describes whether the impact would have a negative, neutral or positive effect on the affected environment		
RATING		**DESCRIPTION**
+	Positive	Benefit to the environment
=	Neutral	Standard / impartial
-	Negative	cause damage to the environment

Criteria: PROBABILITY		
"Probability" describes the likelihood of the impact occurring.		
RATING		**DESCRIPTION**
0	Improbable	Where the possibility of the impact occurring is low.
1	Probable	Where there is a distinct possibility that the impact will occur.
2	Highly probable	Where it is most likely that the impact will occur.
3	Definite	Where the impact will occur regardless of any prevention measures.

Table 31: Criteria for assessing duration and significance

Criteria: DURATION		
"Duration" defines the temporal scale		
RATING		**DESCRIPTION**
1	Immediate	Less than 1 year
2	Short term	1-5 years
3	Medium term	6-15 years
4	Long term	Between 16 – 30 years

5	Permanent	Over 30 years. Where mitigation either by natural processes or by human intervention will not occur in such a way or in such time span that the impact can be considered transient.

Criteria: SIGNIFICANCE		
"Significance"- attempts to evaluate the importance of a particular impact with mitigation measures included and also excluded. The significance was calculated using the following formula: **Significance = (Extent + Duration + Intensity) X Probability**		
RATING		**DESCRIPTION**
0-4	Very Low	Where the impacts will not influence the development, social , cultural or natural environment
5 -12	Low	Where impacts will result in short term effects on the social and / or natural environment. The impacts merits attention however are not deemed largely substantial are likely to have little real effect
13-25	Medium	Where impacts will have a medium-term effect on the social and/or natural environment. These impacts need to be considered as constituting a fairly important and usually medium term change to the environment, these impacts can be mitigated by implementing effective mitigation measures.
26-44	High	Whereby effects will be long term on social economic and or bio-physical environment. The impacts could have a major effect on the environment. This may bring forth the consideration of no-go areas/open areas on the development land regardless of mitigations implemented. Mitigation is however possible.
45	Very High	Whereby effects will be permanent on the social economic and or bio-physical environment. Such impacts cannot be mitigated.

Criteria: MITIGATION TYPE	
RATING	**DESCRIPTION**
Control & Remedy	In stances where two approaches of mitigation area required. To control the impact/regulate and correct the impact
Modify	to reduce or lessen in degree or extent; moderate; soften
Remedy	Something that corrects the impact of any kind.
Control	to control the impact/regulate
Stop	to restrain, hinder, or prevent

10.2 Findings of the Environmental Impact Assessment

The purpose of this section is to provide information on the environmental consequences of given activities to be undertaken as part of the proposed project so as to inform decision-making. The impact analysis will identify and predict the likely environmental, social and other related effects of the proposal. An evaluation of the significance will be undertaken to determine the relative importance and acceptability of residual impacts (impacts that cannot be mitigated).

The impacts have been detailed based on the environmental attributes of the project site and sensitive receptors under Section F, point 8 and concerns raised by I&APs and organs of state during the Scoping and EIA Process public engagement as detailed in the IRR attached to this report. The potential impacts on environment and socio-economic resources and receptors arising from the railway yard project are linked to the different stages of the project which are identified as construction, operation and decommissioning.

DEA has requested that the EIR include details of the site and infrastructure after decommissioning in 20-30 years. It is important to note that decommissioning of the railway yard and tracks are not foreseen in the near future since the yard will service mining companies each which may have a life of mines of over 40 years. The environment may have changed significantly by then. The existing railway yard and track are also already 40 years old and being expanded.

Mitigation and impact management will establish the measures that are necessary to avoid, minimize adverse impacts and where appropriate incorporate these into the EMPr.

The findings of the specialist studies outlined are summarised in this section. All specialist studies referred to are contained under Appendix F of this report.

10.2.1 EXISTING IMPACTS

10.2.1.1 Existing social and economic impacts in the study area

Transnet Lephalale Railway Yard, and its activities, is not the only party responsible for the existing social impacts in the area, but do contribute to these impacts, and will continue to do so through the construction and operation of the railway yard. The following existing impacts that are associated with development are experienced:

- **Impacts from the existing railway yard**

Land owners are used to the impacts from the existing railway line and can live with it as it is currently operated. The most significant impact relates to the noise from the trains. The game camp of the Sauer family is directly adjacent to the railway line. People also occasionally move in the servitude. There is also coal dust next to the rail track, but this is an insignificant impact.

- **Impacts from other developments on affected landowners**

Mr Hills has servitudes for a water pipe, powerlines and the existing railway line crossing his property. Mr Sauer has an Eskom servitude crossing his property, and the railway line is on the border of his property. All the servitude holders have the right to access his property for maintenance purposes. The power lines create a visual impact, and the railway line divides the property. A significant impact is from Medupi power station, which borders his property. There are issues with storm water running into the property, eroding the roads and polluting the veld. They cannot keep game in the area directly adjacent to Medupi, and it cannot be used by the hunters due to the visual impact of the power station and the power lines.

- **Economic Impacts**

Due to the economic boom in the Waterberg district, there was an increase in job creation in the last decade. Especially in the lower socio-economic groups, each income can support a number of family members and dependants through remittances. However, job opportunities in the Lephalale area has declined significantly in the last 5 years due to the completion of several big projects.

There is a high demand for available jobs. Due to the high illiteracy levels in the community, there is an over-supply of unskilled labour. Although there are some skilled labourers that live in the community, there are not always enough skilled labourers to meet the needs of the industries. Therefore, people from outside the area are employed to fill these positions, something that the local community is critical about. They feel that the local community does not get enough benefit from the presence of industries.

A number of the bigger industries have invested in skills development, but it remains a major need in the area. Due to the industrial development in the area, there are some training facilities locally available. The Lephalale Development Forum indicated that Transnet should let them know the number and level of skills that will be required, and that they can assist with training people in preparation for the project.

Many of the industries in the area have invested in Corporate Social Investment (CSI) projects in the area, for example, Sasol built a multi-purpose centre in Steenbokpan. Other CSI projects include donations of clinics/wellness centres, school programmes, road upgrades and training centres amongst others.

- **Impacts of infrastructure**

The Waste Water Treatment Works in Lephalale is currently over capacity and dysfunctional. There is no capacity for it to receive any waste water. The landfill in Lephalale is not registered, and there is some concern about the landfill management. Steenbokpan has no secondary school, and children are transported by bus to schools in Lephalale and Marapong. There is a significant housing backlog in Lephalale.

- **Community based impacts**

The community has high expectations about contributions from companies with developments in the area, especially in Steenbokpan. Mines have Social and Labour Plans which force them to invest in the local community, and community members often do not understand that there is no similar requirement for other developers.

The relationship between the municipality and the communities, especially in Steenbokpan, is tense and has resulted in volatile meetings and strikes. Industrial role players are also targeted with strikes about labour issues, which often turn violent.

The constant movement of trucks and busses impacts on the community's road safety. There has also been a significant influx of people into the area. Placing pressure on infrastructure and caused the formation of informal settlements. People coming in from outside threaten the safety of community members and there has been an increase in crime on all levels (WDM IDP, 2017/2018).

There are existing health impacts in the Lephalale area. Further the local economy is heavily dependent on the industrial development that has taken place in the area. Many of the developments are approaching the end of their construction phase, which means a decline in job opportunities. There is the promise of significant mining developments in the area, and another power station, but environmental groups are rallying against the development of further coal-based infrastructure and there are levels of uncertainty associated about the timing of these developments, some of which already received approval to go ahead from an environmental perspective. Agriculture in the form of game and cattle farms, and tourism are other important economic role players in the area. Although these industries are more sustainable in the long run, it does not offer the rapid economic growth that has been provided by the industrial development. The current lack of diversification in the economy is a further concern.

10.2.1.2 Existing traffic impacts

Road upgrades and traffic control improvements are already required at the D2001 & D1675 and D1675 & D2649 intersections analysed without the added traffic from the project. These upgrades are thus not related to the planned railway yard and it's associated additional traffic demand. These upgrades include:

Intersection: D2001 & D1675
- Traffic signal;
- Extend 60m left-slip lane to 120m (D2001);
- Additional 60m right-turn lane on south-western approach to allow for double right-turn; and
- Additional 60m through-lane on north-western approach (D2001).

Intersection: D1675 & D2649
- Traffic signal;
- additional 60m through lane on eastern approach; and
- Additional 60m through lane on western approach.

10.2.1.3 Existing visual impacts

The visual resource rating of the study site is low since the area is 'highly modified with extensive infrastructure development (power stations), power lines (1400kV), roads, settlements, game fences and grazing.

10.2.1.4 Existing noise impacts

The following are existing noise sources in the vicinity of and boundaries of the study area:
- Domestic/farm activity noises;
- Intermittent traffic along feeder roads and gravel roads;
- Intermittent train and train hooting noise;
- Distant traffic noise from the abutting feeder roads
- Noise from Medupi power station

Land owners are used to the impacts from the existing railway line and can live with it as it is currently operated. The most significant impact relates to the noise. There is an increase in noise levels at receptor M (Farm Managers House Geelhoutkloof – 837m away) when the trains pass along the existing railway track. An intermittent noise increase is created and this will occur once there are trains. The noise levels increase to above 50dBA when the train passes then returns to the

ambient level after 4 minutes. The cumulative impact of the train activities and the rail yard activities will create a noise intrusion on an intermittent basis.

10.2.1.5 Existing Ecological and Wetland Impacts

The vegetation has been transformed in the past or remains as vegetation where secondary succession took place after impacts associated with the railway line construction in the past and hitherto excavated areas (Resgen Rail link excavated areas). In the larger area extensive pylon strips run north and south, within 1 km and less, of the proposed railway yard expansion site.

There are three stream crossings and two pans within the footprint area. The existing railway track crosses these streams with culverts. The two pans are poorly developed. The pans are encroached by terrestrial vegetation. The 32m buffer zones of the Pan 1 and 2 are already compromised by past development. Waterflow to these pans are probably enhanced by stormwater runoff from roads next to the railway line where some erosion is visible.

10.2.2 IDENTIFIED IMPACTS SPECIFIC TO THE RAILWAY YARD EXPANSION

Please refer to Table 32 to 35 which contain the Risk Assessment for the anticipated impacts during the different project phases. Mitigation measures proposed in the risk assessment summarises the approach to be taken to manage identified risks. The mitigation measures to be implemented are summarised in Table 35.

Further a detailed Environmental Management Programme mitigation plan forms part of the EIR under Volume 4.

The impacts were compiled based on the onsite observations, desktop analysis, Scoping and EIA Phase pubic engagements, environmental attributes, comprehensive specialist investigations and impacts related to a railway yard expansion on the current layout plan.

Many of these impacts can be adequately addressed through the implementation of appropriate mitigation and management measures based on recommendations made by specialists (Table 36).

10.3 Construction Phase Impacts and Risk

Table 32: Construction Phase Risks

	SIGNIFICANCE PRE-MITIGATION								SIGNIFICANCE POST MITIGATION							MITIGATION TYPE
CONSTRUCTION PHASE																
Aspect, Activity & Potential Impact	**Status**	**Probability**	**Extent**	**Duration**	**Intensity**	**Significance Score**	**Rating**		**Status**	**Probability**	**Extent**	**Duration**	**Intensity**	**Significance Score**	**Rating**	**(Modify, Remedy, Control, Stop)**
Impact on soil resources																
Displacement of soil and compacting of soil (soil structure degradation) pose a risk for erosion	Negative	3	1	3	1	15	Moderate		Negative	2	1	2	1	8	Low	Control & Remedy
Rubble or waste could lead to infiltration of unwanted pollutants into the soil. Spilling of petroleum fuels and unwanted chemicals onto the soils that infiltrate these soils could lead to pollution of soils.	Negative	2	1	3	3	14	Moderate		Negative	1	1	2	2	5	Low	Control & Remedy
Impact on Groundwater																
Fuel and hydrocarbon spillages have a risk of impacting on the shallow water table	Negative	1	1	2	2	5	Low		Negative	1	1	1	1	3	Very Low	Control & Remedy
Impact on Streams and Wetland (Pan) Depressions																
Crossing of streams with culverts and placing yard infrastructure in proximity of streams may impact on surface water	Negative	1	2	3	1	6	Low		Negative	1	1	2	0	3	Very Low	Stop

Destruction of small pan depressions Pan 1 & 2 (<0.2ha each) with Present Ecological State D (largely modified) and a low Ecological Importance and Sensitivity to make way for new trailway tracks north and south of the existing railway track. But no loss of any wetland animal or plant species of particular conservation importance is expected	Negative	3	1	5	3	27	High	Positive	3	1	5	0	18	Moderate	Remedy
Increased surface flow and erosion - Pan 3, Pan 4, Pan 5, Pan 6 and Pan 7 are unlikely to be impacted significantly by the expansion of the railway yard. The pans are unlikely to experience increase in surface flow and erosion from the development. Loss of any wetland animal or plant species of particular conservation importance are not expected particularly since these wetlands are outside the footprint area.	Negative	1	2	2	1	5	Low	Negative	1	2	2	0	4	Very Low	Stop
Impact on Fauna, flora and Habitat (Ecological Impact)															
Loss of habitat owing to removal of vegetation at the proposed development footprint: Clearing of vegetation result in partial destruction of habitat of medium and low ecological sensitivity.	Negative	3	1	4	4	27	High	Negative	3	1	5	2	24	Moderate	Modify

Loss of Threatened or Near-Threatened Plants, Mammals, Reptiles, Amphibians and Invertebrates at the proposed footprint appears to be unlikely.	Negative	0	1	2	0	0	Very Low	Neutral	0	1	2	0	0	Very Low	
Loss of conservation important species: Nationally Protected (but not threatened) tree species Boscia albitrunca (Shepherd's Tree) and Sclerocarya birrea (Marula) are present at the site including provincially protected Tamboti. Numerous individual trees will be removed to make way for the railway yard expansion.	Negative	3	1	2	3	18	Moderate	Negative	3	1	2	2	15	Moderate	Control
Loss of connectivity and conservation corridor networks in the landscape by fragmentation of corridors of particular conservation concern.(While there is little scope for most of the site to be part of a corridor of particular conservation importance the small pans (Pan 1 and Pan 2) are part of a stepping stone corridor system of conservation importance in the larger area. Drainage lines and their buffer zones that cross the site are corridors of conservation importance).	Negative	3	1	4	4	27	High	Negative	2	1	4	3	16	Moderate	Remedy
Possible disturbance, trapping, hunting and killing of vertebrates	Negative	2	2	2	3	14	Moderate	Negative	1	1	2	2	5	Low	Stop

Noise and Vibration															
Noise increase at the boundary of the railway yard footprint and at the abutting residential areas due Site clearing and grubbing of footprint	Negative	2	1	3	3	14	Moderate	Negative	2	2	2	2	12	Low	Control
Construction activities at the railway yard footprint may increase noise at the boundary of the railway yard and at abutting residential areas	Negative	2	1	3	3	14	Moderate	Negative	1	1	3	2	6	Low	Control
Noise increase at boundary of railway yard footprint and abutting residential areas due to assembly of water and diesel tanks	Negative	2	2	2	3	14	Moderate	Negative	1	1	2	2	5	Low	Control
Noise increase at boundary of railway footprint and abutting residential areas due to construction of roads	Negative	2	2	2	3	14	Moderate	Negative	2	2	2	2	12	Low	Control
Noise increase at boundary of railway footprint and abutting residential areas due to construction of the railway lines	Negative	2	2	2	4	16	Moderate	Negative	2	2	2	2	12	Low	Control
Air Quality and Dust Impact															

Dust generated due to vegetation clearance, transportation of materials, construction of the yard, windblown dust from spoil piles and due to vehicle entrained dust along service roads	Negative	3	1	2	2	15	Moderate	Negative	2	1	2	1	8	Low	Control
Visual Impact															
Visual impact from construction traffic and cranes for construction	Negative	3	1	2	2	13	Moderate	Neutral	2	1	2	1	9	Low	Control & Remedy
Construction lights	Negative	3	2	2	3	26	High	Negative	3	2	2	2	20	Moderate	Control & Remedy
Traffic (Impact on roads and transport infrastructure)															
Construction traffic from the railway yard expansion, construction crew commuting on a daily basis will impact on intersections D2001 & D1675 and the D1675 & D2649 both intersections have a Level of Service of F (congested and jammed)	Negative	3	3	2	3	24	Moderate	Negative	2	3	2	3	16	Moderate	Modify
Construction machinery, vehicles and daily construction crew commuting the construction site will increase traffic along the D2649 and railway yard access road. The D2649 and access road intersection has a Level of Service of A (free flow condition)	Negative	2	2	2	2	12	Low	Negative	1	2	2	1	5	Low	Modify
Heritage, Cultural and Palaeolontological Impact															

No heritage or cultural sites were found on the project site. It is unlikely that excavations could unearth any cultural or heritage resources	Negative	1	1	5	0	6	Low	Negative	1	1	5	0	6	Low	Remedy
The areas where development will occur fall within areas that are identified as having a Moderate Sensitivity rating. Although fossils are scarce in the Quaternary sand and sandy soils, the possibility of finding any in the study area should not be dismissed	Negative	1	1	5	0	6	Low	Negative	1	1	5	0	6	Low	Remedy
Social Impact															
Community expectations about project benefits (throughout life of project)	Negative	3	3	3	4	30	High	Negative	2	3	2	3	16	Moderate	Control
Sense of spirit of place change due to noise and visual impacts (throughout life of project)	Negative	3	2	5	4	33	High	Negative	3	2	5	3	30	High	Control
Create 50-80 construction jobs	Positive	2	3	3	2	16	Moderate	Positive	3	3	2	4	27	High	Modify
Create secondary economic opportunities and skills development	Positive	2	3	3	2	16	Moderate	Positive	3	3	3	4	30	High	Modify
Loss of livelihoods	Negative	3	2	2	4	24	Moderate	Negative	2	2	2	3	14	Moderate	Control
Safety impacts	Negative	2	3	2	3	16	Moderate	Negative	1	3	2	2	7	Low	Control
Roads and Transport	Negative	3	3	2	3	24	Moderate	Negative	2	3	2	2	14	Moderate	Remedy

10.4 Operational Impact risks

Table 33: Operation Phase Risks

	SIGNIFICANCE PRE-MITIGATION								SIGNIFICANCE POST MITIGATION							MITIGATION TYPE
OPERATIONAL PHASE																
Aspect, Activity & Potential Impact	**Status**	**Probability**	**Extent**	**Duration**	**Intensity**	**Significance Score**	**Rating**	**Status**	**Probability**	**Extent**	**Duration**	**Intensity**	**Significance Score**	**Rating**	**(Modify, Remedy, Control, Stop)**
Impact on Groundwater																
Fuel and hydrocarbon spillages from transportation vehicles may cause groundwater contamination of the shallow water table	Negative	1	1	2	2	5	Low	Negative	1	2	2	0	4	Very Low	Control & Remedy
Oil spillages from Storage Drums may cause groundwater contamination of the shallow water table	Negative	2	2	3	3	16	Moderate	Negative	1	2	2	2	6	Low	Stop
Fuel and hydrocarbon spillages from Diesel tanks may cause groundwater contamination of the shallow water table	Negative	2	2	3	3	16	Moderate	Negative	1	2	2	2	6	Low	Stop

Operation of earth channel to store coal contaminated storm water for forced evaporation may contaminate the shallow groundwater table	Negative	2	2	3	2	14	Moderate	Negative	1	2	2	1	5	Low	Stop
Sewage Treatment System (Bio Mite) may impact on surrounding groundwater dependant users	Negative	2	2	3	2	14	Moderate	Negative	1	2	2	1	5	Low	Stop
Air Quality and Dust Impact															
Windblown coal dust from train wagons expected to settle in rail yard and cause a nuisance in the immediate area	Negative	3	1	5	2	24	Moderate	Negative	2	1	4	2	14	Moderate	Control
Emissions from diesel locomotives (soot)	Negative	2	1	4	1	12	Low	Negative	1	1	4	1	6	Low	
Visual Impact															
Presence of trains, building and communications tower	Negative	1	1	5	1	7	Low	Negative	1	1	5	1	7	Low	Control
Lights along the railway yard expansion	Negative	3	2	5	1	24	Moderate	Negative	1	1	5	1	7	Low	Control
Noise Impact															

Noise increase at the boundary of the railway yard footprint and the abutting residential areas due to Locomotive start up and idling	Negative	2	3	4	3	20	Moderate	Negative	2	2	4	3	18	Moderate	Control
Noise increase at the boundary of the railway yard footprint and abutting residential areas due to release of train airbrakes	Negative	2	3	4	3	20	Moderate	Negative	2	2	4	3	18	Moderate	Control
Noise increase at boundary of the railway yard footprint and at abutting residential areas	Negative	2	3	4	3	20	Moderate	Negative	2	2	4	3	18	Moderate	Control
Noise increase at the boundary of the railway yard footprint and at the abutting residential areas due to maintenance work in the workshop	Negative	2	3	4	3	20	Moderate	Negative	2	2	4	3	18	Moderate	Control
Noise increase at the boundary of the railway yard footprint and at the abutting residential areas due to refuelling of locomotives	Negative	2	3	4	3	20	Moderate	Negative	2	2	4	3	18	Moderate	Control
Noise increase at the boundary of the railway yard footprint and at the abutting residential areas due to passing trains	Negative	2	3	4	3	20	Moderate	Negative	2	2	4	3	18	Moderate	Control
Noise increase at the boundary of the railway yard footprint and at the abutting residential areas due to general noise level in railway yard	Negative	2	3	4	3	20	Moderate	Negative	2	2	4	3	18	Moderate	Control

Noise intrusion at receptor M (Farm Manager residence Geelhoutkloof) due to general noise level at railway yard	Negative	2	3	4	4	22	Moderate	Negative	2	2	4	3	18	Moderate	Control
Impact on Faun, flora and Habitat (Ecological Impact)															
Infestation by alien invasive species could replace indigenous vegetation or potential areas where indigenous vegetation could recover and result in loss of habitat quality	Negative	2	1	4	2	14	Moderate	Negative	2	1	2	2	10	Low	Control & Remedy
Impact on soil resources															
Fuel spillages may result in soil contamination and there is a potential for increased erosion caused by increase runoff from concreted surfaces	Negative	2	1	2	3	12	Low	Negative	1	1	2	2	5	Low	Remedy
Social Impact															
Create between 50 and 100 permanent jobs	Positive	2	3	4	3	20	Moderate	Positive	3	3	4	4	33	High	Modify
Safety impacts	Negative	2	3	4	3	20	Moderate	Negative	1	3	4	2	9	Low	Control

Roads and transport	Negative	3	3	4	3	30	High	Negative	2	3	4	2	18	Moderate	Remedy
Traffic															
Increase in traffic and road safety at intersections D2001 & D1675 and D1675 & D2649. Both operate at level F	Negative	3	3	4	2	27	High	Negative	1	3	4	2	9	Low	Control & Remedy
Increase in traffic and road safety along D2649 & railway yard access road intersection	Negative	2	2	4	2	16	Moderate	Negative	1	2	4	0	6	Low	Control & Remedy

10.5 Decommissioning Phase risks

Table 34: Decommissioning Phase Risks

	SIGNIFICANCE PRE-MITIGATION							SIGNIFICANCE POST MITIGATION							MITIGATION TYPE
DECOMMISSIONING PHASE															
Aspect, Activity & Potential Impact	**Status**	**Probability**	**Extent**	**Duration**	**Intensity**	**Significance Score**	**Rating**	**Status**	**Probability**	**Extent**	**Duration**	**Intensity**	**Significance Score**	**Rating**	**(Modify, Remedy, Control, Stop)**
Impact on soils, surface and groundwater pollution															
Potential soil and pollution from hydrocarbon spillages, waste disposal practice	Negative	2	1	3	3	14	Moderate	Negative	1	1	3	4	8	Low	Control & Remedy
Noise Impact															

Noise increase at the boundary of the railway yard footprint and at abutting residential areas due to demolition of all infrastructure	Negative	2	2	2	3	14	Moderate	Negative	1	2	2	2	6	Low	Control
Planting of grass on rehabilitated areas	Negative	2	2	2	3	14	Moderate	Negative	1	2	2	2	6	Low	Control
Social impact															
Loss of jobs and associated income if and when the railway yard is decommissioned	Negative	3	2	3	2	21	Moderate	Negative	2	2	2	1	10	Low	Modify
Fauna and Flora Impact															
Increased infestation by alien invasive species owing to clearance or disturbance at the proposed footprint replaces indigenous vegetation or potential areas where indigenous vegetation could recover ultimately resulting in loss of habitat quality.	Negative	2	1	4	2	14	Moderate	Negative	1	1	2	2	5	Low	Control & Remedy
Continued loss of indigenous vegetation owing to poor recovery of vegetation will result in loss of habitat integrity	Negative	3	1	4	4	27	High	Negative	2	1	4	4	18	Moderate	Control & Remedy
Air Quality & Dust															
Dust emissions from decommissioning and rehabilitation activities removal of infrastructure, ripping of disturbed areas(vehicle entrained dust)	Negative	3	1	2	1	12	Low	Negative	2	1	2	1	8	Low	Control
Impact on Traffic															
Increased heavy vehicle traffic along Mandela and Afguns road when equipment is removed and transported off site. There after traffic will decrease substantially one the yard no longer operates	Negative	2	3	1	1	10	Low	Neutral	1	3	1	1	5	Low	Control

Visual Impact																
Dismantling of rail tracks, demolish of buildings and associated infrastructure	Neutral	2	1	5	0	12	Low	Neutral	1	1	5	0	6	Low	Control

10.6 CUMULATIVE RISKS

	SIGNIFICANCE PRE-MITIGATION							SIGNIFICANCE POST MITIGATION							MITIGATION TYPE
CUMULATIVE IMPACTS															
Aspect, Activity & Potential Impact	**Status**	**Probability**	**Extent**	**Duration**	**Intensity**	**Significance Score**	**Rating**	**Status**	**Probability**	**Extent**	**Duration**	**Intensity**	**Significance Score**	**Rating**	**(Modify, Remedy, Control, Stop)**
Ecological Impact															
Clearing of vegetation will result in habitat loss and loss of indigenous species	Negative	3	1	4	4	27	High	Negative	2	1	4	2	14	Moderate	Control & Remedy

Loss of corridors of particular conservation concern will result in fragmentation of the landscape and loss of connectivity. (A number of industrial areas are present near the site which poses an increasing threat to the ecosystems with indigenous biodiversity in the larger area. In the larger area there remains a large savanna area with indigenous bioversity also for large carnivores and large bird species that are of particular conservation concern and which roam large areas.	Negative	1	1	4	2	7	Low	Negative	0	1	4	2	0	Very Low	Control & Remedy
Noise Impact															
The cumulative impact of the train activities and the rail yard activities will create a noise intrusion on an intermittend basis. Receptor M (Geelhoutkloof Farm Manager's Residence) will effected by the cumulative noise impact	Negative	3	2	4	2	24	Moderate	Negative	2	2	4	2	16	Moderate	Control & Remedy
Visual Impact															
Visual impact near development (100m or less)	Neutral	2	1	4	0	10	Low	Neutral	0	1	4	1	0	Very Low	Control
Visual impact near development (100m or more)	Neutral	1	2	4	0	6	Low	Neutral	1	2	4	0	6	Low	Control

10.7 Recommended Mitigation Measures

Table 35: Recommended Mitigation Measures

Aspect	No	Potential impact	Mitigation Type	Mitigation Measure
CONSTRUCTION PHASE				
Soils	10.7.1	Displacement of soil and compacting of soil (soil structure degradation) pose a risk for erosion	Control & Remedy	- Implement good stockpiling practice and storm water control to avoid soil erosion - Ensure that topsoil is at no time buried, mixed with spoil or subjected to compaction by vehicles or machinery. - Eradicate alien vegetation which colonise on topsoil stockpiles - Contaminated soil must be removed and the affected area rehabilitated. - Ensure that spoil material is stored in such a way and in such a place that it will not cause erosion gulley's or wash away; - Store spoil in low heaps, not exceeding 2m in height."
	10.7.2	Rubble or waste could lead to infiltration of unwanted pollutants into the soil. Spilling of petroleum fuels and unwanted chemicals onto the soils that infiltrate these soils could lead to pollution of soils.	Control & Remedy	Rubble or waste that could accompany the construction effort should be removed during and after construction. Measures should be taken to avoid any spills and infiltration of petroleum fuels or any chemical pollutants into the soil during construction phase.
Groundwater	10.7.3	Fuel and hydrocarbon spillages have a risk of impacting on the shallow water table	Control & Remedy	Immediate clean up after accidental spillages will take place and will be reported to the relevant department.
Streams and Pan Depressions	10.7.4	Crossing of streams with culverts and placing yard infrastructure in proximity of streams may impact on surface water	Stop	- Transnet will extend culverts from the existing railway track to new tracks and install new culverts for the access road at stream crossings to allow the streams to flow under the new tracks and yard and to cater for storm water runoff. - Development will be restricted to extension of culverts, bridge structures at roads next to the railway reserve - Narrow drainage lines including its 32m buffer zone will be excluded from development as far as practical; - Construction will be planned that the impact on surface flow and erosion is limited; - Development around Stream crossing No. 1 and No. 3 will be restricted to extension of culverts for the new tracks and concrete drifts will be constructed for the new tar access road; - Development around Stream crossing No. 2 will includes extension of

				culvert for the new railway tracks, a new culvert for the new tar access road and also, the North Facility and Staff building will be developed within the 32m buffer zone of this stream. According to the Wetland Specialist Stream crossing No. 2 is probably enhanced by storm water runoff; - Transnet will apply for and obtain a Water Use License from DWS to impede the flow of water in a watercourse and to alter the bed, banks of a watercourse through Section 21c and 21i water uses - Storm water management and erosion protection management measures will be implemented to minimise the impacts from the development on the streams. ▪ Section 21c and i: Construction and extension of culverts across three stream crossings for new railway tracks and access road ▪ Section 21c and i: Construction railway yard infrastructure (North Facility, Staff building) within 32m of watercourse.
	10.7.5	Destruction of small pan depressions Pan 1 & 2 (<0.2ha each) with Present Ecological State D (largely modified) and a low Ecological Importance and Sensitivity to make way for new railway tracks north and south of the existing railway track. But no loss of any wetland animal or plant species of particular conservation importance is expected	Remedy	These pans are not comparable to larger marshlands/saltpans in the region in which case a no-go zone would have applied. - Since the buffer zones of the pans are already compromised the scope is during construction to move each of the pans forty metres from the edge of the road next to the railway yard expansion footprint. - The relocation of these pans will slightly improve the wetland characteristics. - By rehabilitating the two pans successfully and reinstating adequate 32m buffer zones, the risk of loss of biodiversity corridors and stepping stone small wetlands in the larger area shifts from high to moderate/low; - A WULA will be submitted to DWS for a license to impede and diverting the flow of water in a watercourse and to alter the bed, banks of a watercourse through Section 21c and 21i water use namely: ▪ Section 21c and i: Railway Yard expansion which will divert and alter the pans; ▪ Section 21c and i: Construction railway yard infrastructure within 500m of several pan depressions
	10.7.6	Increased surface flow and erosion - Pan 3, Pan	Stop	- The geomorphological setting and flow regime of these pans are

		4, Pan 5, Pan 6 and Pan 7 are unlikely to be impacted significantly by the expansion of the railway yard. The pans are unlikely to experience increase in surface flow and erosion from the development. Loss of any wetland animal or plant species of particular conservation importance are not expected particularly since these wetlands are outside the footprint area.		likely to be similar post development. Loss of any wetland animal or plant species of particular conservation importance are not expected particularly since these wetlands are outside the footprint area.
Ecology	10.7.7	Loss of habitat owing to removal of vegetation at the proposed development footprint: Clearing of vegetation will result in partial destruction of habitat of medium and low ecological sensitivity.	Modify	- Refer to mitigation under Section 10.7.4 and 10.7.5 related to drainage lines and small wetland depressions.
	10.7.8	Loss of Threatened or Near-Threatened Plants, Mammals, Reptiles, Amphibians and Invertebrates at the proposed footprint appears to be unlikely.	None required highly unlikely to occur.	None recorded onsite.
	10.7.9	Loss of conservation important species: Nationally Protected (but not threatened) tree species Boscia albitrunca (Shepherd's Tree) and Sclerocarya birrea (Marula) are present at the site including provincially protected Tamboti. Numerous individual trees will be removed to make way for the railway yard expansion.	Control	- Permits will be obtained from DAFF for removal of any listed nationally protected tree species found within the footprint area. - Marking of Boscia albitrunca (Shepherd's Tree) and Sclerocarya birrea (Marula Tree) will take place at the site with an application of permits for the removal of these trees. - Sclerocarya birrea (Marula tree) trees should be planted at appropriate sites at the study area. For Boscia albitrunca cultivation success is too low at present to be practical in which case other indigenous trees should be cultivated at appropriate sites at the study area. - A permit for removal of individuals of this tree species found within the project footprint area will be obtained from LEDET as required in terms of LEMA for the remove or disturb of protected plants (trees). - Marking of Spirostachys africana (Tamboti) will take place at the site with an application of permits for the removal of these trees.
	10.7.10	Loss of connectivity and conservation corridor networks in the landscape by fragmentation of corridors of particular conservation	Remedy	Refer to mitigation measures under Section 10.7.4 and 10.7.5 related to drainage lines and small pan depressions.

		concern.(While there is little scope for most of the site to be part of a corridor of particular conservation importance the small pans (Pan 1 and Pan 2) are part of a stepping stone corridor system of conservation importance in the larger area. Drainage lines and their buffer zones that cross the site are corridors of conservation importance).		
	10.7.11	Possible disturbance, trapping, hunting and killing of vertebrates	Stop	- No trapping or hunting of fauna is to take place. Access control must be implemented to ensure that no illegal trapping or poaching takes place
	10.7.12	The expansion of the railway reserve for this project can further isolate the different parts of the Nature Reserve.	Remedy	- During construction and operation of the expansion of the railway yard activities will be restricted to the footprint so that the different sections of the reserve can continue to fulfil its role in biodiversity conservation for animals such as birds. - Amendment of the reserve boundaries is recommended to an extent which is practical for the foreseeable future in terms of the most likely developments. - Transnet must still engage with the landowners for the application for amendment of the nature reserve boundaries.
Noise	10.7.13	Noise increase at boundary of footprint and abutting residential areas due to construction activities: - Site clearing and grubbing - Assembly of water and diesel tanks - Construction of roads and railway lines	Control	- Machinery with low noise levels which complies with the manufacturer's specifications to be used. - Construction activities to take place during daytime period only. - Noise monitoring on a quarterly basis. - Noise monitoring will have to be carried out to determine the potential shift in the prevailing ambient noise levels on a monthly basis after which the frequency of monitoring may change to a quarterly/annual basis. Noise readings to be carried out at the measuring points as illustrated in Figure 3.1 of the Noise Impact Assessment. - Employees will be provided with earplugs to protect their ears (PPE); - Landowners will be notified of any blasting activities in advance - Landowners will be notified where they can lodge a noise compliant prior to commencement of construction activities; - Generators will be switched off when not in use; - Regular maintenance of vehicles and equipment will be undertaken.

				Broken equipment will be attended to.
Air Quality	10.7.14	Dust generated due to vegetation clearance, transportation of materials, construction of the yard, windblown dust from spoil piles and due to vehicle entrained dust along service roads	Control	- Apply wet dust suppression where necessary to manage dust emissions from vehicle movement - Control vehicle speeds along unpaved roads 40km/hour. - Spoil piles must be reused in berm and fill / rehabilitation of borrow areas to reduce spoil heights and windblown dust;
Visual	10.7.15	Due to construction cranes and traffic and lights	Control	- Control traffic, dust suppression, inform land owners of extent and duration of the construction phase, limit time and height of cranes for construction - During night time direct light sources away from adjacent farms and roads; - Keep the project site and construction layout down areas neat, clean and organised in order to portray a tidy appearance; - Remove rubble off site as soon as possible or place it in a container in order to keep the site free from additional unsightly elements - Rehabilitate or revegetate disturbed areas as soon as practically possible after construction. This should be done to restrict long stages of exposed soil and possible erosion that will result in indirect landscape and visual impacts;
Traffic	10.7.16	Further congestion and impact on Level of Service of intersections D2001 (R510) & D1675 (Steenbokpan) and D1675 & D2649 (Afguns Road) due to increase in traffic from construction vehicles.	Remedy	- Limit unnecessary vehicle movement - Transportation and movement of construction machinery must not be undertaken during peak traffic times - Road upgrades and traffic control improvements are already required at the D2001 & D1675 and D1675 & D2649 intersections analysed without the added traffic from the project. These upgrades are thus not related to the planned railway yard and its associated additional traffic demand. - Transnet will need to engage SANRAL and RAL regarding the upgrades which need to be implemented on the D2001 (R510) and RAL is responsible for the D1675 (Steenbokpan Road) and D2649 (Afguns road). Upgrades required at the Intersection: D2001 & D1675 include: - Traffic signal; - Extend 60m left-slip lane to 120m (D2001); - Additional 60m right-turn lane on south-western approach to

				allow for double right-turn; and - Additional 60m through-lane on north-western approach (D2001). Upgrades required at the Intersection: D1675 & D2649 include: - Traffic signal; - additional 60m through lane on eastern approach; and - Additional 60m through lane on western approach.
	10.7.17	Increase traffic along the D2649 and railway yard access road. The D2649 and access road intersection has a Level of Service of A (free flow condition)	Remedy	- Based on these traffic volumes upgrading the access road is proposed from Afguns Road (D2649) to the railway yard. Access control is envisaged for the railway yard. - Upgrades required to the intersection include a 60m passing lane on Road D2649 Mr Hills requested that access control should be implemented near Afguns Road (D2649). This was considered during the TIA and it is noted that the existing service road is also used by the surrounding farms and access will therefore not only be limited to Transnet employees. If access control is implemented the following is proposed for the access control point: - Option 1: Guardhouse in the middle separating lanes within in and outbound lanes of >4.5m wide with 100m (due to geometry of the road ±150m) spacing from D2649: - Option 2: Guardhouse on the side of the road with in and outbound lanes of >3.7m wide with 100m (due to geometry of the road ±150m) spacing from D2649: The TIA has considered two alignments for the access road: - Existing gravel road alignment, with lane widening around curves with access control point 150m from D 2649; - Re-alignment of first part of access road to remove sharp curves and lane widening around curves. If required an access control point can be located at 100m from Road D2649. From a geometric point of view this option is preferred.

				Transnet indicated a site visit on 12 February 2019 that they are planning the upgrade of the access road from the Afguns Road (D2649) to the railway yard. This will be necessary to carry the project's estimated traffic volumes (±297 vehicles/day).
Heritage, Cultural and Palaeolontological	10.7.17	No heritage or cultural sites were found on the project site. It is unlikely that excavations could unearth any cultural or heritage resources	Remedy	▪ Cease work in the vicinity of the heritage feature find; ▪ Demarcate the area with barrier tape/other visible means; ▪ Report the find to the South African Heritage Resources Agency (SAHRA) and Limpopo Provincial Heritage Resources Agency (LIHRA) immediately; ▪ Accredited archaeologist (ASAPA registered) must be commissioned to assess the find and determine the mitigation measures.
	10.7.18	The areas where development will occur fall within areas that are identified as having a Moderate Sensitivity rating. Although fossils are scarce in the Quaternary sand and sandy soils, the possibility of finding any in the study area should not be dismissed	Remedy	An Environmental Control Officer (ECO) should take responsibility of monitoring the excavations and development onsite. If a significant find is made the procedure stipulated under Procedure for Chance Palaeontological Finds should be followed which includes the safeguarding of the exposed fossils and the contacting of a palaeontologist for further advice. The following procedure must be considered in the event that previously unknown fossils or fossil sites are exposed or found during the life of the project: 1. Surface excavations should continuously be monitored by the ECO and any fossil material be unearthed the excavation must be halted. 2. If fossiliferous material has been disturbed during the excavation process it should be put aside to prevent it from being destroyed. 3. The ECO then has to take a GPS reading of the site and take digital pictures of the fossil material and the site from which it came. 4. The ECO then should contact a palaeontologist and supply the palaeontologist with the information (locality and pictures) so that the palaeontologist can assess the importance of the find and make recommendations.

				5. If the palaeontologist is convinced that this is a major find an inspection of the site must be scheduled as soon as possible in order to minimise delays to the development. From the photographs and/or the site visit the palaeontologist will make one of the following recommendations: ▪ The material is of no value so development can proceed, or: ▪ Fossil material is of some interest and a representative sample should be collected and put aside for further study and to be incorporated into a recognised fossil repository after a permit was obtained from SAHRA for the removal of the fossils, after which the development may proceed, or: ▪ The fossils are scientifically important and the palaeontologist must obtain a SAHRA permit to excavate the fossils and take them to a recognised fossil repository, after which the development may proceed. ▪ If any fossils are found then a schedule of monitoring will be set up between the developer and palaeontologist in case of further discoveries.
Social	10.7.19	Community expectations about project benefits (throughout life of project)	Control	- Transnet must assign the role of Community Relations Manager (CRM) that is responsible for all the social aspects of the Lephalale Railway Yard to a specific person. Given the size of the operation, it may not be feasible to appoint a specific person for this role, but the task must be given to someone close to the management team and form part of his/her job description. This person will also be the contact person that community members can contact in case of emergency or for any community related matters. - Transnet must develop a grievance mechanism to address and keep record of community grievances. It must include a grievance register. It is imported to have documented evidence of community/Transnet interactions. This will assist Transnet with tracking the issues, and the community to see what actions the Transnet has taken. The community must assist with developing the grievance mechanism. - Transnet must include planning and budgeting for external

				conflict situations (such as road blocks or invasions) in their emergency response procedure. They must also compile a stakeholder engagement plan to guide their interaction with stakeholders
	10.7.20	Sense of spirit of place change due to noise and visual impacts (throughout life of project)	Control	Implement recommended noise and visual mitigation measures for this aspect.
	10.7.21	Create 50-80 construction jobs	Modify	- Create a labour desk that can communicate any available positions to the community. If existing mechanisms exist at the municipality, these can be utilised, but the labour desk should be easily accessible to the communities of Marapong and Steenbokpan. Jobs should be advertised in a manner accessible to local communities such as in the local newspaper, on local radio stations or on local information boards at community centres. - Transnet should ensure at least 70% of secondary economic opportunities are given to local contractors. A percentage of goods as determined by Transnet and the relevant stakeholders must also be procured locally. Services and goods must be procured locally as far as reasonably possible. Aspects of this positive impact will occur by default when the construction force lives locally and they utilise local services and support local shops. - Transnet should liaise with the Lephalale Development Forum (LDF) to determine which skills are locally available and which skills would be required for the project. Through the LDF Transnet can determine whether there are any opportunities to offer internships and practical experience for local students. Transnet should ensure that skills development requirements form part of their contracts with sub-consultants.
	10.7.22	Create secondary economic opportunities and skills development	Modify	
	10.7.23	Loss of livelihoods	Control	- The holding pen close to the railway yard must be relocated. Given the specialist nature of constructing such a holding pen, the land owner must provide the technical design and standard of material; - The borehole in the project area must be protected. Transnet must ensure that the farmer has access to the borehole at all times. If required, pipes must be laid from the borehole to a point in the landowner's property. Alternatively, a new borehole must be drilled inside the landowner's property. - The landowner must be given access to the other parts of his farm across the servitude. If it is not possible to do so when the railway

				yard is constructed, an alternative crossing in close proximity should be provided, including access roads and gates. - Transnet must negotiate with Mr Hills about amending the boundaries of the Koedoe Nature Reserve; - In order to assess the impact on the revenue of the hunting and tourism activities conducted on the affected properties, the landowners should provide Transnet with copies of the revenue for three consecutive years. This should be compared with the revenue from these activities during the construction and operation period of the project. This should be assessed by an independent financial advisor to see what the actual losses are, taking external economic conditions into account. Based on this, Transnet should negotiate compensation for loss of income with each affected landowner. The compensation could be in the form of a once off payment, or yearly payments for an agreed period. - To mitigate the noise impacts, and to allow for hunting activities to continue, a barrier must be constructed between the railway yard and the affected properties. The dimensions and nature of the barrier should be determined by the engineering team and relevant specialist, with input from the landowner. The ability of the structure to absorb impacts from bullets must be considered; - If the landowners suffer any physical losses due to project activities, the landowner should be compensated for their losses. Transnet must have a claims procedure that is communicated to the affected landowners. In order to receive compensation, the claim forms must be submitted to the CRM. Compensation should follow the IFC principles, which states that market related prices should be paid, and if anything is restored, it must be to the same or better standards than before
	10.7.24	Safety impacts	Control	- Workers and contractors must be educated about safety aspects in areas where there are wild animals. This could be done through toolbox talks. At least one person on site need to be trained to remove poisonous snakes. Transnet must have a zero-tolerance policy w.r.t. poaching, and make it clear what the punishment and consequences would be. All poaching incidences must be reported to the local police; - All contractors and employees need to wear photo identification

				cards. Vehicles should be marked as construction vehicles and should have Transnet logo clearly exhibited. Entry and exit points of the site should be controlled. - All vehicles entering and exiting the site must be searched to ensure that there are no firearms taken on site, and to discourage poaching. People entering and exiting the site must sign in and out. - Transnet must put procedures in place to respond to strikes as part of their emergency response procedures. These procedures must include communication with the affected landowners in an emergency situation, taking the weak cell phone signal on parts of the farms into consideration; - A barrier must be constructed between the railway yard and the affected properties. The dimensions and nature of the barrier should be determined by the engineering team and relevant specialist, with input from the landowner. The ability of the structure to absorb impacts from bullets must be considered
	10.7.25	Roads and Transport	Remedy	- Transnet should compile and implement a traffic safety plan in accordance with recommendations from the traffic specialist. This plan should form part of the Health and Safety requirements for all contractors. Appropriate road signage must be used at the entry and exit points to the site. Although Transnet cannot take responsibility for all road users, they should include road safety toolbox talks. - Suppress the dust on the access road and maintain roads to a reasonable standard; - Provide transport for employees to minimise number of cars accessing the site
OPERATIONAL PHASE				
Groundwater Impact	10.7.26	Fuel and hydrocarbon spillages from transportation vehicles may cause groundwater contamination of the shallow water table	Control & Remedy	- Resort to immediate clean up after accidental spillages. Report any spillage to the relevant Department of Water & Sanitation and Department of Environmental Affairs. - The railway yard design will include a water and oil separator at both the North and South Facility to deal with contaminated liquids onsite. Once the water passed through oil separator it is tested and drained to the sewer network. - Water and Oil Separators will include a suitable oil skimmer to remove accumulated oil from liquid surface of the separator. - To mediate possible contamination of storm water runoff a lined

				earth channel will be established alongside a portion of the track that will serve as a storage/evaporation pond. The channel will contain runoff water until it evaporates.
	10.7.27	Oil spillages from Storage Drums may cause groundwater contamination of the shallow water table	Stop	The storage facility must be lined and groundwater monitored.
	10.7.28	Fuel and hydrocarbon spillages from Diesel tanks may cause groundwater contamination of the shallow water table	Stop	Hydrocarbons, fuel tanks and oil drum storage facilities will be bunded and lined.
	10.7.29	Operation of earth channel to store coal contaminated storm water for forced evaporation may contaminate the shallow groundwater table	Stop	The earth channel will be lined. WUL will be obtained from DWS for Section 21g water uses related to disposal of water containing waste including: Section 21g: Earth Channel - Disposal of coal contaminated storm water into an earth channel for forced evaporation.
	10.7.30	Sewage Treatment System (Bio Mite) may impact on surrounding groundwater dependant users	Stop	- Drill monitoring boreholes up and down stream of the two Bio Mite systems to monitor water levels, quality and possible leakages. Implementation of groundwater monitoring system. - Cap and relocate BH01 further south of the existing railway yard to make way for the southern bypass line. Establish alternative borehole on the same intrusion further south from BH01's position so it can serve as the new BH01 monitoring borehole. - WUL will be obtained from DWS for Section 21g water uses related to disposal of water containing waste including: Section 21g: Bio Mite wastewater treatment system and soakaway - Disposal of sewage into Bio Mite at North and South Facilities and disposing treated effluent into a soak away system and also for the Guard House Septic Tank - Disposal of sewage into a septic tank;
Air Quality	10.7.31	Windblown coal dust from train wagons expected to settle in rail yard and cause a nuisance in the immediate area	Control	No loading and off-loading of train wagons will be undertaken at the expanded railway yard. The use of heavy roller to compact coal in a wagon reduces the height of the coal above the tops of the wagons and also avoids coal spillage into the rail corridor during travel.
Visual Impact	10.7.32	Presence of trains, building and communications tower	Control	- Maintain visual shield with vegetation near the zone of impacts - Use of lights at night to be control – lowest possible pylons, shine lights towards activity only, only use lights in areas where activities
	10.7.33	Lights along the railway yard expansion	Control	

				occur.
Noise Impact	10.7.34	Noise increase at the boundary of the railway yard footprint and the abutting residential areas due to Locomotive start up and idling, release of train airbrakes, due to maintenance work in the workshop, due to refuelling of locomotives, due to passing trains, due to general noise level in railway yard.	Control	- Noise monitoring to be done at the rail yard footprint, noise sources within rail yard footprint and at the abutting residential areas on a monthly basis after which the frequency can change to a quarterly/annual basis should there be no noise intrusion levels at the abutting residential properties especially noise sensitive area M. - Actively manage the proposed rail yard activity and the noise management plan must be used to ensure compliance to the noise regulations and/or standards. - The noise levels to be evaluated in terms of the baseline noise levels. - Noise monitoring will have to be carried out to determine the potential shift in the prevailing ambient noise levels on a monthly basis after which the frequency of monitoring may change to a quarterly/annual basis. Noise readings to be carried out at the measuring points as illustrated in Figure 3.1 of the Noise Impact Report.
	10.7.35	Noise intrusion at receptor M (Farm Manager residence Geelhoutkloof) due to general noise level at railway yard.	Control	Refer to Section 10.7.34 mitigation measures. Also see mitigation proposed under Social Impacts Section 10.7.24 related to the barrier.
Ecology	10.7.36	Infestation by alien invasive species could replace indigenous vegetation or potential areas where indigenous vegetation could recover and result in loss of habitat quality	Control & Remedy	Monitor and eradicate alien invasive species through the implementation of a rehabilitation plan which includes establishment of indigenous plant species.
Soil	10.7.37	Fuel spillages may result in soil contamination and there is a potential for increased erosion caused by increase runoff from concreted surfaces	Remedy	- Do not allow surface water or storm water to be concentrated, or to flow down cut and fill slopes without erosion protection measures - Repair all erosion damage as soon as possible. - Slopes where the soils are by nature sandy, must be stabilised by one or more of the following methods: ▪ Earth of rock-pack cut off berms, benches (sand bags) storm water berms - Hydrocarbons, fuel tanks and oil drum storage facilities must be bunded and lined. - Resort to immediate clean up after accidental spillages. Report any spillage to the relevant Department of Water & Sanitation and Department of Environmental Affairs.
Social	10.7.38	Create between 50 and 100 permanent jobs	Modify	Refer to Section 10.7.21 for mitigation measures applicable to

Impact				construction and operational phases
	10.7.39	Safety impacts	Control	Refer to Section 10.7.24 for mitigation measures applicable to construction and operational phases
	10.7.40	Roads and transport	Remedy	Refer to Section 10.7.25 for mitigation measures applicable to construction and operational phases
Traffic Impact	10.7.41	Increase in traffic and road safety at intersections D2001 & D1675 and D1675 & D2649. Both operate at level F	Control & Remedy	Implementation of mitigation measures proposed under the construction phase will address and improve the level of service of intersections and allow free flow of traffic.
	10.7.42	Increase in traffic and road safety along D2649 & railway yard access road intersection	Control & Remedy	Implementation of mitigation measures proposed under the construction phase will mitigate impacts foreseen during the operation, decommissioning phase and the cumulative impact.
DECOMMISSIONING PHASE				
Noise	10.7.43	Noise increase at the boundary of the railway yard footprint and at abutting residential areas due to demolition of all infrastructure	Control	- Machinery with low noise levels which complies with the manufacturer's specifications phase to be used. - Activities to take place during daytime period only. - Vehicles to comply with manufacturers' specifications and any activity which will exceed 85.0dBA to be done during daytime only.
	10.7.44	Planting of grass on rehabilitated areas	Control	
Social Impact	10.7.45	Loss of jobs and associated income if and when the railway yard is decommissioned	Modify	Planning for closure and portable skills training for employees.
Ecology	10.7.46	Increased infestation by alien invasive species owing to clearance or disturbance at the proposed footprint replaces indigenous vegetation or potential areas where indigenous vegetation could recover resulting in loss of habitat quality.	Control & Remedy	- Rehabilitation with monitoring and eradication of alien invasive species. Rehabilitate disturbed areas immediately after dismantling; do not wait until the end to rehabilitate; - Monitor re vegetated areas
	10.7.47	Continued loss of indigenous vegetation owing to poor recovery of vegetation will result in loss of habitat integrity	Control & Remedy	Rehabilitation and monitoring of indigenous vegetation following clearance.
	10.7.48	Rubble, waste and spills of petroleum oils other unwanted chemicals can contaminate the soil	Control & Remedy	Waste management to be implemented in line with the Lephalale Railway Yard Waste Management Plan.
Visual Impact	10.7.49	Dismantling of rail tracks, demolish of buildings and associated infrastructure	Control	- Removal of structures will lower the possible limited visual impact - Rehabilitate disturbed areas and ensure vegetation regrowth in disturbed areas
Impact on soils, surface and ground	10.7.50	Potential soil and pollution from hydrocarbon spillages, waste disposal practice	Control & Remedy	- All fuel storage tanks will be emptied prior to removal; - Monitoring boreholes must be capped as soon as possible to eliminate risk of groundwater contamination.

water pollution				- Wastes will be removed and disposed of at a licensed landfill site and recyclables will be taken to a licenced recycling facility.
Air Quality and Dust Impact	10.7.51	Dust emissions from decommissioning and rehabilitation activities removal of infrastructure, ripping of disturbed areas(vehicle entrained dust)	Control	- Wet dust suppression will be undertaken to manage dust emissions from vehicle movement as necessary. - Vehicle speeds will be controlled along unpaved roads 40km/hour.
Traffic Impact	10.7.52	Increased traffic along D2649 & D1675 intersection and D1675 & D2001 intersection due to increased heavy vehicle traffic along these routes and intersections when equipment is removed and transported off site. Thereafter traffic will decrease substantially one the yard no longer operates	Control	- Limit unnecessary vehicle movement, specifically during peak time am and pm traffic.
CUMULATIVE IMPACTS				
Ecological Impacts	10.7.53	Clearing of vegetation will result in habitat loss and loss of indigenous species	Control & Remedy	- Rehabilitation and monitoring of indigenous vegetation following clearance.
	10.7.54	Loss of corridors of particular conservation concern will result in fragmentation of the landscape and loss of connectivity. (A number of industrial areas are present near the site which poses an increasing threat to the ecosystems with indigenous biodiversity in the larger area. In the larger area there remains a large savannah area with indigenous biodiversity also for large carnivores and large bird species that are of particular conservation concern and which roam large areas.	Control & Remedy	- Marking of Boscia albitrunca (Shepherd's Tree) and Sclerocarya birrea (Marula Tree) at should take place at the site. Cultivation of indigenous trees at suitable areas at the site is imperative. - Leave areas with indigenous vegetation adjacent to proposed footprints.
Noise Impact	10.7.55	The cumulative impact of the train activities and the rail yard activities will create a noise intrusion on an intermittent basis. Geelhoutkloof Farm Manager's Residence will affected by the cumulative noise impact.	Control & Remedy	Actively manage the process and noise impact assessment to determine compliance to the noise regulations. The levels to be evaluated in terms of the baseline noise levels.
Visual Impact	10.7.56	Visual impact near development (100m or less)	Control	- The existing impacts – 1400kV lines, Medupi Power Station, fences

	10.7.57	Visual impact near development (100m or more)	Control	and other high infrastructure – the added impacts will be negligible. - From a distance – e.g. the nature reserve, the existing impacts are the main concerns, added impact from trains and buildings will be negligible.

10.8 Summary of Findings and recommendations of Specialist Reports

Table 36: Summary of Specialist findings and recommendations

LIST OF STUDIES UNDERTAKEN	FINDINGS AND RECOMMENDATIONS OF SPECIALISTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED
Noise Impact Assessment dBA Acoustics Barend van der Merwe	The noise increase will not be audible to low during the construction phase and not audible to very high during the operational phase and not audible during the decommissioning phase. The threshold value of 7.0dBA will be exceeded at noise receptors K, L and M for the duration the hooter will be activated inside the yard area and at intersections. The project site is located in a commercial game farming area. Some animal species have become threatened or endangered because of loss of habitat and further relocation as a result of noise disturbance is not possible. The impact at the residential areas during blasting at the borrow pits will be insignificant.	All recommendations have been included.	Section 8.12 Section 10.7 (10.7.13; 10.7.34; 10.7.43; 10.7.55) and in this Table 36. Volume 4 - EMPR

LIST OF STUDIES UNDERTAKEN	FINDINGS AND RECOMMENDATIONS OF SPECIALISTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED
	The proposed rail yard project will comply with the relevant Noise Control Regulations, 1994 and SANS 10103 of 2008 provided that the noise mitigatory measures are in place and that the noise management plan be adhered to at all times. Recommendations include: a) Noise monitoring to be done at the railway yard footprint, noise sources within the railway yard and at abutting residential areas on a monthly basis after which the frequency can change to quarterly/annual basis should there be no noise intrusion levels at the residential properties especially receptor M (cumulative impact of the train activities and the rail yard activities will create a noise intrusion on an intermittent basis at M). b) Noise readings are to be carried out at the measuring points as illustrated in Figure 3.1 of the Noise Impact Report. c) Noise levels are to be evaluated in terms of the baseline noise levels. d) By actively managing the railway yard activities and implementing the noise management plan will ensure compliance to the noise regulations and/or standards.		
Visual Impact Assessment **BioAssess** **Wynand Vlok**	The additional impact from the railway line will be very small and won't increase the already high visual impact of the area. Visual disturbance will be in an area close to the railway line – 100m and less. The dense vegetation and high trees will screen the activities.	All recommendations have been included.	Section 8.13 Section 10.7 (10.7.15; 10.7.32; 10.7.49) Table 36.

LIST OF STUDIES UNDERTAKEN	FINDINGS AND RECOMMENDATIONS OF SPECIALISTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED
	In a few places the railway line will be elevated to ensure a level working area – expected height of the railway line and train will not be more than 10m. The height of the stores (single steel structure) will be in the order of 10 – 12 meters. Mentioned was made of a communications tower – height was not confirmed. This single structure will have a smaller visual disturbance when compared to the 1400kV power lines. The view from the small outcrops in the nature reserve (south of the railway line) will have a very low visual disturbance from the proposed new infrastructure. The distance in more than 1km away and the background vegetation will further lower any visual disturbances. The clearing of vegetation for the intensive breeding facility (western section of the reserve area) will not increase the visual impact from the outcrops significantly. The impact from lights at night must be noted. The following is recommended: - All pylons for lights must be as low as possible as – preferably not higher than any other structures; - Lights must face towards the activities in order to lower the potential light pollution towards the surrounding landscape; - Only use the lights in areas where physical activities are on-going,		Volume 4 - EMPr

LIST OF STUDIES UNDERTAKEN	FINDINGS AND RECOMMENDATIONS OF SPECIALISTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED
	the rest must be switched off.		
Ecological Impact Assessment and Wetland Survey **Reinier Terblanche**	**Ecological and Wetland findings and recommendations** The vegetation on site has been impacted by the present railway line, railway reserve and hitherto excavated areas (Resgen Rail link excavated areas). Vegetation at and around the present railway reserve is woodland with a diversity of indigenous tree species described under Section 8.10.2 of this report. Two pan depressions (PES = D largely modified; EIS = low/marginal) are present at the footprint area and three identified non-perennial drainage lines (incl. 32m buffer zones). There is little scope for the site to be part of a corridor of particular conservation importance. The two small pans are part of a stepping stone corridor system of conservation importance. The seasonal streambeds (Stream crossing No. 1, 2 and 3) are conservation corridors of importance in the larger area. According to the Wetland Specialist Stream crossing No. 2 is probably enhanced by storm water runoff. The buffer zones of Pan 1 and Pan 2 are already compromised by past development. It should be noted that water flow to these small pans are probably enhanced by the present railway line structures (elevated) and water runoff from the roads next to the railway line where some erosion is visible. There is no indication that interflow plays an important role in the maintenance of the wetlands and drainage lines. The	All recommendations have been included.	Section 8.10.3 Section 10.7.7-10.7.12; 10.7.36, 10.7.46-10.7.48, 10.7.53, 10.7.54 Table 36 Volume 4 – EMPR

LIST OF STUDIES UNDERTAKEN	FINDINGS AND RECOMMENDATIONS OF SPECIALISTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED
	geomorphological setting and flow regime should be as similar as possible post development, if the development is approved. Loss of any wetland animal or plant species of particular conservation importance is not expected. Ecological sensitivity at the existing railway reserve is low, but medium north and south of the railway reserve. The ecological sensitivity is medium-high at the two pan depressions and streambeds. There are several small pans within 500m of the footprint area but are unlikely to be impacted by the development. These pans are also unlikely to experience significant increase in surface flow and erosion owing to the development. The geomorphological setting and flow regime are likely to be similar post development. Loss of any wetland animal or plant species of particular conservation importance are not expected owing to this proposed development in particular at these wetlands outside the site. The Koedoe Nature Reserve crosses the central-eastern part of the site. It has been cut off before by existing railway line. The extension of the railway reserve can further isolate the different parts of the Nature Reserve. Threatened, near threatened, declining plant/animal species are absent from site. Mammal and bird species may cross the site namely Leopard, Hyena and White-backed Vulture. But the site does not appear to be a		

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	specific breeding site for any such large carnivore and bird species which roams large areas of which the site is part. Loss of plant species which are not Threatened but listed as protected according to LEMA such as the succulent stapeliad *Piaranthus atrosanguineus* at the site is unlikely. Two widespread terrestrial tree species, nationally protected species, are present at the site namely *Boscia albitrunca* (Shepherd's Tree) and *Sclerocarya birrea* (Marula) including one provincially protected tree species *Spirostachys africana* (Tamboti). Biodiversity priority areas at the western parts of the proposed Railway Yard site are represented by a Critical Biodiversity Area 2 (CBA 2), at the central and eastern parts of the proposed Railway Yard site an Ecological Support Area 1. A key issue at the site that emerged from the risk and impact assessment is the implementation of efficient rehabilitation. Following the mitigations which will be upheld and planned footprint for development all the impact risks listed above are moderate or low. **Recommendations Pans and Streambeds:** - Restrict developments to the extension of culverts, bridge structures at roads next to the railway reserve;		

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	- Exclude narrow drainage lines with 32m buffer zones from development as far as practical; - Construction should be planned in such a manner that surface flow and erosion is limited; - The two small pans are not comparable to larger marchlands/saltpans in the region in which case a no-go zone would have applied. Since the buffer zones of the pans are already compromised the scope is during construction to move each of the pans forty metres from the edge of the road next to the railway yard expansion footprint. - The relocation of these pans will slightly improve the wetland characteristics. - By rehabilitating the two pans successfully and reinstating adequate 32m buffer zones, the risk of loss of biodiversity corridors and stepping stone small wetlands in the larger area shifts from high to moderate/low. **Recommendations Ecology:** - During the construction and operation of the proposed Railway Yard the development and activities associated with construction should be restricted to the footprint so that the different sections of the Koedoe Nature Reserve could continue to fulfil its role in biodiversity conservation in		

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	particular for animals such as birds which can fly across from the one section of the reserve to the other. It is recommended that the boundaries of the Koedoe Nature Reserve should be amended to an extent which is practical for the foreseeable future in terms of most likely developments; - Marking of Boscia albitrunca (Shepherd's Tree) and Sclerocarya birrea (Marula Tree) should take place at the site with an application of permits for the removal of these trees. - Marking of Spirostachys africana (Tamboti) should take place at the site with an application of permits for the removal of these trees. - Where practical, such as is the case for Sclerocarya birrea (Marula tree) trees should be planted at appropriate sites at the study area. For Boscia albitrunca cultivation success is too low at present to be practical in which case other indigenous trees should be cultivated at appropriate sites at the study area. - Efficient rehabilitation is to be implemented along watercourses if these are impacted; - If the development is approved, a rehabilitation plan which includes the re-establishment of indigenous vegetation at the site should be implemented. - No animal species are to be disturbed, trapped, hunted or killed during construction and operation.		

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Hydrogeological Impact Assessment **Naledzi Waterworks** **Duncan Munyai**	- The initial regional groundwater investigations identifies two aquifer zones namely weathered, and fractured aquifer zones, but needs to be confirmed and updated, supported by future test pumping and borehole logs; - The average groundwater level measured during the hydrocensus for the area of investigation is 20.345mbgl; and may take longer for contaminant to reach the water table. Activities such as earth channel, underground fuel tanks or drums, and Bio-Mite sewage system must be lined to minimize leakages and seepages to water table. - Based on the hydrocensus water quality analyses, the background groundwater quality of the existing licensed disposal facility is Marginal (Class II) to Poor (Class III - IV) water Quality; - Only boreholes GE01 Naledzi and GE06 groundwater quality are representative of calcium magnesium bicarbonate type of water (Ca, Mg – (HCO3). This water type represents unpolluted groundwater (mainly from direct rainwater recharge) and are probably representative of the pristine background water quality; - Four new boreholes (BH 1, BH 2, BH 3 and BH 4) are proposed for monitoring purposes; - Implement a regular monitoring program and management actions as required in the event of a significant spill of hazardous material from the plant or storage tanks. - General waste from the proposed activities should be stored in	All recommendations have been included.	Section 8.7 Section 10.7.3, 10.7.26 – 10.7.30 Table 36 Volume - EMPr

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	designated containment areas until removed from the site. These designated areas should be lined surfaces or in the correct storage bins. - General waste should be handled in a Proper Waste Management procedures; - Sampling and analysis of two boreholes on site will be conducted at least bi-annually, namely towards the end of the dry and wet season. The total organic carbon analysis should continue but additional indicator parameter analyses such as Oil/Soap/Grease analysis is also recommended; - For overall impact recognition and effects from nearby industries, inorganic analysis of at least macro element parameters is also strongly recommended at the same time. - With the mineral oils being mostly in the LNAPL phase, it is recommended that the sampling be conducted from the surface of the water in the boreholes. Different sampling equipment should be used for each borehole to prevent cross-contamination since the hydrocarbons are often only present in very low concentrations. - According to simplified groundwater risk rating assessment the proposed development poses a low to medium risk of impacting on the surrounding groundwater regime.		
Traffic Impact Assessment Corli Havenga Transport	Access is proposed off Road D2649, an existing surfaced road and from there via the existing access road in mostly in the railway line	All recommendations	Section 8.14.4 – 8.14.6 Section 10.7.16, 10.7.17

LIST OF STUDIES UNDERTAKEN	FINDINGS AND RECOMMENDATIONS OF SPECIALISTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED
Engineers	servitude. For the traffic capacity analyses the worst case scenario is when the trips (55 trips/day) occur during the peak hour on the adjacent road network. The adjacent road network includes intersections D2001 & D1675 and D1675 & D2649. Based on the results of the capacity analyses there are already road upgrades and traffic control improvements required at two of the major intersections analysed without the expected trips from the proposed development. These upgrades are thus not related to the planned railway yard and its associated additional traffic demand. The proposed upgrades are: Intersection: D2001 & D1675 - Traffic signal; - Extend 60m left-slip lane to 120m; - Additional 60m right-turn lane on western approach to allow for double right-turn; and - Additional 60m through-lane on northern approach. Intersection: D1675 & D2649 - Traffic signal; - additional 60m through lane on eastern approach; and - Additional 60m through-lane on western approach. - Road upgrades and traffic control improvements are already	have been included.	Volume 4 – EMPr

LIST OF STUDIES UNDERTAKEN	FINDINGS AND RECOMMENDATIONS OF SPECIALISTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED
	Based on the estimated traffic volumes this road can carry ±297 vehicles per day of which an estimated 56 trips can be truck trips. Based on the traffic volumes the upgrading of this road is proposed from the Afguns Road (D2649) to the railway yard. Upgrades required to the intersection include a 60m passing lane on Road D2649. The TIA has considered two alignments for the access road: - Existing gravel road alignment, with lane widening around curves with access control point 150m from D 2649; - Re-alignment of first part of access road to remove sharp curves and lane widening around curves. If required an access control point can be located at 100m from Road D2649. From a geometric point of view this option is preferred. Transnet indicated a site visit on 12 February 2019 that they are planning the upgrade of the access road from the Afguns Road (D2649) to the railway yard. This will be necessary to carry the project's estimated traffic volumes (±297 vehicles/day). From a traffic impact point of view the application can be supported.		
Heritage Impact Assessment Millennium Heritage	There is no indication of graves or burial sites within the proposed area. It is unlikely that excavations could unearth any cultural or heritage	All recommendations have been included	Section 8.15 Section 10.7.17, 10.7.18 Table 36

LIST OF STUDIES UNDERTAKEN	FINDINGS AND RECOMMENDATIONS OF SPECIALISTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED
Consultants **Eric Mathoho**	resources. None of the sites earmarked for development falls within the area with Very High Palaeontological Sensitivity. The areas where development will occur fall within areas that are identified as having a Moderate Sensitivity rating. Although fossils are scarce in the Quaternary sand and sandy soils, the possibility of finding any in the study area should not be dismissed. • Chance finds must be immediately reported and work stopped • An Environmental Control Officer (ECO) should take responsibility of monitoring the excavations and development onsite. If a significant find is made the procedure stipulated under Procedure for Chance Palaeontological Finds should be followed which includes the safeguarding of the exposed fossils and the contacting of a palaeontologist for further advice.		Volume 4 – EMPr
Social Impact Assessment **Equispectives** **Ilse Aucamp**	The proposed Transnet Lephalale Railway Yard will be constructed in a rural area, away from communities. It is not expected that the project will cause an influx of people into the area. It will create a significant number of jobs in an area where it is needed. In the broader economic context of South Africa, the project will have a positive impact and also have the potential to unlock other industrial development. On a site level, the project will impact negatively on the directly affected landowners and some of their livelihood activities. Given this situation,	All recommendations have been included.	Sections 10.7.19 – 10.7.25 Table 36 Volume 4 - EMPr

LIST OF STUDIES UNDERTAKEN	FINDINGS AND RECOMMENDATIONS OF SPECIALISTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED
	the following recommendations are made: - Transnet must appoint a community relations manager that is trusted by the community and have the necessary skills and education before construction commences; - Transnet must develop a community-friendly external grievance mechanism in conjunction with communities; - Transnet must develop a community relations strategy to plan for and guide its involvement with the community. The strategy should include feedback mechanisms about aspects of concern to the community; - Transnet must share the skills that will be required with the Lephalale Development Forum as soon as possible to allow the LDF to prepare for the construction and operation phase; - Transnet should establish a labour desk and put measures in place to ensure the most effective local employment strategy; - Transnet must ensure social requirements as specified in the mitigation measures are included in their contracts with sub-contractors; - Transnet must ensure traffic impacts are minimised in accordance with the recommendations made in the traffic impact assessment; - Transnet must engage with farmers directly about aspects that may affect their livelihoods and compensate them in a fair manner if any		

LIST OF STUDIES UNDERTAKEN	FINDINGS AND RECOMMENDATIONS OF SPECIALISTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED
	assets are lost or compromised. It is recommended that the list of recommendations should be included in the environmental authorisation. Given the positive impact on national level, it is recommended that this project is given environmental permission to proceed.		
Waste Study **GCS Environmental Engineering** **Pieter De Coning**	In terms of NEMA and NEM: WA, everyone is required to take reasonable measures to ensure that they do not pollute the environment. Reasonable measures include informing and educating employees about the environmental risks of their work and training them to operate in an environmentally responsible manner. If the abovementioned waste management recommendations are adopted, it is anticipated that the majority of negative environmental impacts caused by improper management of the various waste streams can be mitigated. The following recommendations are made with regards to waste management practices proposed at the Lephalale railway yard: ▪ It is recommended that the waste management plan of the Lephalale railway yard be implemented and enforced. The plan covers the storage, handling and transportation of waste to and from the railway yard. Transnet must ensure that the contractor's	All recommendations have been included.	Section 4.4.4 Volume 4 - EMPr

LIST OF STUDIES UNDERTAKEN	FINDINGS AND RECOMMENDATIONS OF SPECIALISTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED
	responsible, if applicable, are made aware of their requirements and procedures. ▪ Opportunities to recycle both general and hazardous waste should be identified and where possible waste should be recycled. It is suggested that Transnet develop a recycling plan to manage these criteria. ▪ Sufficient collection points needs to be identified with adequate capacity and be serviced frequently. These collection areas need to be properly designed and secured with appropriate pollution prevention measures in place i.e. storm water control and used oil, and other chemical storage areas, should be adequately bunded and lined and should have working containment traps. ▪ The collection and transport of waste should be done as frequently as possible and an approved waste management contractor should be appointed to do the collection and transport to the applicable disposal sites. In the case of hazardous waste transport an appropriate waste manifest system should be developed and implemented. ▪ Waste management records (ie. Waste manifests, certificate of safe disposal etc.) should be kept by the department responsible for waste for audit purposes. ▪ Any contaminated soil on site should be remediated. The appropriate remedial measures will be identified in consultation with an appropriately qualified specialist. If remediation of the		

LIST OF STUDIES UNDERTAKEN	FINDINGS AND RECOMMENDATIONS OF SPECIALISTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED
	soil in situ is not possible, the soils will be classified according to NEM: WA and will be disposed of at an appropriate licensed waste facility. Care should be taken to ensure that non-hazardous materials do not become polluted. Hazardous and non-hazardous materials should be separated and stored in separate containers to prevent any cross contamination.		

SECTION I: ENVIRONMENTAL IMPACT STATEMENT

This section summarises the findings of the EIA and provides a comparative assessment of the positive and negative implications of the proposed expansion of the Lephalale Railway Yard.

11 Environmental Impact Statement

11.1 Summary of Key Findings of EIA

The results of this EIA report indicate that:

- All the impact risks on ecology will be moderate to low, if all mitigations are upheld for the development.
- Threatened, near threatened, declining plant and animal species are absent from site. Mammal and bird species may cross the site namely Leopard, Hyena and White-backed Vulture. But the site does not appear to be a specific breeding site for any such large carnivore and bird species which roams large areas of which the site is part.
- Two widespread Nationally Protected Tree species *Boscia albitrunca* (Shepherd's Tree) and Sclerocarya *birrea* (Marula) including one provincially protected tree species *Spirostachys africana* (Tamboti) are present onsite. Marula can be translocated at appropriate sites at the study area but not Shepard's Tree since the success rate is too low.
- The Koedoe Nature Reserve will be further isolated by the expansion of the railway yard yet can be mitigated by way of amendment of the boundaries of the nature reserve to an extent which is practical in terms of most likely future developments.
- Two small pan depressions present at the footprint area will be impacted by the yard expansion. The buffer zones have already been compromised. Relocating the pans will slightly improve the wetland characteristics and reinstate adequate 32m buffer zones lowering the risk of loss of biodiversity corridors and stepping stone wetlands from high to moderate/low. (The Ecologists highlights that the no-go route does not apply to these pans);
- The seasonal streambeds (Stream crossing No. 1, 2 and 3) are conservation corridors of importance in the larger area. According to the Wetland Specialist Stream crossing No. 2 is probably enhanced by storm water runoff. Streambeds will be conserved. Culverts from the existing railway track will be extended to the new tracks to allow the streams to flow under the new railway tracks.
- The risk of groundwater pollution from the development is low to medium and identified risks can be addressed through bunding and lining of moderate risk facilities and implementing the recommended groundwater monitoring plan.
- The noise impact will be very high since the threshold value of 7.0dBA will be exceeded at noise receptors K, L and M for the duration the hooter will be activated inside the yard area and at intersections. But by actively managing the railway yard activities and implementing the noise management plan it will ensure compliance to the noise regulations and/or standards.
- The visual impact will be very low. Visual disturbance will be in an area close to the railway line – 100m and less. The dense vegetation and high trees will screen the activities.
- The view from the small outcrops in the nature reserve (south of the railway line) will have a very low visual disturbance from the proposed new infrastructure.
- The railway yard expansion will have no effect on the culture and heritage of the area. No graves/burial sites were found within the footprint area. It's also unlikely that such will be unearthed.
- The areas where development will occur fall within areas that are identified as having a Moderate Palaeontological Sensitivity. Although fossils are scarce in the Quaternary sand

and sandy soils, the possibility of finding any in the study area should not be dismissed. Procedures for chance finds are prescribed for Palaeontological finds to remedy potential impacts.

- The majority of negative environmental risks related to waste streams can be adequately addressed through proper waste management.
- From a traffic impact point of view the application can be supported. The expansion of the railway yard will result in 55 additional trips/day on the local road network. Two main intersections on the adjacent road system are operating at a poor level of service of F. The level of service can be improved by implementing the proposed upgrades along the D2001&D1675 including the D1675&D2649 reducing the impact from increased traffic along these routes Level of Service A (free flow traffic). But these upgrades are required without the expected trips from the railway yard expansion;
- Transnet will upgrade the existing gravel service road to the railway yard off the D2649 Afguns Road to cater for the increased traffic along their service road. The recommendation is also to add a 60m passing lane along the D2649.
- Transnet will install its own sewage management system to manage sewage volumes at the yard. It will bring water to site from a municipal source and Eskom will provide electricity for the railway yard operations.
- The project will have a positive social impact on national level since it has the potential to unlock other industrial development and will result in creation of significant job opportunities.
- On site scale the project will have a negative impact on directly affected landowners and some of their livelihood activities.

The most significant impacts from the above findings include noise and the negative impact on directly affected landowners' livelihood activities. As stated under Section 10.2.1.1; Land owners are used to the impacts from the existing railway line and can live with it as it is currently operated. However with the expansion of the yard the sense and spirit of place of these farms will be impacted by increased noise levels from trains stopping and starting, airbrakes, shunting, whistles and maintenance activities. Visual impacts such as more railway lines, buildings and light at night will also impact on the sense and spirit of place. The sense of place will be altered permanently. Transnet must engage with farmers directly about aspects that may affect their livelihoods and compensate them in a fair manner if any assets are lost or compromised. A detailed Social Management Plan has further been developed to manage the potential social risks.

Even so, the project will have a positive economic impact, on national level; it has the potential to unlock further industrial development and is instrumental to unlocking the northern mineral belt of the Waterberg. The expansion of the railway yard is being proposed based on validated demand and confirmed mining investment. A significant number of job opportunities will be created during the construction and operational phases of the project.

11.2 Composite Map

The EIA Regulations require a map at an appropriate scale which superimposes the proposed activity and its associated infrastructure on the environmental sensitivities of the preferred development footprint indicating any areas that should be avoided, including buffer zones.

See Appendix 1F for the Composite Map.

11.3 Comparative Assessment of the positive and negative implications of the proposed activity and alternatives

Table 37: Positive and Negative Implications for the project

Positive Implications	Negative Implications
Create 50-80 job opportunities during construction phase and 50-100 job opportunities during the operational phase	Noise impact will be very high during operation of the expanded railway yard and the threshold value of 7.0dBA will be exceeded at receptors K, L, M. The noise intrusion will mostly be felt at M (Geelhoutkloof Farm Manager's residence).
Positive economic impact with potential to further unlock industrial development and the northern mineral belt of the Waterberg.	Negative impact on directly affected landowners' livelihood activities (impact on sense and spirit of place due to increased noise levels, night lights)
Provision of increased domestic and export rail capacity along the Waterberg Rail Corridor.	Additional visual impact from railway line will be limited since there is an already high visual impact in the area. Impact from lights at night must be noted.
Two pans already impacted by the railway yard will be relocated to improve its wetland characteristics which will result in reinstating adequate 32m buffer zones.	A moderate to low ecological impact is expected due to removal of indigenous vegetation, loss of individual nationally and provincially protected trees.
	Koedoe Nature Reserve will be further isolated by the expansion of the railway yard.
	Impact on wetlands. Destruction of two very small pan depressions within the expansion footprint area. But these will be relocated and rehabilitated. See positive implications.
	Traffic impact on adjacent road system due to increased traffic volumes.

11.4 Impact management objectives and the impact management outcomes for inclusion in the EMPr

Table 38: Impact Management Objectives and outcomes for inclusion in the EMPr

ASPECT	OBJECTIVE	OUTCOME OF IMPACT MANAGEMENT
Cultural, Heritage and Paleontological Resources / Finds	Protect and record any chance find heritage, cultural resources and or palaeontological finds.	Comply with the National Heritage Resources Act 25 of 1999 and chance finds must immediately be reported and work stopped. An ECO should take responsibility of monitoring the excavations and development onsite. If a significant find is made the procedure stipulated under Procedure for Chance Palaeontological Finds as adopted from the National Heritage Resources Act, 1999 Regulations Reg No. 6820, GN: 54, should be followed to safeguard

		exposed fossils and the contacting of a palaeontologist for further advice.
Ecology (Fauna & Flora)	Maintain Indigenous Floral and Faunal Biodiversity and conserve as much of the habitat and faunal structure as possible, further conserve conservation important fauna & flora species and maintain habitat connectivity. Avoid spreading of alien invasive species and encroachment into indigenous vegetation.	Restrict development footprint to limit impact on the Koedoe Nature Reserve. Transnet engage landowner to amend boundaries of KNR in terms of the National Protected Areas Act to avoid further isolation of the nature reserve. Mark protected tree species identified for removal and obtain permits for the removal of these trees in terms of Section 15 (1) of NFA from DAFF and in terms of LEMA from LEDET. Translocate protected trees where possible. Efficient rehabilitation implemented along watercourses and rehabilitation and re-establishment of indigenous vegetation on exposed areas including control and eradication of alien invasive species to avoid it spreading into indigenous vegetation.
Wetlands and Streambeds	Rehabilitate wetland depressions already compromised within the expansion footprint and conserve streambeds.	Relocate Pans 1 & 2 and reinstate its 32m buffer zones resulting in the rehabilitation of the pans. Restrict developments to the extension of culverts, bridge structures at roads next to the railway reserve and limiting erosion. Exclude narrow drainage lines with 32m buffer zones from development as far as practical. Protect water sources/aquatic ecosystems in line with National Water Act of 1998. Obtain Water Use License from DWS for Section 21i and 21c water uses triggered by the development and comply with WUL conditions.
Groundwater	Avoid contamination of shallow water table and surrounding groundwater regime and avoid impact on water quality of surrounding groundwater users. Minimize spillage or wastage of any	Implementation of regulation groundwater monitoring program and management actions to gauge impacts during operation on water quality and level. Ensure on the basis of current water use in the area, the baseline water

	hazardous material in or at the storage tanks or plant area. Thoroughly clean up any leaks, spills or wastage that does occur. Implement a regular monitoring program and management actions as required in the event of a significant spill of hazardous material from the plant or storage tanks. General waste from the proposed activities should be stored in designated containment areas until removed from the site. These designated areas should be lined surfaces or in the correct storage bins. General waste should be handled in Proper Waste Management procedures.	quality must comply South African National Standard for drinking water (SANS241:2011); and standards of SANS 241:2015 and Irrigation and Livestock Watering Guidelines. Ensure that waste management facilities which pose a risk for groundwater contamination are lined. Desludging of Bio Mite system by service provider and removal of coal sludge from earth channel to appropriate disposal facility. Water management measures in compliance with NWA, 1998. Obtain Water Use License from DWS for Section 21g water uses triggered by the development and comply with WUL conditions.
Soil Resources	Maintain good quality topsoil for successful rehabilitation. Ensure that topsoil / soil not colonised with alien species and result in further erosion of soils. Protection of soil resources.	Indigenous vegetation will be re-instated on disturbed areas to curb erosion of soil and maintain biodiversity. Biodiversity and alien invasive management in accordance with NEM: BA 2004.
Noise	Minimise noise levels to acceptable levels.	Maintain and implement a Complaint's register. Noise monitoring at the railway yard footprint, noise sources within the railway yard and at abutting residential areas on a monthly basis after which the frequency can change to quarterly/annual basis should there be no noise intrusion levels at the residential properties especially receptor M. Manage the railway yard activities and implement the noise management plan to ensure compliance to the Noise Control Regulations, 1994 and SANS 10103 of 2008.

Visual Impact	Limit visual disturbance from on nature reserve and adjacent farms (nigh lights, presence of expanded railway yard)	Limit light pollution. Install lights with low pylons, lights will face towards activities Light at railway yard expansion face towards railway yard activity. Lights only to be used in areas where physical activities are on-going.
Social	Manage social and community aspects. Record, track and address grievances. Ensure that all staff knows what to do in conflict situations. Minimise the noise and visual impact on neighbouring properties. Inform local community that they will be informed of available jobs. Ensure Transnet contribute to the local economy through secondary opportunities. Liaise with Lephalale Development Forum to ensure Transnet contribute to local education, skills development and training. Avoid impacts on livelihood of the affected landowners. Ensure that landowners do not suffer actual losses as a result of the project. To ensure landowner has access to his boreholes/new alternative borehole. Ensure landowner has access to his property on both sides of the railway without incurring additional costs. To ensure the requirements of the Protected Areas Act are met. To ensure landowners are fairly compensated for actual loss of income. Barrier to be established between railway yard and hunting activities to mitigate the noise and safety impact on people moving	Appointment of a Community Relations Manager responsible for social aspects. Grievances Register and Monthly feedback reports. Emergency Response Plan and a Stakeholder Engagement Plan. Refer to management outcomes for visual and noise impact above. Transnet employ a number of people of the local community. Signed service provider agreements. Requirements written into sub-consultant agreements Number of internships and on-the job training opportunities offered. Successful relocation of holding pen. Claims register. Completed claim forms. Landowner satisfied with access to borehole/alternative borehole position. Landowner satisfied with access routes. Amended boundaries for Koedoe Nature Reserve documented. Audited financial statements. Approved report from independent financial advisor. Signed compensation agreements. Barrier between the railway yard and hunting activities. Inspection sheets of quarterly inspections.

	in the area. Ensure worker safety and protect landowners' assets and discourage poaching. Zero-tolerance policy to poaching. To ensure safety and security of affected communities and landowners. To discourage poaching and to keep a record of who enters the site. Ensure safety of all affected parties during strikes. To avoid any mortalities when turning off the Afguns Road. Minimise dust and ensure that roads are in good condition. Ensure that workforce have access to transport to work.	 Toolbox talks. Poaching incidences reported to local police. All contractors and employees issued with photo identification cards. All vehicles marked. Access control onsite. Entry and exit register. Emergency response procedure. Signage on the Afguns Road. Included in Health and Safety Plans. Toolbox Talks. ECO and monthly audit reports. Signed transport agreements.
Waste Management	Avoid improper waste management from various waste streams at the railway yard. Recycle general and hazardous waste. Collect waste for yard at central area. Frequent removal and transport of waste. Ensure that non-hazardous materials do not become polluted.	Compliance and enforcement of the Lephalale Railway Yard Waste Management Plan and compliance with the NEMWA. Recycling Plan. Sufficient collection points, serviced frequently. Bunded and lined collection areas with working containment traps. Approved waste management contractor remove waste to applicable disposal site. Hazardous waste manifest system Waste Management Records. Hazardous and non-hazardous materials stored in separate containers to prevent any cross contamination.
Traffic	Safe access from D2649 to existing railway yard servitude road. Good level of service at intersections and adjacent road network.	Additional 60m passing lane at the D2649 intersection with the railway yard access road including appropriate signalling. Upgraded gravel access road with lane widening at curves and access control 150m from D2649. Compliance with Road Safety Act.

11.5 Final proposed alternatives which respond to the impact management measures

No location alternatives were considered for the project since it's dictated by the location of the existing yard. The only activity type considered feasible by Transnet was the expansion of the railway yard. The preferred sewage system is the Bio Mite wastewater treatment unit.

The Traffic Engineer suggested the re-alignment of the existing railway yard access road as the preferred option. However this has further cost implications for Transnet and therefore he preferred alignment is the 'existing gravel road alignment, with lane widening around curves with access control point 150m from the D2649'.

11.6 Opinion as to whether the proposed activity should /should not be authorised

The project is of national priority and if commissioned will have a positive economic impact nationally. It will create rail capacity along the Waterberg Rail Corridor at Lephalale which is urgently required based on confirmed demand and mining investments. It forms part of Transnet's Waterberg Rail programme to increase rail capacity to unlock the northern mineral belt of the Waterberg. The project will have a positive economic impact at national level and will further unlock industrial development in the Waterberg coal fields. It will also create a significant number of job opportunities during construction and operation.

There are negative environmental risks to the project. Negative social impacts associated with the sense and spirit of place, livelihood impacts and transport have been identified since it's based in a commercial game farming area. Some of these impacts can be mitigated to lessen their severity. Job creation is a significant positive impact. A number of mitigation measures have been recommended in EMPr address the social risks.

The most significant impact from the project will be noise from the operation of the railway yard and it will be very high and will exceed the threshold value of 7.0dBA at three specific receptors close the railway yard expansion footprint, in particular the Geelhoutkloof Farm Manager's residence. With the implementation of a Noise Management Plan at all times the project will comply with the relevant Noise Control Regulations, 1994 and SANS 10103 of 2008. The visual impact from the project will be limited and lights along the railway yard will have to be faced down away from surrounding properties. Provided that the noise mitigation measures are in place and that the noise management plan be adhered to at all times.

In particular the expansion of the railway yard will further isolate the Koedoe Nature Reserve yet has been isolated before by the existing railway track. The amendment of the boundaries of this nature reserve is recommended.

Several other potential high and medium significance impacts have been identified for the project namely the risk of groundwater contamination from waste facilities and fuel storage onsite, light pollution from the railway yard, safety impacts from hunting activities in vicinity of the railway yard, roads and traffic. After applying the recommended mitigation measures majority of the impacts can either be controlled or remedied to lower significance.

The most important aspect of the project will entail Transnet directly engaging with directly affected farmers about aspects that may affect their livelihoods and compensate them in a fair manner if any assets are lost or compromised.

If all recommended mitigation measures are implemented the project is feasible from an environmental and social point of view. The predicted negative impacts can be minimized by implementation of recommended mitigation measures. Mitigation measures are formalised in the EMPr. Strict noise monitoring measures will need to be implemented as per the Noise Monitoring Plan.

It is the view of the environmental assessment practitioner, the information contained in this report and the documentation attached hereto is sufficient to make a decision in respect of the activity applied for. There is no obvious environmental reason why the proposed development should be denied.

Recommendations that should be included as conditions in the environmental authorisation are detailed in Section 11.7.

11.7 Aspect for inclusion as conditions of Authorisation

The granting of an authorisation for the expansion of the railway yard activities should be subject to the following:

- During the construction and operation of the proposed project the development and activities associated with construction should be restricted to the footprint so that the different sections of the Koedoe Nature Reserve could continue to fulfil its role in biodiversity conservation in particular for animals such as birds which can fly across from the one section of the reserve to the other.
- The boundary of the Koedoe Nature Reserve is to be amended to an extent practical considering mostly likely future developments.
- Approval for amendment of the Koedoe Nature Reserve boundaries must be obtained from the Limpopo Department of Economic, Development, Environment and Tourism in terms of the National Protected Areas Act (Act 57 of 2003);
- A suitably qualified Ecologist is to mark national protected trees *Boscia albitrunca* (Shepherd's Tree) and *Sclerocarya birrea* (Marula Tree) identified for removal within the railway yard expansion footprint. Marking of provincially protected *Spirostachys africana* (Tamboti) should take place at the site with an application of permits for the removal of these trees.
- Permit for removal of nationally protected trees needs to be obtained from DAFF under Section 15 (1) of the National Forest Act no 84 of 1998. No person may cut, disturb, damage or destroy any protected tree or possess, collect, remove, transport, export, purchase, sell, donate in any manner acquire or dispose of any protected tree, except under a license granted by the Minister.
- A permit for removal for identified Tamboti trees in the project footprint prone for removal must be obtained from LEDET once environmental authorisation is issued by DEA.
- Where practical, *Sclerocarya birrea* (Marula tree) trees should be planted at appropriate sites at the study area.(Translocate);
- No animal species are to be disturbed, trapped, hunted or killed during construction and operation;
- Restrict developments at Stream crossing No. 1 and No. 3 to the extension of culverts, bridge structures at roads next to the railway reserve.
- The small pan depressions (Pan 1 & 2) located within the railway yard expansion footprint is each to be moved forty metres from the edge of the road next to the railway yard expansion footprint and its 32m buffer zones are to be reinstated. The two small pans are not comparable to larger marchlands/saltpans in the region in which case a no-go zone would have applied.
- A Water Use License must be obtained in terms of the National Water Act 36 of 1998 from the Department of Water and Sanitation for Section 21c and 21i water uses triggered due to the

proposed stream crossings and impact on two pans and several other pans within 500m of the development footprint. These include:

- Section 21c and i: Construction and extension of culverts across three stream crossings for new railway tracks and new tar access road
- Section 21c and i: Construction and expansion of railway yard within 500m of several pan depressions.

- Hydrocarbon, fuel tanks, oil drum storage facilities must be bunded and lined.
- The earth channel proposed to contain coal contaminated storm water runoff must be lined to minimize leakages and seepages to the water table.
- The expansion of the railway yard must include a water and oil separator at both the North and South Facility to deal with contaminated liquids onsite. Water which has passed through oil separator is to be tested and drained to the sewer network.
- A Groundwater Monitoring Programme is to be implemented as detailed in the Hydrological Impact Report by Naledzi Waterworks dated April 2019 prepared for the project.
- Cap and relocate BH01 further south of the existing railway yard to make way for the southern bypass line. Establish an alternative borehole on the same intrusion further south from BH01's position so it can serve as the new BH01 monitoring borehole.
- Coal sludge accumulated in the earth channel must be removed to an appropriate waste management facility. Sludge may not be disposed of onsite.
- Sludge removed from the Bio Mite Wastewater treatment systems must be removed offsite by a service provider and may not be disposed of onsite.
- A Water Use License must be obtained in terms of the National Water Act 36 of 1998 from the Department of Water and Sanitation to conduct waste related Section 21(g) water uses which may impact on groundwater namely:
    - Section 21g: Bio Mite wastewater treatment system and soakaway - Disposal of sewage into Bio Mite at North and South Facilities and disposing treated effluent into a soak away system
    - Section 21g: Guard House Septic Tank - Disposal of sewage into a septic tank
    - Section 21g: Earth Channel - Disposal of coal contaminated storm water into an earth channel for forced evaporation
- Transnet must measure the environmental noise levels during construction, operation and decommissioning phases to ensure compliance to the recommended and threshold noise levels.
- Noise monitoring is to be implemented at the railway yard footprint, noise sources within the railway yard and at abutting residential areas on a monthly basis by Transnet Environmental Department after which the frequency can change to quarterly/annual basis should there be no noise intrusion levels at the residential properties especially receptor M (Geelhoutkloof Farm Manager's residence).
- Quarterly Noise Audits are to be done by a qualified environmental noise specialist to ensure that the legislated noise will be adhered to at all times.
- Noise readings are to be carried out measuring points stipulated in the Noise Impact Report (dBA Acoustics, 2019). Noise levels are to be evaluated in terms of the baseline noise levels.
- Lights fitted at the expanded railway yard must face towards the activities in order to lower the potential light pollution towards the surrounding landscape.
- The D2649 intersection with the existing railway yard access road must be upgraded with the addition of a 60m passing lane. The existing railway yard access road must be upgraded by widening of lanes around curves with access control point at 150m from the D2649.
- Transnet must appoint a community relations manager that is trusted by the community and have the necessary skills and education before construction commences;
- Transnet must develop a community-friendly external grievance mechanism in conjunction with communities;

- Transnet must develop a community relations strategy to plan for and guide its involvement with the community. The strategy should include feedback mechanisms about aspects of concern to the community;
- Transnet must share the skills that will be required with the Lephalale Development Forum as soon as possible to allow the LDF to prepare for the construction and operation phase;
- Transnet should establish a labour desk and put measures in place to ensure the most effective local employment strategy;
- Transnet must ensure social requirements as specified in the mitigation measures are included in their contracts with sub-contractors;
- Transnet must ensure traffic impacts are minimised in accordance with the recommendations made in the traffic impact assessment;
- Transnet must engage with farmers directly about aspects that may affect their livelihoods and compensate them in a fair manner if any assets are lost or compromised.
- To mitigate noise impacts and to allow for hunting activities to continue a barrier must be constructed between the railway yard and affected properties as determined by the engineering team with input from the landowner.
- The Lepahale Railway Yard Waste Management Plan (GCS Environmental Engineers dated 2019) must be implemented and enforced.
- The EMPr should be implemented by a senior qualified environmental assessment practitioner credible to interpret the EIR & EMPr;
- The project must remain in full compliance with the requirements of the EMPr
- Expansion of the Lephalale Railway Yard may only commence on approval and issuance of the Water Use License by DWS for Section 21 water uses relevant to the project.

11.8 Period for which the environmental authorisation is required

Since this application includes operational aspects the period for which the environmental authorisation is required cannot be specified.

Construction period is set to start in 2021 and extend over 2 years and 6 months. The operation of the project is estimated to start in 2024, but the life of the project is not known.

11.9 Description of any assumptions, uncertainties and gaps in knowledge

Appendix 3 of the EIA Regulations of 2014 (GNR 326) states that the EAP must provide a description of any assumptions, uncertainties and gaps in the knowledge upon which the impact assessment has been based. The assumptions and limitations applicable to the specialist assessments include:

Noise Impact

- This an existing railway line with existing train activities during the day and night time period;
- The prevailing ambient noise levels for the study area was created by far and near noise sources associated with traffic and distant mining activities with the result that the prevailing ambient noise level may change at times;
- Noise measurements in the presence of winds in excess of 3.0m/s may impact the outcome of the environmental noise results;
- Insect activities during the summer periods increase the prevailing ambient noise level during the day and night time periods accordingly;
- The influx of traffic into an area will have an influence on the prevailing ambient noise levels and should be considered during the noise impact assessment process.

Traffic

- It is expected that some employees at the railway yard expansion will make use of public transport, car pool and own transport. Assumptions were made for modal splits. See Section 7 of the TIA.
- The expected daily diesel and water usage could not be confirmed during the site visit. For the purpose of this study it was assumed that tuck deliveries
  Diesel: 200 000 litres per day, 4 trucks per day to site
  Water: 120 000 litres per day, 4 trucks per day to site
  Sewer: 1 truck per day to site
  Maintenance: 2 trucks per day to site
  Daily trips: Normal day to day trips outside peak traffic hours, we work on an estimate of 20% of the daily trips occurring during peak hours, (55 trips x 2)/0.4 = 275 trips during the day. The off peak trips 275 - 110 = 165 will have a 50:50 directional split.
- It is expected that majority of the staff for the railway yard will reside in the Lephalale and Marapong areas. Trips were therefore assessed to and from these areas.
- The morning weekday peak hour traffic (55) and afternoon peak hour (55), off peak trips (165), truck trips (22) were estimated to total 297 trips per day.
- It is expected that 30 staff members will make use of public transport and staff busses. Due to location of the railway yard the engineer allowed for 2 minibuses to and from the yard during weekday peak traffic hours.

Groundwater

- No consistent groundwater monitoring is being undertaken in the area and no water level data was available for the area until Golder conducted a hydrogeological investigation in 2015. The project baseline groundwater level is based on data obtained from:
  - Water levels as measured in the existing boreholes by Golder 2015;
  - Water levels as measured in the existing boreholes by Naledzi 2018.
- The rivers and streams in the area are non-perennial and only flow after floods. No surface water samples were collected to determine the surface water baseline quality.

Social Impact Assessment

- Not every individual in the community could be interviewed therefore only key people in the community were approached for discussion. Additional information was obtained using existing data.
- The social environment constantly changes and adapts to change, and external factors outside the scope of the project can offset social changes, for example changes in local political leadership or economic conditions. It is therefore difficult to predict all impacts to a high level of accuracy, although care has been taken to identify and address the most likely impacts in the most appropriate way for the current local context within the limitations.
- Social impacts can be felt on an actual or perceptual level, and therefore it is not always straightforward to measure the impacts in a quantitative manner.
- Social impacts commence when the project enters the public domain. Some of these impacts will occur irrespective of whether the project continues or not. These impacts are difficult to mitigate, and some would require immediate action to minimise the risk.
- There are different groups with different interests in the community, and what one group may experience as a positive social impact, another group may experience as a negative impact. This duality will be pointed out in the impact assessment phase of the report.

- Social impacts are not site-specific but take place in the communities surrounding the proposed development.

Visual Impact

- None documented

Ecology

- Surveys can by no means result in an exhaustive list of the plants and animals present on the site, because of the time constraint.
- Surveys on site and surrounding study area were conducted during June 2018, February 2019 and April 2019 which include an optimal time of the year to find many of the habitat sensitive plant and animal species of high conservation priority, especially following late but substantial rains.
- Rainfall has been low for a number of years. Weather conditions during the survey were favourable for recording fauna and flora. The focus of the survey remains a habitat survey that concentrates on the possibility that species of particular conservation priority occur on the site or not.
- The Ecological Study currently bases its findings on a summery survey the winter survey is yet to be conducted in May 2019. But it is unlikely that more surveys would alter the outcome of this study.

Wetland Impact Assessment

- Wetlands or riparian zones are very dynamic systems and owing to time constraints a glimpse of conditions at wetlands are taken, even though the hydrogeomorphological setting, soil wetness characteristics and established vegetation constitute some longer term features of a wetland.
- Surveys can by no means in an exhaustive list of wetland plants and animals present on the site, because of the time constraint;
- The survey at the site was conducted during June 2018, February 2019 and April 2019 to note key elements of habitats on the site, relevant to the conservation of wetlands and riparian areas.
- The focus of the survey was a habitat survey that concentrates on the hydrogeomorphological, hydrological and additional descriptors to classify and assess wetlands where present and to assess for the likelihood of occurrence or not of any wetland fauna and flora of particular conservation concern.

Heritage and Palaeontological

- Although fossils are scarce in the Quaternary sand and sandy soils, the possibility of finding any in the study area should not be dismissed.
- The Heritage survey may not detect all heritage resource in each project area;
- Some remains may be missed during surveys (observations) others may occur below the ground and may be exposed once development commences.
- Great effort was invested in surveying the entire site.

Waste Management

- This is a completely new development; hence precise details in terms of the amount/volume of waste of the waste streams that will arise during the two main phases are not available.
- It is assumed that all mineral wastes will be stockpiled/disposed of on-site or at the borrow pits, if feasible, to minimize the costs involved in haulage
- Volume of the expected storm water discharge into the earth channel was not made available, only the position, length and size of the channel.

12 Deviations from the approved Scoping Report and Plan of Study

All the specialist studies proposed within the Scoping Report have been commissioned and completed during the Impact Phase. Findings and recommendations have been included in the EIR and EMPr.

It is important to note that the follow up Winter Survey for the Ecological Impact Assessment Report, as per DEA's request, will be conducted from 27 to 30 May 2019 after which the Ecological Impact Assessment will be updated and submitted to DEA. In spite of this requirement the Ecologist is of the opinion that it is unlikely that more surveys would alter the outcome of the assessment.

It was also foreseen during the draft EIR and EMPr public review and commenting period to host two public meetings, one at Lephalale and one at Marapong. However one public meeting has been scheduled at Komunati Lodge in close proximity to the proposed yard expansion area to essentially engage with direct and adjacent landowners. From the EIR findings it is evident that the identified impacts for the project significantly affect the direct landowners and some adjacent landowners. It is therefore of more significant to focus engagements to landowners in the direct area since the other stakeholders are located far from the project site. The public meeting is however open to any interested parties to attend and have been advertised in the local newspaper along with the availability of the draft EIR and EMPr.

SECTION J: OTHER INFORMATION REQUIRED BY CA

Where applicable, any specific information required by the competent authority; and (l) any other matter required in terms of section 24(4)(a) and (b) of the Act. (2) Where a government notice by the Minister provides for any protocol or minimum information requirement to be applied to an environmental impact report, the requirements as indicated in such notice.

Section 24 (4)(a) and (b) of the Act states the following:

4. Procedure for the investigation, assessment and communication of the potential impact of activities must ensure, as a minimum, with respect to every application for an environmental authorisation –

    a) Investigation of environment likely to be significantly affected by the proposed activity and alternatives thereto;
    b) Investigation of potential impact of the activity and its alternatives on the environment and assessment of significance of that potential impact.

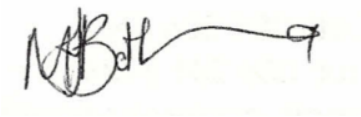
No specific information required by the authority; should it be required it will be included accordingly. Any other potential impacts identified during the public participation review period (by organs of state, public) of the EIA Phase, will be considered and the report will be updated accordingly.

SECTION K: EAP OATH

In undertaking the EIA Phase of the project the EAP has taken into consideration the requirements stipulated in the EIA Regulation of 2014 (as amended by GNR 326), as well as other relevant Acts and Regulations. The EAP hereby confirm that with the information available at the time of preparing the EIA Report and the reports prepared by the specialists, the following has been taken into account in preparing this report:

- The correctness of the information provided in the report;
- The inclusion of comments and inputs from stakeholders and interested and affected parties; and
- The inclusion of inputs and recommendations from specialist reports where relevant; and
- Any information provided by the EAP to interested and affected parties and any responses by the EAP to comments to inputs made by interested and affected parties

I, Marissa Ilse Botha, herewith undertake that the information provided in the foregoing report is correct and that the comments and inputs from stakeholders and I&APs have been correctly recorded in the report. Specialist recommendations have been considered and included in the EIA Report, EMPr and have been considered in the overall design of the railway yard expansion layout.



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SIGNATURE OF EAP
DATE: 27/05/2019

13 NEXT STEP IN THE EIA PROCESS

The Final EIA Report and EMPr will be prepared when the public review period lapses and submitted to the authorities for decision making. DEA must reach a decision on the application within 107 days from submission of the EIA Report.