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

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**VOLUME 4 - ENVIRONMENTAL MANAGEMENT PROGRAMME**

*Version: Final*

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**THIS ENVIRONMENTAL MANAGEMENT PROGRAMME HAS BEEN PREPARED FOR THE APPLICATION FOR ENVIRONMENTAL AUTHORISATION FOR THE PROPOSED EXPANSION OF TRANSNET'S LEPHALALE RAILWAY YARD**

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## PROJECT INFORMATION

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**Reviewer:** Desmond Musetsho

**Date of draft version:** May 2019

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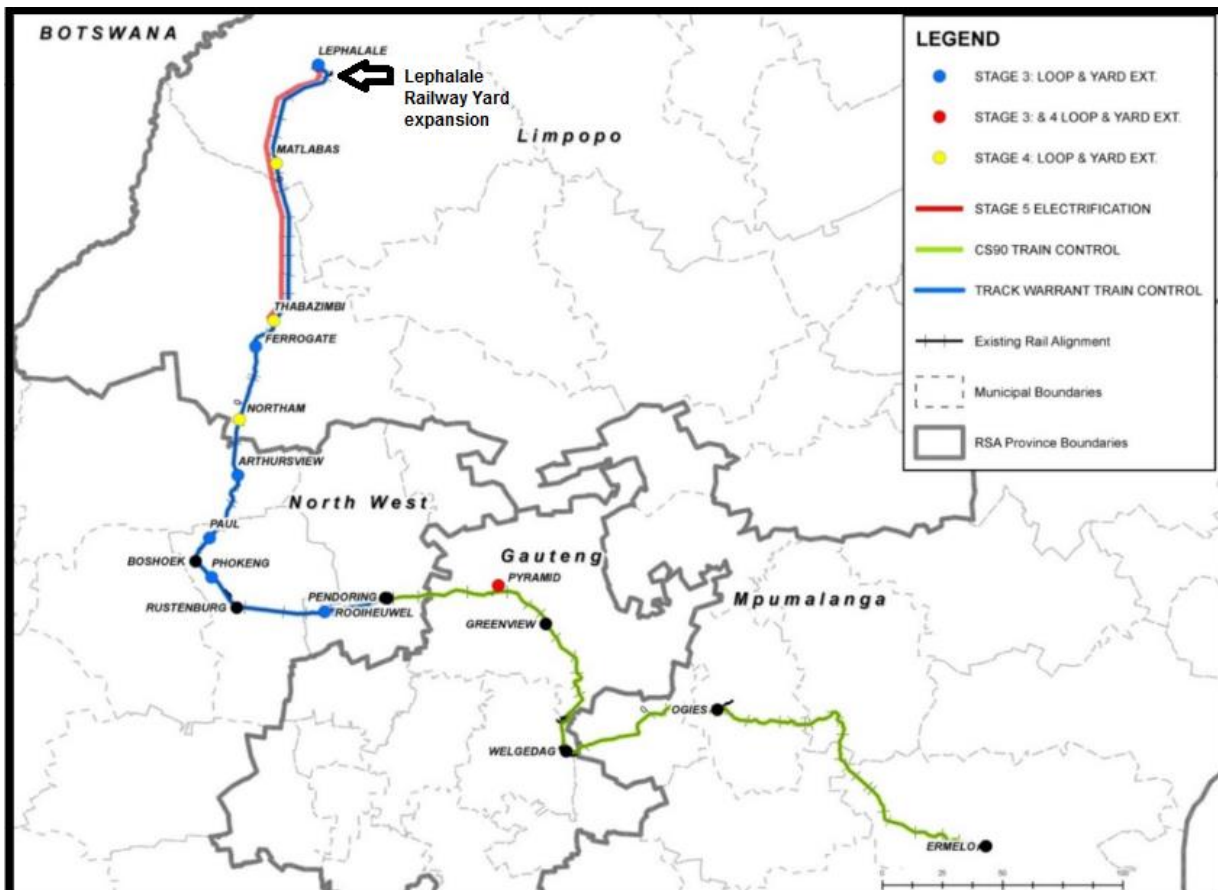
# 1 INTRODUCTION

Transnet proposes to expand the Lephhalale Rail Yard, an existing 100 wagon yard, situated in the northern extreme of the Waterberg coal line in Limpopo Province (Figure 1). The yard is currently limited to the single Lephhalale to Thabazimbi rail track situated at Lephhalale behind Medupi Power Station. The yard experiences congestion and is not able to accommodate 200 wagon trains from the surrounding mines and will thus be extended south of the existing track onto private land to allow for the compilation of 200 wagon trains.

Naledzi Environmental Consultants Pty Ltd has been appointed by Transnet to secure all the necessary environmental authorisations and submit an Environmental Management Programme (EMPr) for the expansion of the Lephhalale Yard to the Department of Environmental Affairs (DEA) for approval.

Various potential environmental aspects and impacts have been identified and considered for the project in the Environmental Impact Report (EIR). The EIR document's the project consequences and recommends ways to manage, control, remedy and stop environmental degradation which may be caused by the activity. These impacts require proactive management, which is achieved through the implementation of the EMPr.

This EMPr therefore sets out Transnet's environmental responsibilities for expanding and operating the Lephhalale Yard.



**Figure 1: Waterberg Coal line alignment between Lephhalale to Pyramid South linking to the existing Ermelo rail line. The Lephhalale Rail Yard is at the northern end of the Waterberg Coal line, indicated as the Lephhalale Rail Yard expansion**

## 2 DETAILS OF ENVIRONMENTAL ASSESSMENT PRACTITIONER

### 2.1 Details of EAP who prepared the EMPr

Naledzi has been appointed by Transnet to prepare the EMPr in terms of the NEMA EIA Regulations of 2014 (GNR. 326). The report author is Marissa Botha.

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### 2.2 Expertise of the EAP who prepared the EMPr

Marissa Botha is a Professional Environmental Scientist with South African Council for Natural Scientific Professions (SACNASP) (registration number 117526) with 14 years working experience in the environmental management industry (Annexure A\_EAP CV and SACNASP Registration).

Extensive experience was gained 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. Her areas of skill include project management, environmental scoping and impact assessments, basic assessments and environmental management programmes. She has worked in Limpopo, North West, Gauteng, Northern Cape, Mpumalanga and Free State Provinces of South Africa.

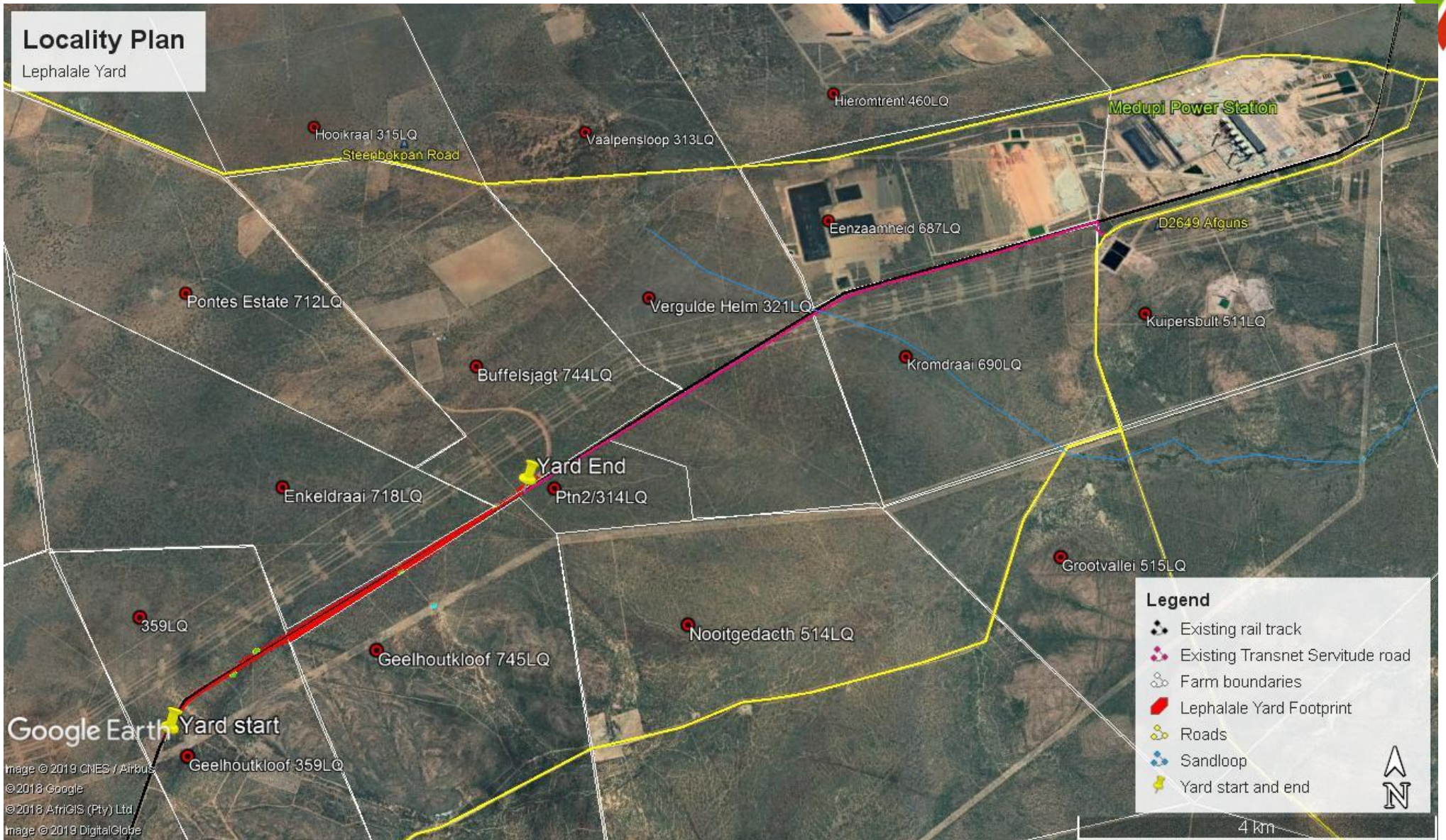
## 3 PROJECT LOCATION

Lephalale Yard is 30km south west of Lephalale town at Steenbokpan behind the Medupi Power Station in the Waterberg District of Limpopo Province. It is accessed from the existing Transnet gravel servitude road from the D2649 Afguns Road behind Medupi Power Station (Figure 2).

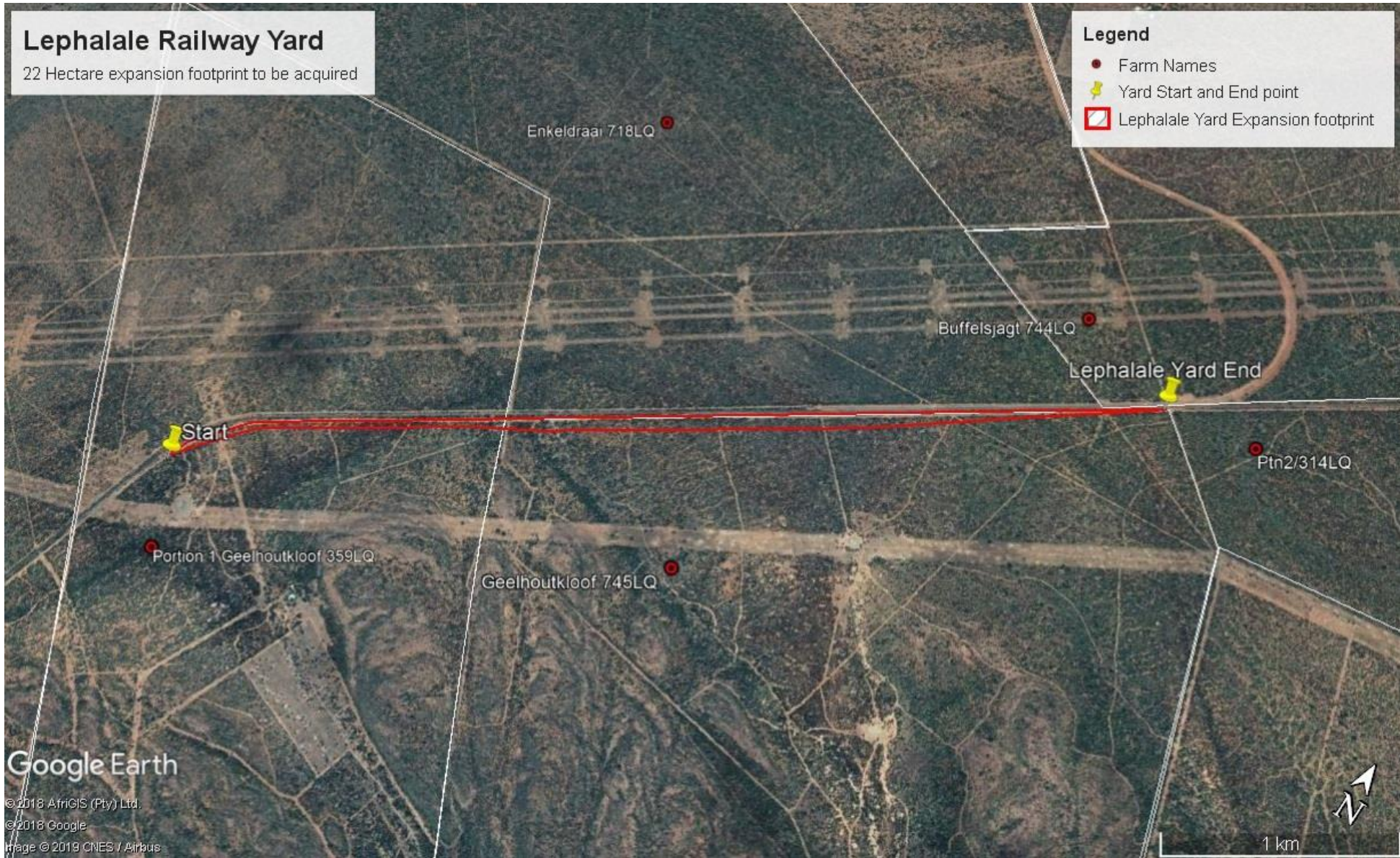
The railway yard expansion Phase 1 (Bypass line) starts at 23°46'34.23"S 27°25'55.86"E and ends at 23°45'0.97"S 27°28'11.61"E. Phase 2 (Arrival line) starts at 23°46'11.67"S 27°26'16.54"E and ends at 23°45'04.54"S 27°28'05.76"E. All associated infrastructure will be located between these coordinate points.

The expansion of the yard will extend beyond Transnet servitude impacting on 22 hectares of privately owned commercial game farming land south of the existing Thabazimbi Lephalale rail track (Figure 3). Affected properties include Portion 1 (remainder) of the farm Geelhoutkloof 359LQ and farm Geelhoutkloof 717LQ, farms Enkeldraai 718LQ and Buffelsjagt 744LQ.





**Figure 2: Locality of Lephale Yard expansion behind Medupi Power Station amongst commercial game hunting farms**



**Figure 3: Lephale Yard Expansion footprint area to be acquired**

## 4 ENVIRONMENTAL MANAGEMENT PROGRAMME

### 4.1 Purpose of EMPr

The EMPr is a guideline document that sets out what needs to be considered to mitigate identified potential impacts and describes how this could be achieved. It is therefore not a specification of exact methods. The document provides a basis for managing, mitigating and monitoring the environmental impacts associated with all phases of the development in terms of the NEMA.

The requirements/procedures are binding on Transnet, who would ultimately be the holder of the EA after DEA approves the EIR and EMPr.

The content of the EMPr is consistent with the requirements as set out in Appendix 4 of GN R 326 of the EIA regulations, for the construction, operation and decommissioning phases.

### 4.2 Objective of the EMPr

The objective of this EMPr is:

- To identify a range of mitigation measures which could reduce and mitigate the potential impacts to minimal insignificant levels;
- Detail actions required to assist in alleviating the environmental impact derived from rail yard construction and operations;
- Where applicable, address concern and complaints of I&APs with regard to the rail yard operations;
- Institute a method of monitoring and auditing environmental management procedures during the identified phases of the facility operations;
- Ensure that safety recommendations are implemented and fulfilled;

**Table 1: Objective of EMPr**

<b>The EMPr intends to:</b>
<b>Avoiding impacts</b> by not performing certain actions
<b>Minimising impacts</b> by limiting aspects of an action
<b>Rectifying impacts</b> through construction, restoration, etc of the affected environment
<b>Compensating for impacts</b> by providing substitute resources or environments
<b>Minimising impacts</b> by <b>optimising processes</b> , structural elements and other design features
Provide <b>on-going monitoring</b> and management of <b>environmental impacts</b> of a project operations and <b>documenting of any digressions /good performances</b> .

### **4.3 Amendment to the EMPr**

The EMPr is a working document; the objectives and management action tables are to be reviewed and possibly modified whenever changes, such as planned activity change, modification to environmental objectives and targets, additional unforeseen environmental impacts are identified and when relevant legal or other requirements are changed.

Regulation 35 of the NEMA EIA Regulations of 2014 (GNR 326) states that any amendments to the EMPr as a result of an audit or conditional requirements of the EA must be communicated in writing to the DEA within the timeframes as stipulated in the Environmental Authorisation. DEA must consider the environmental audit report and amended EMPr and approve such amended EMPr, if it is satisfied that it sufficiently provides for avoidance, management and mitigation of environmental impacts associated with the undertaking of the activity, and that it has been subjected to an appropriate public participation process.

Regulation 36 of the NEMA EIA Regulations specifies where other amendments are required to the impact management actions of an EMPr, such amendments may immediately be effected by the holder and reflected in the next environmental audit report submitted as contemplated in the environmental authorisation and regulation 34. Where an amendment to the impact management outcomes of an EMPr is required for before an audit is required in terms of the environmental authorisation, an EMPr may be amended on application by the holder of an environmental authorisation.

## **5 LEGISLATIVE REQUIREMENTS**

### **5.1 Applicable Legislation**

This EMPr has been prepared as a requirement in terms of Section 23 (1), (4) and Appendix 4 of the Environmental Impact Assessment (EIA) Regulations of 2014 (as amended April 2017) promulgated under the National Environmental Management Act (Act 107 of 1998) (NEMA).

Developers further need to comply with a range of other laws which regulate the impact on the environment.

- Constitution of the Republic of Southern Africa Act No 108 of 1996
- National Environmental Management Act 107 of 1998 (NEMA) and EIA Regulations of 2014 (GNR. 326) and its scheduled listing notices 1, 2 and 3 (GN 327, 325 and 324)
- National Water Act (Act 36 of 1998)
- Mineral and Petroleum Resources Development Act (Act 28 of 2002) (MPRDA)
- National Environmental Management: Waste Act (Act 58 of 2008) (NEM: WA)
- National Forest Act, (Act 84 of 1998)
- GN. 817 of 2007 Notice of List of Nationally Protected Tree Species under National Forest Act (Act No. 84 of 1998)
- National Environmental Management: Biodiversity Act (Act 10 of 2004) (NEM:BA)

- National Environmental Management: Protected Areas Act (Act 57 of 2003) (NEMPAA)
- National Heritage Resources Act (Act 25 of 1999) (NHRA)
- Noise Control Regulations (1994) (NCR) promulgated in terms of the Environmental Conservation Act
- Limpopo Environmental Management Act No 7 of 2003 (LEMA)
- Subdivision of Agricultural Land Act (Act No. 70 of 1970)
- Conservation of Agricultural Resources Act (Act No. 43 of 1983)
- National Environmental Management: Air Quality Act (Act No. 39 of 2004)
- National Road Traffic Act (Act No 93 of 1996)
- Hazardous Substances Act (Act No 15 of 1973) (as amended by Act No. 53 of 1992)

## **5.2 Applicable Permits**

### **5.2.1 Approval for amendment of Protected Area boundary**

The extension of Lephalale Yard will cut across Koedoe Nature Reserve. Koedoe Nature Reserve was proclaimed in 1962, is privately owned and no management plan exists for its. The nature reserve is artificial in that it is in fact commercial game hunting farms.

In the event that an application is lodged in a protected area, the applicant must acquire landowner approval in terms of Section 50 (5) of the National Environmental Management Protected Areas Act 57 of 2003 (NEMPAA) before the application can be approved. The landowners have not provided landowner approval for the project during the EIA Process.

Approval must be obtained from Limpopo Department of Economic, Development, Environmental and Tourism for the amendment of the Koedoe Nature Reserve boundaries to exclude the railway yard expansion footprint from the proclaimed area. The boundaries are to be amended to an extent which is practical for the foreseeable future in terms of most likely developments. The application for its amendment is to be submitted to LEDET by the two landowners of the protected area, namely Mr Hills and Mr Sauer. Transnet must negotiate this with the landowners during its land acquisition process, assist the landowners with the application process and also bare the overall costs.

The amended nature reserve boundaries must be approved and published before construction of the yard expansion commences (planning phase).

### **5.2.2 Consent from Minister of Agriculture**

The Subdivision of Agricultural Land Act (Act No. 70 of 1970) states that the subdivision, lease for 10 years or longer, sale or development of agricultural land may not take place without the written consent of the national Minister of Agriculture, in consultation with the premier of the province in which the development takes place.

Section 2 of the Act states that actions excluded from application of the Act include:

- Any subdivision of land for the purposes of transferring a portion thereof to the State or a statutory body;
- the transfer of an undivided share in land to the State or a statutory body;
- the sale or grant of any right to any portion of agricultural land to the State or a statutory body

Transnet is considered as a statutory body and as such this Act is not applicable and no permits/approvals are required. But a servitude agreement is required for the affected farms.

### **5.2.3 Heritage and Palaeontological Record of Decision**

The National Heritage Resources Act (Act 25 of 1999) under Section 38 requires that for construction of railway lines, roads, exceeding 300m in length and any development exceeding 5000m<sup>2</sup> in extent the applicant must notify the heritage resources agency and provide details regarding the location, nature extent of the project. Section 35(4) of the Act also protects palaeontological sites.

Both a Heritage Impact Assessment and Desktop Palaeontological Study were undertaken for the project. No cultural, heritage or palaeontological resources were recorded. If any such resources are encountered during bulk earthworks, a heritage permit may be required.

The South African Heritage Resources Agency has provided their final comment on the Heritage Impact Assessment and desktop Palaeontological Assessment on 17 July 2019 stating that it has no objection to the development going ahead. Chance find recommendations have been prescribed by SAHRA in the approval letter and have been included in this EMPr. (Annexure B\_SAHRA approval letter)

### **5.2.4 Water Use License**

A Water Use License is required from the Department of Water and Sanitation (DWS) for Section 21 water uses under the National Water Act (Act No. 36 of 1998) which require licensing. A Water Use License is to be obtained for the following water uses:

- Section 21 a: Abstraction of groundwater from borehole/s to supply the yard water demand
- Section 21 c and i: Construction and extension of culverts across three stream crossings
- Section 21c and i: Construction of the development within 32m of a two pan depressions
- Section 21c and i: Construction of the development within 500m of several pan depressions
- Section 21g: Bio-Mite wastewater treatment system to cater for the yard facilities discharging treated effluent into a soak away system
- Section 21g: Disposal of effluent into a small Bio Mite system and subsequent disposal of treated effluent in a soak away system at the Guard House
- Section 21g: Disposal of coal contaminated storm water into an earth channel for forced evaporation

The application and subject reporting will be lodged with DWS in line with the Regulations for Procedural Requirements for Water Use License Applications and Appeals GNR 267 of 24 March 2017. The activity may not commence until the WUL is obtained.

### **5.2.5 Mining Permit (Borrow Pit)**

A Mining Permit must be obtained from the Department of Mineral Resources (DMR) in terms of Section 27 of the Mineral and Petroleum Resources Development Act (Act No. 28 of 2002) for the establishment of the two borrow pits.

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

The above permit and authorisation for the borrow pits must be obtained from the DMR before the two borrow areas can be established.

### **5.2.6 Permits for Removal of National and Provincially Protected Trees**

Section 15 (1) under the National Forest Act (Act No 84 of 1998) states that only under license granted by the Minister to an applicant may a protect tree be cut, damaged or destroyed. Nationally Protected Tree species which require licensing for removal have been included under GN. 817 of 2007 Notice of List of Nationally Protected Tree Species under National Forest Act (Act No. 84 of 1998). Nationally protected *Sclerocarya birrea* (Marula) and *Boscia albitrunca* (Shepherd's Tree) have been recorded onsite and individual trees are prone for removal. Protected Tree Removal Permits must be obtained from Department of Forestry and Fisheries (DAFF) prior to its removal.

Provincially protected Tamboti (*Spirostachys Africana*) (Schedule 12) has also been recorded onsite. A permit for its removal must be obtained from LEDET.

The tree permits need to be obtained before construction commences.

### **5.2.7 Other permits**

The fuel storage facility at the Lephalale Yard is less than 1000m<sup>3</sup> and no atmospheric emissions licence (AEL) is required in terms of the National Environmental Management: Air Quality Act (Act No. 39 of 2004).

Section 28 of the National Environmental Management: Waste Act (Act No. 59 of 2008) requires entities or industries to develop waste management plans for their industry. The Lephalale Yard Waste Management Plan has been prepared and its recommendations included in this EMP. No waste management license is required but in the event that waste is stored for more than 90 days onsite, a license will be required and will require environmental authorisation.

## **6 PROPOSED ACTIVITY**

Appendix 4 of GNR 326 requires that an EMP must include:

- a) A detailed description of the aspects of the activity that are covered by the environmental management programme as identified by the project description;

- b) A map at an appropriate scale which superimposes the proposed activity, its structures, and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that should be avoided, including buffers.

## 6.1 Details of the proposed activity

The Lephalale 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 yard.

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 commercial game farming land to be acquired.

The 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.

The upgrading of the existing Transnet gravel servitude road from the D2649 Afguns road to the position of the yard does not form part of this EIA and EMPr Scope of works.

## 6.2 Components of the project

The Lephalale yard expansion will comprise the following infrastructure:

- 4 new railway lines of 4.8km (Phase 1= 4.9km and Phase 2 = 3.7km)
- Construction and extension of culverts from the existing single track railway line to the new tracks
- New tarred access road (8 m wide, 3.7km long) from yard entry to the furthest railway yard facilities;
- Lights along the railway yard site;
- Gravel service road (4m wide, 3.7km long) north of the arrival line, in existing rail servitude;
- Guard House with storage tank (20 000 litre/21m<sup>3</sup> JoJo Tank), Bio Mite sewage treatment unit and soak away system
- Roads and carports at facilities
- North Facility (office and administrative buildings): Provisional Facility, Staff amenities, Store room, Administration Building, Infra Crew Building, Water Reservoir (steel tank) with a volume of 260m<sup>3</sup>, effluent management (water/oil separator)
- Diesel storage area: 600m<sup>3</sup> of diesel storage tanks and 4 decanting slabs at one point, 500 litre (0.5m<sup>3</sup>) diesel tanker in fire pump room;
- South Facility (Maintenance and repair building): Provisional Facility, sanding facilities, 6720 litres of oil storage (32 drums of oil), Parts storage room, Staff amenities, will be used for the facility, Effluent management (water/oil separator)



- Fire suppression systems which require a foam storage tank, water storage tank and foam pipelines;
- Bio Mite sewage system at North and South Facility
- A Mini-substation 630kVA, 22kV/400V will be constructed at the administration building to cater for the North and South facility electricity requirements.
- Earth channel of 550m in length x 3m wide x 2m deep to control and evaporate coal contaminated storm water;
- Upgrading the existing Transnet gravel servitude road with lane widening (up to 4.5m) around curves with access control 150m from the D2649.
- Extensive cut and fill will be undertaken to obtain a level yard site (Spoil material during Phase 1– 263027.31 – 32166271m<sup>3</sup> and Phase 2, 308873.55 – 374163.11m<sup>3</sup>) either to be used for berms and fill or stockpiles in areas of designated borrow areas for later use for rehabilitation of borrow areas
- Drainage around site will comprise table drains in cuttings, pipes, manholes and culverts.,

Two borrow pits of < 5 Hectares will be established for the construction of the railway yard on the farm Buffelsjagt 744LQ to source fill material. 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. These positions have been confirmed by Transnet. Separate EMPr's will be generated for the two borrow pits and submitted to the DMR for approval and are therefore dealt with separately.

### **6.3 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 and conclude by 2024. The railway yard facility is set to start operating in 2025.

#### **6.3.1 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 6.3. Phase 1 will involve the following:

- Mark protected trees for removal along the new perimeter fence line to be established for Geelhoutkloof 717LQ and 359LQ south of the railway yard expansion footprint and at yard footprint. Once permits are obtained activities below will follow;
- 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;

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
- Establishment of two borrow areas on Buffelsjagt 744LQ (pending confirmation from landowner)
- 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

Please note the upgrading of the existing Transnet gravel servitude road with lane widening (up to 4.5m) around curves with access control 150m from the D2649 Afguns road to the yard position does not form part of this EIA Process and EMPr Scope of Works.

### **6.3.2 Construction Camp**

There will be no construction camp, 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.

### **6.3.3 Operation of the Lephalale Yard**

- Office and administrative activities from two Transnet operating units (50-100 people working at yard).
- Crossing of 200 wagon trains
- 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;
- Abstracting groundwater from borehole/s and pumping supply to the Water Reservoir
- Receiving of bulk fuel for diesel locomotives;
- Cleaning and removing coal sludge from earth channel
- Cleaning primary sludge chambers every 1 or 2 years from the Bio Mite systems at North and South facilities

18 Trains will use the facility during the construction and operation of the Lephalale Railway Yard. Currently 8 trains pass the existing Lephalale-Thabazimbi single railway line in both directions. The operational period of the expanded yard has not been defined by Transnet.





#### **6.3.4 Decommissioning of the Lephalale Yard**

Decommissioning of the rail yard is not foreseen in the near future. The current yard is over 40 years old and being extended. The aspects that may form part of the decommissioning phase when implemented include:

- Dismantling / demolition of all yard infrastructure
- Removal of waste to suitable landfill sites
- Planting of grass on rehabilitated areas
- Monitoring rehabilitation efforts

#### **6.4 Composite Map**

The footprint area for the Lephalale Yard expansion extends south of the existing rail track onto a commercial game farm. There are three stream crossings and two small pan depressions within yard extension footprint area. The two small pan depressions will be relocated and rehabilitated (no-go does not apply here) and culverts will be extended from the existing rail track to the new tracks to allow the non-perennial streams to be conserved and to flow under the tracks. The below composite map 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.

	Red outline	Arrival line (north)
	Blue outline	Bypass line (south)
	Light green	Medium-High sensitivity (pan depressions, stream crossings)
	Coloured blocks	Railway yard expansion facilities

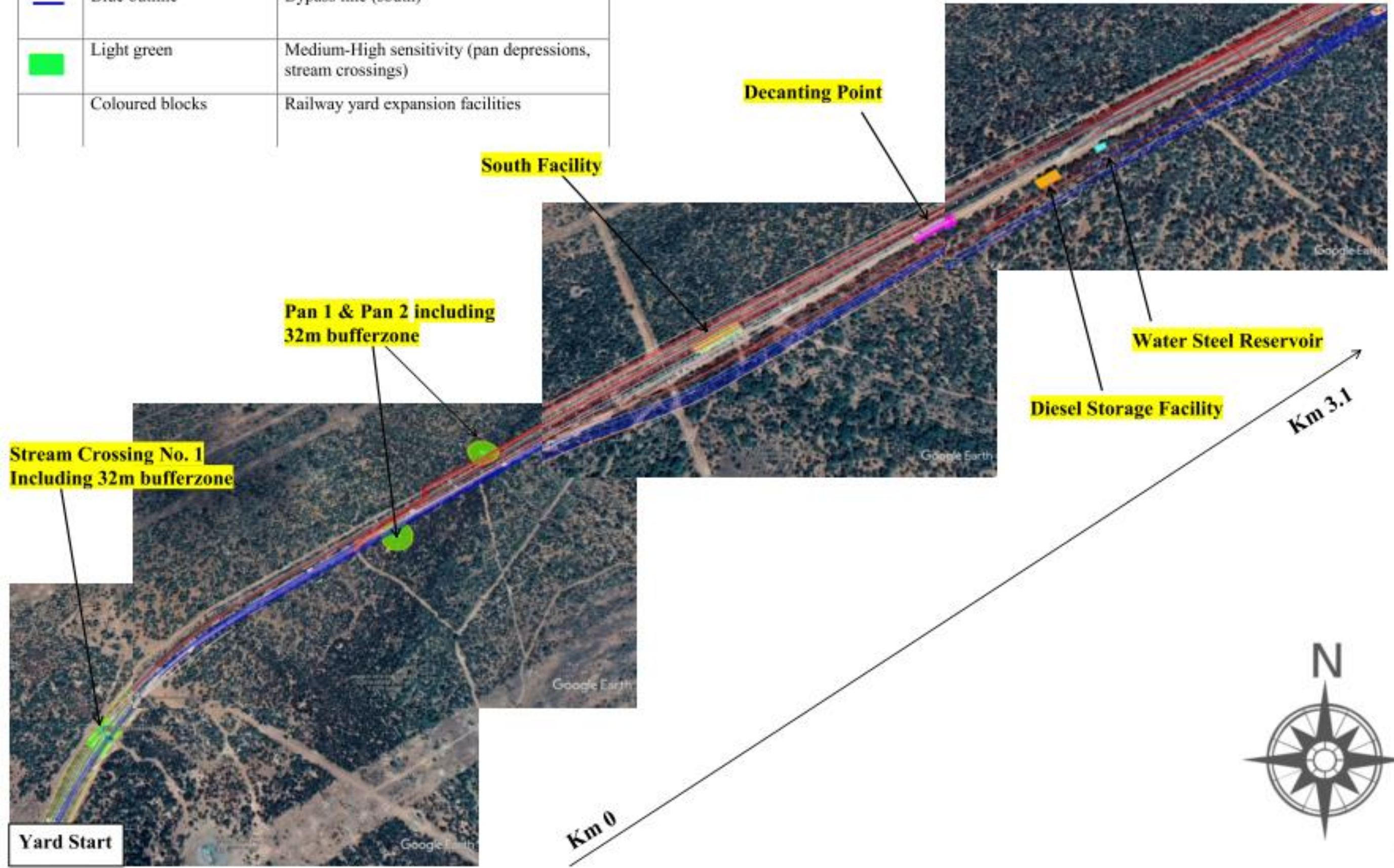


Figure 4: Composite Map of Lephalale Yard from start 0km to 3.1km

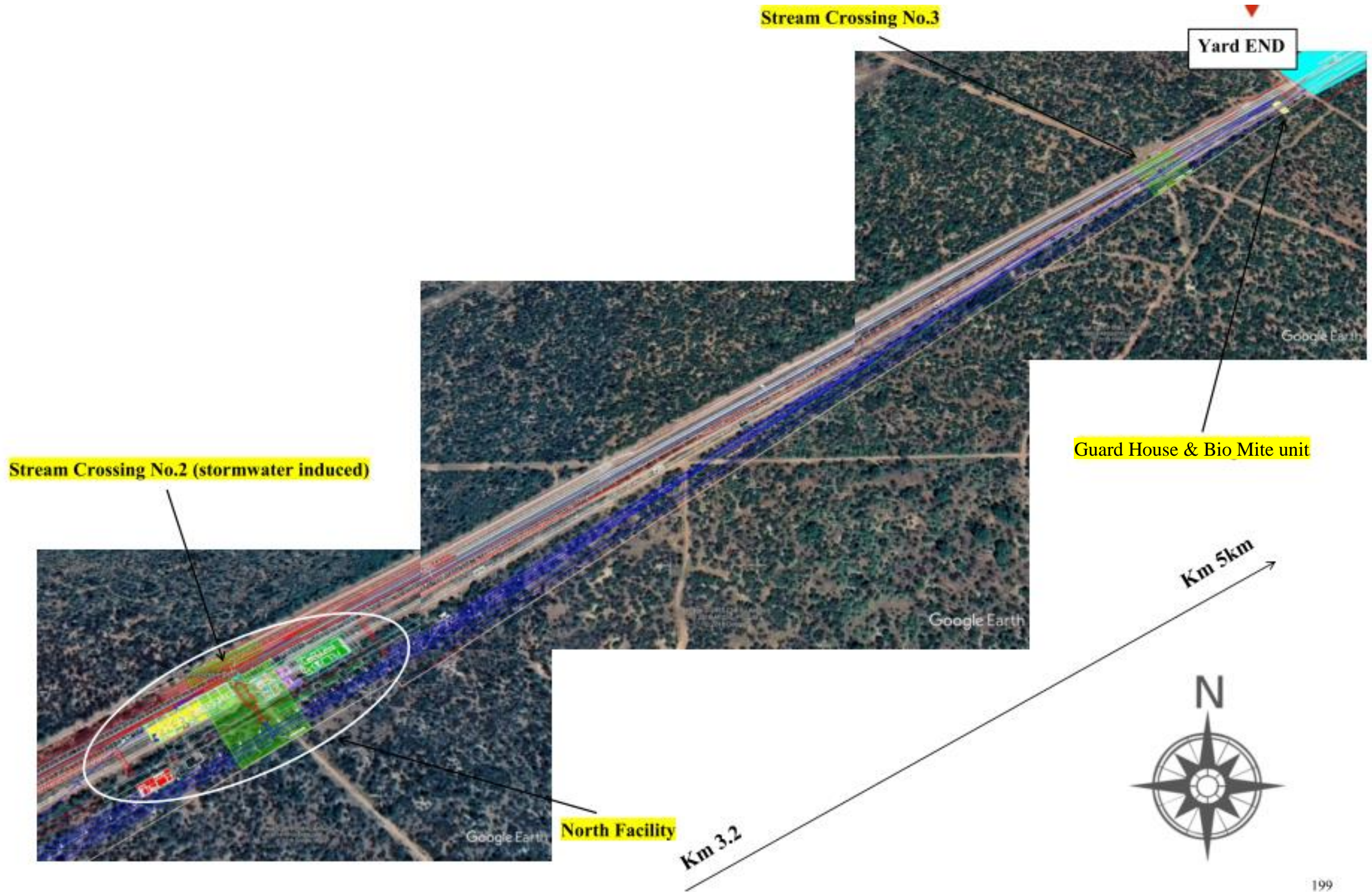
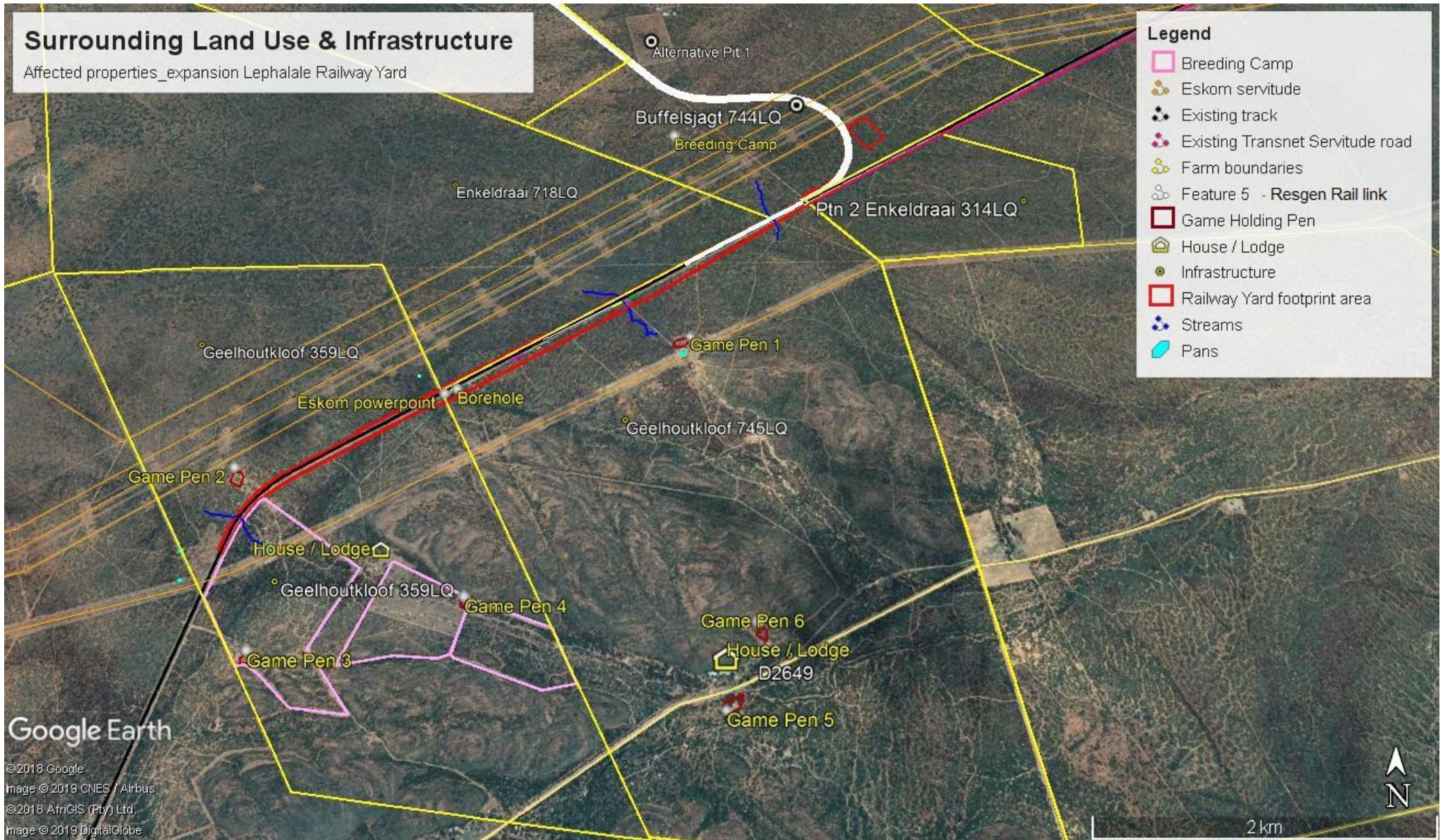


Figure 5: Composite Map of Lephale Yard from mid-section 3.2km to end at 5km

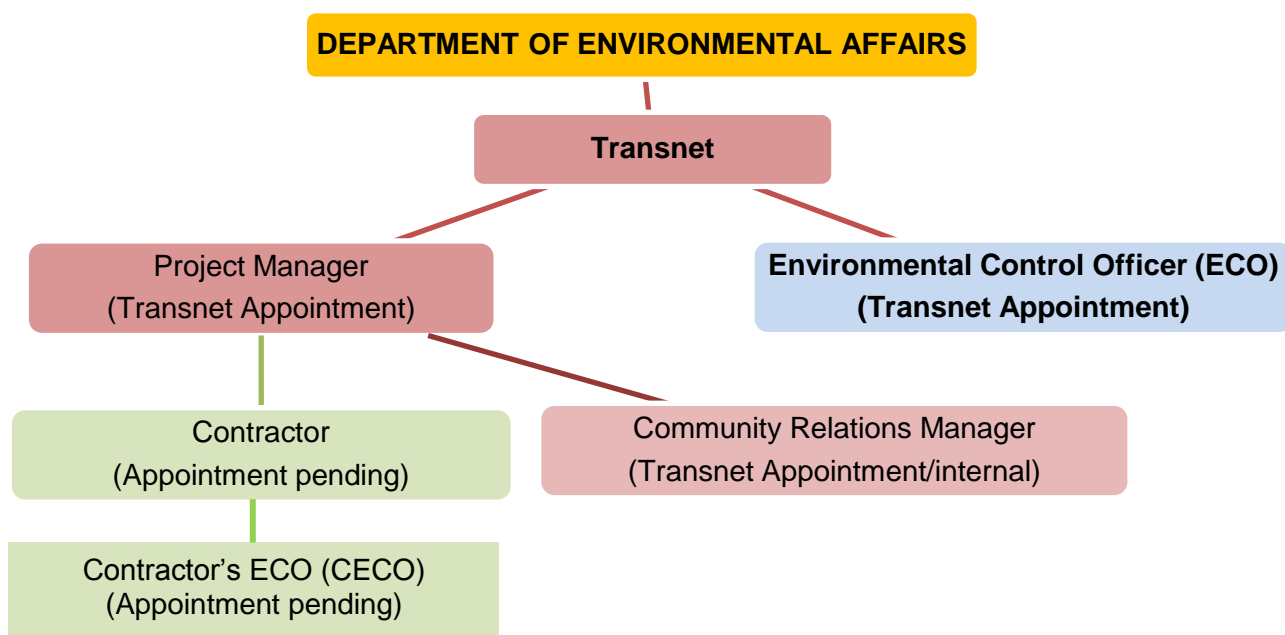


**Figure 6: Surrounding Land uses and infrastructure**

## 7 ENVIRONMENTAL MANAGEMENT, ROLES AND RESPONSIBILITIES

Appendix 4 of GN R 326 requires that an environmental management programme must include an indication of the persons who will be responsible for the implementation of the impact management actions. Figure 6 provides a basic reporting and communication structure for the implementation of the EMPr. The roles of each of the above parties are detailed below under Section 7.1.

To effectively implement the EMPr, it is necessary to identify and define the responsibilities and authority of the various persons and organisations that will be involved in the project. The EMPr will be an item of the monthly project meetings in order to provide input with respect to compliance with the EMPr.



**Figure 6: Roles, responsibilities, organisational and reporting structure**

### 7.1 Roles and Responsibilities in terms of the implementation of the EMPr

**Table 2: Roles and Responsibilities in terms of implementation the EMPr onsite**

ROLES	RESPONSIBILITIES
<b>Transnet</b>	<ul style="list-style-type: none"> <li>Ensure that the Project Manager, Contractors are capable of complying with all the statutory requirements which must be met in order to construct and operate the Lephalale Yard expansion, which includes the adherence and implementation of the EMPr.</li> </ul>
<b>Environmental Control Officer (ECO)</b>	<ul style="list-style-type: none"> <li><b>Responsible to monitor the implementation of the EMPr.</b></li> <li>An independent person appointed by Transnet</li> <li>Must report to Transnet and DEA only</li> <li>Must be suitably qualified in the environmental sciences and management and have adequate construction site experience of monitoring and auditing the implementation of an EMPr.</li> <li>Has authority to stop any works if, in his/her opinion, there is/may be a serious threat to/impact on the environment caused by the contractor's actions/construction phase activities.</li> <li>The ECO is to inform the Contractor of reasons for work stoppage within</li> </ul>

	<p>24 hours.</p> <ul style="list-style-type: none"> <li>▪ Advise the Contractors on environmental issues during implementation of the EMPr.</li> <li>▪ Attend any site meetings and give feedback on the environmental issues to the contractor and supervising engineer.</li> <li>▪ Identify problem areas and provide action plans to avoid further environmental damage.</li> <li>▪ ECO Reports are to be sent on a monthly basis to Transnet to keep up to date with compliance onsite.</li> <li>▪ Depending on the conditions of the Lephale Yard environmental authorisation ECO reports may also need to be provided to DEA.</li> <li>▪ Ensure that any significant environmental incidents are reported to Transnet and DEA.</li> <li>▪ Recommend alterations to the EMPr as necessary.</li> </ul>
<b>Engineer</b>	<ul style="list-style-type: none"> <li>▪ <b>Responsible for the design of the Lephale Yard expansion</b></li> <li>▪ Appointment by Transnet</li> <li>▪ Responsible for overall implementation of the project as well as the compliance of the EMPr and incorporates any potential environmental aspects mentioned into the design.</li> </ul>
<b>Contractor</b>	<ul style="list-style-type: none"> <li>▪ <b>Responsible for the overall implementation of the EMPr</b></li> <li>▪ Comply with the conditions and management measures as set out in the EMPr</li> <li>▪ Appoint a suitably qualified representative on site as the Contractor's environmental representative or Contractor's Environmental Control Officer (ECO).</li> <li>▪ Contractor must issue site instructions to rectify any environmental non-compliance, based on CECO</li> </ul>
<b>CECO</b>	<ul style="list-style-type: none"> <li>▪ <b>Responsible, on behalf of contractor, to ensure implementation and compliance with the EMPr on site on a daily basis;</b></li> <li>▪ Requires environmental management experience in the field and experience on large linear construction projects.</li> <li>▪ Report to independent ECO on all matters relating to implementation of EMPr;</li> <li>▪ Undertake site inspections on a day-to-day basis and notify the Contractor and Environmental Control Officer of any problems.</li> <li>▪ Maintain all records in relation to the EMPr requirements onsite. Such records to be made available to ECO during monthly audits, to project managers.</li> <li>▪ Records must be systematically kept to ensure ease of reference.</li> </ul>
<b>Community Relations Manager (CRM)</b>	<ul style="list-style-type: none"> <li>▪ <b>Responsible for social aspects of the Lephale Yard</b></li> <li>▪ Given size of project may not be feasible to appoint a specific person for this role, but task to be given to someone close to management team;</li> <li>▪ Will be the contact person that community members/landowners can contact in case of emergency / any community related matters.</li> <li>▪ Liaise in collaboration with the ECO with the adjacent and nearby landowners and act as a channel for their concerns.</li> </ul>



## **8 IMPACT MANAGEMENT OBJECTIVES, ACTIONS AND OUTCOMES FOR THE ENVIRONMENTAL AND SOCIAL IMPACTS IDENTIFIED FOR THE PROJECT**

Appendix 4 of GNR. 326 states that an environmental management programme must include:

- (d). An description of the impact management outcomes, including management statements, identifying the impacts and risks that need to be avoided, managed and mitigated as identified through the environmental impact assessment process for all phases of the development including—
- i. planning and design
  - ii. pre-construction activities
  - iii. construction activities
  - iv. rehabilitation of the environment after construction and where applicable post closure; and
  - v. where relevant, operation activities;

The following table, Table 4, forms the basis of the EMPr document for construction, operation and decommissioning phases of the proposed Lephalale Yard expansion. The EMPr should guide Transnet and the contractor and it should be implemented as an auditing list during the construction, operation and decommissioning phases. Daily compliance with the EMPr should be monitored by the contractor's environmental control officer (CECO). The Environmental Control Officer (ECO) should conduct compliance audits once per month and after the completion of the project.

Table 4 provides a description of the environmental impacts identified for the construction, operation and decommissioning phases of the Lephalale Yard expansion and provides the required management targets, actions and outcomes required to manage the expected risks.

Table 2 has addressed the environmental impacts and requirements management measures for the project in sections. The sections are as follows:

Section 9: Construction Site Environmental Management

Section 10: Materials Handling

Section 11: Impact on Groundwater

Section 12: Impact on Non-perennial streams and Wetland (Pan) Depressions

Section 13: Impact on Ecology (Fauna and Flora)

Section 14: Traffic Impact

Section 15: Noise Impact

Section 16: Visual Impact and Air Quality

Section 17: Social Impacts

Section 18: Heritage and Palaeontological Impacts

Section 19: Waste Management

**Table 3 : Environmental Management impacts, objectives, actions and outcomes for the proposed expansion of the Lephalale Railway Yard project**

**9 CONSTRUCTION SITE ENVIRONMENTAL MANAGEMENT**

Aspect	Activity	Potential Impact	MITIGATION (Target and Management Action)	Responsible Party	Time Schedule	Performance Indicator (Monitoring tool)	Frequency
Demarcation of site	Fencing of the proposed development footprint.	Unnecessary removal of topsoil  Loss of topsoil  Safety	<b>Target:</b> <ul style="list-style-type: none"> <li>Limit the footprint of disturbance, vegetation loss and possible erosion</li> </ul> <b>Action:</b> <ul style="list-style-type: none"> <li>Identify and clearly mark the extent of the construction site and associated works area as per the approved site plan;</li> <li>All excavations posing a risk to human and animal safety must be demarcated using danger tape and droppers or as per methods approved by ECO.</li> <li>The construction footprint must be kept to a minimum as far as possible.</li> <li>No construction materials will be allowed outside the demarcated site for construction activities.</li> </ul>	Contractor CECO ECO	During site establishment	The site demarcated as per the approved site plan.	Once off demarcation.
Site Preparation	Removal of vegetation  Topsoil Stripping and storage	Mixing of topsoil and subsoil.  Erosion of topsoil.  Contamination of topsoil,	<b>Target:</b> <ul style="list-style-type: none"> <li>Good quality topsoil is maintained for successful rehabilitation</li> <li>Indigenous vegetation will be re-instated on disturbed areas to curb erosion of soils and maintain biodiversity</li> <li>Protection of soil resources</li> <li>Minimise loss of indigenous vegetation and unnecessary removal of protected trees.</li> </ul> <b>Action:</b> <ul style="list-style-type: none"> <li>Follow construction phase ecological mitigation actions for relocation of Pans 1 &amp; 2 and for protected tree species identification, marking and translocation;</li> <li>Identify and mark protected trees that are to be removed within the development footprint area to make way for the expansion of the yard (for which removal permits have been issued);</li> <li>Translocate Marula trees (removed) at appropriate sites at the study area (in consultation with landowner).</li> <li>Strip the 200mm topsoil layer as well as overlying grass and other fine organic matter for the use of rehabilitation and landscaping;</li> <li>Stockpile topsoil separately from rubble or subsoil;</li> <li>Topsoil is to be stripped up to a depth where it is dry to prevent compaction;</li> <li>Protect topsoil stockpiles from storm water and erosion. (erosion control fabric or grass seeding)</li> <li>Stockpiles shall not be allowed to become contaminated with oil, diesel, petrol or waste which may prevent the</li> </ul>	Contractor CECO ECO	During site preparation throughout construction period	Successful re-growth of indigenous vegetation on disturbed areas post construction.  No visible erosion of stockpiles or siltation of streambeds.	Removal of protected trees once off during site preparation.  Relocation of pans once off during site Site preparation.  Implement topsoil management through construction period.

			<p>later regrowth of indigenous vegetation.</p> <ul style="list-style-type: none"> <li>▪ Eradicate any alien invasive species growing on stockpiles.</li> <li>▪ The contractor must devise a topsoil stockpiling plan, to be approved by the ECO and Engineer: <ul style="list-style-type: none"> <li>- Stockpile size, layout</li> <li>- Means of erosion prevention for stockpiles</li> <li>- Schedule for replacement of soil to areas where work has been completed,</li> </ul> </li> <li>▪ For linear developments such as the yard, stockpile topsoil in windrows parallel to the excavation.</li> <li>▪ Do not stockpile topsoil in drainage lines (non-perennial streambeds)</li> </ul>				
Sanitation System	Operation of sanitation system	Odours from site Inadequate sanitation units (chemical toilets) for labourers, staff	<p><b>Target:</b> Provide adequate sanitation units and good management through the construction period.</p> <p><b>Action:</b></p> <ul style="list-style-type: none"> <li>▪ The Contractor must provide adequate chemical toilets for all staff or use the existing site office facilities situated north of the existing rail yard.</li> <li>▪ Chemicals must be serviced regularly to prevent overflow. Proof of service must be provided to ECO.</li> <li>▪ Chemical toilets must be placed in proximity to the areas of works.</li> <li>▪ An average of one chemical mobile toilet should be provided per 10 people at the work site.</li> </ul>	Contractor ECO	Site Establishment	Adequate mobile chemical toilets placed along the works servitude.  No odours.	Once off
Vehicle Parking and Storage of equipment	Vehicle parking areas, equipment storage	Pollution of Soils  Disturbance of soils, damage of vegetation due to parking outside designated areas.	<p><b>Target:</b></p> <ul style="list-style-type: none"> <li>▪ Storage of equipment at existing site office</li> <li>▪ Parking of vehicles at existing site office or within the demarcated works area.</li> </ul> <p><b>Action:</b></p> <ul style="list-style-type: none"> <li>▪ Use existing site office and laydown area as far as possible for storage of equipment and vehicle parking and within the demarcated works area.</li> <li>▪ Ensure that drip trays are placed below fuel or oil leakages from parked construction equipment and construction vehicles.</li> </ul>	Contractor CECO ECO	Through the construction period	No construction equipment and vehicles parked outside works area or site office.  No visible fuel leakages from vehicles and equipment in designated parking and works areas. Drip trays under construction vehicles or machinery with visible leaks.	Throughout construction phase.
Construction vehicles	Refuelling and servicing of vehicles and machinery	Soil and water contamination	<p><b>Target:</b></p> <ul style="list-style-type: none"> <li>▪ Prevent soil and water contamination from vehicle or machinery refuelling on site</li> <li>▪ Prevent leaking equipment, machines from contaminating soils</li> </ul> <p><b>Action:</b></p> <ul style="list-style-type: none"> <li>▪ If onsite refuelling of vehicles is required, the refuelling of vehicles should take place in a dedicated area on an impermeable hardened surface to prevent soil or water contamination.</li> <li>▪ All construction equipment and vehicles must be serviced in a designated area at the existing site office.</li> <li>▪ Leaking equipment must be repaired immediately or removed for repairs offsite.</li> <li>▪ Contractor must have emergency procedures in place for dealing with accidental spillages and leaks.</li> <li>▪ An emergency spill kit must be available on site at all times.</li> <li>▪ In the case of emergency repairs to vehicles or machinery onsite, drip trays must be used to ensure collection of oil.</li> </ul>	Contractor CECO ECO	During construction period	Verified designated refuelling area at site office with impermeable hardened surface.	As and when vehicle, refuelling and maintenance is required during construction.

Construction staff, labourers	Construction staff and labourers operating with Transnet servitude	In violation with the EMPr due to errant construction staff and labourers	<p><b>Target:</b> Construction staff and labourers adhere to EMPr and are aware of requirements of the EMPr</p> <p><b>Action:</b></p> <ul style="list-style-type: none"> <li>▪ All contracted teams involved in onsite work must be briefed of their environmental obligations inter so the EMPr and receive Environmental Awareness Training.</li> <li>▪ All new employees arriving onsite shall undergo this training.</li> <li>▪ A signed register documenting all employees attended environmental training and awareness programmes must be kept on record for verification purposes.</li> <li>▪ All contractors and labourers need to wear photo identification cards and contractor issued overalls. Unidentifiable labourers will not be allowed within the works area.</li> <li>▪ PPE must be provided to staff and labourers and maintained at the works site.</li> <li>▪ Applying warning signs to dangerous equipment and around the work site as per the requirements of the Occupational Health and Safety Act.</li> <li>▪ First Aid services must be provided by the Contractor at the Site Office.</li> <li>▪ The Contractor shall advise the ECO of any emergencies onsite or environmental incidents within 24 hours of occurring. The ECO shall report incidents to DWS and DEA.</li> </ul>	Contractor Labourers ECO	Issue PPE pre-construction to be used throughout construction period. Maintain PPE in good working order.	As per the OHSA labourers wear safety uniform, photo identification.  No claims or incidents of trespassers on adjacent game farms.	Through the construction period
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## 10 MATERIALS HANDLING

Aspect	Activity	Potential Impact	MITIGATION (Target and Management Action)	Responsible Party	Time Schedule	Performance Indicator (Monitoring tool)	Frequency
Use of Cement and mixing of concrete	Concrete preparation and handling	Soil contamination	<p><b>Target:</b></p> <ul style="list-style-type: none"> <li>Ensure soil protected from cement contamination during concrete mixing onsite.</li> </ul> <p><b>Action:</b></p> <ul style="list-style-type: none"> <li>Cement products must be delivered in secure bulk containers and stored at the site office;</li> <li>Collect empty cement bags in plastic bags, when full dispose of at registered landfill site. (no burning of cement bags onsite)</li> <li>Use plastic trays or liners when mixing cement and concrete. Do not mix cement and concrete directly on the ground.</li> <li>Limit cement and concrete mixing to single sites where possible;</li> <li>Scrape waste concrete and cement off the side of preparation areas on a regular basis and remove any visible remains of excess cement and concrete after completion of works. Dispose of waste concrete and cement in an approved manner (if dry = construction rubble; if wet or dry cement powder treat as hazardous waste)</li> </ul>	Contractor CECO ECO	Construction period	The site demarcated as per the approved site plan.	In the event of concrete and cement preparation and handling.
Fuel	Storage of fuel	Soil Contamination from accidental spillages	<p><b>Target:</b></p> <ul style="list-style-type: none"> <li>Protect soil from fuel spills</li> </ul> <p><b>Action:</b></p> <ul style="list-style-type: none"> <li>Fuel must be stored in above ground storage tanks or containers in a bunded area with sump drainage</li> <li>The bund must be able to contain at least the full volume of once of the containers.</li> <li>The only permitted method of fuel transfer is by means of pump/controlled valve/tap/hose of funnel.</li> </ul>	Contractor CECO ECO	During site establishment	Established bunded fuel storage area.	Once off
Hazardous substances	Hazardous material storage	Contamination of soil and groundwater	<p><b>Target:</b></p> <ul style="list-style-type: none"> <li>Protect soil and groundwater from hazardous spills</li> </ul> <p><b>Action:</b></p> <ul style="list-style-type: none"> <li>Any hazardous materials such as Hydrocarbons, chemicals, domestic chemicals, battery acids, paint, and oil must be stored in secure, safe and weather-proof facilities.</li> <li>Keep a record of all hazardous substances stored on site for submission to the ECO;</li> <li>Areas shall be monitored for spills. Any spill must be contained, cleansed up immediately.</li> <li>Comply with all manufactures specifications for handling of hazardous materials. The 16 Section Material Data Sheet must be available onsite.</li> <li>All spills must be cleaned and remediated to satisfaction of the ECO and CECO within 24 hours of occurrence;</li> </ul>	Contractor CECO ECO	Throughout the construction period	<p>Storage of hazardous materials in secure, safe and weather proof facilities.</p> <p>Approved absorbent material available onsite.</p> <p>No evidence of spills.</p>	When hazardous material is present onsite during the construction period .

			<ul style="list-style-type: none"> <li>▪ Clean spills with an approved absorbent material, such as Drizit or Spill-sorb. The Contractor must ensure that there is a supply of absorbent material available for clean-up of hazardous spills.</li> <li>▪ Hazardous material storage areas must display safety signs depicting 'No smoking', 'No naked light' and 'Danger'. Containers shall be clearly marked to indicate contents as well as safety requirements.</li> <li>▪ Contractor must supply a method statement to the engineer for approval for the storage of hazardous materials prior to site establishment.</li> </ul>				
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11 IMPACT ON GROUNDWATER							
Aspect	Activity	Potential Impact	MITIGATION (Target and Management Action)	Responsible Party	Time Schedule	Performance Indicator (Monitoring tool)	Frequency
<b>CONSTRUCTION PHASE</b>							
Groundwater	Accidental fuel and hydrocarbon spillages	Risk of impacting on shallow water table	<p><b>Target:</b> Avoid contamination of shallow water table and surrounding groundwater regime and avoid impact on water quality of surrounding groundwater users. Comply with NWA.</p> <p><b>Action:</b></p> <ul style="list-style-type: none"> <li>▪ Immediate clean up after accidental spillages and report to relevant Department of Environmental Affairs and Department of Water and Sanitation.</li> </ul>	Contractor CECO ECO Contractor	When event occurs, through construction phase.	No deterioration in groundwater quality.	Throughout the construction phase. When incidents occur.
<b>OPERATIONAL PHASE</b>							
Groundwater	Fuel and hydrocarbon spillages from transportation vehicles.	Groundwater contamination of shallow water table	<p><b>Target:</b></p> <ul style="list-style-type: none"> <li>▪ Avoid contamination of shallow water table and surrounding groundwater regime and avoid impact on water quality of surrounding groundwater users.</li> <li>▪ Ensure on the basis of current water use in the area, the baseline water quality must comply South African National Standard for drinking water (SANS241:2011); and standards of SANS 241:2015 and Irrigation and Livestock Watering Guidelines.</li> </ul> <p><b>Action:</b></p> <ul style="list-style-type: none"> <li>▪ Resort to immediate clean up after accidental spillages.</li> <li>▪ Report any spillage to the relevant Department of Water &amp; Sanitation and Department of Environmental Affairs.</li> <li>▪ The railway yard design is to 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.</li> </ul>	Transnet Engineer ECO Contractor	Throughout operational phase	No deterioration in groundwater quality based on groundwater monitoring results.	In the event of an accidental spillage

			<ul style="list-style-type: none"> <li>Water and Oil Separators are to include a suitable oil skimmer to remove accumulated oil from liquid surface of the separator.</li> <li>Mediate possible contamination of storm water runoff by constructing a lined earth channel alongside a portion of the track that will serve as a storage/evaporation pond. The channel is to contain runoff water until it evaporates.</li> </ul>				
Oil spillages from storage drums.  Fuel and hydrocarbon spillages from Diesel tanks	Groundwater contamination of shallow water table	<p><b>Target:</b></p> <ul style="list-style-type: none"> <li>Minimise spillage of waste of any hazardous material in or at the storage tanks or yard area;</li> <li>Thorough clean-up of any leaks, spills or wastage that does occur</li> <li>No deterioration of groundwater quality</li> </ul> <p><b>Action:</b></p> <ul style="list-style-type: none"> <li>Oil storage facility must be lined;</li> <li>Fuel storage tanks facilities must be bunded and lined.</li> <li>Implement a groundwater monitoring system</li> <li>Sample and analyse two boreholes on site at least on a bi-annual basis, towards end of dry and the wet seasons. Total Organic Carbon should continue but additional indicator parameter analysis 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.</li> </ul>	CECO ECO Contractor	Throughout the operational Phase	Groundwater Monitoring Report.  Water quality analysis results.	At least bi-annually, towards end of dry and wet season.	
Operation of earth channel to storage coal contaminated storm water	Groundwater contamination of shallow water table	<p><b>Target:</b></p> <p>No leakages of coal contaminated storm water into groundwater table.</p> <p><b>Action:</b></p> <ul style="list-style-type: none"> <li>The earth channel must be lined.</li> <li>Maintain and desludge earth channel from coal and dispose of at an appropriate disposal facility. Coal sludge must not be disposed of onsite.</li> <li>Obtained water use license 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.</li> </ul>	Transnet Engineer CECO ECO Contractor	Once off lining. Maintain lining impermeable order.  Desludge and remove off site throughout the operational phase.	Water use License for Section 21g water use for earth channel.  Service agreement for sewage sludge removal from service provider to an appropriate facility.	De sludge as required. Difficult to quantify volumes to be generated and frequency for removal at this stage.	
Potential leakages from Bio Mite sewage treatment system at North and South Facility,	Impact on surrounding groundwater dependant users.	<p><b>Target:</b></p> <ul style="list-style-type: none"> <li>No contamination of shallow groundwater table</li> <li>No deterioration of groundwater quality</li> </ul>	CECO ECO Contractor Transnet Engineer Specialist	Implement throughout operational phase	Water use license for Section 21g water for Bio Mite system.  Groundwater Monitoring Report results.	Sampling and analysis on at least bi-annual basis toward end of dry and wet season.	

	Guard House		<b>Action</b> <ul style="list-style-type: none"> <li>Obtain water use license from DWS for Section 21g water uses related to disposal of water containing waste including: Section 21g: Bio Mite wastewater treatment system and soak away - 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 small Bio Mite system</li> <li>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.</li> <li>Drill monitoring boreholes up and down stream of the two Bio Mite systems to monitor water levels, quality and possible leakages.</li> <li>Implementation of groundwater monitoring system.</li> </ul>	Geohydrologist		Service agreement for sewage sludge removal from service provider.	
<b>DECOMMISSIONING PHASE</b>							
Impact on soils, surface and ground water pollution	Hydrocarbon spillages, waste disposal practice during decommissioning and dismantling of infrastructure, storage tanks	Impact on surface water, groundwater and soils	<b>Target:</b> <ul style="list-style-type: none"> <li>Avoid accidental spillages</li> <li>Proper waste disposal procedures</li> <li>No impact on surface or groundwater quality</li> </ul> <b>Action:</b> <ul style="list-style-type: none"> <li>All fuel storage tanks must be emptied prior to removal;</li> <li>Monitoring boreholes must be capped as soon as possible to eliminate risk of groundwater contamination.</li> <li>Wastes will be removed and disposed of at a licensed landfill site and recyclables will be taken to a licenced recycling facility.</li> </ul>	Contractor CECO ECO	Once off and throughout decommissioning phase	No reported accidental spillages.  Certificate of safe disposal.	Once off

**12 IMPACT ON NON PERENNIAL STREAMS AND WETLAND (PAN) DEPRESSIONS**



Aspect	Activity	Potential Impact	MITIGATION (Target and Management Action)	Responsible Party	Time Schedule	Performance Indicator (Monitoring tool)	Frequency
<b>CONSTRUCTION PHASE</b>							
Aquatic ecosystems	Extending existing culverts to new tracks and construction of new culverts over three non-perennial streams	Result in erosion impact on surface water	<p><b>Target:</b> Limit erosion Conserve non-perennial streams</p> <p><b>Action:</b></p> <ul style="list-style-type: none"> <li>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.</li> <li>Restrict development to extension of culverts, bridge structures at roads next to the rail reserve;</li> <li>Exclude drainage lines including 32m buffer zones from development as far as possible;</li> <li>Construction around streams must be planned to limit the impact on surface flow and potential risk for erosion;</li> <li>Obtain a Section 21 c and I 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; <ul style="list-style-type: none"> <li>Section 21c and i: Construction and extension of culverts across three stream crossings for new railway tracks and access road</li> <li>Section 21c and i: Construction railway yard infrastructure (North Facility, Staff building) within 32m of watercourse.</li> </ul> </li> <li>Storm water management and erosion protection management measures will be implemented to minimise the impacts from the development on the streams.</li> </ul>	Transnet Engineer Contractor CECO ECO	Through the construction period.	Water use license from DWS.  No erosion visible at streams. No restriction in surface flow /storm water during rainy season.	Once off.  Storm water management and erosion control to be implemented during the entire construction period.
Impact on wetlands	Construction of by pass and arrival line for railway yard over two pan depressions (Pan 1 & 2)	Destruction of two small pan depressions.  Risk of loss of biodiversity corridor and stepping stone wetlands in large area (low)	<p><b>Target:</b></p> <ul style="list-style-type: none"> <li>Rehabilitate wetland depressions already compromised within the expansion footprint and conserve streambeds.</li> <li>Relocate Pans 1 &amp; 2 and reinstate its 32m buffer zones resulting in the rehabilitation of the pans.</li> <li><b>These pans are not comparable to saltpans and the no-go option does not apply.</b></li> </ul> <p><b>Action:</b></p> <ul style="list-style-type: none"> <li>Move each pan forty metres from the edge of the road next to the railway yard expansion footprint;</li> <li>Relocation of pans will slightly improve the wetland characteristics</li> <li>Rehabilitate pans and reinstate adequate 32m buffer zones</li> <li>Obtain a Section 21 c and I 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;</li> <li>Section 21c and i: Relocation and rehabilitation of two pan depressions</li> </ul>	Transnet Engineer Contractor CECO ECO	Once off during construction. Monitor rehabilitation of pans during operation phase.	Water use license from DWS.  Rehabilitated pans and adequate 32m buffer zones.	Monitor rehabilitation through construction and operational phase.

### 13 IMPACT ON ECOLOGY (FAUNA AND FLORA)

Aspect	Activity	Potential Impact	MITIGATION (Target and Management Action)	Responsible Party	Time Schedule	Performance Indicator (Monitoring tool)	Frequency
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#### CONSTRUCTION PHASE

Ecology	Clearing and removal of vegetation at proposed footprint area	Habitat loss, loss of indigenous species	<p><b>Target:</b></p> <ul style="list-style-type: none"> <li>Minimise loss of indigenous vegetation and important habitat</li> </ul> <p><b>Action:</b></p> <ul style="list-style-type: none"> <li>Avoid small wetland depressions (pans) as well as drainage lines and associated 32m buffer zones.</li> <li>If developments are approved which involve moving of Pan 1 and Pan 2 (non-avoidance) placement of new pans which allow for an appropriate buffer zone should be found.</li> <li>Efficient rehabilitation to be implemented along watercourses if impacted.</li> </ul>	Engineer Contractor CECO ECO	During construction period	Two pans relocated and wetland characteristics improved and adequate 32m buffer zones reinstated.	Once off and monitoring efficient rehabilitation of pans throughout construction and operational phases
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Ecology	Clearing of vegetation and removal of protected tree species within he proposed yard expansion footprint	Loss of sensitive species.	<p><b>Target:</b></p> <ul style="list-style-type: none"> <li>Limit removal of protected trees to footprint area</li> <li>Remove National and provincially protected trees under license.</li> <li>Remove any protected fauna and flora species of conservation concern under permit issued by relevant authorities.</li> </ul> <p><b>Action:</b></p> <ul style="list-style-type: none"> <li>All protected fauna and flora species of conservation concern must not be disturbed or removed prior to approval from relevant authorities.</li> <li>Search and Rescue of all protected species and species of biodiversity concern must be conducted before areas are cleared;</li> <li>Permits must be obtained from DAFF for removal of any listed nationally protected tree species found within the footprint area.</li> <li>Marking of <i>Boscia albitrunca</i> (Shepherd's Tree) and <i>Sclerocarya birrea</i> (Marula Tree) must take place at the site with an application of permits for the removal of these trees.</li> <li><i>Sclerocarya birrea</i> (Marula tree) trees should be planted at appropriate sites at the study area. For <i>Boscia albitrunca</i> 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.</li> <li>A permit for removal of individuals of this tree species</li> </ul>	Transnet (obtain permits) Contractor CECO  Marking of trees by Ecologist	Pre-Construction obtain permits and during construction remove/translocate protected trees	Protected Tree Removal Permits.  Individual Protected Trees marked by Ecologist for removal and translocation.	Once off
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			<p>found within the project footprint area must be obtained from LEDET as required in terms of LEMA for the remove or disturb of protected plants (trees).</p> <ul style="list-style-type: none"> <li>Marking of <i>Spirostachys africana</i> (Tamboti) will take place at the site with an application of permits for the removal of these trees.</li> </ul>				
Ecology	Removal of vegetation and construction of yard expansion	Fragmentation of corridors of particular conservation concern  Spread of alien invasive species in the development footprint.	<p><b>Target:</b></p> <ul style="list-style-type: none"> <li>Minimise or avoid fragmentation of corridors of particular conservation concern</li> <li>Reduce spread of alien invasive species in development footprint and subsequent eradication</li> <li>Sensitive areas are rehabilitated and no alien vegetation infestation in these sensitive areas (streams).</li> </ul> <p><b>Action:</b></p> <ul style="list-style-type: none"> <li>Small wetland depressions (Pan 1 and Pan 2) and drainage lines with 32m buffer zones should be excluded from development as far as practical (some parts have already been impacted in the past).</li> <li>Alternatively Pan 1 and Pan 2 should be relocated with placement of an appropriate buffer zone.</li> <li>An Alien Invasive Species Eradication Plan must be developed, in order to reduce the establishment and spread of alien plant species within the development footprint.</li> <li>Implement concurrent rehabilitation and an alien vegetation control program within all sensitive areas.</li> </ul>	Engineer Contractor CECO ECO (Verify)	During construction period	<p>Two pans relocated and wetland characteristics improved and adequate 32m buffer zones reinstated.</p> <p>No spread of alien invasive species in development footprint.</p> <p>Sensitive areas are fully rehabilitated with no alien species infestation.</p>	<p>Once off and monitoring efficient rehabilitation of pans throughout construction and operational phases.</p> <p>Continuous monitoring and eradication through implementation of Alien Invasive Species Eradication Plan throughout construction phase.</p>
Ecology	Movement of construction vehicles within proposed yard footprint, removal of vegetation, Illegal access to neighbouring properties by opportunistic criminals	Possible disturbance, trapping, hunting and killing of vertebrates	<p><b>Target:</b></p> <ul style="list-style-type: none"> <li>No incidents of poaching or animal mortalities</li> </ul> <p><b>Action:</b></p> <p>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.</p>	CECO ECO	Through the construction phase	<p>No reported incidence of poaching or complaints from adjacent farmers.</p> <p>No reported or visual evidence of animal mortalities onsite.</p>	Throughout construction phase
Impact on Protected Areas	Expansion of the railway yard	Expansion of the rail reserve can further isolate the different parts of Koedoe Nature Reserve	<p><b>Target:</b></p> <ul style="list-style-type: none"> <li>Restrict construction and operational activities to yard footprint to minimise impact on nature reserve.</li> <li>Amend boundaries of Koedoe Nature Reserve to exclude Transnet railway yard expansion servitude from proclaimed protected area</li> </ul> <p><b>Action:</b></p> <ul style="list-style-type: none"> <li>Restrict construction and operational activities to the yard</li> </ul>	Transnet Landowner Contractor CECO	Pre-Construction and Construction and Operation	Koedoe Nature Reserve boundary amended and documented.	Once off pre construction obtain the approval for reserve boundary amendment.

			<p>expansion footprint area so that the different sections of the reserve can continue to fulfil its role in biodiversity conservation for animals such as birds;</p> <ul style="list-style-type: none"> <li>Amendment of the reserve boundaries is recommended to an extent which is practical for the foreseeable future in terms of the most likely developments.</li> <li>Transnet must still engage with the landowners for the application for amendment of the nature reserve boundaries.</li> <li>Transnet must support the landowner in the application to LEDET for the amendment of the Koedoe Nature Reserve boundaries.</li> </ul>				
OPERATIONAL PHASE							
Ecology	Post construction impacts from clearing of vegetation and expansion of rail yard	Infestation of alien invasive species could replace indigenous vegetation or potential areas where indigenous vegetation could recover and result in loss of habitat quality	<p><b>Target:</b></p> <p>Avoid spreading of alien invasive species and encroachment into indigenous vegetation.</p> <p><b>Action:</b></p> <p>Monitor and eradicate alien invasive species through the implementation of a rehabilitation plan which includes establishment of indigenous plant species.</p> <p>An Alien Invasive Species Eradication Plan must be developed, in order to reduce the establishment and spread of alien plant species within the development footprint.</p>	Transnet EHSO/Yard Environmental Manager ECO	During operation phase	No spread of alien invasive species. Rehabilitation and recovery of previously exposed areas with indigenous vegetation.	On-going
DECOMMISSIONING PHASE							
Ecology	Dismantling of yard infrastructure and demolition of buildings and clearance/disturbance at the yard footprint area	Increased infestation by alien species  Continued loss of indigenous vegetation owing to poor recovery of vegetation	<p><b>Target:</b></p> <ul style="list-style-type: none"> <li>Avoid spreading of alien invasive species and encroachment into indigenous vegetation.</li> <li>Re-establish indigenous vegetation</li> </ul> <p><b>Action:</b></p> <ul style="list-style-type: none"> <li>Rehabilitation with monitoring and eradication of alien invasive species. Rehabilitate disturbed areas immediately after dismantling; do not wait until the end to rehabilitate;</li> <li>Monitor re vegetated areas</li> </ul>	Contractor CECO ECO	During Decommissioning	Indigenous vegetation recovers on disturbed areas.	During rehabilitation/decommissioning

## 14 TRAFFIC IMPACT

Aspect	Activity	Potential Impact	MITIGATION (Target and Management Action)	Responsible Party	Time Schedule	Performance Indicator (Monitoring tool)	Frequency
<b>CONSTRUCTION PHASE</b>							
Traffic	Construction traffic from railway yard, construction machinery, construction crew commuting on a daily basis	Increase in traffic and congestion along D2001 & D1675 and the D1675 & D2649 intersections	<p><b>Target:</b></p> <ul style="list-style-type: none"> <li>Improve level of service at intersections</li> <li>Limit use of adjacent road network to off peak time traffic</li> </ul> <p><b>Action:</b></p> <ul style="list-style-type: none"> <li>Limit unnecessary vehicle movement</li> <li>Transportation and movement of construction machinery must not be undertaken during peak hour traffic.</li> <li>Adequate and appropriate road traffic warning must be erected along transportation routes and access roads.</li> <li>Road upgrades and traffic control improvements are already required at the D2001 &amp; D1675 and D1675 &amp; 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.</li> <li>Transnet are 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).</li> <li>Upgrades required at the Intersection: D2001 &amp; D1675 include: <ul style="list-style-type: none"> <li>Traffic signal;</li> <li>Extend 60m left-slip lane to 120m (D2001);</li> <li>Additional 60m right-turn lane on south-western approach to allow for double right-turn; and</li> <li>Additional 60m through-lane on north-western approach (D2001).</li> </ul> </li> <li>Upgrades required at the Intersection: D1675 &amp; D2649 include: <ul style="list-style-type: none"> <li>Traffic signal;</li> <li>additional 60m through lane on eastern approach; and</li> <li>Additional 60m through lane on western approach.</li> </ul> </li> </ul>	Contractor Plant Operators Labourers  CECO  Road upgrades: SANRAL RAL	Through construction phase          Once off during construction.	Transportation and movement of construction machinery during off peak time traffic on adjacent road network.  Improved level of service at intersections.  Intersection D2001&D1675 and D1675 &D2649 upgraded by SANRAL and RAL.	Throughout construction phase.  Once off construction of road upgrades.
Traffic	Construction traffic from railway yard, construction machinery, construction crew commuting on a	Increased traffic along the D2649 and yard access road	<p><b>Target:</b></p> <p>Safe access from D2649 to existing railway yard servitude road. Good level of service at intersections and adjacent road network.</p> <p><b>Action:</b></p> <ul style="list-style-type: none"> <li>Upgrade existing gravel access road with lane widening</li> </ul>	Transnet Engineer RAL Contractor	During construction phase	Safe access from D2649 to existing railway yard servitude road. Good level of service at intersection.	Once off during construction

	daily basis		<p>at curves and access control at 150m from D2649.</p> <ul style="list-style-type: none"> <li>The D2649 must be upgraded with an additional 60m passing lane at the intersection with the railway yard access road including appropriate signalling.</li> </ul>				
<b>OPERATIONAL PHASE</b>							
Traffic	Staff vehicles, public transport vehicles, fuel delivery trucks and service provider vehicles entering, exiting the yard site and using the adjacent road network	Increased traffic and road safety at intersections D2001 & D1675 and D2649 and D2649 intersection with existing yard access road	<p><b>Target:</b> Safe access from D2649 to existing railway yard servitude road. Good level of service at intersections and adjacent road network.</p> <p>Ensure workforce have access to transport to work and decrease traffic volumes on adjacent road network.</p> <p><b>Action:</b> 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.</p> <ul style="list-style-type: none"> <li>Place appropriate signage at the entry and exist points to the Lephalale Yard along the D2649 at the existing gravel access road.</li> <li>Transnet to provide transport to employees to minimise the number of cars entering and exiting the site.</li> </ul>	Transnet RAL SANRAL	Throughout the operational phase	<p>Roads upgrades implemented along D2001, D1675, D2649 and gravel access road upgraded.</p> <p>Visible road signage along D2649 to railway yard.</p> <p>Signed transport agreements.</p>	<p>Once off road upgrade and placement of road signage.</p> <p>Once off signed transport agreements Regular renewal of transport agreements.</p>
<b>DECOMMISSIONING PHASE</b>							
Traffic	Heavy vehicle traffic removing equipment and transporting it off site.	Increased traffic on adjacent road network. Thereafter traffic will decrease substantially once the yard no longer operates	<p><b>Target:</b></p> <ul style="list-style-type: none"> <li>Road safety</li> </ul> <p><b>Action:</b> Limit unnecessary vehicle movement, specifically during peak time am and pm traffic.</p>	Contractor	Throughout the decommissioning phase	<p>Safe exist and entry from gravel access road onto D2469.</p> <p>Decrease in traffic with decommissioning of yard.</p>	When equipment is removed and transported off site.

15 NOISE IMPACTS, BLASTING							
Aspect	Activity	Potential Impact	MITIGATION (Target and Management Action)	Responsible Party	Time Schedule	Performance Indicator (Monitoring tool)	Frequency
<b>CONSTRUCTION PHASE</b>							
Noise	Site clearance and grubbing.  Assembly of water and diesel tanks  Construction of roads and railway lines	Noise increase at boundary of footprint and abutting residential areas due to construction activities	<p><b>Target:</b> 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.</p> <p><b>Action:</b></p> <ul style="list-style-type: none"> <li>▪ Machinery with low noise levels which complies with the manufacturer's specifications to be used.</li> <li>▪ Construction activities to take place during daytime period only.</li> <li>▪ Noise monitoring on a monthly basis to determine potential shift in prevailing ambient noise levels.</li> <li>▪ Employees will be provided with earplugs to protect their ears (PPE);</li> <li>▪ Landowners will be notified of any blasting activities in advance</li> <li>▪ Landowners will be notified where they can lodge a noise compliant prior to commencement of construction activities;</li> <li>▪ Generators will be switched off when not in use;</li> <li>▪ Regular maintenance of vehicles and equipment will be undertaken. Broken equipment will be attended to.</li> </ul>	Transnet Engineer Transnet Environmental Department ECO	Engineer and Transnet Environmental Department during construction phase.	Noise Complaints Register.  Noise Monitoring Report (Monthly)	Noise monitoring on a monthly basis to determine potential shift in prevailing ambient noise levels. (Transnet Engineer and Environmental Department). Tool, calibrated Class 1 noise monitoring equipment to be used.
Noise and Vibration	Blasting	Increase in noise and vibration due to blasting	<p><b>Target:</b></p> <ul style="list-style-type: none"> <li>▪ Controlled blasting with insignificant noise and vibration levels</li> <li>▪ Limit flyrock</li> </ul> <p><b>Action:</b></p> <ul style="list-style-type: none"> <li>▪ Plan the type, duration and timing of blasting procedure with due cognisance of adjacent game farms and structures in vicinity;</li> <li>▪ Inform landowners ahead of a blasting event.</li> <li>▪ When blasting is to be carried out within 500m of any building, power line, then these must be inspected and their condition photographically recorded prior to blasting. Provisions of the relevant authorities must be complied with (Eskom).</li> <li>▪ Make use of soft explosives during blasting;</li> <li>▪ When blasting take measures to limit flyrock. (blastmats)</li> <li>▪ Give audible warning of pending blast at least 3 minutes in advance of a blast.</li> <li>▪ Notify landowners where they can lodge a noise and</li> </ul>	Contractor CECO	In the event that blasting is required during the construction period.	Limited to no flyrock.  Individual blasts must do not exceed 25mm/s in the vicinity of poorly constructed buildings and the average level should not exceed 10mm/s in the vicinity of poorly constructed buildings.	In the event that blasting is required. Through the construction phase.

			vibration compliant prior to commencement of construction activities.				
<b>OPERATIONAL PHASE</b>							
Noise	Locomotive start up and idling, release of train airbrakes, maintenance work in workshop, refuelling of locomotives, passing trains, general noise level in railway yard	Noise increase at boundary of footprint and abutting residential areas due to operational activities (impact on sense of place of abutting hunting farms)	<p><b>Target:</b> 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.</p> <p><b>Action:</b></p> <ul style="list-style-type: none"> <li>▪ Maintain a noise complaints register</li> <li>▪ 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 and later quarterly/annual basis should there be no noise intrusion levels at the abutting residential properties especially noise sensitive area M. Noise readings to be carried out at the measuring points as illustrated in Figure 3.1 of the Noise Impact Report.</li> <li>▪ 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.</li> <li>▪ The noise levels to be evaluated in terms of the baseline noise levels.</li> </ul>	Transnet EHSO/Yard Environmental Manager Environmental Noise Specialist	During operational phase	Noise Complaints Register.  Noise Monitoring Report by Transnet.  Noise Monitoring and Audit Report by Environmental Noise Specialist	Noise Monitoring by Transnet Environmental Department.  Noise audit by noise specialist on quarterly basis for 1 <sup>st</sup> two years thereafter change to annual basis or as required.
<b>DECOMMISSIONING PHASE</b>							
Noise	Demolition of all infrastructures, planting of grass on rehabilitated areas.	Noise increase at the boundary of the railway yard footprint and at abutting residential areas	<p><b>Target:</b> 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.</p> <p><b>Action:</b></p> <ul style="list-style-type: none"> <li>▪ Machinery with low noise levels which complies with the manufacturer's specifications phase to be used.</li> <li>▪ Activities to take place during daytime period only.</li> <li>▪ Vehicles to comply with manufacturers' specifications and any activity which will exceed 85.0dBA to be done during daytime only.</li> <li>▪ Maintain a noise complaints register.</li> </ul>	CECO ECO	During decommissioning phase	Noise Complaints Register	Throughout the decommissioning phase



## 16 VISUAL IMPACT AND AIR QUALITY

Aspect	Activity	Potential Impact	MITIGATION (Target and Management Action)	Responsible Party	Time Schedule	Performance Indicator (Monitoring tool)	Frequency
<b>CONSTRUCTION PHASE</b>							
Visual	Visual impact from construction traffic and cranes for construction  Construction lights	Impact on neighbouring farms	<p><b>Target:</b> Limit visual disturbance on nature reserve and adjacent farms (presence of machinery and construction night lights)</p> <p><b>Action:</b></p> <ul style="list-style-type: none"> <li>▪ Control traffic, dust suppression, inform land owners of extent and duration of the construction phase, limit time and height of cranes for construction</li> <li>▪ During night time direct light sources away from adjacent farms and roads;</li> <li>▪ Keep the project site and construction layout down areas neat, clean and organised in order to portray a tidy appearance;</li> <li>▪ 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</li> <li>▪ 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;</li> </ul>	Contractor CECO ECO	Implement during construction	Environmental Audit Report No complaints	Monitor on monthly basis
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	Increased dust settle on vegetation making it unpalatable for game, cause nuisance to neighbouring farm residences (Geelhoutkloof)	<p><b>Target:</b> To reduce the generation of dust on the construction site.</p> <p><b>Actions:</b></p> <ul style="list-style-type: none"> <li>▪ Dust suppression to be conducted during construction or as complaints are received;</li> <li>▪ The use of enclosures, screens and sheeting should be considered to contain dust;</li> <li>▪ The Contractor is to take appropriate measures to minimise the generation of dust as a result of excavation works. Such measure includes frequent water spraying during low rainfall periods or by using chemical dust finding agents as approved by the ECO.</li> <li>▪ Apply wet dust suppression if and where necessary to manage dust emissions from vehicle movement along gravel service roads;</li> <li>▪ Speed limits must be enforced in all areas to reduce the generation of dust;</li> <li>▪ Spoil piles must be reused in berm and fill / rehabilitation of borrow areas to reduce spoil heights and windblown dust;</li> <li>▪ Cover dump trucks before travelling on public roads</li> <li>▪ Keep soil loads below the freeboard of the truck to minimise fugitive dust</li> <li>▪ Revegetated disturbed areas as soon as possible after</li> </ul>	Contractor CECO	Implement throughout construction	ECO verify through monthly monitoring	During periods of low rainfall or as required by ECO.

			<p>disturbance</p> <ul style="list-style-type: none"> <li>No burning onsite.</li> </ul>				
OPERATIONAL PHASE							
Visual	Presence of trains, buildings, communication tower and operational phase lights along the railway yard site	Cause visual disturbance on neighbouring farms	<p><b>Target:</b> Limit visual disturbance from on nature reserve and adjacent farms (nigh lights, presence of expanded railway yard).</p> <p><b>Action:</b></p> <ul style="list-style-type: none"> <li>Maintain visual shield with vegetation near the zone of impacts</li> <li>Use of lights at night to be control – lowest possible pylons, shine lights towards activity only, only use lights in areas where activities occur.</li> </ul>	Transnet Environmental Department/ Yard EHSO or Environmental Manager	Through operational phase	No complaints and no light pollution to adjacent properties.	Through operation phase
Air Quality Impact	Loaded train wagons with coal passing and using the yard	Windblown coal dust from train wagons expected to settle in rail yard and cause a nuisance in the immediate area	<p><b>Target:</b> Reduce coal dust settling on adjacent properties.</p> <p><b>Action:</b></p> <p>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 can reduce the height of the coal above the tops of the wagons and also avoids coal spillage into the rail corridor during travel.</p>	Transnet Environmental Department/ Yard EHSO  Yard Operations Manager ECO	Throughout operational phase	No complaints	Throughout operational phase
DECOMMISSIONING PHASE							
Visual Impact	Dismantling of rail tracks, demolish of buildings and associated infrastructure	Cause visual disturbance on neighbouring farms	<p><b>Target:</b> Limit visual disturbance on adjacent farms.</p> <p><b>Action:</b></p> <ul style="list-style-type: none"> <li>Removal of structures will lower the possible limited visual impact</li> <li>Rehabilitate disturbed areas and ensure vegetation regrowth in disturbed areas</li> </ul>	CECO ECO (Verify)	Once off during decommissioning	No complaints	Once off removal of infrastructure.  Once off rehabilitation and monitor re-establishment of indigenous vegetation growth at disturbed areas.
Air Quality and Dust Impact	Dust emissions from decommissioning and rehabilitation activities removal of infrastructure, ripping of disturbed areas(vehicle entrained dust)	Impact on air quality and generate dust plumes spreading across adjacent farms	<p><b>Target:</b> To reduce the generation of dust on site.</p> <p><b>Action:</b></p> <ul style="list-style-type: none"> <li>Dust suppression to be conducted during decommissioning or as complaints are received;</li> <li>The Contractor is to take appropriate measures to minimise the generation of dust as a result of demolition works. Such measure includes frequent water spraying during low rainfall periods or by using chemical dust finding agents as approved by the ECO.</li> <li>Speed limits must be enforced in all areas to reduce the generation of dust;</li> <li>Revegetated disturbed areas as soon as possible after disturbance</li> <li>No burning onsite.</li> </ul>	CECO ECO	Throughout decommissioning phase	No visible dust plume at area of works	Through decommissioning phase.

17 SOCIAL IMPACTS							
Aspect	Activity	Potential Impact	MITIGATION (Target and Management Action)	Responsible Party	Time Schedule	Performance Indicator (Monitoring tool)	Frequency
Social	Construction and operation of the yard expansion		<b>Target:</b> <b>Action:</b> Develop Stakeholder Engagement Plan	Transnet CRM (Monitor) Social expert	As soon as project enters public domain	Communicate in the most efficient way possible with stakeholders throughout the life of the project.  Stakeholder Engagement Plan	As soon as project enters public domain
Social	Construction and operation of the Yard expansion	Risk of violent protests, risk of endangering lives, property damage due to community expectations about the project benefits	<b>Target:</b> Manage social and community aspects of the Lephalale Yard <b>Action:</b> 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.  Develop a community relations strategy	Transnet          CRM	All Phases of project  Commence in the planning phase and continue through to the decommission phase of the project  Before Consultation with stakeholders start	Appointment letter of Community Relations Manager (CRM)         Community Relations Strategy	Monitor once a year or as required.         No external review required.
			<b>Target:</b> Record, track and address grievances <b>Action:</b> 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.	CRM Community Groups Transnet	All Phases of project  Commence in the planning phase and continue through to the decommission phase of the project	Grievance register Monthly feedback reports	Grievance register must be checked on a weekly basis. Feedback to community about grievances must be done on a monthly basis
			<b>Target:</b> Ensure all staff knows what action to take in a conflict situation <b>Action:</b> 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	CRM Safety Manager Landowners sharing access roads	All Phases of project  Commence in the planning phase and continue through to the decommission phase of the project	Emergency response plan Stakeholder engagement plan	Review the emergency response procedure and stakeholder engagement plan once a year

			stakeholders				
Social	Increased noise levels from trains at expanded yard and visual impact from additional rail lines, buildings and lights at night fitted along yard site	Sense and Spirit of Place change due to noise and visual impacts	<p><b>Target:</b> Minimise the noise and visual impact on neighbouring properties</p> <p><b>Action:</b> The noise and visual specialists will provide scientific mitigation measures for this aspect.</p>	CECO ECO	Construction & Operation  Commence in the planning phase and continue through to the operational phase of the project	Monitoring results from relevant specialists	As prescribed by specialist
Social (Economic impact)	Recruitment of contractors, labour and staff during construction.	Create 50-80 construction jobs	<p><b>Target:</b> Indicate to the community that they will be informed about available jobs</p> <p><b>Action:</b> 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.</p>	CRM Project Manager	Use the design and planning phase to get the labour desk in place	Number of people of the local community employed by Transnet	During the start of the construction and operational phases of the project
Social (Economic impact)	Sourcing of transport, domestic services, catering, security and fencing amongst and service providers	Create secondary economic opportunities and skills development	<p><b>Target:</b></p> <ol style="list-style-type: none"> <li>To ensure Transnet contribute to the local economy through secondary opportunities.</li> <li>To ensure Transnet contributes to local education, skills development and training.</li> </ol> <p><b>Action:</b></p> <ol style="list-style-type: none"> <li>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.</li> <li>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.</li> </ol>	Transnet Local business chambers Lephalale Development Forum	All phases of project (1)	Signed service agreements (1)  Requirements written into sub-consultant agreements. Number of internships and on-the-job training opportunities offered. (2)	Review supplier list on annual basis (1)  Monitor on an annual basis. (2)
Social	Permanent presence and	Loss of livelihood of	<b>Target:</b>	Transnet and Landowner (1)	Pre-Construction (1)	Successful relocation of holding pen (1)	Once off inspection once holding pen/camp has been relocated to

<p>movement of staff, workers at the Yard alongside commercial game hunting farms (safety).</p> <p>Relocation of game holding pen and borehole to allow construction of expanded Yard.</p> <p>Increase noise levels from trains shunting, braking; hooting will affect potential of affected farms.</p>	<p>farmers</p>	<ol style="list-style-type: none"> <li>1. To avoid impacts on livelihood of affected landowner</li> <li>2. Ensure that landowners do not suffer actual losses as a result of the project.</li> <li>3. Ensure landowner have access to his borehole</li> <li>4. To ensure landowner have access to his property on both sides of the railway without incurring additional costs</li> <li>5. To ensure the requirements of the Protected Areas Act are met.</li> <li>6. To ensure that landowners are fairly compensated for actual loss of income.</li> <li>7. To mitigate visual and noise impacts, and to ensure safety of people moving in the area</li> </ol> <p><b>Action:</b></p> <ol style="list-style-type: none"> <li>1. 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. Transnet must bear the financial burden.</li> <li>2. 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.</li> <li>3. 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.</li> <li>4. 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.</li> <li>5. Transnet must negotiate with Mr Hills about amending the boundaries of the Koedoe Nature Reserve. Transnet must carry all the costs associated with this process.</li> <li>6. 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</li> </ol>	<p>Transnet and CRM (2)</p> <p>Transnet and Landowner (3, 4)</p> <p>Mr Hills with support from Transnet (5)</p> <p>Transnet, Landowner and independent financial advisor (6)</p> <p>Transnet Engineering team Noise specialist Visual specialist Landowner (7)</p>	<p>All Phases (2)</p> <p>Pre-Construction (3)</p> <p>Pre-Construction (4)</p> <p>Pre-Construction (5)</p> <p>Pre-Construction Operation (6)</p> <p>Pre-Construction Operation (7)</p>	<p>Claims register and completed claims forms (2)</p> <p>Landowner satisfied with access to borehole.(3)</p> <p>Landowner satisfied with access route (4).</p> <p>New boundaries for Koedoe Nature Reserve Gazetted (5).</p> <p>&amp; Audited financial statements. Approved report from independent financial advisor. Signed compensation agreements.(6)</p> <p>&amp; Inspection Sheets of quarterly inspections.(7)</p>	<p>ensure it meets the standards (1)</p> <p>As required-claims received by CRM and records of all claims must be kept (2)</p> <p>Once off inspection once infrastructure is installed (3).</p> <p>Once off inspection once roads are done and new gates have been installed (4).</p> <p>Ensure the requirements of the National Protected Areas Act are met. (5)</p> <p>Yearly financial statements. Report from independent financial advisor (6).</p> <p>Once off construction with quarterly inspections.(7)</p>
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			<p>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.</p> <p>7. 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.</p>				
Social	<p>Poisonous snakes entering yard.</p> <p>Poaching through snares, unlawful entry of properties.</p>	Impact on safety	<p><b>Target:</b> To ensure workers safety, protected landowners, assets and discourage poaching.</p> <p><b>Action:</b> 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.</p>	Transnet Safety Officer ECO Local Police	Pre-Construction to Operational Phases. Throughout the life of the project.	Content of toolbox talks	Quarterly
	Introduction of unfamiliar people into area who may share current conditions with opportunistic criminals.	Impact on safety	<p><b>Target:</b> Ensure the safety and security of affected communities and landowners.</p> <p><b>Action:</b> 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.</p>	Transnet Health and Safety Officer	All phases of project	All contractors and employees issued with photo identification cards. All vehicles marked. Access control onsite.	Security check-ins should be done on a monthly basis to ensure all aspects are attended to.
	Poaching through snares, unlawful entry of properties.	Impact on safety	<p><b>Target:</b> To discourage poaching and to keep a record of who enters the site.</p> <p><b>Action:</b> 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.</p>	Transnet Health and Safety Officer	All phases of project	Entry and Exit register.	Daily
	Strikes at construction site and during operation blocking access roads to site and farms.	Impact on safety	<p><b>Target:</b> Ensure safety of all affected parties during strikes/road blocks.</p> <p><b>Action:</b> 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</p>	CRM Safety Officer Landowners	Pre-Construction, construction and operational phase.  Implement from Pre-Construction phase through the operational phase.	Emergency response procedure	Review quarterly

			phone signal on parts of the farms into consideration.				
	People permanently stationed on the yard.	Impact on safety	<p><b>Target:</b> To ensure safety of people moving in the area</p> <p><b>Action:</b> 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.</p>	Transnet Engineering team Landowners	Pre-Construction, construction and operational phase.  Implement from Pre-Construction phase through the operational phase.	Barrier. Inspection sheets of quarterly inspections.	Once off construction with quarterly inspections.
Social impact	Increase in traffic, 297 trips, along Mandela Drive (D2001) and Afguns Road (D2649) due to trucks delivering water for domestic use at yard, fuel brought to site by truck, service providers collecting and removing waste or servicing infrastructure.	Pressure of road infrastructure Impact on roads	<p><b>Target:</b> To avoid any mortalities when turning of the Afguns Road.</p> <p><b>Action:</b> 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.</p>	Transnet Provincial road authority	Construction and operational phase.  Implement before construction starts for the life of the project.	Signage on the Afguns Road. Included in Health and Safety Plans Toolbox talks.	CRM to check if signage is visible and in place on weekly basis. Communicate with roads authorities if there are any issues.
			<p><b>Target:</b> To minimise dust and to ensure the roads are in good condition.</p> <p><b>Action:</b> Supress dust on the access road and maintain roads to a reasonable standard.</p>	Transnet CECO ECO Transnet service providers	Pre-Construction, Construction and operational phase.  Implement through life of project.	Monthly audit reports.	Quarterly road inspections. Monthly environmental inspections.
			<p><b>Target:</b> To ensure workforce have access to transport to work. Increase worker safety.</p> <p><b>Action:</b> Provide transport for employees to minimise number of cars accessing the site.</p>	Transnet Transport service providers	Construction and Operational Phase.  Implement throughout life of project	Signed transport agreements.	Annual audit to determine need.

SOCIAL IMPACT MANAGEMENT PLAN				
Phase	Management action	Timeframe for implementation	Responsible party for implementation (frequency)	Responsible party for monitor/audit/review (frequency)
Planning and Design Phase	Develop social impact management plan	As soon as project enters public domain	Applicant	CRM <i>Internal once appointed</i> Social expert <i>External but not legally required</i>
	Appoint appropriately qualified community relations manager (CRM) to deal with social aspects of the project throughout the life of the project	Before consultation with stakeholders start	Applicant Appointment for the life of the project	Not required apart from usual HR processes
	Develop community relations strategy	Before consultation with stakeholders start	Applicant Continued for the life of project	CRM <i>Internal</i> <i>No external review required</i>
	Develop protocols and grievance mechanism	In consultation with stakeholders	Applicant Continued for the life of project	CRM <i>Internal</i> <i>No external review required</i>
Construction Phase	Monitoring of social mitigation and management measures	Throughout construction	Applicant (CRM) Continued for the life of project	Management <i>Once a year or as required</i>
	Implementation of community relations strategy	Throughout construction	Applicant (CRM) Continued for the life of project	Management <i>Once a year or as required</i>
	Implement protocols (can be adapted as needs and social environment change) and grievance mechanism.	Throughout construction	Applicant (CRM) Continued for the life of project	Management <i>Once a year or as required</i>
Operation Phase	Monitoring of social mitigation and management measures	Throughout operation	Applicant (CRM) Continued for the life of project	Management <i>Once a year or as required</i>
	Implementation of community relations strategy	Throughout operation	Applicant (CRM) Continued for the life of project	Management <i>Once a year or as required</i>
	Implement protocols and grievance mechanism policy.	Throughout operation	Applicant (CRM) Continued for the life of project	Management <i>Once a year or as required</i>
Decommissioning, Closure and Rehabilitation Phase	Implement protocols and grievance mechanism	Throughout decommissioning until all rehabilitation activities have ceased	Applicant (CRM) Continued for the life of project	Management <i>Once a year or as required</i>
	Continue community relations strategy until all activities on site cease and rehabilitation is completed	Throughout decommissioning until all rehabilitation activities have ceased	Applicant (CRM) Continued for the life of project	Management <i>Once a year or as required</i>
	Implement social mitigation for closure	Throughout decommissioning	Applicant (CRM) Continued for the life of project	Management <i>Once a year or as required</i>



## 18 HERITAGE AND PALAEOLOGICAL IMPACTS

Aspect	Activity	Potential Impact	MITIGATION (Target and Management Action)	Responsible Party	Time Schedule	Performance Indicator (Monitoring tool)	Frequency
Heritage, resources  (No heritage resources were identified onsite)	Bulk earthworks	No sites of cultural or heritage significance were found on the project site. It is unlikely that excavations could unearth any cultural or heritage resources	<p><b>Target:</b> Protect /conserve any chance find sites of cultural and heritage resources</p> <p><b>Action:</b> In the event of chance finds</p> <ul style="list-style-type: none"> <li>▪ Cease work in the vicinity of the heritage feature find;</li> <li>▪ 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;</li> <li>▪ Accredited archaeologist (ASAPA registered) must be commissioned to assess the find and determine the mitigation measures.</li> <li>▪ Contact and contract a professional archaeologist or palaeontologist, depending on the nature of the finds, to inspect the findings at the expense of Transnet</li> <li>▪ Mitigation must only be carried out after the archaeologist or palaeontologist obtains a permit in terms of Section 35 of NHRA (Act 25 of 1999).</li> <li>▪ Contact SAHRA APM Unit for further details (Nokukhanya Khumalo / Phillip Hine 021 202 8654)</li> <li>▪ If any unmarked human burials are uncovered and the archaeologist called in to inspect the finds and /or the police find them to be heritage graves, then mitigation may be necessary and the SAHRA Burial Grounds and Graves (BGG) Unit must be contacted for processes to follow (Thingahangwi Tshivase/Mimi Seetelo 072 802 1251)</li> </ul>	ECO Accredited Archaeologist	As and when resources are found and identified	<p>No sites of heritage significance disturbed.</p> <p>No destruction of sites without relevant permit.</p> <p>All permit requirements complied with.</p>	Ongoing
Palaeontological resources	Bulk earthworks	Site located in moderately sensitive palaeontological area. Fossils are scarce in the Quaternary sand and sandy soils, the possibility of finding any in	<p><b>Target:</b> Protect/conserve any chance find palaeontological resources.</p> <p><b>Actions:</b> 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</p>	ECO Accredited Palaeontologist	As and when resources are found and identified	<p>No sites of paleontological significance disturbed.</p> <p>No destruction of sites without relevant permit.</p> <p>Phase 1 PIA report submitted to SAHRA for assessment.</p> <p>All permits required complied with</p>	On-going

		<p>the study area should not be dismissed.</p>	<p>advice.</p> <p>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:</p> <ol style="list-style-type: none"> <li>1. Surface excavations should continuously be monitored by the ECO and any fossil material be unearthed the excavation must be halted.</li> <li>2. If fossiliferous material has been disturbed during the excavation process it should be put aside to prevent it from being destroyed.</li> <li>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.</li> <li>4. In the unlikely event that fossils are uncovered during construction then construction must cease within the immediate vicinity, a buffer of 30m must be established, and a palaeontologist called in to inspect the finds.</li> <li>5. 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.</li> <li>6. The palaeontologist must obtain a section 35 (4) permit in terms of NHRA and Chapter IV NHRA Regulations before any fossils are collected.</li> <li>7. 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.</li> </ol> <p>From the photographs and/or the site visit the palaeontologist will make one of the following recommendations:</p> <ul style="list-style-type: none"> <li>▪ The material is of no value so development can proceed, or:</li> <li>▪ 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:</li> <li>▪ 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.</li> </ul>				
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			<ul style="list-style-type: none"> <li>If any fossils are found then a schedule of monitoring will be set up between the developer and palaeontologist in case of further discoveries.</li> </ul>				
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19 WASTE MANAGEMENT							
Aspect	Activity	Potential Impact	MITIGATION (Target and Management Action)	Responsible Party	Time Schedule	Performance Indicator (Monitoring tool)	Frequency
<b>CONSTRUCTION PHASE</b>							
Construction waste	Storage removal and disposal of construction waste	Land pollution. Compaction of soil by rubble. Decreased aesthetic integrity of the site.	<p><b>Target:</b></p> <ul style="list-style-type: none"> <li>Correct waste storage and disposal, decreased visual and environmental impact during construction</li> <li>Minimise landowner complaints</li> <li>Disposal of rubble and refuse in appropriate manner</li> </ul> <p><b>Action:</b></p> <ul style="list-style-type: none"> <li>The Lephalale Yard Waste Management Plan must be implemented and adhered to at all times</li> <li>No material shall be left onsite that could pose a safety risk to animals or humans;</li> <li>Surplus concrete must be removed from site when nearing completion of different stages of work.</li> <li>Bins and containers must be available by the contractor for the storage of construction waste;</li> <li>All construction waste shall be stored in waste skips located strategically on site. A licensed waste contractor shall collect skips for removal to licensed landfill site. No construction waste may be stored for longer than 30 days;</li> <li>The Contractor shall be responsible to remove and transport all construction waste material offsite to a registered waste disposal facility (proof of certificate of safe disposal must be kept on record and provided to ECO)</li> <li>Where domestic waste is collected by the local municipality, a collection receipt will be suitable proof of safe disposal'</li> <li>Sealable waste drums should be provided along the active working servitude of the track and yard.</li> <li>No washing of cement trucks onsite.</li> <li>Grey water must be stored in sealable marked containers and disposed of with other waste water from construction work.</li> </ul>	Contractor CECO ECO	Waste bins/skips available onsite prior and during construction.  Removal through construction period.	Construction waste stored, collected and disposed of as per requirements of Waste Management Plan and EMPr.  Safe disposal certificate from disposal site.  Municipal collection receipt.	Frequency of waste removal determined by ECO. May not be stored for longer than 30 days.
Domestic Waste	Storage, removal and disposal of domestic waste	Odours Land Pollution	<p><b>Target:</b></p> <ul style="list-style-type: none"> <li>Correct storage and disposal of domestic waste during construction period;</li> <li>Maintain aesthetic integrity of site</li> </ul>	Contractor CECO ECO	Collection bins/skips must be available prior to construction.	Waste management records (certificate of safe disposal)  Receipt for disposal from municipality.	ECO will determine frequency of waste removal from site.

		Reduced aesthetic integrity	<b>Action:</b> <ul style="list-style-type: none"> <li>The Lephalale Railway Yard Waste Management Plan (WMP) must be implemented.</li> <li>Contractor to supply waste bins at the construction site for storage of domestic waste (sealable bins);</li> <li>The Contractor must do site clean ups of litter than construction waste on a daily basis, dispose of it in at a designated refuse bin provided at the construction site;</li> <li>The Contractor must dispose of domestic refuse generated by construction staff on a weekly basis at a registered waste disposal facility. Contractor must provide certificate of safe disposal as proof.</li> </ul>		Removal of waste throughout construction period.		
Hazardous waste	Storage, removal and disposal of hazardous waste	Soil Pollution Groundwater contamination	<b>Target:</b> <ul style="list-style-type: none"> <li>Protect soil and groundwater from hazardous waste contamination</li> </ul> <b>Action:</b> <ul style="list-style-type: none"> <li>Hazardous waste may only be stored onsite for a period of 90 days, after which it must be disposed of at a registered hazardous waste disposal site</li> <li>Any oil spillage onsite must be excavated to a depth determined between the CECO and ECO and disposed of for removal to a registered hazardous waste disposal site.</li> </ul>	Contractor CECO ECO	Removal of hazardous waste throughout construction period.	Hazardous wastes collected in sealable containers.	Entire construction period
Spoil material (not a waste, no contamination taken place)	Storage, removal and disposal of spoil material	Erosion Siltation of streambeds  Visual impact on surrounding farms	<b>Target:</b> <ul style="list-style-type: none"> <li>Limit visual impact from spoil heaps</li> <li>Avoid siltation of adjacent farms and non-perennial streambeds</li> <li>Minimise the cost of haulage to remove spoil material.</li> </ul> <b>Action:</b> <p>Excess spoil material from cut and fill requirements should be used for berm and fill or either stockpiled in areas of designated borrow pit/s which could later be used for rehabilitation of borrow areas.</p>	Contractor CECO ECO	Removal and reuse throughout construction period	No visible spoil heaps and borrow areas rehabilitated with excess spoil material.	Throughout construction period.
<b>OPERATIONAL PHASE</b>							
Domestic Waste	Storage, removal and disposal of domestic waste	Soil Pollution Groundwater contamination	<b>Target:</b> <ul style="list-style-type: none"> <li>Minimal health, safety and environmental impact from waste</li> <li>Waste minimisation</li> <li>Proper waste management and disposal at Lephalale Landfill site</li> </ul> <b>Action:</b> <ul style="list-style-type: none"> <li>The Lephalale Railway Yard Waste Management Plan (WMP) must be implemented.</li> <li>WMP must be reviewed at regular intervals (e.g. new facility manager or activity taking place) and must quantify waste streams as far as possible.</li> <li>General/domestic waste produced at the Lephalale railway yard needs to be collected and stored in specifically demarcated areas</li> <li>Sufficient collection points need to be identified with adequate capacity and be serviced regularly.</li> <li>Collection areas need to be properly designed and secured with appropriate pollution prevention measures in place i.e. storm water control and used</li> </ul>	Transnet Environmental Manager / Yard EHSO / Yard Environmental Manager	Removal of domestic waste through operational period.	Waste Manifest Recycle Plan Full inventory of waste streams Waste management records (Waste manifest certificate of safe disposal)	Report on status of Waste Management Plan annually to Transnet Management Board

			<p>oil, and other chemical storage areas, should be adequately bunded and lined and should have working containment traps.</p> <ul style="list-style-type: none"> <li>▪ 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.</li> <li>▪ Waste management records (ie. Waste manifests, certificate of safe disposal etc.) Should be kept by the department responsible for waste for audit purposes.</li> <li>▪ 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 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.</li> <li>▪ Specific areas must be allocated for refuse storage once the yard is operation. The areas should be enclosed and covered by roof. Provision should be made for both general and hazardous waste.</li> <li>▪ General solid waste need to be collected from various office areas and staff facilities and stored at refuse storage areas from where it will be removed off-site by an approved waste removal company and disposed off at an approved disposal facility</li> <li>▪ General waste should be stored in containers such as 240 litre wheelie bins/bulk storage bins.</li> <li>▪ Transnet is to adapt a waste minimisation/recycling strategy to align with SA waste guidelines and legislation. (Develop a Recycle Plan)</li> <li>▪ Waste bins are to be labelled to separate the waste on-site, i.e. general and hazardous waste, and transported to an approved re-cycling depot or to an approved licensed disposal facility.</li> <li>▪ Recycling can be done at source / refuse storage area wherever is most suitable. Materials can still be stored in refuse area until collection.</li> <li>▪ A dedicated reclamation area for reusable non-hazardous materials should be established, these may include areas for paper, wood. Reusable such as toner cartridges and other office consumables should be stored in the refuse area in specifically marked containers.</li> <li>▪ General waste should be disposed of at the Lephalale Landfill site</li> </ul>				
Hazardous waste	Storage, removal and disposal of hazardous waste	Soil Pollution Groundwater contamination	<p><b>Target</b></p> <ul style="list-style-type: none"> <li>▪ Prevent cross contamination of wastes</li> <li>▪ Prevent environmental pollution, health and safety hazards during operational phase</li> </ul> <p><b>Action:</b></p> <ul style="list-style-type: none"> <li>▪ Hazardous waste should be kept in a closed bin and separate from general waste as a minimum requirement. The area doesn't need to be bunded,</li> </ul>	Contractor CECO ECO	All requirements for bunding of waste storage facilities to be incorporated into yard facility design and implemented during construction.	Service agreement with suitably qualified waste service provider.  Waste Management record  Safe disposal certificates	Throughout operational phase

			<p>depending on waste type.</p> <ul style="list-style-type: none"> <li>Unavoidable hazardous waste is to be handled, stored and disposed/recovered in a manner that does not result in environmental pollution or health and safety hazards to personnel.</li> <li>A suitably qualified service provider should be appointed to collect and dispose of hazardous waste.</li> <li>All hazardous waste transported from the yard should be kept on record and kept as proof that it has been handled and disposed of in the correct manner and at an approved licensed facility.</li> <li>The disposal of hazardous waste is required to comply with all relevant Regulations, Norms and Standards pertaining to waste classification in order to ensure disposal at the correct landfill class.</li> <li>Medical waste and laboratory chemicals, should be stored in medical waste containers;</li> <li>Oil and silt traps must be cleaned out from time to time and waste be disposed of in the correct manner and at an applicable hazardous waste disposal facility.</li> <li>New and used oil and grease need to be stored in drums located in designated bunded areas with collection sump in place in case of any spillages</li> <li>A designated bunded storage with the necessary containers (could be sealed) for storage of sewage screenings, packaging for hazardous materials and chemicals or chemical contaminated containers and materials.</li> <li>Identify a suitable disposal point for hazardous waste emanating from the yard. It is proposed that Hazardous waste is taken to Holfontein Hazardous Waste Landfill in Gauteng, alternatively –</li> <li>Transnet could also negotiate with one of nearby mines to dispose of yard hazardous waste at the mine's hazardous waste site. The duty of care obligations should be adopted and enforced by Transnet, ensure that only reputable waste transport company and permitted waste disposal facilities are used.</li> </ul>		Removal of hazardous waste throughout operational phase		
Sewage and Coal Sludge	Removal and disposal of sludge from earth channel and from Bio Mite Systems septic tank chamber	Groundwater contamination	<p><b>Target:</b></p> <ul style="list-style-type: none"> <li>Protect shallow groundwater table</li> <li>Disposal of coal and sewage sludge at a suitable disposal site</li> <li>Regular maintenance of waste facilities</li> </ul> <p><b>Action:</b></p> <ul style="list-style-type: none"> <li>Transnet is to clean the earth channel from any coal sludge from time to time.</li> <li>Coal sludge can be taken to Grootgeluk Coal Mine, subject to an agreement with the mine, since it has systems in place for handling of coal sludge.</li> <li>The Bio Mite Sewage system septic tank chamber and primary unit must be desludged every 1 or 2 years. Sludge must be removed by a suitably qualified service provider to a suitable approved disposal facility.</li> </ul>	Contractor CECO ECO	Through operation of the yard.	<p>Service agreement with mine for disposal of coal sludge.</p> <p>Certificate of safe disposal from mine (coal sludge).</p> <p>Service agreement with local authority/service provider for removal of sewage sludge.</p> <p>Certificate of safe disposal from approved disposal site.</p>	<p>Desludge Bio Mite Systems every 1 or 2 years.</p> <p>Removal of coal sludge from earth channel as required.</p>

## 20 ADMINISTRATIVE REQUIREMENTS

### 20.1 Record Keeping

All legal documents required for the expansion and operation of the Lephalale Yard must be available at the project site offices:

- Environmental Authorisation issued by DEA
- Environmental Authorisation issued by DMR
- Mining Permit issued by DMR (Borrow Pit Approval)
- Water Use License issued by DWS
- DEA approved EMPr
- Environmental Audit Reports (against the EMPr)
- Public Complaints register
- Signed Environmental awareness training register
- Specifically during construction Protected Tree Permits for removal of National and Provincially Protected Tree Permits must be kept on record
- Record of emergency incidents and recorded action taken for remediation

The CECO is responsible for maintaining all records in relation to the EMPr requirements on site. Relevant staff, contractors and sub-contractors must be acquainted with the contents of the EA and the EMPr.

A complaints register must be kept by the CECO at the site and all complaints must be recorded. Complaints shall be investigated within 24 hours, corrective action implemented and feedback should be given to the complainant on the remedial action taken.

The Contractor shall advise the ECO of any emergencies on Site, together with a record of action taken, within 24 hours of the emergency occurring. Such emergency shall be reported to Transnet.

Project permits should be reviewed on an annual basis to verify validity. Expiry of permits/licenses should be foreseen and renewed in time.

Records to be kept at the Lephalale Yard offices at all times include:

- Groundwater Quality and Quantity monitoring results
- Noise and Vibration Monitoring Results
- Waste manifest / safe disposal documents

All records as stipulated above must be made available to the ECO on request during the monthly audits, as well as at any time as requested by the ECO, auditor or project managers.

### 20.2 Emergency Preparedness to avoid pollution/degradation of the environment

An environmental risk deals with the probability of an event causing a potentially undesirable effect on the environment. It can be defined as an accident causing adverse effects by effluents, emissions, wastes, veld fires, chemical spills and leaks which result from natural, technological or human-induced factors.

The manner in which risks will be dealt with include:

- Contain potential pollutants and contaminants;
- Ensure that handling of potential pollutants and contaminants are conducted in a bunded area on impermeable surfaces;
- Implement the waste management for all waste streams on site;

Where environmental emergencies arise, applicable emergency procedures must be followed. The name of responsible personnel and emergency services shall be available to staff and shall be clearly displayed at the yard and site office.

The Contractor shall advise the ECO of any emergencies on Site, together with a record of action taken, within 24 hours of the emergency occurring. Telephone numbers of emergency services shall be with the Contractor and CECO at all times.

The responsibility of the ECO is;

- Identify problem areas and provide action plans to avoid further environmental damage;
- Review the proposals for pollution control measures and advise on its adequacy;
- Ensure that significant environmental incidents are reported to DWS and DEA.

The contractor and appointed CECO are responsible for the practical implementation of the EMPr and will be responsible for reporting the environmental incident/risk to the ECO.

#### (a) Fire

The contractor shall advise the relevant authority of a fire as soon as one starts and shall not wait until he can no longer control it. The Contractor and CECO shall ensure that employees are aware of the procedures to be followed in the event of a fire.

#### (b) Accidental leaks and spillages

The contractor and CECO shall ensure that employees are aware of the procedures to be followed for dealing with spills and leaks, which shall include notifying the ECO and the relevant authorities. The contractor shall ensure that all the necessary materials and equipment for dealing with spills and leaks are available on site at all times. Treatment and remediation of the spill areas shall be undertaken to the reasonable satisfaction of the ECO.

In the event of a hydrocarbon spill, the source of the spillage shall be isolated and the spillage contained. The area shall be cordoned off and secured. The contractor shall ensure that there is always a supply of absorbent material readily available to absorb/ breakdown or where possible, be designed to encapsulate minor hydrocarbon spillages. The quantities of such materials shall be able to handle a minimum of 200 ℓ of hydrocarbon liquid spill. Any spills must be cleared and the contaminated soil/sludge disposed of in an appropriate manner, approved by the ECO, or at a licensed hazardous waste disposal site.

#### (c) Noncompliance with the EMPr or any applicable legislation

(d) Environmental incidents shall be investigated by the competent person and an environmental incident report shall be forwarded to the holder of the environmental authorisation, Transnet. Incidents are to be reported to the DWS (relevant catchment management agency) and DEA. The incident report shall be filed within 5 working days.



## 21 ENVIRONMENTAL MONITORING AND AUDITING

### 21.1 Monitoring and Auditing programme

Regulation 34 of the NEMA EIA Regulations of 2014 requires that an environmental authorisation and EMP is audited and an Environmental Audit Report be submitted to the DEA. An Environmental Audit Report must be prepared in accordance to Appendix 7 of the same regulations. Audit Reports must be conducted and submitted to DEA at intervals as indicated in the environmental authorisation.

Mitigation measures stipulated in the EMP must be implemented. Construction activities of the Lephalale Yard will be monitored and recorded by the independent ECO and audited against the EMP on a monthly basis. During operation the activities will be monitored on a quarterly basis. The objective is to attain full compliance with the EMP.

### 21.2 Penalties for Non-Compliance

Section 28 of the National Environmental Management Act No 107 of 1998 states those responsible for environmental damage must pay the repair costs both to the environment and human health and the preventative measures to reduce or prevent further pollution and/or environmental damage (The 'polluter pays' principle).

Should the Contractor fail to comply with the requirements of the EMP, he/she will be penalised.

The Project Manager, in consultation with the ECO will state the value of a fine based on the nature, extent and duration of the offence and subsequent environmental damage and will be within the confines of the contractual arrangements. Such penalties shall be payable in addition to any remediation costs for correction of environmental damage as a result of non-compliance to this EMP. This will be for the Contractors account.

Note that the following is applicable:

- In terms of the Conventional Penalties Act (1962) a creditor is not entitled to recover both the penalty and damages; and
- Accordingly, where a Contractor causes damage, Transnet can either enforce a penalty or make the Contractor make good the damage, but not both.

The Contractor is deemed NOT to have complied with this specification if:

- Within the boundaries of the site, site extensions and access roads there is evidence of contravention of the requirements of the EMP;
- Environmental damage ensues due to negligence;
- The Contractor fails to comply with corrective or other instructions issued within a specific time;
- The contractor fails to comply with a site instruction given by the Engineer based on the ECO report;
- The Contractor fails to respond adequately to complaints from the public; and
- Legal action is instituted against the proponent in terms of Environmental laws.

Payment of any fines in terms of the contract will not absolve the offender from being liable from prosecution in terms of any law.

### **21.3 Amendments of EMPr**

Any amendments to the EMPr should be dealt with as stipulated in Section 35-37 of GN R 326.

## **22 ENVIRONMENTAL AWARENESS AND TRAINING**

Transnet must provide environmental awareness training to reduce exposure to liability for environmental degradation caused by errant employees.

It is recommended that, prior to construction activities, that all contracted teams involved in onsite work for the project is briefed of their environmental obligations in terms of the EMPr. The environmental awareness programme should be aimed at all levels of management, construction workers and the contractor team. All new employees arriving onsite shall undergo this training. Environmental induction must be done according to the Contractors Environmental Management System, to include all aspects of the EMPr.

The Contractors ECO facilitate onsite briefings and demonstrations. Awareness training should focus on:

- Description of the environment and sensitive features;
- Explain simple key concepts;
- Provide examples of environmental degradation and pollution sources
- Explain the roles and responsibilities of the contractors, employees in managing the environment;
- Devise basic principles to manage the environment
- Indicate laws applicable to the management and protection of the environment;
- Indicate day to day preventative measures to assist elimination of pollution and degradation (presentation is better than cure)

Particular training shall be provided in terms of the environmental features, sensitivities, examples of heritage finds and safety risks present on the study site due to commercial hunting on adjacent properties. The EMPr and Composite Map of the study site would be presented to employees to highlight specific requirements and sensitivities.

CECO will be responsible to re-evaluate the need for environmental awareness training based on recorded incidents and developing issues.

A signed register documenting all employees environmental training and awareness programmes must be kept on record for verification purposes.

## **23 OTHER INFORMATION REQUIRED BY THE COMPETANT AUTHORITY**

The Environmental Audit Report will be submitted to Transnet and DEA as follows:

- During construction on a monthly basis;
- During operation on a quarterly basis

## 24 CONCLUSION

This EMPr has been prepared by Naledzi Environmental Consultants Pty Ltd for the expansion of Lephale Yard on the farms Geelhoutkloof 359LQ, Geelhoutkloof 717LQ, Enkeldraai 718LQ and Buffelsjagt 744LQ along the existing Lephale-Thabazimbi rail track. The project is located in the Lephale Local Municipality in the Waterberg District of Limpopo.

Based on the findings of the investigations carried out by Naledzi and the specialists, we find that the potential environmental impacts associated with project can be limited to acceptable levels, depending on the implementation of the EMPr. It is recommended and emphasised that the mitigatory measures set out be adhered to at all times to minimise any threats to the environment and social settings.

## 25 SIGN OFF BY ENVIRONMENTAL PRACTITIONER

This EMPr has been compiled by Naledzi Environmental Consultants Pty Ltd.

### Details:

Naledzi Environmental Consultants Pty Ltd

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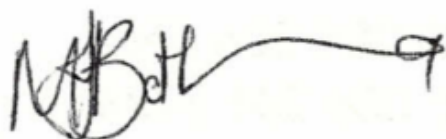
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Report compiled by:

A handwritten signature in black ink, appearing to read "M Botha", with a long horizontal flourish extending to the right.

Marissa Botha

Environmental Assessment Practitioner